NCBC GULFPORT + SPECIAL AREAS JOINT LAND USE STUDY

AUGUST 2017

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This study was prepared under contract with the Gulf Regional Planning Commission, Mississippi, with financial support from the Office of Economic Adjustment, Department of Defense and the Mississippi Development Authority. The content does not necessarily reflect the views of the Office of Economic Adjustment or the Mississippi Development Authority.

AUGUST 2017

Acknowledgements

The Joint Land Use Study was completed with the involvement of a number of individuals and agencies in the community. Special thanks should be paid to the Gulf Regional Planning Commission, which administrated the study, particularly Elaine Wilkinson and Ashley Skellie.

Two steering committees guided the JLUS process and developed the final report – the Policy Committee and Technical Committee. The committees are made up of the following members:

Policy Committee

REPRESENTATIVE	ORGANIZATION
Les Fillingame	Bay St. Louis Mayor
Lonnie Falgout	Bay St. Louis Councilman
William “Billy” Hewes	City of Gulfport Mayor
Kenneth Casey	City of Gulfport Councilman
Ernie Knobloch	Diamondhead Councilman
Tommy Schafer	Diamondhead Mayor
Greg Shaw	Hancock County Board of Supervisors
Jimmie Ladner	Hancock County Tax Assessor
Felicity Edwards	Hancock County Administrator
Connie Rocko	Harrison County Board of Supervisors
Kent Jones	Harrison County Board of Supervisors
Pamela Ulrich	Harrison County Administrator
Bill Cork	Hancock County Port and Harbor Commission
William “Billy” Skellie	Long Beach Mayor
Kelly Griffin	Long Beach Alderman
CAPT Cheryl Hansen	NCBC Commanding Officer
Mike Smith	Waveland Mayor

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Technical Committee

REPRESENTATIVE	ORGANIZATION
Greg Pietrangelo	City of Gulfport
Greg Holmes	City of Gulfport
Jeannette Musil	Department of Defense, Office of Economic Adjustment
Ken Holland	Gulf Regional Planning Commission
Kenneth Yarrow	Gulf Regional Planning Commission
Anthony Cuevas	Hancock County
Dwayne Raphael	Hancock County
Patrick Bonck	Harrison County
Paul Barnes	Harrison County
Marcia Crawford	Harrison County Development Commission
Bill Cotter	Hancock County Port and Harbor Commission
Kevin Carlisle	Hancock County Port and Harbor Commission
Sara Watson	Mississippi Development Authority
Joy Saucier	Mississippi Power
Dale Waltman	Mississippi State Port Authority
Andrew "Bo" Clark	National Aeronautics and Space Administration
Dr. Ken Griffey	National Aeronautics and Space Administration
Bernie Walker	Naval Construction Battalion Center, Gulfport
Gary Randall	Naval Construction Battalion Center, Gulfport
Kevin Gillam	Naval Construction Battalion Center, Gulfport
William “Bill” Bailey	Naval Construction Training Center
Bill Sloan	Center for Security Forces
Terry Shelby	Naval Meteorology and Oceanographic Command
Chief Mark Dickey	Naval Construction Group TWO

NCBC GULFPORT + SPECIAL AREAS JOINT LAND USE STUDY

REPRESENTATIVE	ORGANIZATION
Harrison Couch	Naval Construction Group TWO
Dave Sammons	Naval Construction Group TWO
Dave Everett	Special Boat Team TWENTY TWO
David McCoy	Special Boat Team TWENTY TWO
Ken Kopcso	Naval Special Warfare Center Branch Stennis
Gary Reviere	Naval Small Craft Instruction and Technical Training School

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1.0 INTRODUCTION

The Joint Land Use Study (JLUS) is the result of a partnership consisting of hard work and coordination among a team of dedicated stakeholders, community leaders, residents, and military personnel seeking to identify opportunities for their community and the military to continue to work together to ensure the mission of Naval Construction Battalion Center (NCBC) Gulfport and its Special Areas (NCBC Gulfport + Special Areas). The JLUS was funded by the Department of Defense (DOD) Office of Economic Adjustment (OEA) and the Mississippi Development Authority (MDA) and administered by the Gulf Regional Planning Commission (GRPC).

NCBC Gulfport + Special Areas consists of NCBC Gulfport, Woolmarket Range, the Western Maneuver Area (WMA), and Stennis International Airport located in southern Mississippi along the Gulf Coast. NCBC is located within the City of Gulfport, Mississippi and is bordered by the City of Long Beach and Harrison County. Woolmarket Range is located within the DeSoto National Forest in Harrison County. The WMA is located adjacent to Stennis Space Center (SSC) within the Stennis Acoustic Buffer Zone in Hancock County. Stennis International Airport is primarily within the Stennis Acoustic Buffer Zone in Hancock County. The expansive mission and location requires varied agency participation to encapsulate all affected communities. Jurisdictional participation includes Harrison and Hancock Counties and the cities of Gulfport and Long Beach.

1.1 JLUS OVERVIEW

A JLUS is a collaborative study conducted by city and county officials, local residents, key stakeholders and the military installation to identify compatible land uses and growth management guidelines near the installation. Through the study process, a relationship is established between the installation and the community. The process encourages them to act as a team in order to prevent or limit any encroachment issues caused by future mission expansion or local growth. The Study is funded primarily through the Department of Defense (DOD) Office of Economic Adjustment (OEA) but is created by the community and for the community.

From the community perspective, the primary objectives of a JLUS are:

- Protect the health, safety, and welfare of residents and maintain their quality of life.
- Manage development in the vicinity of military installations that would interfere with the continued operation of the facilities.
- Provide for sustainable growth in an economically, environmentally, and socially conscious manner.
- Maintain the economic vitality of the community.

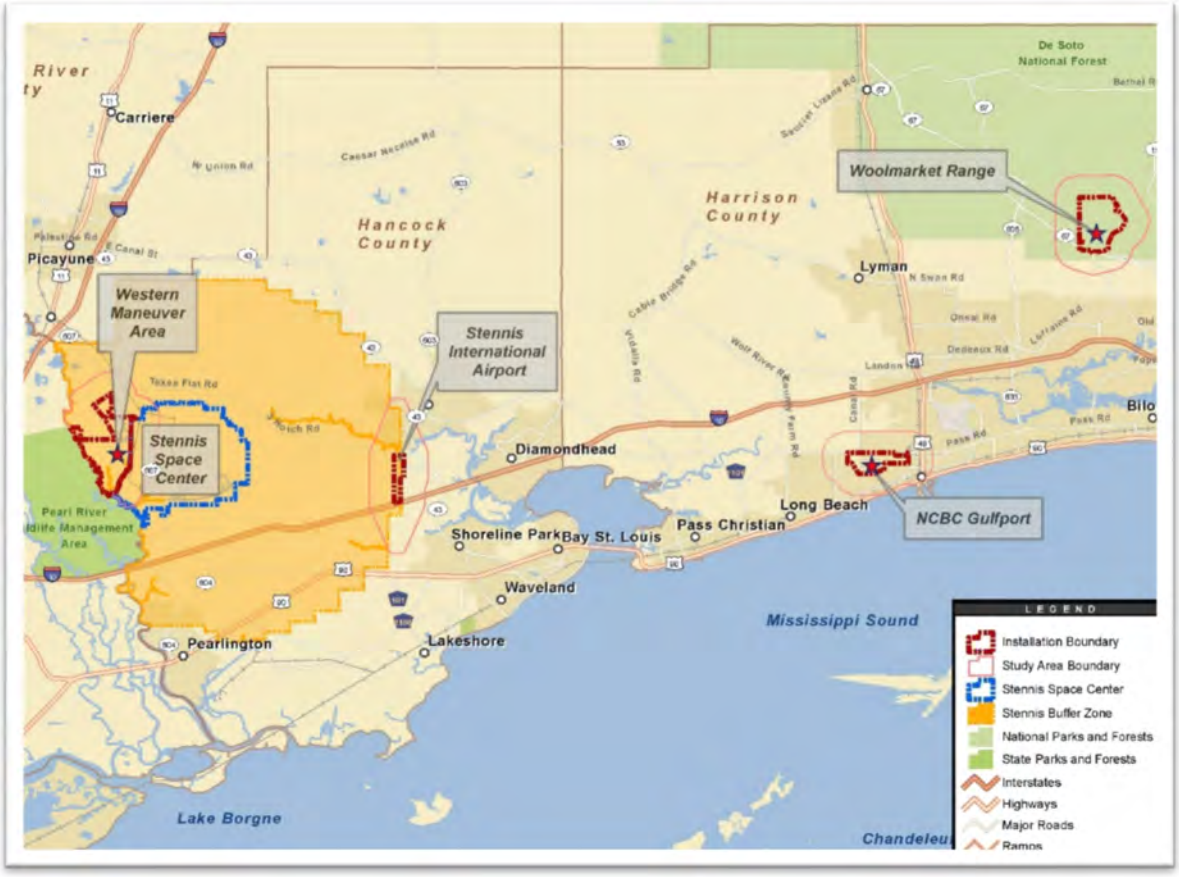


Figure 1 Regional location map of NCBC Gulfport + Special Areas

From the military perspective, the primary objectives of a JLUS are:

- Promote the health, safety, and welfare of the military and civilian personnel living and working at or near the military installation.
- Ensure the ability of the installation to achieve its mission, maintain military readiness, and support national defense objectives.
- Preserve the ability of the installation to adjust or expand its mission.

It is important to note that the JLUS is not to be a study that rests on the shelf, but a set of recommendations and strategies that are implemented most often through local jurisdictions and other governmental entities. The recommendations from the JLUS are used to help local jurisdictions guide community development that protects and preserves military readiness and defense capabilities while supporting continued economic development and public health, safety, and general welfare of those living and working near an active military installation.

Throughout the process, municipalities, stakeholders, residents, and businesses have been providing their input and support. Through the acceptance of the report, they are stating their

continued community-based support for future implementation efforts. The implementation measures may involve revisions to the community's comprehensive plan and traditional land use and development controls, such as zoning, subdivision regulations, and structural height restrictions. The intent is to continually ensure that future public and private development around the military installation will be compatible with both the military mission and the needs of the community.

1.2 NCBC GULFPORT JLUS OVERVIEW

The NCBC Gulfport + Special Areas JLUS is the first conducted for the installation. It highlights the complexity of the special areas, the importance of the installation to the community, and the success of the military mission.

NCBC Gulfport is one of the largest employers in the coastal region with 3,800 military and student personnel, a payroll of $245 million, and a total economic impact to the regional economy of $365.3 billion. In 2015, the OEA Defense Spending Report found that $703.9 million dollars was spent in Harrison County and $76.3 million in Hancock County on defense payroll and contract awards. Harrison County served as the top military personnel location within the state with 10,551 employees.

Over the past 70 years, the Mississippi Gulf Coast population grew at a more than two-percent annual rate. If this pattern continues, the population along the Mississippi Gulf Coast could be more than a half a million people by 2025. With this anticipated growth in the region, the chances of incompatibilities occurring within the growing communities and the existing special areas could be intensified.

The JLUS process fosters a working relationship to create a team approach to address potential encroachment issues while continuing military operations with future mission changes and regional growth.

1.2.1 NCBC GULFPORT STUDY AREA

The NCBC Gulfport + Special Areas study area spans two counties and two cities along the coast of Mississippi. In order to ensure the important features are captured, a study area boundary of one mile around each facility was created.

Figure 2 NCBC Gulfport aerial location with one-mile study area boundary

NCBC Gulfport

NCBC Gulfport is a 1,100-acre facility located within the City of Gulfport in Harrison County. It is bordered on the north, east and south by the City of Gulfport; to the west by the City of Long Beach; and to the northwest by Harrison County.

The one-mile study area is a total of 6,163 acres. The area to the north consists of a mix of residential and commercial uses along 28th Street with residential areas farther north. An industrial area is in the northeastern portion of the study area. The area to the south is primarily developed single family residential units. The area to the west, within the Long Beach city limits, is primarily residential as well. The largest area of vacant land is also within this portion of the study area.

Figure 3 Woolmarket Range aerial location with one-mile study area boundary

Woolmarket Range

Woolmarket Range is a 2,483-acre facility located along U.S. Highway 67 in the unincorporated community of Woolmarket. The entirety of the facility is located within Harrison County and the DeSoto National Forest.

The one-mile study area is a total of 7,137 acres. The majority of the area to the north, east, and west is within conservation and does not consist of development. A residential subdivision exists south of Highway 67 along with county facilities and a school. To the southwest, directly adjacent to the Small Arms Range is a private gun club.

Figure 4 Western Maneuver Area aerial location with one-mile study area boundary

Western Maneuver Area

The WMA is a 3,200 acre facility located in Hancock County. The entirety of the site is within the Stennis Acoustic Buffer Zone. The Pearl River forms the western border of the WMA and serves as the border between Louisiana and Mississippi; the land west of the Pearl River lies within the Pearl River Wildlife Management Area.

The one-mile study area includes a total of 7,061 acres. The land surrounding the WMA on both the Louisiana and Mississippi sides is restricted due to the Stennis Acoustic Buffer Zone and the Pearl River Wildlife Management Area.

Stennis International Airport

Stennis International Airport (Airport Identifier KHSA) is a 585-acre general aviation airport, owned and operated by the Hancock County Port and Harbor Commission (HCPHC). Stennis International Airport is located on the eastern edge of the Stennis Acoustic Buffer Zone, approximately 10 miles from the Stennis Space Center in Hancock County.

Figure 5 Stennis International Airport study area.

The Stennis International Airport study area is a 7,765-acre area located within Hancock County on the eastern edge of the Stennis Acoustic Buffer Zone. Interstate-10 forms the southern border of the facility and bisects the southern portion of the site. The land to the west of the facility is within the Stennis Acoustic Buffer Zone and therefore remains undeveloped. The land directly adjacent to the facility, to the east, includes a middle school and high school. Lands to the north are primarily low-density residential.

Although Stennis International Airport is not classified as a military airport, a significant number of the aircraft using the facility are military. Therefore, it was deemed imperative to the analysis to look at the airport as if it were a military facility. The study area was created based on the one-mile study area buffer used in the NCBC + Special Areas JLUS analysis merged with the Navy's Clear Zones and Accident Potential Zones (APZ) for Class B runways.

1.3 PUBLIC INVOLVEMENT

Public involvement is the backbone of the JLUS, without which, the study would be unsuccessful. The community engagement process for the NCBC Gulfport JLUS was focused on the following goals:

- Develop a strategy that will allow all of the individuals and groups interested in the future of NCBC Gulfport and the process to collaborate by:
  - Providing initial input on the issues and concerns of the study that will need to be addressed.
  - Offering frequent, timely and meaningful input throughout the study in ways that will help the analysis.
  - Staying informed about, and having multiple opportunities to provide comment on, the study findings.
- Offer an easy-to-access and attractive multi-level approach tailored to the needs of the entire community, including the GRPC, the military, officials, stakeholders and other members of the public.
- Provide a variety of engagement venues that range from hands-on meetings and workshops to interactive on-line tools in order to provide options for learning about and having input into the study process.

There are three components to the public involvement process including committee collaboration, stakeholder and public outreach, and public information tools.

Figure 6 Ray Greer from Stantec meeting with the Policy Committee

1.3.1 COMMITTEE COLLABORATION

The Policy Committee and Technical Committee were identified to help facilitate the JLUS. Each participated directly with the project team to provide feedback and decision-making throughout the planning process.

Figure 7 Technical Committee meeting in Hancock County (above) and Harrison County (below)

Policy Committee (PC)

The Policy Committee provides policy direction, study oversight, and ultimately will adopt the final report. The PC consists of decision-makers, executive directors, and elected officials.

Policy Committee participants include representatives of the following:

- City of Bay St. Louis
- City of Diamondhead
- City of Gulfport
- City of Long Beach
- City of Waveland
- Hancock County
- Harrison County
- Hancock County Port and Harbor Commission
- Naval Construction Battalion Center Gulfport

In addition to the regularly scheduled PC meetings, briefings were scheduled throughout the process at the request of board members. The briefings were short updates throughout the process to ensure the community and board members were kept abreast of the latest findings. At the end of the process, it will be their responsibility to implement the plan so it is imperative they be involved and informed throughout. Briefings were presented to the following:

- Harrison County
- Hancock County
- City of Gulfport
- City of Long Beach
- Partners for Stennis

Technical Committee (TC)

The Technical Committee provides technical expertise through identification of issues and provides feedback to the JLUS team. The TC includes subject experts from surrounding jurisdictions, military base planners, business and development representatives, and special organizations.

Technical Committee participants include representatives of the following:

- Center for Security Forces
- City of Gulfport
- City of Long Beach
- Gulf Regional Planning Commission
- Hancock County
- Harrison County
- Harrison County Development Commission
- Mississippi Development Authority
- Mississippi Power
- National Aeronautics and Space Administration
- Naval Construction Battalion Center Gulfport
- Naval Construction Training Center
- Naval Construction Group TWO
- Naval Meteorology and Oceanographic Command
- Naval Small Craft Instruction and Technical Training School
- Naval Special Warfare Center Branch Stennis
- Special Boat Team TWENTY TWO
- Stennis International Airport
- U.S. Forestry Service

Each committee met multiple times, both as a joint group and individually, throughout the study process. They served as the liaison between their organization and members of the JLUS team. It was through their relationships that ideas, opportunities, strengths, and strategies were compiled to form the JLUS.

1.3.2 GENERAL PUBLIC AND STAKEHOLDER OUTREACH

A series of public and stakeholder meetings were hosted to obtain feedback and inform the public. Three rounds of public workshops and forums were held in each of the three Special Areas for a total of nine meetings. Stakeholder meetings were held throughout the planning process to obtain individualized information from the community.

Kick-Off Workshops

In order to offer convenience to the community and provide the study with the most amount of participation, the meetings were located in proximity to NCBC Gulfport in Gulfport, Woolmarket in Harrison County, and the WMA in Hancock County. The meetings were scheduled to afford the community information at integral parts along the study process.

Figure 8 Kick-off meeting at the Woolmarket Community Center

The first meeting was a set of kick-off meetings to introduce the general public to the purpose of the JLUS. These meetings were held on multiple dates throughout the study area.

- July 14, 2016 Leo Seal Community Center focusing on the WMA
- July 18, 2016 Woolmarket Community Center focusing on Woolmarket
- July 19, 2016 Harrison County Courthouse focusing on NCBC Gulfport
- August 29, 2016 Woolmarket Community Center focusing on Woolmarket
- August 30, 2016 Westside Community Center focusing on NCBC Gulfport

Figure 9 Mid-Term workshop at Harrison County BOCC

Figure 10 Mid-Term workshop at the City of Long Beach Board of Aldermen

Mid-Term Workshops

The mid-term workshops served as a midpoint check-up for the project. In order to reach the most citizens, in the month of December, the JLUS team attend each participating municipality regular meetings of the Boards and Councils. The team created a display outside of the chamber and made an announcement during the meeting. Citizens were able to stop by the display before, during, or after the meeting to discuss the JLUS with team members.

- December 5, 2016 Hancock County Board of Supervisors
- December 5, 2016 Harrison County Board of Supervisors
- December 6, 2016 City of Gulfport City Council
- December 6, 2016 City of Long Beach Board of Aldermen

Final Workshops

The final workshops provided an opportunity to wrap-up the study within each Special Area and offer an overview of the results. Due to the success of the mid-term meetings in the month of December, the JLUS team decided to attend each participating municipality regular meetings of the Boards and Councils. The team created a display outside of the chamber and made an announcement during the meeting. Citizens were able to stop by the display before, during, or after the meeting to discuss the JLUS with team members.

- August 7, 2017 Hancock County Board of Supervisors
- August 7, 2017 Harrison County Board of Supervisors
- August 8, 2017 City of Gulfport City Council
- August 8, 2017 City of Long Beach Board of Aldermen

Stakeholder Interviews

Stakeholder interviews occurred throughout the data and analysis portion of the study. Recommendations were made from the Policy Committee and Technical Committee to ensure that as many stakeholders as necessary were contacted to fully understand the opportunities available to the community, NCBC Gulfport and the Special Areas. Stakeholders offered data, forecasts, and opinions to solidify the study. Stakeholders included representatives of the following:

- Center for Security Forces
- City of Gulfport
- City of Long Beach
- Hancock County
- Hancock County Chamber of Commerce
- Hancock County Port and Harbor Commission
- Harrison County
- Memorial Hospital at Gulfport Foundation
- Mississippi Gulf Coast Community College
- Naval Construction Battalion Center
- Naval Construction Group TWO
- Naval Construction Training Center
- Naval Meteorology and Oceanography Command
- Partners for Stennis
- Port of Gulfport
- Stennis International Airport

1.3.3 PUBLIC INFORMATION TOOLS

Reiterated throughout the process, the study could not be successful without the public – the individuals who are affected daily. In an effort to stay in contact with the community and provide

information to those that may not have been able to attend meetings, an interactive website and Facebook page were created.

The website and Facebook page were utilized for sharing information with the general public as well as receiving important feedback on the findings and results of the overall plan recommendations. The webpage included maps, draft reports, handout materials, photos, and contact information. The webpage was created at the inception of the project and will be utilized through the implementation.

Figure 10 Social media websites were used to share information. They included the NCBC website www.seabeesjlus.com and NCBC Facebook page @jlusncbc.

THE COMMUNITY 2.0

2.0 THE COMMUNITY

The Mississippi Gulf Coast region, particularly Harrison and Hancock Counties and Long Beach and Gulfport, has a special relationship with the military. As was evident throughout the JLUS process, the community loves the Seabees and welcomes them with open arms.

"Gulfport loves us!"
- **Bernie Walker**
NCBC Gulfport Planner

The Seabees have been an established part of the community since the first Seabees arrived in 1942. They not only live in the community but also integrate themselves into the fabric of society through base events and volunteer activities.

- Seabee Day: An annual event inviting the community into the gates at NCBC Gulfport for carnival rides, music, military displays, and more.
- Mud Run: A 5-mile run at NCBC Gulfport attended by more than 1,150 runners in September 2016.
- School Improvements: Each battalion that participates adopts a school. Using their own resources, they complete needed infrastructure projects.
- School Tutoring: Military personnel volunteer at local schools to tutor students.

Figure 11 Rides at the annual Seabee Day at NCBC Gulfport
Source: NCBC Gulfport Facebook page

2.1 COMMUNITY PROFILES

Each community involved in the JLUS provides a unique history and a variety of assets to the region.

2.1.1 CITY OF GULFPORT

The City of Gulfport is a thriving residential community with a strong mercantile center. There are historic neighborhoods and home sites as well as diverse shopping opportunities and several hotels scattered throughout to accommodate golfing, gambling, and water-sport tourism.

Gulfport is an important transportation and business hub for the Mississippi Gulf Coast and the entire state. The City of Gulfport is located in Harrison County along the Mississippi Gulf Coast. It is bordered by the City of Long Beach and Harrison County to the west, the Gulf of Mexico to the south, Biloxi to the east, and Harrison County to the north. It is the second largest city in the state of Mississippi with a population of 67,793.

With the Mississippi State Port Authority at Gulfport, the Gulfport-Biloxi International Airport, the Bernard Bayou Industrial District and nationally recognized banking, Gulfport has become a strategic center for business and commercial activity. In addition, Gulfport is home to several community colleges, numerous retail centers, and a casino resort. Three military facilities are located in Gulfport – the Naval Construction Battalion Center, the Trent Lott Training Complex at the Gulfport-Biloxi International Airport, and the U.S. Coast Guard Station.

2.1.2 CITY OF LONG BEACH

The City of Long Beach is the third largest city within Harrison County, with a population of 15,626 residents. The city is located east of Pass Christian, west of Gulfport, Harrison County to the north and bordered to the south by the Gulf of Mexico and.

It is a small but vibrant city with a beautiful view of the Gulf. The beauty of its beach, combined with strong neighborhoods and an excellent school system, makes Long Beach a popular residential community. It provides a home to many working in nearby Gulfport and Biloxi, and serves as a retirement destination for many. The nearby Long Beach Industrial Park (LBIP) is a mainstay in the local economy since the 1960s and attracts high-tech manufacturers. The city's downtown area is being revitalized, preparing the foundation for new businesses, shops and restaurants. It houses the Gulf Coast campus of the University of Southern Mississippi.

2.1.3 HARRISON COUNTY

Harrison County has the largest population of the municipalities within the study area, 187,105 people. It is bordered on the east by Jackson County, on the west by Hancock County and the John C. Stennis Space Center, to the north by Stone County and to the south by the Gulf of Mexico. It is made up of five cities: Pass Christian, Long Beach, Gulfport, Biloxi, and D'Iberville.

The strategic central position – due to north-south connectivity via Highway 49 and the KCS Rail line and east-west connectivity via Interstate-10 and the CSX Rail line – has been largely responsible for Harrison County's diversity. The county has a wide mix of businesses, from retail and manufacturing to pharmaceuticals and healthcare research to composite technology and shipbuilding.

2.1.4 HANCOCK COUNTY

Hancock County is the southernmost county in Mississippi – with the Gulf of Mexico to the south, Louisiana to the west, and Harrison County to the east. The population was estimated to be 43,929, as of the 2010 Census. It is home to John C. Stennis Space Center, NASA's largest rocket engine test facility. Approximately 50% of county land and water is dedicated to NASA and Department of Defense operations – one of the largest, most valuable, joint military centers in the United States. It is made up of three cities: Bay St. Louis, Diamondhead, and Waveland.

2.2 COMMUNITY UTILITIES

Harrison and Hancock Counties are among the more populous counties in Mississippi and are therefore serviced by a variety of utilities which enables the communities to thrive and grow. In general, water and sewer utilities are provided by municipalities or county utility authorities; however, many small private utility companies exist. Power is provided by Mississippi Power Company, and Coast Electric Power Association (CEPA). Natural gas service is provided by CenterPoint Energy in Harrison County and some of Hancock County, and also by the City of Bay St. Louis. Communications and cable television are provided by a number of private service companies.

In general, utility services are provided in developed areas with most utilities having capacity for expansion. This is particularly true with water and sewer capacity.

2.2.1 HARRISON COUNTY

The following utilities providers have been identified in proximity to Woolmarket Range in Harrison County:

Table 2.2.1: Harrison County / Woolmarket Area Utility Providers

UTILITY	OWNER
Water	Harrison County Utility Authority
Sewer	Harrison County Utility Authority
Power	Coast Electric Power Association

There are no plans for expansions of utilities for the Woolmarket study area.

2.2.2 HANCOCK COUNTY

The following utility providers were identified within the JLUS study areas for the WMA and Stennis International Airport in Hancock County:

Table 2.2.2a: Hancock County / WMA Utility Providers

UTILITY	OWNER
Water	NASA/Stennis Space Center
Sewer	NASA/Stennis Space Center
Power	Coast Electric Power Association

Table 2.2.2b: Hancock County / Stennis International Airport Area Utility Providers

UTILITY	OWNER
Water	Kiln Water and Fire District Hancock County Utility Authority
Sewer	Hancock County Utility Authority
Power	Coast Electric Power Association

There are no planned expansions of utilities within either Hancock County JLUS study areas.

2.2.3 CITIES OF GULFPORT AND LONG BEACH

The following utility providers were identified in Gulfport and Long Beach and within the NCBC Gulfport JLUS study area:

Table 2.2.3: Cities of Gulfport and Long Beach / NCBC Gulfport Area Utility Providers

UTILITY	OWNER
Water	City of Gulfport City of Long Beach NCBC Gulfport
Sewer	City of Gulfport City of Long Beach Harrison County Utility Authority
Power	Mississippi Power Company

There are no planned expansions of utilities within the City of Gulfport or Long Beach within the JLUS study area.

2.3 ENVIRONMENTAL FEATURES

The environmental features of the region influence how the communities are shaped. Hancock and Harrison counties are coastal, with direct access to fresh and salt water bodies. The development pattern is decidedly linear, with small-medium size cities abutting the MS Sound.

2.3.1 AIR QUALITY

Mississippi has always been designated as attaining all U.S. Environmental Protection Agency (EPA) ambient air quality standards. However, in 2008 the area came close to non-compliance with the National Ambient Air Quality Standards (NAAQS). The EPA has recently revised standards for ground-level ozone and fine particulate matter that are designed to be more protective of human health and welfare. The increased standards present additional challenges for the counties to continue to be designated as attainment.

At the conclusion of the 2016 ozone monitoring season, the three-year average of the 4th highest reading was within the NAAQS, but the cities and counties are on guard from year to year. This is because the weather conditions, called the Sea Breeze Effect, can create and capture ozone along the coast. Also, while Hancock and Harrison counties may report safe levels, if Jackson county were to become nonattainment, EPA may classify one, two or three of the counties as nonattainment.

The Mississippi Department of Environmental Quality (MDEQ), seeking to avert the EPA regulations and economic impacts associated with nonattainment, received a federal CIAP grant to launch a voluntary ozone reduction awareness program. Many of the major industries and businesses developed voluntary action plans to execute on days that MDEQ reports the weather conditions as favorable to ozone accumulation.

Figure 12 The Pearl River in Hancock County

GRPC in its role as the metropolitan planning organization, has been equally concerned that the coastal counties may become nonattainment, and worked with MDEQ and taken the lead as coordinator of the Clean Air Action Group. GRPC has developed materials to educate the public, businesses and elected officials on the status of the NAAQS. GRPC has hosted meetings and provided a forum for discussion and awareness of the causes and problems associated with high levels of ozone.

2.3.2 SURFACE WATERS

Water is a defining feature of the region. On the Mississippi Gulf Coast, there are diverse fresh and saltwater habitats that include:

- Approximately 500,000 acres of the Mississippi Sound.
- Eight tidally-influenced rivers that extend over 85 miles.
- More than 300 tidal creeks and riverine bayous.
- 100 coastal estuarine ponds and lakes.

Overall the water quality in the coastal waters is good. The MDEQ monitors water quality on the Coast and its 2010 report illustrates that most Mississippi coastal waters are in attainment with state and federal water quality standards. Notes are posted at times when the bacteria count is too high to permit swimming in the Mississippi Sound. Efforts are underway to mitigate stormwater runoff which causes the problem.

2.3.3 WETLANDS

The Mississippi State Legislature recognized the value of the coastal wetlands and in 1973 passed the Coastal Wetlands Protection Law stating, "It is declared to be the public policy of this state to favor the preservation of the natural state of the coastal wetlands and their ecosystems and to prevent the despoliation and destruction of them, except where a specific alteration of specific

coastal wetlands would serve a higher public interest in compliance with the public purposes of the public trust in which coastal wetlands are held."

Vegetated coastal wetlands include salt and brackish marshes, tidal freshwater marshes and swamps, and submerged aquatic vegetation beds. Non-vegetated coastal wetlands include tidal, open water habitats such as bayous and river channels, oyster beds, the Mississippi Sound, and the Gulf of Mexico.

One-third of the lands within Harrison County are made up of wetlands and four percent are within the 100-year floodplain. The Hancock County Comprehensive Plan identifies an estimated 88,575 acres of land being identified as exhibiting wetland potential.

2.3.4 CLIMATE CHANGE AND SEA LEVEL RISE

Earth's climate is changing with evidence appearing through changes in water, oceans, and ecosystems.

The National Oceanic and Atmospheric Administration (NOAA) Coastal Flood Mapper predicts that the Mississippi Gulf Coast could see the sea rise between one and six feet in this century. Sea level rise will cause higher storm surges and thus a greater risk of flooding. Governing bodies are aware that climate change presents a serious challenge to the region. Extraordinary measures have been taken to educate the public and require stronger, higher, more resilient construction across the coast. All jurisdictions across the coast have adopted the International Building Code - within the Base, similar requirements are in place.

2.4 GROWTH AND DEVELOPMENT

The study area is located within the Gulfport-Biloxi Metropolitan Statistical Area (MSA) and part of the larger Gulfport-Biloxi-Pascagoula Combined Statistical Area (CSA). The Gulfport-Biloxi MSA covers three counties: Harrison, Hancock, and Stone. The CSA includes the Pascagoula MSA which covers George and Jackson Counties. Adjacent to the MSA on the west is the New Orleans-Metairie LA MSA; the Mobile AL MSA lies adjacent on the east. The Gulfport-Biloxi-Pascagoula MSA had a population of 370,702 in 2010, according to the decennial census. The U. S. Census Bureau estimate for 2014 showed an increase of more than four percent to 386,144. The combined population of the three adjacent Gulf Coast MSAs was 1,973,560 in 2010 but now exceeds two million: (2,053,116) according to the Census Bureau's most recent estimates.

2.4.1 REGIONAL GROWTH TRENDS

The combined population of Hancock, Harrison, and Jackson Counties was only 82,728 in 1940, according to the decennial census taken that year. However, the number of people living in the three coastal counties increased by more than half in the next 10 years, by nearly half in the period following that (1950 to 1960), and by more than one-quarter in each of the next two decades,

pushing the population of the area to 300,000. The 1980s were a period of relative stagnation with the population only growing by four percent. However, the in-migration associated with the arrival of casino gambling in the 1990s literally brought new life to the Mississippi Gulf Coast. More than 50,000 new residents were counted in the 2000 census. Then disaster struck. On August 29, 2005, Hurricane Katrina came ashore pushing the Mississippi Sound up onto the land. Suddenly thousands of people had no homes and had no choice but to move away in order to find shelter elsewhere. Some never came back. Nevertheless, by the time of the 2010 Census—less than five years after the storm—the recovery had advanced far enough that the area was able to register a slight gain in population (topping 370,000) compared to the 2000 Census count.

Table 2.4.1: Mississippi Gulf Coast Population by County: 1940-2010

County	Population							
	1940	1950	1960	1970	1980	1990	2000	2010
Hancock	11,328	11,891	14,039	17,387	24,496	31,760	42,967	43,929
Harrison	50,799	84,073	119,489	134,582	157,665	165,365	189,601	187,105
Jackson	20,601	31,401	55,522	87,975	118,015	115,243	131,420	139,668
Total	82,728	127,365	189,050	239,944	300,176	312,368	363,988	370,702

Source: Mississippi Gulf Coast Area Transportation Study. Long Range Transportation Plan. Gulf Regional Planning Commission. October 2015.

Figure 13 Recently constructed houses off of Highway 90 in Gulfport

Over the 70 years, from 1940 to 2010, the population of the Mississippi Gulf Coast grew at an annual rate in excess of two percent. The 2014 estimates published by the Census Bureau indicate renewed growth continued unabated since 2010. If the long-term rate of more than two percent per annum were to continue for another decade there would be half a million people living on the Mississippi Gulf Coast by 2024. Harrison remains the most populous county in the study area, and has led the way in growth, but the population of Jackson County has increased at a rate close to three percent. The population in the other two counties grew at an annual rate just under two percent over the 70 years leading up to the 2010 Census.

Figure 14 Island View Casino in Gulfport
Source: www.tripadvisor.com

While population in the area more than quadrupled from 1940 to 2010, housing increased sevenfold. This resulted in a rather dramatic decrease in the ratio of persons to dwelling units (not to be confused with average household size which is based on occupied units, not total housing). This ratio has always been lowest in Hancock County where there are a significant number of summer or weekend residences owned by people whose full-time residency is located in the New Orleans area or elsewhere. The ratio of people counted in Hancock County to housing units in the county actually fell below two-to-one in the 1980 and 1990 censuses and, even after the great destruction that occurred in 2005, was barely above that level in the 2010 Census.

The region has about 160,000 dwelling units, approximately 81 percent of which are single-family dwellings. This rural orientation is reflected in the fact that 88 percent of all dwellings are within one mile of a park, recreation facility, or open space. The region's multi-family dwellings are arranged with a stronger urban/suburban orientation.

While Hurricane Katrina caused considerable damage to coastal areas, Southern Mississippi looked at it as an opportunity. Casinos and high-rise condos have returned, and areas along the coastline are building to higher standards and using some of the latest thinking in urban planning including sustainability and smart growth. Along Interstate 10, several projects are under way to create science-oriented communities with multi-disciplinary research, schools, university offices, and residential housing built around walkable town centers.

After Hurricane Katrina in 2005, the growth in the region was expected to shift north, away from the coastline and high velocity zones. Ten years later this shift did not occur as dramatically as anticipated; redevelopment and new development has taken place along the coast where the jobs and tourist activities are located.

A significant obstacle for redevelopment after Hurricane Katrina is related directly to the Flood Insurance Rate Map (FIRM). Shortly after Hurricane Katrina, FEMA remapped and reclassified the coastal counties, and many areas that were not considered a high-risk flood zone became classified as Flood Zone A or V. Consequently, the cost of insurance sky-rocketed and many areas remain vacant-ten years after the storm.

Figure 15 New construction in Gulfport (above) and Long Beach (below) depicting the additional construction standards after Hurricane Katrina

2.4.2 REGIONAL ECONOMIC TRENDS

The primary industries in the Mississippi Gulf Coast consist of the military, health care, and tourism.

The top 10 businesses in Harrison and Hancock Counties, as determined by the number of employees, are identified in Table 2.4.2.

Table 2.4.2: Top 10 Businesses in Harrison and Hancock Counties

RANK	BUSINESS NAME	COUNTY	ESTIMATED NO. OF EMPLOYEES	BUSINESS TYPE
1	Keesler Air Force Base	Harrison	11,276	Military
2	Memorial Hospital at Gulfport	Harrison	3,331	Health Care
3	Naval Construction Battalion Center	Harrison	3,304	Military
4	Beau Rivage Resort & Casino	Harrison	2,923	Gaming
5	Harrison County School District	Harrison	1,802	Education
6	VA Gulf Coast Veterans Health Care System	Harrison	1,605	Health Care

RANK	BUSINESS NAME	COUNTY	ESTIMATED NO. OF EMPLOYEES	BUSINESS TYPE
7	IP Casino Resort Spa	Harrison	1,499	Gaming
8	Island View Casino Resort	Harrison	1,293	Gaming
9	Hancock Bank	Gulf Coast	1,174	Financial
10	Golden Nugget	Harrison	1,148	Gaming

Source: HCDC. Updated May 2015

The region is continuing to see steady growth after a series of devastating events including Hurricane Katrina (2005), the Great Recession (2007-2009), and the Deepwater Horizon British Petroleum (BP) oil spill (2010).

Consumer confidence is improving and sales tax revenue began slowly increasing in 2012 and continuing through the present year. Sales tax diversions for the first ten months of 2015 show that the combined sales tax base for the Mississippi Gulf Coast has grown 6% versus 2014. The region has now expanded its sales tax base in 14 consecutive months during 2015. At the county level, Hancock has increased its year-to-date sales tax diversions by 7.3% and Harrison has reported a 6.0% increase. Increases in economic activity have undoubtedly led to gains in the region's key job sectors, with the combined Manufacturing, Healthcare, Retail Trade and Leisure sectors growing by over 1,600 jobs since last year.

Visitor spending and gaming revenues are found to be increasing, almost back to the pre-Katrina levels. Special tourism taxes (hotel taxes and restaurant taxes) are up roughly 5% over the first ten months of 2015 compared to 2014. The region's gaming industry is on pace for its best year since 2008 and has grown its year-to-date gaming revenues by $49 million.

The Mississippi Gulf Coast's tourism economy has also retrenched itself in the non-gaming side. In 2015, Biloxi debuted its new minor league baseball team, and the new stadium is also being used to hold concerts and other events, including hosting the 2016 Conference USA Baseball tournament and an exhibition game with the MLB Milwaukee Brewers. New restaurants and hotels are also in progress along Highway 90.

Figure 16 The Mississippi Aquarium will be an iconic landmark symbolizing the resilience of the people of the Mississippi Gulf Coast and the commitment of Gulfport's city leaders to its continued growth and development. Anticipated opening is 2019

Future growth includes the state-of-the-art Mississippi Aquarium to be completed by Spring 2019 in the City of Gulfport. The aquarium will not only attract visitors and spur economic development and jobs, city leaders believe, but also create educational awareness of the Coast's diverse marine life and enhance marine research. A hotel along with a walking bridge across U.S. 90 is also planned to be completed to enhance the experience. The Mississippi Aquarium is expected to transform Gulfport and the entire Mississippi Coast. Additionally, revitalization is occurring within the city's downtown.

2.5 COMMUNITY FEATURES

The military plays such an important role along the Mississippi Gulf Coast. Unique partnerships and agreements are integrated throughout the community to ensure both local businesses and the military are able to thrive.

Gulfport-Biloxi International Airport

The Gulfport-Biloxi International Airport is a joint, civil–military, public-use airport located northeast of downtown Gulfport. It was originally constructed in 1942 by the United States Air Force as a training base. In 1949, when it was no longer needed for military training, it was conveyed to the City of Gulfport for use as a civil airport. However, it didn't remain as a civil airport for long. The expansion of the Air Force due to the Cold War required the joint military and civilian

Figure 17 Gulfport-Biloxi International Airport
Source: http://www.wgyates.com/commercial/

use of the airport yet again. The airport is still used as a civil-military facility although no military aircraft are assigned to the airport terminal facilities.

The Trent Lott Readiness Training Complex is co-located at the Gulfport-Biloxi International Airport. The Complex takes up 220 acres on the eastern edge of the airport and approximately 75 acres on the south-western edge of the airport. Certified as a Joint National Training Center (JNTC), the complex hosts multiple JNTC exercises and provides a unique cross-domain training venue for Air National Guard Battlefield Airmen. Finally, the complex is home to the Gulfport CRTC - Battlefield Airmen Center, 255th Air Control Squadron, 209th Special Operations Civil Engineering Squadron, the Army National Guard's 1108th Theater Aviation Support Maintenance Group, 890th Engineer Battalion, and the 2-20th (A) Special Forces Group.

John C. Stennis Space Center

The John C. Stennis Space Center (SSC) is a NASA rocket testing facility located in Hancock County, Mississippi, on the banks of the Pearl River on the Mississippi–Louisiana border. It is America's largest rocket engine test complex. There are over 30 local, state, national, international, private,

Figure 18 NASA Welcome Center

and public companies and agencies using the facilities – with the largest tenant being the Navy. The center's staff includes oceanographers, scientists, and support staff with the capability to study the Gulf Coast from space and in the field.

Mississippi Gulf Coast Community College (MGCCC)

MGCCC is a fully accredited, comprehensive community college, with eight locations throughout coastal Mississippi. In 2010-11, more than 36,000 individuals were served with credit, workforce, and special interest programs and classes on the campuses and centers or through eLearning.

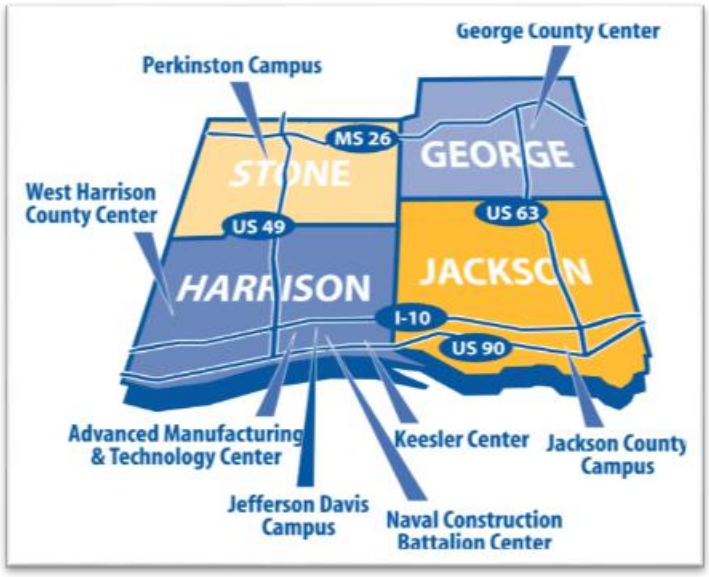


Figure 19 MGCCC has eight locations along the Mississippi Gulf Coast
Source: MGCCC

A partnership is in place between NCBC Gulfport and MGCCC to provide classes on the Seabee Base. An estimated 200 students attend classes on the base – half of which are civilian. MGCCC is sensitive to the needs of their students, and particularly the needs of military students. If necessary, students are able to convert to online classes mid-semester if deployed or relocated.

Port Bienville

Port Bienville, located on the Intercoastal Waterway within Hancock County, is home to the Port Bienville Industrial Park (PBIP), and includes a shortline rail connection to CSX. Port Bienville, managed by the HCPHC, is a superbly equipped shallow draft port with a 12-foot channel that spreads out 600 feet of dock space, three primary berths, and an additional 300-foot berth and turning basin. Port

Figure 20 Overview of Port Bienville
Source: http://www.geospectra.net/kite/gulf/gulf.htm

Bienville connects tenant operations to ports along the Gulf Coast Intercoastal Waterway, including the Port of New Orleans, which opens the Mississippi River routes and deep-water global access.

The PBIP is a 3,600 acre industrial park, housing 13 leading companies and a workforce of more than 600 employees. The industrial park's larger companies include plastics material and resin manufacturing, industrial goods, commercial and institutional building construction, inorganic chemical manufacturing, and warehousing and distribution.

The park's shortline rail connects to CSX which offers access to virtually the entire Eastern U.S., while heavy-haul trucking roads move goods to multiple connections including I-10, I-12, I-59, and U.S. Highways 49 and 90 for nationwide coverage. The rail line provides storage for up to 429 rail cars and has a 286,000 pound gross-weight-on-rail rating. A second north-south rail line is in the planning stages to connect to the Kansas City Southern (KCS) rail line.

Utilizing the connection from the Pearl River, Port Bienville plays an important role in exercises and trainings in conjunction with the WMA. The Port facility has been used by U.S. Marine Special Operation Command (MARSOC) and NSW for trainings and certifications and has potential for UAS training as well.

Port of Gulfport

The Port of Gulfport, managed by the Mississippi State Port Authority (MSPA), is a bustling port strategically located on the Gulf of Mexico in Gulfport, Mississippi with easy access to open ocean waters via a short 18-mile ship channel that is maintained at 11 meters of depth. The Port of Gulfport is ideal for ocean freight carriers serving Mexico, the Caribbean, and especially Central and South America. The port is also within close proximity of the major east / west corridor of Interstate 10 and has direct on-dock rail service provided by the Kansas City Southern Railway.

Figure 21 View of the Port of Gulfport from Highway 90

It is classified as a Strategic Seaport for national defense and serves as a critical mobilization port for the Navy. The MSPA has an agreement in place with NCBC Gulfport to provide a lay berthing facility to accommodate Navy vessels. The facility can accommodate medium to large Navy vessels and has a roll-on/roll-off capability that also extends the port's capacity for handling containerized cargo which allows for direct transfer of cargo from ship to barge. NCBC Gulfport is permitted to conduct cargo handling, customs inspections, fuel distribution, warehouse operations, and ordnance reporting and handling under the use agreement with the port. Additionally, the port provides worldwide mobilization and logistical support to the Navy and other DOD personnel.

MILITARY PROFILE 3.0

3.0 MILITARY PROFILE

The United States Construction Battalion's motto is simple, but descriptive: "We build, we fight." Their nickname, Seabees, comes from "C.B." the first initials in Construction Battalion. Their story began in World War II and since that time they have grown to build entire bases, bulldoze and pave thousands of miles of roadway and airstrips, and completed innumerable other projects.

There are only two Seabee bases in the United States – on the west coast is Port Hueneme, California and on the east coast is Gulfport, Mississippi.

NCBC Gulfport is integral to Navy force mobilization requirements and the missions of other significant military commands that are vital to national defenses. To fulfill its mission requirements, NCBC Gulfport maintains mission-critical facilities, infrastructure, and properties identified as Special Areas. The Special Areas focused on within this JLUS include Woolmarket Range, the WMA, and Stennis International Airport. These facilities combine to support readiness training exercises and operations to ensure that all components and activities are prepared to mobilize.

NCBC Gulfport's mission is to maintain and operate facilities and provide services and material in support of naval construction force units, including amphibious construction fleet units, the maritime prepositioning force (enhanced), and other fleet and assigned organizational units deployed from or home ported at NCBC Gulfport, and to perform such other functions and tasks as may be assigned by a higher authority.

3.1 REGIONAL INFLUENCE

As a civilian, it can be difficult to comprehend the integration that military installations have with one another and with other branches of the military. It is important to understand that NCBC Gulfport, Woolmarket Range, the WMA, and Stennis International Airport play an important role to other military, federal, state, and local law enforcement agencies and organizations in Mississippi, Louisiana, and throughout the United States.

Figure 22 Regional location of military facilities

For example, the Naval Special Warfare (NSW) Training Complex as part of the WMA is an asset to military, federal, state, and local law enforcement in the region. Other U.S. Special Operations Command (USSOCOM) units train on the NSW Training Complex when there is availability or as part of joint exercises with Naval Special Warfare Group 4 (NSWG-4) components. Other federal agencies such as the Federal Bureau of Investigation and Department of Homeland Security seek training opportunities at Stennis and particularly the range complex. At Woolmarket Range, state and federal law enforcement personnel, primarily Mississippi and Louisiana, also use opportunities to train as do local law enforcement including personnel from Hancock County, St. Tammany Parish, City of Gulfport, and Slidell among others.

Camp Shelby's Joint Forces Training Center is primarily located in Perry and Forrest counties with a small portion in Greene County. Camp Shelby serves as a regional flight center for the Army National Guard's Tactical Unmanned Aerial Systems (UAS) offering training and testing operations to the Army's UAS Program. Camp Shelby uses the airspace above SSC for unmanned aircraft operations and those operations are sometimes integrated with ongoing NSWG-4 operations.

As these few examples have noted, training spaces are utilized across the region and throughout the law enforcement and military fields. It takes massive amounts of coordination and efficient use of resources to ensure that each mission is accomplished.

Figure 23 Rollover simulator

In today's dynamic geopolitical world, new or changing military missions and increased joint training opportunities often require additional training range capabilities and capacity. The unique location and integration of military training capabilities offered in south Mississippi combined with a climate conducive to training year-round and easy access to the area by road, rail, air and sea makes NCBC Gulfport and its training ranges an attractive location for new and emerging military missions and training requirements. Although specific future missions are not identified, it is imperative that local and regional planning departments consider military growth and increased training needs in their future planning documents. By keeping the door open for these valuable opportunities and balancing the future needs of residents, business and the military, communities and counties can often reap the rewards of well-planned growth and development.

3.2 NCBC GULFPORT

NCBC Gulfport is a 1,100-acre military installation located within the City of Gulfport. NCBC Gulfport's primary mission is to support up to five active naval mobile construction battalions (NMCBs), Naval Construction Group TWO (NCG TWO), and the Naval Construction Training Center (NCTC). NCBC Gulfport maintains mission critical facilities, infrastructure, and property at NCBC Gulfport, Woolmarket Range, and the WMA, as well as provides support to other Naval commands located at NASA's Stennis Space Center.

Figure 24 Seabees "A" school training

NCBC Gulfport serves as the Navy's landowner for all outlying Special Areas including Woolmarket Range and the WMA. The Commanding Officer (CO) is responsible for managing and maintaining all Special Area real estate and facilities used by the tenant commands for their training and operational activities. The Special Areas are managed through a regional area coordination authority and are granted to NCBC Gulfport through various Memorandum of Understanding (MOUs) or Special Use Permits (SUP).

Figure 25 Construction training exercises

3.2.1 NCBC GULFPORT PRIMARY USERS

It is important to understand the mission on the installation and its tenant commands in order to fully assess all the compatibility factors. An abbreviated list of the primary users of NCBC Gulfport is identified in Table 3.1.

Table 3.2.1: NCBC Gulfport Primary Users

TENANT	DESCRIPTION
Naval Construction Group TWO (NCG TWO)	The mission of the NCG TWO is to train all NCB units in providing responsive engineering support for the Navy, Marine Corps, and other forces in military operations in construction and maintaining base facilities, repairing battle-damaged facilities, conducting defensive operations as required, and meeting disaster preparedness and recovery missions.
Naval Mobile Construction Battalions (NMCB)	Seabee Battalions provide a wide range of responsive military construction duties including roads, bridges, bunkers, airfields, and logistics in support of operating forces.
Naval Construction Training Center (NCTC)	Provide apprentice/advanced construction training for enlisted engineers of the Navy, Army, and Air Force and Chemical/Biological/Radiological-Defense (CBR-D) training for Naval Construction Force (Seabees) personnel to accomplish contingency construction, CBR-D operations, humanitarian assistance, and peacetime construction missions worldwide.

TENANT	DESCRIPTION
Navy and Marine Corps Reserve Units (NMCRC)	NMCRC uses NCBC Gulfport for training, recruiting, manpower management, facilities administration, supplies, and equipment and medical services.
Center for Security Forces (CENSECFOR)	The mission of CENSECFOR is to produce disciplined, motivated, physically fit, and tactically proficient sailors who embody Navy Core Values and who are fully prepared to augment combat security forces around the world.
Naval Meteorology and Oceanography Professional Development Center (PDC)	The PDC provides unprecedented knowledge of the operational environment, to include environmental effects across the full range of military operations, through relevant meteorology and oceanography, hydrography, GIS training, education, and professional development.
Navy Mobilization Processing Site (NMPS)	Gulfport serves as the mobilization site for active duty and reserve service members.
Naval Facilities Engineering and Expeditionary Warfare Center (EXWC)	Enables the expeditionary warfighters to accomplish their mission through Table of Allowance generation, fulfillment delivery, and sustainment, and through emergent logistics support.
Naval Criminal Investigation Service (NCIS)	NCIS prevents and solves crimes that threaten the war fighting capability of the U.S. Navy and Marine Corps.
Department of Homeland Security (DHS)	DHS leads the unified national effort to secure the country and preserve our freedom.
Naval Operational Support Center (NOSC)	NOSC maintains assigned personnel and equipment in a state of readiness and availability which will provide peacetime support and permit rapid deployment in the event of partial or full mobilization.
Human Resources Service Center, Southeast (HRSC SE)	Provides human resources support to Naval, Marine Corps, and Army activities in the Southeast Region.

3.2.2 CURRENT MISSION OPERATIONS

NCBC Gulfport provides a strategic training venue for naval construction, combined, expeditionary combat, maintenance support, logistics, and supply. The current mission training activities taking place at NCBC Gulfport are summarized in Table 3.2.2.

Table 3.2.2: NCBC Gulfport Current Mission Operations

EXERCISE	DESCRIPTION
Field Training Exercise (FTX)	Basic combat skills with controlled, tactical training scenarios, demonstrating real-time situations in hostile environments.
Command Post Exercises (CPXs) and Communication Exercises	Exercises entail setting up smaller camps for battalions to exercise command and control.
Disaster Recovery Training (DRT)	Includes various activities simulating disaster recovery and humanitarian support, including building roads and repairing public utilities.
Counter-Improvised Explosive Devices (C-IED)	Trains units in the clearance and disposal of bombs, projectiles, missiles, and mortars.
MOUT Training	Ground combat maneuver and military operations in urban terrain.
Contingency Construction Crew Training (CCCT)	Training in the construction of expedited bridge building.
Chemical, Biological, and Radiological (CBR) Training	Training on procedures, techniques, systems, and equipment to survive CBR attacks and continue to fight.
Judgment-Based Engagement Training (JET)	CENSECFOR trains military members in the lawful and tactically sound application of the use of deadly force.
CONEX Training	Mobilization exercises with mobile steel shipping containers.
Blank Fire Training	Realistic tactical training using non-lethal blank ammunitions.
Utility Operations Training	Trains military members to operate, maintain, and repair public utilities systems.

EXERCISE	DESCRIPTION
Rapid Runway Repair (RRR)	Training in expedited repair of damaged runways.
Vehicle Maintenance Training	Comprehensive training in automotive and diesel engine maintenance.
Amphibious Vehicle Operations	NCBC Gulfport Units perform Amphibious Assault Vehicle (AAV) and Landing Amphibious Recovery Craft (LARC) testing and training that involve maneuvers off station.

3.2.3 PROPOSED EXPANSIONS AND OPERATIONAL CHANGES

NCBC Gulfport is not anticipated to alter their base footprint within the foreseeable future. The mission of the installation is also not predicted to change however future increases in personnel will likely result in increased training activities on the installation which may affect the surrounding communities.

3.3 WOOLMARKET RANGE

Woolmarket Range is a 2,483-acre facility located along U.S. Highway 67 in the unincorporated area of Woolmarket, Harrison County within the DeSoto National Forest. A Special Use Permit (SUP) between the United States Forestry Service (USFS) and NCBC Gulfport allows the Navy to utilize the facility as a Small Arms Range (SAR) and training facility.

The Range includes five bays used for various training exercise. Bays 1 -3 are used for small arms training using 25 to 200-yard ranges. Bay 4 is used for convoy and Counter-Improvised Explosive

Figure 27 Shooting Bay 2A/2B for small arms training

Figure 27 Mock villages set-up as part of the JIEDDO course

Device (C-IED) training. Bay 5 is used to conduct basic combat skills using tactical training scenarios.

NCBC Gulfport is responsible for the support and maintenance of Woolmarket Range to include buildings, infrastructure, and real estate management. Daily range operations and scheduling is managed by NCG TWO's Range Officer-in-Charge (OIC). The Range OIC ensures each of the range's five Bays, used for small arms training, C-IED, and FTX, are safely used by SEABEEs and other naval expeditionary forces.

Coast Rifle and Pistol Club, a private gun range open 365 days per year from daylight to dark, is adjacent to Woolmarket Range. The weapon's safety fan from this private club extends into Woolmarket Range's Surface Danger Zones (SDZ). The gun club authorizes the use of larger caliber weapons than those used for training at the Navy's range. Use of higher caliber rounds can result in higher decibel noise being generated from the civilian range.

3.3.1 CURRENT MISSION OPERATIONS

The current mission training activities taking place at Woolmarket Range are summarized in Table 3.3.1. Weapons discharged during SAR training includes pistols, rifles and shotguns. On Bay 4, IED detonations are simulated using Carbon Dioxide and/or Oxygen/Propane based training devices. However, it is important to note that the training taking place at Woolmarket is not limited to Navy exercises, particularly within the small arms range. The range is used Monday – Friday and includes other organizations such as the Police Department, Harrison County Sherriff's Office, Mississippi Department of Transportation, and other emergency personnel. An estimated 4.5 million rounds are shot per year with the peak day usually occurring on Thursday.

In the event of emergency unexploded ordnance (UXO) situations, Woolmarket Range is sometimes used to safely detonate old, WWII era ordnance found on the range or in the surrounding area.

Recently the property was used by Marine Corps Special Operations Command (MARSOC), for a special night training mission utilizing pyrotechnics and helicopters. This training activity created noise not normally experienced by Woolmarket residents. Due to the capabilities offered by Woolmarket Range, it is anticipated that military training activities at each of the five Bays will continue to increase as capacity allows.

Table 3.3.1: Woolmarket Range Current Mission Operations

EXERCISE		DESCRIPTION
Field Training Exercise (FTX) (Located at Bay 5)		NCG TWO Units conduct basic combat skills with controlled, tactical training scenarios, demonstrating real-time situations.

EXERCISE		DESCRIPTION
Joint Improvised Explosive Device Defeat Organization (JIEDDO) Training (Located at Bay 4)		Clearance and disposal of IEDs, projectiles, missiles, and mortars within the JIEDDO course. Remote-detonated, carbon-dioxide and/or oxygen-propane based training devices.
Convoy Training (Located at Bay 4)		NCG TWO Units practice convoy training in combat patrol tactics, techniques and procedures to guard against ambushes and IED attacks. Training can occur throughout the IED course.
Small Arms Weapons Training (Located at Bays 1-3)		Sustainment and proficiency training in small arms weapons handling and shooting skills using 25 to 200-yard ranges within three bays.

3.3.2 PROPOSED EXPANSIONS AND OPERATIONAL CHANGES

Similar to NCBC Gulfport, the footprint of Woolmarket is not anticipated to be altered in the foreseeable future. Training is anticipated to increase and additional facilities could be added within the existing footprint of the range.

3.4 WESTERN MANEUVER AREA

The WMA is a 3,200 acre facility located within the Stennis Acoustic Buffer Zone of Hancock County. The WMA is Navy-owned land adjacent to Stennis Range Complex (SRC). The SRC also includes the Stennis Space Center (SSC), Stennis International Airport, several Navy tenant commands and other federal agencies, private companies as well as testing and evaluation, training, and operational facilities. The JLUS' focus is on the Special Areas of the WMA and Stennis International Airport.

Figure 28 Facilities used for training within the WMA

SSC is a federal city comprised of a fee area (denoting total NASA ownership) of 13,817 acres and an acoustic buffer zone of 124,984 acres radiating out approximately six miles from the fee area. Together, these 138,801 acres account for about 36% of Hancock County's land base and small portions of Pearl River County, MS and Tammany Parish, LA. The buffer zone provides the surrounding communities protection from the potential effects of rocket engine testing that takes place within NASA-owned land and other noise created by riverine and live fire training, and

further allows for testing and training exercises to be scheduled on an unrestricted basis. Restrictive easements have been placed on all properties within the buffer zone, which prohibit permanent dwellings as well as limit use to passive recreation only. This provides the unique advantage of long-term encroachment protection and provides advantages for flexibility in scheduling and fewer environmental constraints than other USSOCOM training ranges.

Figure 29 Training taking place along the Pearl River within the WMA

The WMA was acquired by the Navy in 2004 to establish the Naval Riverine and Jungle Training Complex. It is located between the Pearl River State Wildlife Management Areas in Louisiana and the western boundary of the SSC fee area. The original WMA was the first part of a land acquisition plan envisioned to purchase up to 5,200 acres of contiguous land.

Mike's River and McCarty Bayou within the WMA and a portion of the East Pearl River abutting the WMA are used for riverine training, including live-fire from river-to-land for Special Warfare Combatant-Craft Crewmen (SWCC). The WMA supports numerous other types of training such as insertion and extraction, small unit tactics, convoy training and other types of field training.

3.4.1 WMA AND SSC PRIMARY USERS

Ten primary tenants utilize the WMA, SSC, and the associated training areas.

Table 3.4.1: WMA Tenants

TENANT		DESCRIPTION
Naval Special Warfare Group 4 (NSWG-4)		NSW groups command, train, equip, and deploy components of NSW squadrons that are built around deployed SEAL teams to meet exercise contingency and wartime requirements around the world.
Naval Small Craft Instructional and Technical Training School (NAVSCIATTS)		Provides partner nation security forces with the highest level of riverine and coastal craft operation and maintenance technical training.
SEAL Teams – Special Warfare Operators (SOs)		Visits the SSC and WMA to conduct training and operations. An estimated 200 – 300 Navy SEALs

TENANT		DESCRIPTION
		from various teams are trained at the riverine and jungle training range within WMA each year.
Special Boat Team 22 (SBT-22)		An operational element of NSWG-4 with a mission for riverine special operations.
Special Boat Team 20 (SBT-20)		Homeported at Naval Amphibious Base (NAB) Little Creek in Virginia Beach, Virginia and assigned to NSWG-4 to conduct maritime special operations in coastal environments.
Special Boat Team 12 (SBT-12)		Homeported at NAB Coronado in San Diego, California is assigned to NSWG-1 to conduct maritime special operations in coastal environments.
Naval Meteorology and Oceanography Command (NMOC)		Located in the SSC fee area, NMOC provides global meteorological, oceanographic, and maritime geospatial environmental information and services to the operating forces of the Navy, Marine Corps, and DOD as a whole.
Naval Oceanographic Office (NAVOCEANO)		Acquires and analyzes global ocean and littoral data to provide specialized, operationally significant products and services for military and civilian, national and international customers.
Fleet Survey Team (FST)		A rapid response military team with capabilities to conduct quick turnaround hydrographic surveys anywhere in the world. A subordinate command of NMOC/NAVOCEANO.
Naval Research Laboratory (NRL)		The Navy's full spectrum laboratory conducting broadly based multidisciplinary program of scientific research and advanced technological development directed towards marine applications.
National Data Buoy Center (NDBC)		Part of the National Oceanic and Atmospheric Administrations (NOAA) and National Weather Service (NWS) that develops, operates, and

TENANT		DESCRIPTION
		maintains a network of data collecting buoys and coastal stations.

3.4.2 CURRENT MISSION OPERATIONS

NSW forces conduct jungle, maritime, and riverine training and operations within the WMA, which offers a reasonable amount of land for maneuver and convoy operations, hard target sites, and direct access to the Gulf of Mexico. The native vegetation and varied terrain of the lower Pearl River Basin provides a realistic environment for combination riverine and jungle training exercises. Training opportunities are also utilized in conjunction with Port Bienville utilizing the Pearl River connection.

Table 3.4.2: WMA Current Mission Operations

EXERCISE		DESCRIPTION
Command and Control (C2) Field Exercises (FEX)		Basic combat skills with controlled tactical training scenarios simulating real-world hostile environments.
Riverine Training		SBTs and SEAL Team personnel execute multi-disciplinary combat training operation in maritime and riverine environments.
Special Operations Urban Combat (SOUC)/MOUT Training		NSW Units practice ground combat maneuver and military operations in urban terrain.
Simulated Close Air Support (CAS)		NSW Units practice electronic and visual communication techniques between fixed- and rotary-wing strike crews to simulate delivery of weapons in support of ground forces.
Convoy Training		NSW Units conduct convoy training in combat, patrol tactics, techniques, and procedures to react against ambushes and IEDs.
Tactical Ground Mobility / Combat Driving Training		NSW Units practice vehicle navigation and tactical maneuvers along pre-planned routes.
Insertion / Extraction		Training for personnel and equipment insertion and extraction via boat, aircraft, and helicopter.

EXERCISE	DESCRIPTION
Reconnaissance and Surveillance	NSW forces conduct reconnaissance and surveillance, target acquisition, and combat assessment training operations.
Small Arms Weapons Training	Sustainment and proficiency training in small arms weapons handling and shooting skills.
Combat Search and Rescue (CSAR)	Rotary-wing aircraft employ tactics to rescue military personnel within a hostile area of operation.
Equipment Testing and Evaluation (T&E)	Testing and evaluation of prototype riverine combatant craft and specialized weapons and equipment.
Unmanned System Training	NSW Teams and other SOF train for deployment of unmanned vehicles for counter IED, reconnaissance, surveillance, and strike warfare.
External Air Support / Sling Training	SBTs and SEAL Teams train in the low-level helicopter insertion/extraction of PBLs and personnel within the riverine environment.
Simunition Training	NSW Units perform realistic tactical training using non-lethal, short-range training ammunition.

3.4.3 PROPOSED EXPANSIONS AND OPERATIONAL CHANGES

Training and NSW activities are constantly evolving and responding to changing or new requirements. Riverine and littoral forces are expected to increase, along with the inventory of small combatant craft and unmanned platforms for intelligence, surveillance, and reconnaissance. As training requirements change and capabilities are added, new aircraft, weapons platforms, and increased training opportunities will be required. *The Area Development Plan for Naval Special Warfare Jungle and Riverine Warfare Training Complex* anticipates that man-day use of the WMA and Stennis Range Complex will increase approximately 26%.

WMA expansion area

Since the WMA was first acquired, the Navy has planned to purchase an additional 2,000 acres. The additional land would allow increased training capabilities on the range while containing the resulting larger safety zones within the expanded perimeter.

In addition to the proposed expansion areas on land, the Navy has recently acquired restricted airspace up to 10,000 feet around the WMA. The airspace will be used for special air operations utilizing AC-130 gunships and below. The integration of the restricted airspace will allow for full 3D battle space and realistic military training exercises.

Additional training opportunities also include coastal training activities from the Gulf of Mexico. Units sometimes use the Pearl River to transit to/from the WMA to the Gulf.

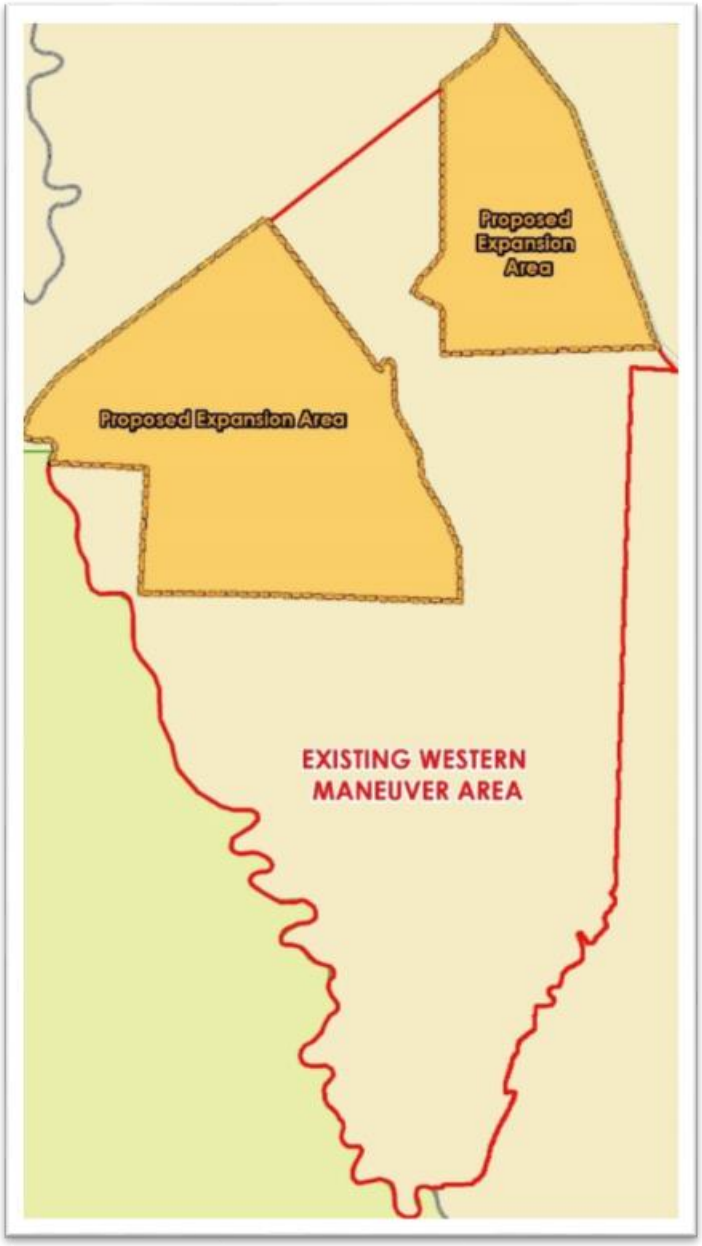


Figure 30 The existing WMA land and the areas slated for expansion

Unmanned vehicles

Training on unmanned vehicles and other systems for reconnaissance, surveillance, and/or strike warfare is expected to increase. The vehicles to be used will likely include unmanned aerial vehicles (UAVs), unmanned underwater vehicles (UUVs), and unmanned surface vehicles (USVs). These unmanned systems will increase the demand for air-, land-, and sea-based ranges.

Facility Expansions

A variety of facility expansions are proposed to address training space deficiencies. The majority of the improvements will benefit multiple WMA users, will support additional NSW training in the future, and will be contained within the existing or proposed WMA.

3.5 STENNIS INTERNATIONAL AIRPORT

Stennis International Airport is a 585-acre general aviation airport, owned and operated by the HCPHC. Stennis International Airport is located on the eastern edge of the Buffer Zone, approximately 10 miles from the SSC. The facility includes an 8,497-foot long, 150-foot wide, main runway with sufficient pavement strength to support passenger and cargo aircraft.

The airport supports Naval Special Warfare (NSW) training and operations such as aircraft loading and equipment staging, military free fall and static line jumping, helicopter fast rope and rappelling, drop zone and convoy training. The training is conducted under an airport use agreement between HCPHC, Hancock County Board of Supervisors, and the U.S. Government.

Figure 31 Above: Stennis International Airport Terminal, Navy and Air Force planes on the tarmac
Below: Training exercises taking place at Stennis International Airport

3.5.1 CURRENT MISSION OPERATIONS

Training from all branches of the military takes place at Stennis International Airport on a regular basis. For the Navy, the following training and mission operations utilize the Stennis International Airport facilities.

Table 3.5.1: Stennis International Airport Current Naval Mission Operations

EXERCISE	DESCRIPTION
Insertion / Extraction	Training for troop and equipment insertion and extraction.
Tactical Ground Mobility / Combat Driving Training	NSW Units practice vehicle navigation and tactical maneuvers.
Convoy Training	NSW Units conduct convoy training in combat patrol tactics, techniques, and procedures (TTP) to react against ambushes and IEDs.
Logistics / Mobilization	Transport and support of personnel, cargo, equipment, and other logistical operations.
Simunition Training	NSW Units perform realistic tactical training on the runway using non-lethal, short-range training ammunition.
NMOC/NAVO Charts System Operations	Home-base for compact hydrographic airborne rapid total survey aircraft that deploy worldwide conducting shallow water hydrographic surveys utilizing airborne laser and imagery systems.

3.5.2 PROPOSED EXPANSIONS AND OPERATIONAL CHANGES

Negotiations have been completed to expand the Stennis Airport to include a 125-acre site used exclusively as a military joint use heavy lift drop zone. The additional space would be used by NSW, Air Force, and the Coast Guard. A 3,500 linear foot military joint use assault landing strip is also in the design stages and additional funding sources are being sought.

Future runway improvements include the modification of the runway to allow for a full 8,500 feet. The airport would like to add an additional 1,000 feet of runway to accommodate larger planes, but it is not anticipated for the immediate future.

COMPATIBILITY TOOLS 4.0

4.0 COMPATIBILITY TOOLS

There are a variety of tools in place to assist local governments and the military with the identification of compatibility and encroachment issues. The tools include studies, regulations, organizations, programs, and reports which can be conducted anywhere from the federal down to the local level.

A summary of some of the applicable tools are identified below. Not all of the programs identified are currently in use or they may not be utilized to their full extent, but it is important to have an idea of the options that are available. The list is not intended to be exhaustive but does provide a general idea of the tools that exist.

4.1 FEDERAL PROGRAMS AND PLANS

Air Installations Compatible Use Zones (AICUZ) Program

The purpose of the AICUZ Program is to protect the health, safety, and welfare of the community from noise and hazards through compatible development in the airport environment. The program was instituted by the DOD to address the problem of land development surrounding military air installations. It assists local governments by providing for the development and implementation of a plan to determine the land areas which are incompatible for development due to the presence of the airfield. The program provides recommendations of compatible land uses as well as identifying accident potential zones, obstruction clearance criteria, and locations of elevated sound.

An AICUZ Study has not been completed for the JLUS subject areas. Although used by multiple branches of the military, Stennis International Airport is not classified as a military airport and would therefore not be eligible.

Encroachment Management Program

The Encroachment Management Program for the Navy was established by a directorate from the Asset Management line of NAVFAC. An Encroachment Action Plan (EAP) is the tool used to identify and prevent potential encroachment issues to a military installation.

An EAP was completed for NCBC Gulfport and Associated Special Areas and for Stennis Space Center and Associated Special Areas in May 2013.

Federal Aviation Act, Title 14, Part 77

Federal Regulation Title 14 Part 77 establishes standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for:

- Evaluating the effect of the construction or alteration on operating procedures.

- Determining the potential hazardous effect of the proposed construction on air navigation.
- Identifying mitigating measures to enhance safe air navigation.
- Charting of new objects.

Notification allows the FAA to identify potential aeronautical hazards in advance thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace.

Range Compatible Use Zones (RCUZ) Program

The RCUZ Program is a DOD program that is intended to protect the health, safety, and welfare of the community and to prevent encroachment from degrading the operational capabilities of air-to-ground ranges. The RCUZ program includes range safety and noise analyses and provides land use recommendations that can then be implemented by local governments.

A RCUZ is currently being conducted for NCBC Gulfport, the WMA, and Woolmarket Range. It is anticipated to be completed in October 2017. Once approved, copies will be provided to county, city, and other planning departments in the affected areas.

Readiness and Environmental Protection Initiative (REPI) Program

The pattern of development has changed over the years and where installations were once isolated, urban and suburban development is now abutting military facilities. DOD created the REPI Program in 2003 in response to this type of incompatible development and loss of habitat around its installations. The program offers a way to not only conserve land, but to also prevent any restrictions imposed by local jurisdictions that might diminish the goals of the military mission or lead to inadequate training and testing. The program utilizes buffer projects, landscape partnerships, and stakeholder engagement to provide problem solving and decision-support tools for the community. According to the REPI website, as of September 30, 2015, over 437,000 acres of buffer land at 88 locations in 30 states across the country have been protected.

NCBC Gulfport has partnered with Wildlife Mississippi to acquire lands using REPI funds as funding and appropriate lands become available.

4.2 STATE PROGRAMS AND PLANS

Building Codes

Building codes are sets of regulations governing the design, construction, alteration, and maintenance of structures. They specify the minimum requirements to adequately safeguard the health, safety, and welfare of building occupants.

Mississippi enacted its first statewide building code in 2014. The law requires cities and counties to adopt, as a minimum standard, any of the last three editions of the International Building Code and any additional codes as adopted by the Mississippi Building Code Council.

As a tool to ensure compatibility with adjacent installations, the Building Code can assist with regulations particularly relevant to height and noise inconsistencies.

Clean Water Management Trust Fund

Specifically authorized (and mandated in recent budgets) to provide buffers around military bases or for state matching funds for REPI, the Clean Water Management Trust Fund is a federal funding initiative that provides funds for military buffers.

Forest Legacy Program

The Forest Legacy Program (FLP) was authorized by the Food, Agriculture, Conservation, and Trade Act of 1990 to identify and protect environmentally important, private forestlands threatened with conversion to non-forest uses. The FLP is a USDA Forest Service Program, in partnership with Mississippi, that will help support local efforts to protect environmentally sensitive, privately owned forestlands threatened by conversion to non-forest use through land acquisition and conservation easements.

Land and Water Conservation Fund

Created by Congress in 1965, the Land and Water Conservation Fund (LWCF) was a bipartisan commitment to safeguard natural areas, water resources and our cultural heritage, and to provide recreation opportunities to all Americans. National parks like the Rocky Mountains, the Grand Canyon, and the Great Smoky Mountains, as well as national wildlife refuges, national forests, rivers and lakes, community parks, trails, and ball fields in every one of our 50 states were set aside for Americans to enjoy thanks to federal funds from the LWCF.

The LWCF State Assistance Program provides matching grants to help states and local communities protect parks and recreation resources. Running the gamut from wilderness to trails and neighborhood playgrounds, LWCF funding has benefited nearly every county in America, supporting over 41,000 projects. This 50:50 matching program is the primary federal investment tool to ensure that families have easy access to parks and open space, hiking and riding trails, and neighborhood recreation facilities.

Mississippi Code, Title 17, Chapter 1, Zoning Planning and Subdivision Regulation

Title 17, Chapter 1 of the Mississippi Code offers one of the most effective ways to manage growth in the community. The chapter authorizes the establishment of the Comprehensive Plan, Zoning, and Subdivision Regulations.

The state statute requires each municipality to have a Long-Range Comprehensive Plan adopted by the local governing body. Plans establish goals over a 20- to 25-year period of development

and are required to address residential, commercial, and industrial development; parks, open space, and recreation; street and road improvements; and public schools and community facilities. Essentially, the plan is a local government's guide to assist with community decisions relating to physical, social, and economic development. The Comprehensive Plan is intended to be an evolving document that is revised as policies and economic conditions change. The Comprehensive Plans serves as a stepping stone to the development of other policy documents such as Zoning Ordinances, Subdivision Regulations, Capital Improvement Plans, as well as supplemental regulations such as Sign, Landscaping, and Parking Ordinances.

The Zoning Ordinance is used to attain the objectives of the Comprehensive Plans. It regulates land based on location, height, number of stories, size of buildings and other structures; the density and distribution of population, size of yards and other open spaces; and the use of buildings, structures, and land for commercial, industrial, residential, and other purposes.

While zoning defines the land uses permitted within the municipality, Subdivision Regulations guide the pattern of development (i.e., the division of a parcel of land for sale, development, or long-term lease). Traditionally, Subdivision Regulations have been used to ensure the efficient development of a community's built environment, focusing on the configuration of building lots to be served by municipal or private roads and infrastructure.

These tools used in conjunction with one another provide a valuable way to influence growth in a way that decreases encroachment and incompatibility issues with installations. When innovative planning tools are used as part of the state authorized tools – such as overlay districts, special zoning or future land use districts, Transfer of Development Rights, or other similar programs – the growth pattern can be substantially altered.

Mississippi Code Title 61, Chapter 7, Airport Zoning Law

The importance of airports was recognized at the legislative level and the Airport Zoning Law was enacted. The law establishes the ability to create airport zoning regulations for the areas likely to be impacted by hazards in an effort to prevent and mitigate dangers to the facility. Similar to zoning regulations the law allows the area to be divided into zones, and specify the land uses and heights of structures permitted within the zones.

Mississippi Military Communities Council (MMCC)

The Mississippi Military Communities Council was officially formed by Gov. Kirk Fordice in 1997 when he signed into law Executive Order 776. The initial purpose of the organization was to serve as an advisory council to state executive and legislative officials to defend against potential base realignment and closure. They are also responsible for advising officials regarding opportunities to enhance, expand, add, or otherwise improve programs affecting the military within the state.

Open Space / Conservation Programs

The State Legislature offers multiple opportunities for open space and conservation management. These programs provide the opportunity to decrease encroachment adjacent to the installation by removing the development rights. The programs currently authorized by the Legislature include:

Figure 32 Example of open space area

- *Conservation Easement Act of 1986 (Mississippi Code §89-19-1)*
  Authorizes the creation of permanent easements on real property for conservation and historic preservation purposes.
- *Conservation Easement Act Credit (Mississippi Code §27-7-22.21)*
  The code provides for a conservation easement tax credit. The credit is 50% of allowable transaction costs associated with donating an easement. The credit may not exceed $10,000 during the lifetime of the landowner, and it may be carried forward for 10 years. The credit is non-transferable.
- *Forest Legacy Program (Mississippi Code §27-7-22.22)*
  The Code provides for a tax credit for allowing land owned by the taxpayer to be used as a natural area preserve, a wildlife refuge or habitat area, a wildlife management area, or for the purpose of providing public outdoor recreational opportunities. The credit is $5.50 per acre of land in each taxable year.

The North American Wetlands Conservation Act (NAWCA) was passed, in part, to support activities under the North American Waterfowl Management Plan, an international agreement that provides a strategy for the long-term protection of wetlands and associated uplands habitats needed by waterfowl and other migratory birds in North America. Program funding comes from appropriations, fines, penalties, forfeitures, and from interest accrued on the fund. Funds from U.S. federal sources may contribute towards a project, but are not eligible as match.

The NAWCA Program operates in two cycles per year. Each cycle, eligible proposals are reviewed and ranked by the North American Wetlands Conservation Council, a nine-member council established by the Act. The Council may directly approve Small Grants. The Council recommends Standard Grants projects to the Migratory Bird Conservation Commission, a seven-member commission authorized by the Act to give final funding approval.

Real Estate Disclosures

Real Estate Disclosures are used to notify home buyers of any issues that could affect the property's value or desirability. Mississippi Statutes Sections 89-1-501 through 89-1-527 of the Mississippi Real Estate Brokers Act of 1954, as amended, requires that the sale of property of 1 – 4 dwelling units shall require a Property Condition Disclosure Statement.

The current form used by the Mississippi Real Estate Commission, effective July 1, 2008 requires that the following be disclosed:

- Structural Items;
- Mechanical Items;
- Water, Sewer, and Septic Items; and
- Other Matters / Items.

Real Estate disclosures are not currently required to reveal proximity to military installations or ranges.

4.3 REGIONAL PROGRAMS AND PLANS

Harrison County Military Team (HCMT)

The Harrison County Military Team was formed to advocate for military installations in South Mississippi. The Team is comprised of volunteers that include retired military, business, and civic leaders. They are dedicated to defending and supporting the military.

Partners for Stennis

Partners for Stennis is a coalition of Mississippi and Louisiana citizens who advocate for space, earth, and ocean exploration. The members are volunteer representatives from chambers of commerce, economic development foundations, businesses, educational institutions, local governments, community groups, and individual citizens.

Their mission is to act as a regional catalyst to develop and promote the Stennis Space Center Region for the enhancement of education, quality of life, and economic opportunities. Partners for Stennis supports various programs which ensure that government decision makers, business interests, and interested citizens know of the value and importance of the Center.

Plan for Opportunity Regional Sustainability Plan for the Mississippi Gulf Coast

The Plan for Opportunity is a comprehensive regional plan completed in December 2013. The Plan is a compilation of many individual, inter-related elements that are intended to guide the

economic growth and development of the Mississippi Gulf Coast and to improve housing, employment, and transportation opportunities throughout the region. It analyzes the current conditions, issues and challenges faced by the residents of Hancock, Harrison, and Jackson counties, and results in a series of strategies to address any barriers to the future prosperity of the region.

Southeast Regional Partnership for Planning and Sustainability (SERPPAS)

Figure 33 SERPPAS focuses on interdependent resource sustainability and protection of ecosystems across boundaries.

In 2005, state environmental and natural resource officials from across the Southeast partnered with the Department of Defense and other federal agencies to form the Southeast Regional Partnership for Planning and Sustainability (SERPPAS). The region covered by SERPPAS includes the states of North Carolina, South Carolina, Georgia, Alabama, Florida, and Mississippi. The mission of SERPPAS is to seize opportunities and solve problems in ways that provide mutual and multiple benefits to the partners, sustain the individual and collective mission of partner organizations, and secure the future for all the partners, the region, and the nation. SERPPAS works hand in hand with the REPI program.

4.4 LOCAL PROGRAMS AND PLANS

Individual municipalities maintain Comprehensive Plans and Zoning Regulations allowing them to formulate the regulations that work best for them. The following provides a brief overview of the regulatory document and the implication it has for development around the military installations.

4.4.1 CITY OF GULFPORT COMPREHENSIVE PLAN (2000)

The Comprehensive Plan provides information about the City's vision, demographics, housing, community facilities, and land use. The purpose of the Comprehensive Plan is to provide the framework that will guide and direct the future growth and development of the City of Gulfport. The City's Comprehensive Plan was adopted in 2004 with a 25-year planning horizon and contains four main sections that consist of a Land Use Element, a Transportation Element, a Community Facilities Element, and Goals and Objectives.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

The majority of the NCBC Gulfport installation is located within the incorporated limits of the City of Gulfport. NCBC Gulfport is the largest employer within the City and occupies more than 1,000 acres of land. The Introduction Section of the Comprehensive Plan describes the history of the City and discusses the establishment of NCBC Gulfport in 1942. The four main sections of the City's Comprehensive Plan do not contain any specific goals and/or objectives that directly apply

to NCBC Gulfport. However, the Comprehensive Plan does contain several generic and broad based goals and objectives that would indirectly provide for land use compatibility measures for any new development or redevelopment around NCBC Gulfport. The goals and objectives that were identified during the analysis consist of the following:

Figure 34 City of Gulfport neighborhoods map from the Comprehensive Plan

- ***LU-2:***
  - To strive for an orderly development pattern and land use compatibility.
  - To the extent possible, exert control over the location, density, use, and timing of new real estate developments.
  - To separate presently existing incompatible land uses as opportunities arise.
  - To require separation between incompatible land uses as new development occurs.
  - To prevent future adjacency of incompatible land uses.
  - To prevent future development of incompatible land uses.
  - To identify and require effective buffering between incompatible land uses, where they must develop.
  - To identify, consider, and articulate the land use impact of each proposal for future development, request for rezoning or subdivision before a final decision is made.
- ***LU-4:***
  - To encourage maintenance and expansion of compatible land use concentrations and future development of new compatible land use areas.
  - To encourage preservation of existing and developing residential neighborhoods and foster development of new neighborhoods.
- ***LU-5:***
  - To recognize that a balance between the highest and best use and the most appropriate use of land is in the overall best interest of both property owners and residents of the City.
  - To identify acceptable and unacceptable land use relationships in advance of development.
  - To articulate and consider the land use impact of each future development proposal and request before decisions are reached regarding its approval.

- To control the location and minimize the impact of communication towers on existing development.

The City of Gulfport has indicated that the Comprehensive Plan adopted in 2000 is in the process of being updated. Portions of the City's Comprehensive Plan could be updated to strengthen the goals and objectives associated with providing existing and long-term compatibility measures for the areas located in close proximity of NCBC Gulfport. Section 7, Recommendations contain specific recommendations and implementation strategies for suggested amendments to the City of Gulfport's Comprehensive Plan.

4.4.2 CITY OF GULFPORT ZONING ORDINANCE (ORDINANCE NO. 1501)

The intent of the City of Gulfport Zoning Ordinance is to implement the Comprehensive Plan through a series of regulations. The Zoning Ordinance divides the City into districts, known as zoning districts, and regulates the location, type, use, density, and intensity of development. The purpose of the zoning ordinance is to lessen congestion in the streets; to secure safety from fire, panic, and other dangers; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; and to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

NCBC Gulfport has a Gulfport Zoning Designation of Light Industrial (l-1). The Light Industrial District (l-1) is defined as land and structures occupied by or suitable for light manufacturing, wholesaling and similar uses. Located for convenient access from existing and future arterial thoroughfares, highways and railway lines, these districts are usually separated from residential areas by business districts or by natural barriers. The district regulations are designed to permit a range of light industrial activities subject to limitations intended to protect nearby residential and business districts.

The areas surrounding and adjacent to NCBC Gulfport have mainly low density and intensity zoning designations consisting of the following: Single Family Residence District (Medium Density - R-2), Single Family Residence District (Low Density - R-1-7.5), T4+ (SmartCode Zoning), Neighborhood Business District (B-1), and General Business District (B-2). None of the aforementioned zoning districts provide any measures to specifically address redevelopment or future development adjacent to or within close proximity to NCBC Gulfport. The Zoning Ordinance could be amended to create a Military Influence Area Overlay District that applies directly to NCBC Gulfport and the surrounding areas. The intent of the overlay district would be to protect the mission footprint of the base and to reduce potential encroachment issues related to existing development, new development, or potential redevelopment surrounding the installation.

Section 7, Recommendations, contains specific recommendations and implementation strategies for amendments to the City of Gulfport Zoning Ordinance.

4.4.3 CITY OF GULFPORT SMARTCODE ORDINANCE (2007)

The City of Gulfport adopted a SmartCode Ordinance in 2007 as an addition to the Zoning Ordinance to further implement the Comprehensive Plan. The SmartCode incorporates basic zoning, subdivision regulations, urban design, and basic architectural standards into one document and applies the requirements through six transects. A transect can cut across several demographic and social lines and requires higher density, mixed-use development in the downtown (core of the City) and decreases density moving incrementally outward.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

NCBC Gulfport along with all government, state, and county-owned properties are exempt from the requirements of the SmartCode Ordinance. Certain areas (Broad Avenue area) in close proximity to NCBC Gulfport are subject to the SmartCode requirements. The SmartCode does not specifically address or acknowledge the areas surrounding NCBC Gulfport with any special districts or transects. A Military Influence Area Overlay District adopted within the City's Zoning Ordinance could provide for additional measures to ensure and maintain compatibility with the installation and the surrounding communities. Section 7, Recommendations, contains specific recommendations and implementation strategies for amendments to the City of Gulfport Zoning Ordinance.

4.4.4 CITY OF LONG BEACH COMPREHENSIVE PLAN (2013)

The City of Long Beach Comprehensive Plan recommends patterns of new development and redevelopment based upon the values gleaned from the community during numerous interviews, public forums, and outreach efforts. The result is a plan that recommends how and where development should occur, where public investment for road and utility improvements should be made, and where new schools, parks, and other public facilities should be placed. The plan sets policy, and provides direction and context for public and private investment within Long Beach over the next 20 years.

Figure 35 The City of Long Beach Comprehensive Plan was adopted in February of 2013

The Comprehensive Plan for Long Beach consist of the following six chapters: What is a Comprehensive Plan, Guiding Framework, Recommendations and Strategies, Implementation Priorities, Physical Setting, and Special Analyses. The Comprehensive Plan geographically divides the City into six wards and contains planning goals and strategies for each of the wards.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

The City of Long Beach Comprehensive Plan identifies NCBC Gulfport as one of the major regional employers. The Comprehensive Plan anticipates that employment and population growth within the City will continue to grow over the next 20 years. The NCBC Gulfport installation is located adjacent to the northeastern City of Long Beach incorporated limits. The northeastern portion of the City that is located along the western property line of NCBC Gulfport is identified in the Comprehensive Plan as being located primarily adjacent to Ward 6.

The Strategies for Ward 6 are described in the Recommendations and Strategies Chapter of the Comprehensive Plan as:

- Encourage higher density housing close to the new school to encourage children to walk to school.
- Plan and build trails and pathways within the City as needed to connect to the larger trail network within Harrison County.
- Designate commercial nodes at strategic locations such as the intersections of Klondyke and 28th, Beatline and 28th, Daugherty and the west end of Commission, or across from Quarles school on Commission.

The Special Analysis Chapter of the Comprehensive Plan discusses the long-term need for the City to expand the corporate limits and lists several areas that are potentially appropriate for annexation adjacent to the City. One of the areas listed consists of the area located to the north and northwest of the main NCBC Gulfport installation, north of 28th Street and west of Canal Road.

The City of Long Beach Comprehensive Plan also does not contain any specific goals or strategies that would provide for existing or long-term compatibility measures for the areas adjacent to or within close proximity of NCBC Gulfport. Section 7, Recommendations, contain specific recommendations and implementation strategies for amendments to the Comprehensive Plan.

4.4.5 CITY OF LONG BEACH COMPREHENSIVE UNIFIED LAND USE ORDINANCE

The City of Long Beach Comprehensive Unified Land Use Ordinance is organized into 19 articles describing general information, zoning districts, and the administration of land use regulations by the City within the incorporated limits. The Long Beach Comprehensive Unified Land Use Ordinance establishes 13 zoning districts whereby permitted uses, densities, setbacks, lot areas, lighting, and heights are established and regulated.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

The northeastern portion of the City that is located along the western property line of the main NCBC Gulfport installation is comprised of the following zoning districts: R-1 - Single-Family

Residential, R-2 – Low Density Multi-Family Residential, R-4 – Residential/Farm, C-2 – General Commercial and Civic.

None of the aforementioned zoning districts provide any measures to specifically address redevelopment or future development adjacent to or within close proximity to NCBC Gulfport. The Comprehensive Unified Land Use Ordinance could be amended to create a Military Influence Area Overlay District that applies directly to the area surrounding NCBC Gulfport. The intent of the overlay district would be to protect the mission footprint of the base and to reduce potential encroachment issues related to existing development, new development, or potential redevelopment surrounding the installation. Section 7, Recommendations, contains specific recommendations and implementation strategies for amendments to the City of Long Beach Comprehensive Unified Land Use Ordinance.

4.4.6 HARRISON COUNTY 2030 COMPREHENSIVE PLAN (2009)

The Harrison County Comprehensive Plan was adopted in 2008 and is the County's guiding document to enable the management of growth and the delivery of public services in a timely and efficient manner. The County is divided into six Community Planning areas consisting of DeLisle, eastern Harrison County, Henderson Point-Pass Christian Isles, Pineville, Saucier, and western Harrison County. The Comprehensive Plan contains Community Plans for each of the six areas. Each Community Plan is designed to guide growth and development in each planning area over a period of 20 years. The Community Plans all reflect the desire for a sustainable, rural environment and effective growth management. Community Plans serve as documents that establish long-term goals and objectives that will assist the County in carrying out the visions of its citizens.

Figure 36 Harrison County Comprehensive Plan was adopted in 2008

The Comprehensive Plan contains 14 chapters including goals, objectives and policies that were based on public input and developed to guide future development. The Comprehensive Plan Future Land Use Map identifies the future land use pattern for the County and consists of seven different sectors: (O-1) Preserved Open Sector, (O-2) Reserved Open Sector, (G-1) Restricted Growth Sector, (G-2) Controlled Growth Sector, (G-3) Intended Growth Sector, (G-4) Infill and Redevelopment Growth Sector, and (SD) Special District. The seven sectors provide for a range of development patterns from the preservation of open space and rural areas deemed unsuitable for development to the encouragement of growth in more appropriate areas.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

The northwestern portion of NCBC Gulfport is located within the unincorporated area of Harrison County. In addition, the area located to the north of 28th Street and west of Canal Road also falls within unincorporated Harrison County and is in close proximity to the main NCBC Gulfport installation. The unincorporated area that is in close proximity to NCBC Gulfport consists of the following three Comprehensive Plan Future Land Use Map Sectors:

- ***G-1 - Restricted Growth Sector:*** Sector consists of low-density, rural development, such as is typical in Harrison County. This sector includes hamlets and clustered residences with parcel sizes ranging from small lots within the hamlet to lots of up to 20 acres surrounding the hamlet. Hamlets may also have a small amount of retail and some community facilities located at main intersections. Areas within the G-1 may have value as open space, but they are subject to development based on the existing zoning that enables such development. This sector also includes conservation development, where 50 percent or more of a development is reserved as open space. These areas may be outside the sewer service areas.
- ***G-2 - Controlled Growth Sector:*** Sector consists of locations where development is encouraged, as it can support mixed-use by virtue of proximity to a thoroughfare.
- ***O-2 - Reserved Open Sector:*** Sector is composed of undeveloped parcels larger than 20 acres outside of incorporated cities and wastewater service areas that are either vacant or in agricultural/forestry use. It includes open space that should be but is not yet protected from development.

The unincorporated area located to the north of 28th Street and west of Canal Road is also located within the Pineville Community Planning Area. The Community Plan for Pineville contains the following goals:

- Ensure that Pineville prepares for growth.
- Maintain the rural character of the community.
- Restore the impacted areas of the community.
- Protect and preserve the environment.
- Develop and expand recreational opportunities.
- Improve and maintain the health and welfare of the Pineville Community.
- Promote the principles of New Urbanism.

The Community Plan along with the Concept Plan for Pineville does encourage and promote a mix of residential and neighborhood commercial uses around the end of the 28th Street area near NCBC Gulfport.

The Woolmarket Range Special Area is located along the north side of Highway 67, west of Lamey Bridge Road and south of Blackwell Farms Road and entirely within the unincorporated area of Harrison County. Woolmarket Range consists of following two Comprehensive Plan Future Land Use Map Sectors:

- ***O-1 - Preserved Open Sector:*** Sector consists of open space already protected from development in perpetuity. The Preserved Open Sector includes undeveloped areas under environmental protection by law or standard, as well as land acquired for conservation through purchase or land protected from development by easement.
- ***G-2 - Controlled Growth Sector:*** Sector consists of locations where development is encouraged, as it can support mixed-use by virtue of proximity to a thoroughfare.

Woolmarket Range is located within the Saucier and Eastern Community Planning Areas. However, the portion of Woolmarket Range within the Saucier Community Planning Area is contained completely within the Desoto National Forest. The community plans for Saucier and Eastern Community Planning Areas contain the following goals:

- ***Saucier Community***
  - Ensure that Saucier prepares for growth.
  - Create diverse housing options in Saucier.
  - Preserve the rural character of Saucier.
  - Improve and maintain the health and welfare of the Saucier Community.
  - Develop and enhance the Town Center.
  - Support a variety of economic activity.
- ***Eastern Community***
  - Ensure that eastern Harrison County prepares for growth.
  - Foster a sense of community through residential and economic development.
  - Improve mobility and roadway connectivity.
  - Preserve natural resources.
  - Improve and create additional recreational opportunities.
  - Provide quality housing choices for all residents.
  - Promote principles of New Urbanism and green development.

Neither the Eastern Community Plan nor the Saucier Community Plan specifically addresses or acknowledges Woolmarket Range. The Saucier Plan does mention that 38 percent of the area within the Community Plan is located within the Desoto National Forest and that this area provides for various recreational opportunities. The Eastern Community Concept Plan depicts additional low density residential areas around the Woolmarket area.

The Harrison County Comprehensive Plan also does not contain any specific goals or strategies that would provide for existing or long-term compatibility measures for the areas adjacent to or

within close proximity of NCBC Gulfport or Woolmarket Range. Section 7, Recommendations, contains specific recommendations and implementation strategies for amendments to the Harrison County Comprehensive Plan.

4.4.7 HARRISON COUNTY UNIFIED DEVELOPMENT CODE

The intent of the Harrison County Unified Development Code is to implement the Comprehensive Plan through a series of regulations. The Unified Development Code divides the County into Zoning Districts which regulate the size of yards and open spaces, density and distribution of population, and the uses of buildings, structures and lands. Procedures are prescribed for the administration, enforcement, and appeal of these regulations.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

The area located to the north of NCBC Gulfport, north of 28th Street and west of Canal Road, within unincorporated Harrison County, consists of the following Zoning Districts: R-3 High Density Residential District, C-1 Neighborhood Commercial District, E-1 Very Low Density Residential District, and A-1 General Agricultural District. Woolmarket Range has a zoning designation of A-1 General Agricultural District. The area surrounding Woolmarket Range consists of the following Zoning Districts: R-1 Low Density Residential District, C-1 Neighborhood Commercial District, E-1 Very Low Density Residential District, A-1 General Agricultural District, and I-1 Light Industry District.

None of the aforementioned zoning districts provide any measures to specifically address redevelopment or future development adjacent to or within close proximity to the NCBC Gulfport installation. The Unified Development Code could be amended to create a Military Influence Area Overlay District that applies directly to the area surrounding the main NCBC Gulfport installation and Woolmarket Range. The intent of the overlay district would be to protect the mission footprint of the base and to reduce potential encroachment issues related to existing development, new development, or potential redevelopment surrounding the installation. Section 7, Recommendations, contains specific recommendations and implementation strategies for amendments to the Harrison County Unified Development Code.

4.4.8 HARRISON COUNTY SMARTCODE

The SmartCode in Harrison County is not mandatory and is an optional land use tool for the development of neighborhoods and communities. The SmartCode incorporates basic zoning, subdivision regulations, urban design, and basic architectural standards into one document and applies the requirements through seven transects. The SmartCode implements the six Community Plans and the Future Land Use Map Sectors contained within the Comprehensive Plan.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

The SmartCode does not specifically address or acknowledge the areas surrounding NCBC Gulfport with any special districts or transects. A Military Influence Area Overlay District adopted within the County's Unified Development Code could provide for additional measures to ensure and maintain compatibility with NCBC Gulfport, Woolmarket Range and the surrounding communities. Section 7, Recommendations, contain specific recommendations and implementation strategies for amendments to the Unified Development Code.

4.4.9 HANCOCK COUNTY COMPREHENSIVE PLAN (2010)

Figure 37 The Hancock County Comprehensive Plan was adopted in 2010

The Hancock County Comprehensive Plan was adopted in 2010 with a 20-year planning horizon and implements the County's vision and guiding principles for the future of Hancock County. The Comprehensive Plan contains nine sections consisting of the Vision, Goals and Policies, Community Facilities, Housing Plan, Natural Resources, Transportation, Land Use Plan, Economic Development Plan, and Plan Administration and Implementation.

The Comprehensive Plan Future Land Use Map identifies the future land use pattern for the County and consists of 11 Future Land Use Categories. The 2030 Urbanized Area Map separates the County into urban and rural areas to assist the County in making zoning and development decisions. The 2030 Urbanized Area includes Pearlington, Lakeshore, Clermont Harbor, Bayside Park, City of Waveland, City of Bay St. Louis, Diamondhead, Kiln, and Fenton.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

Two of the Special Areas, the WMA and Stennis International Airport, are located within Hancock County and are being analyzed as part of the JLUS. The WMA is owned by the Navy and is located along the Pearl River in the western most portion of Hancock County. The WMA is totally located within the Stennis Space Center Acoustic Buffer Zone. Stennis International Airport is a county-owned and operated facility. Stennis International Airport is included within the JLUS due to the military's substantial use of the facility and its partial location within the Stennis Space Center Acoustic Buffer Zone.

Hancock County acknowledges the importance of the Stennis Space Center within Section 1, Vision, Goals and Policies, of the Comprehensive Plan. The fifth guiding principle to implement the County's vision states: *We will promote the growth of a diverse economy that: Supports ongoing activities at Stennis Space Center.* Furthermore, Goal 7 of Economic Goals and Polices,

indicates the significance of retaining existing business as a vibrant part of the County's economy by coordinating with Stennis Space Center to identify and address short- and long-term operational needs.

The Comprehensive Plan does contain several goals and policies that would provide for land use compatibility measures for any new development or redevelopment around Stennis Space Center and Stennis International Airport. The goals and policies that were identified during the analysis consist of the following:

- ***Policy 10.5:*** The Future Land Use Map establishes a land use pattern that will accommodate anticipated commercial and residential growth in the community. Prior to amending the Future Land Use Map, make findings that the proposed amendment:
  - Would be consistent with the Plan goals.
  - Would be compatible with future land uses for surrounding areas of the community.
- ***Policy 10.6:*** Protect neighborhoods from encroachment of incompatible land uses by ensuring that zoning is consistent with the Future Land Use Map, by developing and implementing area plans and by enforcing compatibility standards that address noise, traffic and aesthetics.
- ***Policy 10.13:*** Ensure that development in the vicinity of the airport does not constrain future growth and operations of the airport.
- ***Goal 11:*** To promote the concept of land use compatibility with Airport operations on lands surrounding Stennis International Airport.
- ***Policy 11.1:*** Prevent or discourage residential uses around Stennis International Airport.
- ***Policy 11.2*** The County should work with Airport Management to develop appropriate land use controls that can be used to manage proposed land use changes to ensure continued compatibility.

The Comprehensive Plan could be amended to strengthen the goals and objectives associated with providing existing and long term compatibility measures and to establish an airport overlay district for the areas located in close proximity of Stennis International Airport. Section 7, Recommendations, contain specific recommendations and implementation strategies for amendments to the Hancock County Comprehensive Plan.

4.4.10 HANCOCK COUNTY ZONING ORDINANCE

Hancock County's Zoning Ordinance was originally adopted in 1992, and has been updated regularly to address changing land use concerns and opportunities within the County. The ordinance was prepared to control nuisance land uses and to ensure that neighboring land uses were compatible with existing land uses. The County's official Zoning Map designated large areas of the County as an agricultural zone to support low-density housing, resource production and agricultural preferences of county residents. In recent years, the County modified its ordinance to

address new land uses not originally addressed in the Zoning Ordinance. The proposed new land uses included resort type development (including both vacation condominiums and casino gaming) and large big-box commercial development.

Application to NCBC Gulfport + Special Areas Joint Land Use Study

The WMA is located along the Pearl River in the western most portion of Hancock County. The WMA is completely surrounded by and located wholly within Stennis Space Center's Acoustic Buffer Zone and therefore is not directly impacted by adjacent land uses. Stennis International Airport and the surrounding area is currently zoned Industrial. There are areas directly to the north and south of Stennis International Airport that are currently zoned Residential. Article V, Special and Overlay Districts, establishes an Airport Overlay District for the area around Stennis Airport and consists of the following:

- ***Airport District:*** To include such compatible and related activities air fields, air strips, and other related uses, provided however, that any and all uses, improvements to facilities and buildings shall be erected and constructed in accordance with current regulations of the Federal Aviation Administration of the United States Government.

The Zoning Ordinance and the Airport Overlay District could be amended to better address coordination and compatibility issues surrounding Stennis International Airport. Section 7, Recommendations, contain specific recommendations and implementation strategies for amendments to the City of Long Beach Comprehensive Unified Land Use Ordinance.

DEVELOPMENT SUITABILITY ANALYSIS

5.0

5.0 DEVELOPMENT SUITABILITY ANALYSIS

The Development Suitability Analysis is an important component of the compatibility analysis that effectively evaluates the study area's potential for new development. The magnitude of this information and the interdependencies demonstrated between military and civilian interests reinforces the needs for safeguarding NCBC Gulfport, Woolmarket Range, the WMA, and Stennis International Airport as assets to the U.S. Military and an engine for continued economic growth and development in the surrounding region.

Current plans, policies, and ordinances for local governments; expanding utility service areas; the military mission footprint for NCBC Gulfport + Special Areas; and steady growth throughout the Mississippi Coast will keep land use compatibility and the balance between competing interests important for future years. Identifying potential conflict areas and enumerating their impacts, should inform recommendations for the joint land use study and help stakeholders prioritize their implementation.

Future growth and development surrounding NCBC Gulfport, Woolmarket Range, and Stennis International Airport were studied to determine if, when, or where conditions might occur that create (or make worse) conflicts between military operations and nearby development types, locations, patterns, or intensities. The WMA was not included in the analysis due to the existing Stennis Acoustic Buffer Zone and the limit it imposes on any future development. Louisiana abuts the WMA on the western side and consists of a Wildlife Management Area, further limiting the possibility of development.

The magnitude, timing, and location of future growth in the region were measured and evaluated using CommunityViz.™ The GIS-based software provides a framework for studying the impacts of physical development or policy decisions using localized data and a series of user-defined parameters. The parameters used included the following:

- ***Existing Regulations.*** Regulations in place including density, intensity, height, and land use type (i.e. residential, commercial, industrial, conservation) were incorporated into the analysis.
- ***Existing Buildings.*** Although there is a potential for redevelopment, lands with existing buildings were not considered highly suitable for development.
- ***Roads.*** Proximity to existing roads and the potential for future roads was weighted as an important factor for future development.
- ***Potable Water.*** Existing potable water service or the possibility of potable water service extension was viewed as an important factor for future development.

- ***Sanitary Sewer.*** Existing sanitary sewer service or the possibility of sanitary sewer service extension was viewed as an important factor for future development.
- ***Wetlands.*** Wetlands were considered a deterrent for future development potential.
- ***Floodways.*** Development was prohibited from occurring within floodways.
- ***Noise Contours.*** Lands within identified noise contours were considered a deterrent for future development potential.
- ***Schools.*** Proximity to schools was identified as a positive factor for development.

5.1 NCBC GULFPORT

The lands north of NCBC Gulfport contain wetlands that will limit development and many of the areas to the east and south contain existing, platted development. When looking at areas for potential development or redevelopment around NCBC Gulfport, the land to the west of the facility within the City of Long Beach is the most likely area. When incorporating any impacts from NCBC Gulfport, such as the noise contours, this area becomes less suitable for development.

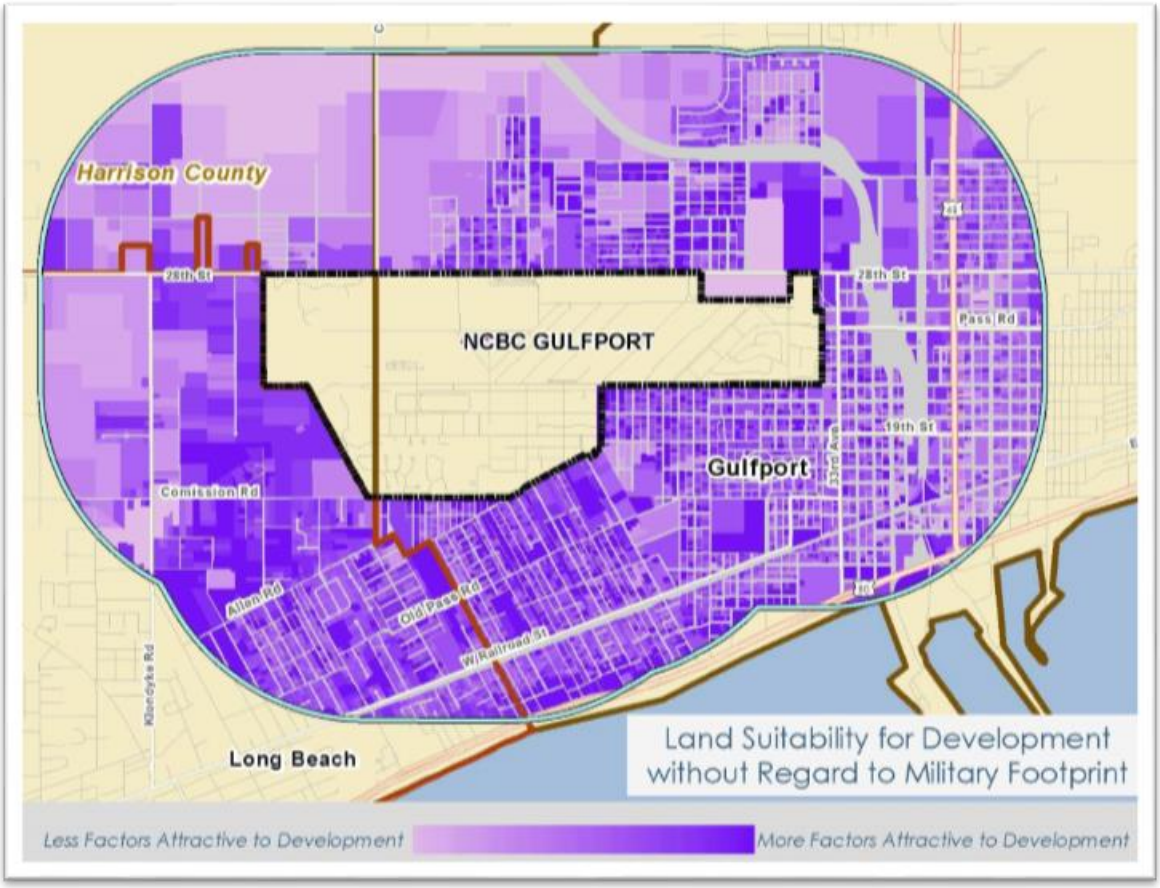


Figure 38 NCBC Gulfport Land Suitability for Development without Regard to Military Footprint

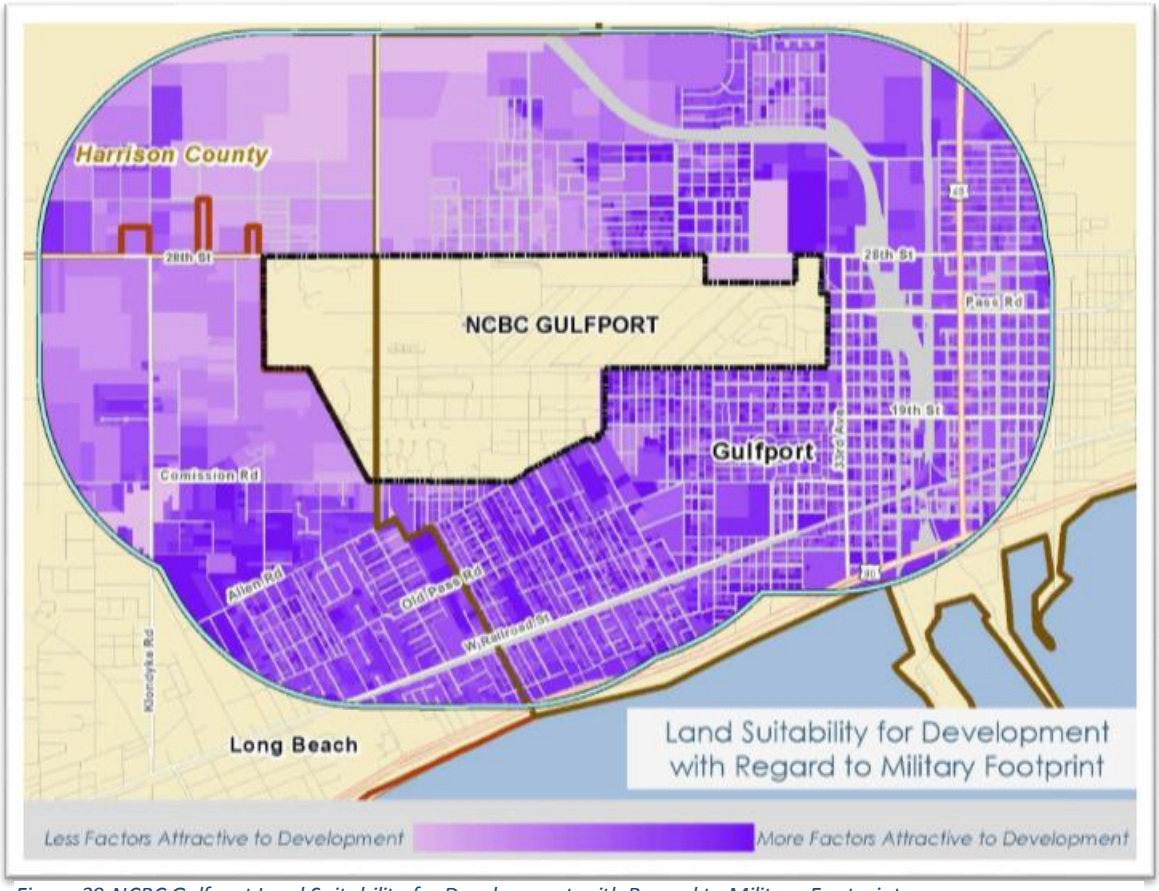


Figure 39 NCBC Gulfport Land Suitability for Development with Regard to Military Footprint

5.2 WOOLMARKET RANGE

Development around Woolmarket is limited due to the existence of the DeSoto National Forest. For development to take place, it will likely be south or southwest of Woolmarket. When not taking into consideration impacts from the Range, such as the increased noise levels, the prime areas for development are directly adjacent to the range. However, as can be seen on the graphic, when incorporating the noise contours these same areas are less suitable for development. Instead, new development is pushed south of Highway 67 and farther west of the range.

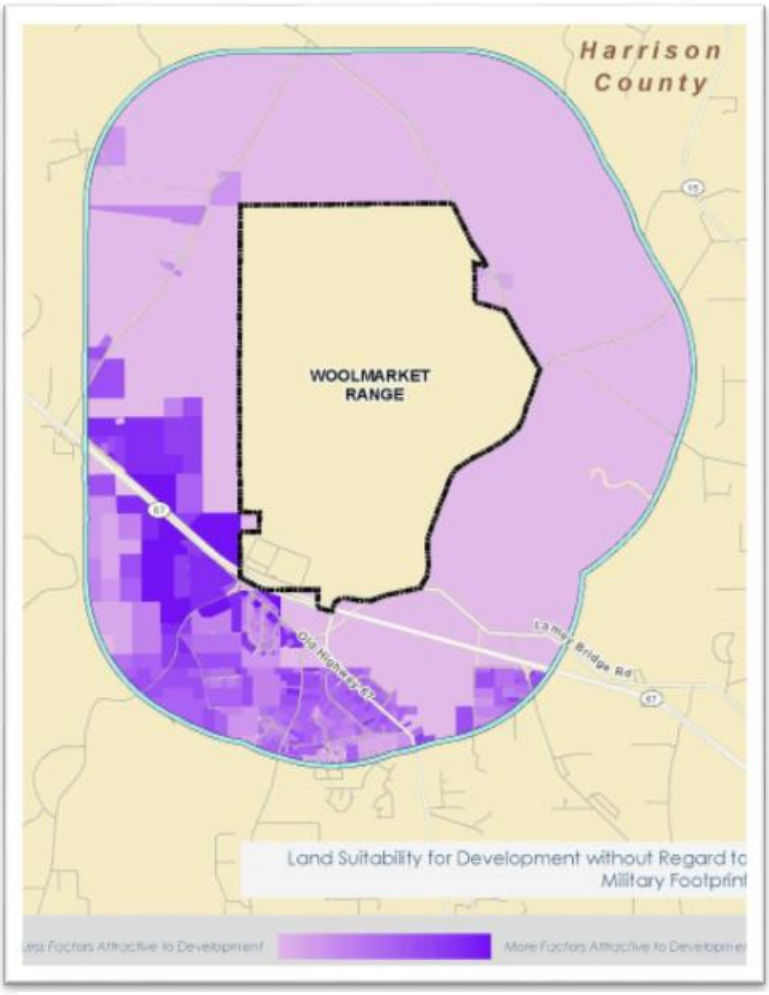


Figure 40 Woolmarket Land Suitability for Development without Regard to Military Footprint

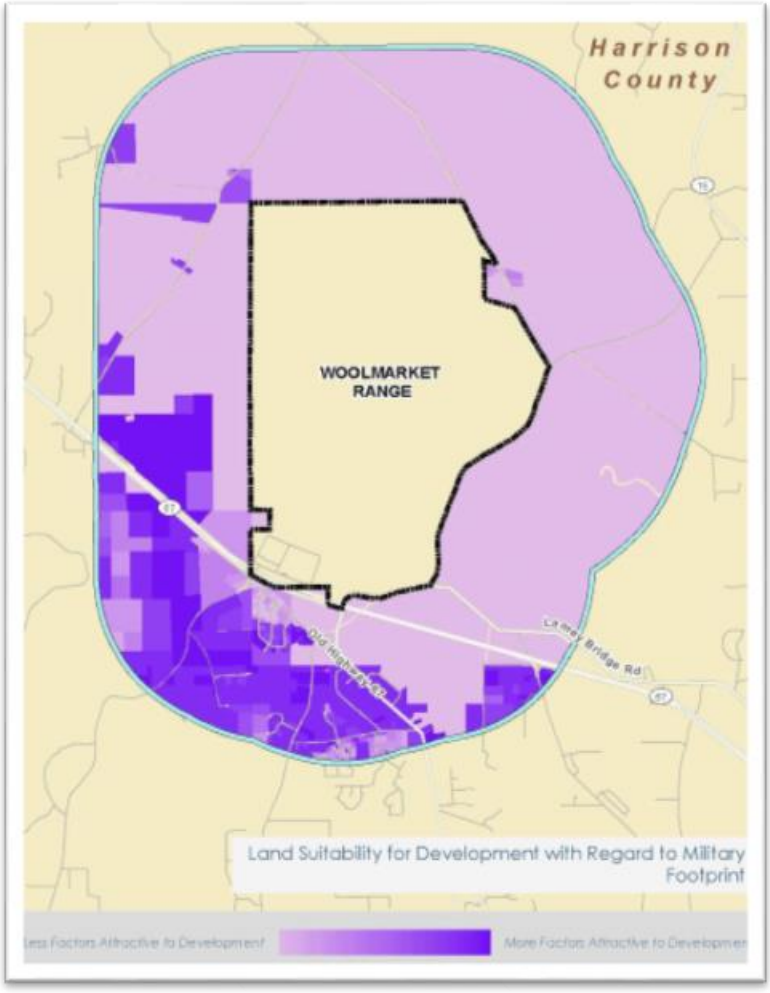


Figure 41 Woolmarket Land Suitability for Development with Regard to Military Footprint

5.3 STENNIS INTERNATIONAL AIRPORT

Development on the west side of Stennis International Airport, and a portion to the north and south, is prohibited due to the Stennis Acoustic Buffer zone. Development surrounding Stennis International Airport may be hindered by the wetlands and floodplains within the area. The prime locations for future development or redevelopment would be to the north and northeast of Stennis International Airport.

Because Stennis International Airport is not a military facility, the ability to analyze the potential changes based on the military footprint were limited. Noise zones have not been determined for the area and could therefore not be incorporated into the analysis. However, the Clear Zone, and Approach Zones I and II were drafted and incorporated into the analysis to determine how they

would potentially impact the development pattern around Stennis International Airport. Development would not be significantly impacted by their presence, but it would be shifted more towards the central, eastern side of Stennis International Airport. In this location, future development would be sheltered from flight paths and would have minimal natural impediments such as wetlands and floodplains.

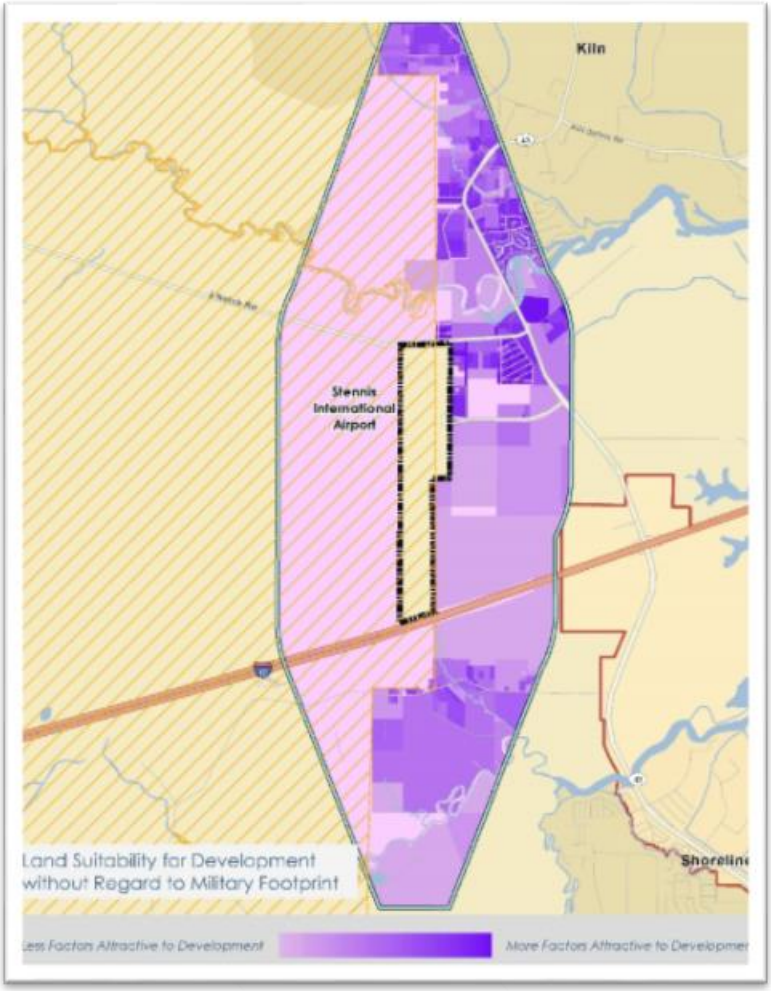


Figure 42 Stennis International Airport Land Suitability for Development without Regard to Military Footprint

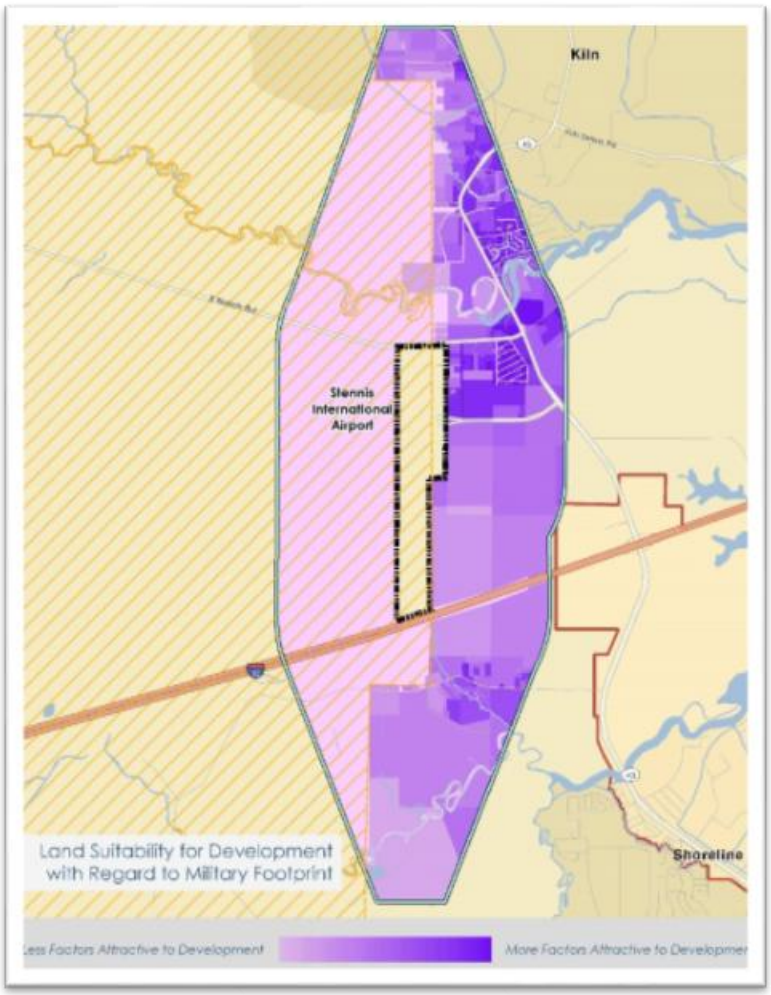


Figure 43 Stennis International Airport Land Suitability for Development with Regard to Military Footprint

COMPATIBILITY ANALYSIS 6.0

6.0 COMPATIBILITY ANALYSIS

Compatibility, with respect to military readiness, can be defined as the balance between the goals and needs of the community and the mission requirements of the military. Twenty-four compatibility factors were identified and analyzed in order to assess NCBC Gulfport + Special Areas impact on the local community as well as the community's impact on NCBC Gulfport + Special Areas operations. Each Special Area was analyzed individually to allow the analysis to be separate from one another and truly identify the issues irrelevant of the other areas.

Encroachment "runs both ways" and it takes many forms. Encroachment, as defined by the U.S. Department of Defense, referring to incompatible uses of land, air, water, and other resource is "the cumulative impact of urban and rural development that can hamper the military's ability to carry out its testing and training mission." For the civilian community, encroachment can affect quality of life from noise and smoke to traffic and housing. Land use controls that can help sustain mission capability can also be seen as encroaching on the rights of property owners, affecting property values, and leading to a potential loss of income from development.

Table 6.0.1: Compatibility Factors

Development Factors	
Land Use	Comprehensive growth policy plans and zoning ordinances
Land Suitability Analysis	A comprehensive inventory and assessment of development conditions and features
Safety Zones	Restricted areas due to higher risks to public safety
Vertical Obstructions	Features such as buildings and trees that can lead to frequency interference
Housing Availability	Adequate supply of and access to housing
Infrastructure Extensions and Capacity	The extension or provision of infrastructure including transportation, solid waste, water, etc.

	Anti-Terrorism / Force Protection	Safety of personnel, facilities, and information from outside threats
	Noise and Vibration	Unwanted levels of noise and vibrations
	Dust / Smoke / Steam	Dust, smoke, or steam in sufficient quantity to disrupt flight operations or quality of life
	Light and Glare	Manmade lighting or excessive glare
	Energy Development	Alternative energy sources can cause glare, vertical obstructions, or water quality / quantity impacts
	Frequency Spectrum	Frequency Spectrum capacity is a limited resource that is critical for military and civilian communications
	UXO and Munitions	Potential for unexploded ordnances and munitions
People Factors		
	Coordination / Communication	Collaboration and communication between military installations, jurisdictions, land and resource agencies, conservation authorities, and other regulatory agencies
	Public and Military Safety	Issues such as public trespassing could compromise the safety of the military and the civilians
	Legislative Initiatives	Federal, state, or local regulations that may impact the military mission or civilian interaction
	Cultural Resources	Cultural resources in the community or on the military installation may require development constraints or prevent development from occurring

Natural Resource Factors		
	Land / Air / Sea Spaces	Land, air, and sea spaces must be available and of sufficient size to meet the needs of both the military and the community
	Air Quality	Pollutants that may limit visibility and non-attainment of air quality standards that may restrict future operations
	Scarce Natural Resources	The location of valuable natural resources can impact land utilization
	Climate Adaption	The effect of climate change may result in fluctuations of sea level, storm and tidal surges, and flooding
	Threatened and Endangered Species	Sensitive biological resources may require special development considerations
	Marine Environment	Regulatory or permit requirements protecting marine and ocean resources
	Water Quality / Quantity	The availability of quality water with an adequate supply

Each of the compatibility factors were informed by available data and pertinent documents, reports, and studies; input from Technical Committee and Policy Committee members and key stakeholders, including local government staff; and input received during public meetings. These factors represent the primary land use compatibility challenges used to assess impacts from the perspective of both the surrounding community and NCBC Gulfport + Special Areas. All of the factors were reviewed; however, not all of the factors were applicable to each of the Special Areas. If a factor was deemed unnecessary, it was removed from the following discussion. Several of the factors were grouped together under "Areas of Interest" in order to streamline the analysis and reduce duplication.

Each Area of Interest was presented to the Technical Committee and Policy Committee in meetings held November 9th and 10th, 2016. The Technical Committee reviewed each Area of Interest and provided revisions to the language, removed those unnecessary, and then ranked them based on priority. A discussion of the Areas of Interest, their impact on the community and

the military, their priority ranking, and the compatibility factors considered can be found in the following section.

6.1 GENERAL AREAS OF INTEREST

Although the JLUS provides specific details for each of the identified Special Areas, there are some Areas of Interest that generally apply to all of the facilities. The following discussion applies to all of the facilities within the JLUS – NCBC Gulfport, Woolmarket Range, WMA, and Stennis International Airport.

6.1.1 FREQUENCY INTERFERENCE

Area of Interest

Public telecommunication and infrastructure may cause frequency interference with military communication equipment and the community.

Figure 44 Example of telecommunication facility that could cause frequency interference

Background

The electromagnetic (EM) spectrum is the range of all types of EM radiation. Radiation is energy that travels and spreads out as it goes. An example is the visible light that comes from a lamp in your house and the radio waves that come from a radio station. The other types of EM radiation that make up the electromagnetic spectrum are microwaves, infrared light, ultraviolet light, X-rays and gamma-rays.

Table 6.1.1.a: Electromagnetic Spectrum

Electromagnetic Spectrum	Description	Examples
Radio	Clock radios capture radio waves emitted by radio stations.	AM Radio Amateur Radio Aircraft Communication
Microwave	Microwave radiation is used to heat items in the microwave and also used by astronomers to study the galaxy.	Microwave Oven
Infrared	Night vision goggles pick up the infrared light emitted by our skin and objects with	Television Remote

Electromagnetic Spectrum	Description	Examples
	heat. In space, infrared light helps us map the dust between stars.	Night Vision Goggles
Visible	Our eyes detect visible light.	Fireflies Light Bulb Star
Ultraviolet	Ultraviolet radiation is emitted by the Sun and are the reason skin tans and burns.	Sun
X-Ray	A dentist uses X-rays to image your teeth, and airport security uses them to see through your bag.	Airport Security Scanner
Gamma-Ray	Doctors use gamma-ray imaging to see inside your body. The biggest gamma-ray generator of all is the Universe.	PET Scan

Source: http://imagine.gsfc.nasa.gov/science/toolbox/emspectrum1.html

Two federal agencies regulate the use of the EM: the Federal Communications Commission (FCC) and the National Telecommunications and Information Administration (NTIA). The NTIA manages the federal government's use of spectrum, ensuring that America's domestic and international spectrum needs are met while making efficient use of this limited resource. The Federal Communications Commission regulates interstate and international communications by radio, television, wire, satellite, and cable in all 50 states, the District of Columbia, and U.S. territories.

Compatibility Review

The Navy relies on a range of frequency spectrum for effective and safe command and control of units. The Navy uses the frequency spectrum for military radios, radar, and navigations. These are in direct competition with civilian uses leading to incompatible sources of electromagnetic interference, frequency interference, and competition for available frequencies. Concerns include the placement of a telecommunication tower or microwave site near the base or increased competition for frequency spectrum. Although not currently an issue at NCBC Gulfport or the Special Areas, the potential for increased development leads to increased competition and the possibility for frequency interference in the future.

Applicable Compatibility Factors

The following compatibility factors apply to the Frequency Interference Area of Interest.

Table 6.1.1.b: Frequency Interference Compatibility Factors

Development Factors
Land Use
Frequency Spectrum

Priority Ranking

HIGH

The Frequency Interference Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.1.2 COORDINATION AND COMMUNICATION

Area of Interest

The community has a great working relationship with the military. A more formalized communication process will only aid in solidifying the relationship.

Compatibility Review

NCBC Gulfport + Special Areas has an outstanding relationship with the communities in which they are located. It is evident that each is dependent on the other, but appreciative of the role that they play. It is important to solidify that relationship and maintain the current standard for the future.

Figure 45 Coordination between the community and the Navy during the JLUS site tour

Applicable Compatibility Factors

The following compatibility factors apply to the Coordination and Communication Area of Interest.

Table 6.1.2: Coordination and Communication Compatibility Factors

People Factors
Coordination / Communication

Priority Ranking

HIGH

The Coordination and Communication Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.1.3 IMPLEMENTATION

Area of Interest

Through a team approach, the JLUS can be successfully implemented to promote compatibility and defend against encroachment for NCBC Gulfport + Special Areas, Harrison County, Hancock County, Gulfport, and Long Beach.

Figure 46 The TAC meeting to discuss opportunities from the JLUS

Compatibility Review

Without implementation, a JLUS is just a document on a shelf. The implementation is the key to the process and the only way to promote compatibility and defend against encroachment. The formation of a JLUS Implementation Committee continues the momentum that was established throughout the JLUS process. They are then able to be the driving force to carry the process through the implementation phase and ultimately complete the goal the JLUS set out to accomplish.

In addition to the establishment of an Implementation Committee, the Navy, Gulfport, Long Beach, Harrison and Hancock counties would benefit from a regional database to share relevant GIS-based data throughout the implementation process. The establishment of a data repository, in particular for GIS data, can save time and money when moving forward with the implementation of the study.

Applicable Compatibility Factors

The following compatibility factors apply to the Implementation Area of Interest.

Table 6.1.3: Implementation Compatibility Factors

People Factors
Coordination / Communication

Priority Ranking

HIGH

The Implementation Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.1.4 AIR ATTAINMENT

Area of Interest

Mississippi has always been designated as attaining all U.S. Environmental Protection Agency (EPA) ambient air quality standards. However, EPA has recently revised standards for ground-level ozone and fine particulate matter that are designed to be more protective of human health and welfare. These standards present new challenges for the state to continue to be designated as attainment.

Background

Under the Clean Air Act, the EPA established primary air quality standards to protect public health, including the health of "sensitive populations such as people with asthma, children, and older adults." The EPA also sets secondary standards to protect public welfare. This includes protecting

ecosystems, including plants and animals from harm, as well as protecting against decreased visibility and damage to crops, vegetation, and buildings.

The Ambient Air Quality Standards for Mississippi are specified in 11 Miss. Admin. Code, Pt. 2, Ch. 4. Except for odor, the ambient air quality standards for Mississippi are the Primary and Secondary National Ambient Air Quality Standards (NAAQS) as also stated by the EPA. The EPA has set national air quality standards for six principal air pollutants: Nitrogen Dioxide (NO2), Ozone (O3), Sulfur Dioxide (SO2), Particulate Matter (PM), Carbon Monoxide (CO), and Lead (Pb).

In October 2015, EPA lowered the primary and secondary ozone standards from 75 ppb to 70 ppb. Although Mississippi is meeting this standard for the 2013-2015 period, the EPA will designate attainment/nonattainment areas based on 2014-2016 ozone data.

Collection and analysis of air quality data is a basic need of any effective air pollution control program. The criteria pollutants, particulate matter, sulfur dioxide, ozone, carbon monoxide, lead and nitrogen dioxide are currently measured at locations in Mississippi. The ambient air quality data is used to verify compliance with or progress being made toward compliance with standards for ambient air quality, to support development of strategies to reduce air contaminants, and to assess the subsequent effectiveness of reduction strategies in attaining and maintaining air quality standards. The air quality standards within Harrison and Hancock Counties are identified in Table 6.1.4.a. As of the 2015 data, the State of Mississippi is meeting the standards to remain in attainment state.

Table 6.1.4.a: Harrison and Hancock County 2015 Air Quality Data

	HANCOCK COUNTY	HARRISON COUNTY	EPA STANDARDS
Ozone	64	67	70ppb
$PM_{2.5}$	8.6	8.8	12.0 $\mu g/m^3$ (primary) 15.0 $\mu g/m^3$ (secondary)
Primary and Secondary 24-Hour Average Standard (98^{th} Percentile)	18	19	36 $\mu g/m^3$

Source: MDEQ 2015 Air Quality Data Summary

Compatibility Review

Harrison and Hancock counties meet the current requirement but have been close to being designated as non-attainment areas in the past. Designation would prohibit federal agencies from engaging in, supporting, providing financial assistance for licensing, permitting, or approving any activity that doesn't conform to the Mississippi State Implementation Plan.

The Mississippi Department of Environmental Quality (MDEQ), together with a Clean Air Advisory Group, formed as a result of a Federal Coastal Impact Assistance Program (CIAP) Grant, has launched a voluntary ozone reduction awareness program. Leading businesses and industries have already signed on and have identified additional voluntary actions to be taken on days MDEQ reports that weather conditions are favorable to ozone accumulation

Applicable Compatibility Factors

The following compatibility factors apply to the Air Attainment Area of Interest.

Table 6.1.4.b: Air Attainment Compatibility Factors

Natural Resource Factors
Air Quality

Priority Ranking

HIGH

The Air Attainment Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.1.5 EMERGENCY PREPAREDNESS

Area of Interest

Coastal storms, flooding, tornadoes, and other natural disasters have had a substantial impact on the Mississippi Gulf Coast and have the potential to occur in the future.

Background

According to the EPA, the global temperature has increased by more than 1.5°F since the late 1800's and some regions have warmed by more than twice that amount. The buildup of greenhouse gases in our atmosphere and the warming of the planet are responsible for other changes, including:

- Changing temperature and precipitation patterns;
- Increases in ocean temperatures, sea level, and acidity;
- Melting of glaciers and sea ice;
- Changes in the frequency, intensity, and duration of extreme weather events;
- Shifts in ecosystem characteristics (i.e. timing of flower blooms, migration of birds); and
- Increasing effects on human health and well-being.

Compatibility Review

The Mississippi Gulf Coast is no stranger to major weather events, and of particular note is Hurricane Katrina in 2005. The Gulf Coast of Mississippi suffered near total devastation from Hurricane Katrina, with hurricane winds, 28-foot storm surge, and 55-foot sea waves pushing casino barges, boats and debris into towns, and billions of dollars

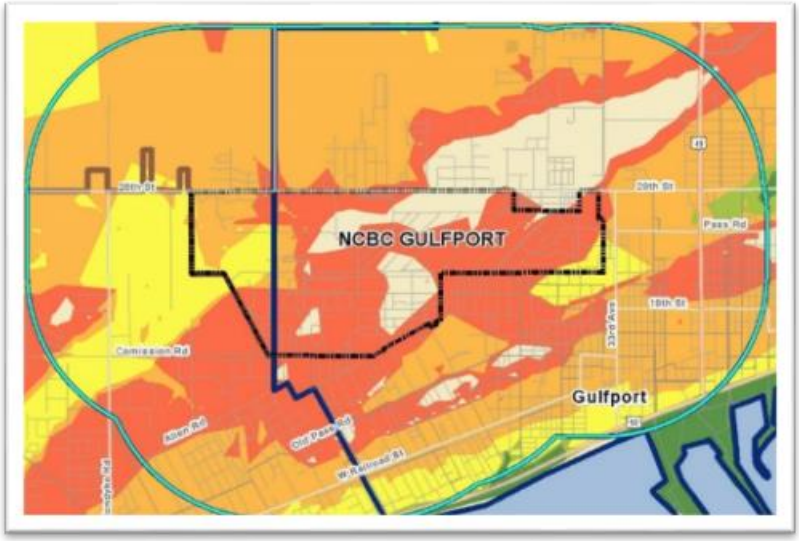
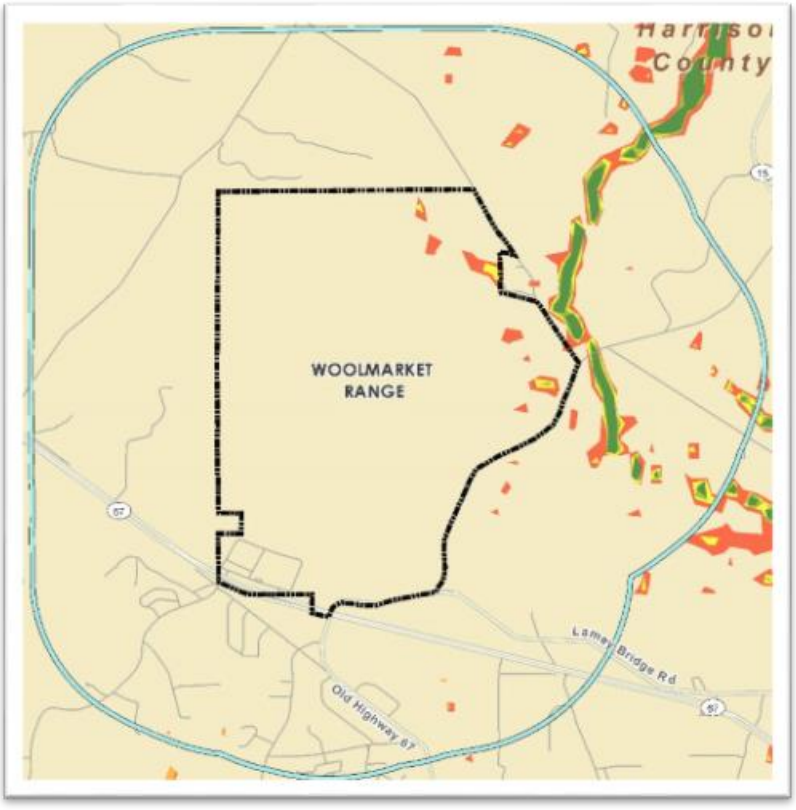


Figure 47 Category 1 - 5 storm surge in the NCBC Gulfport and Woolmarket study areas



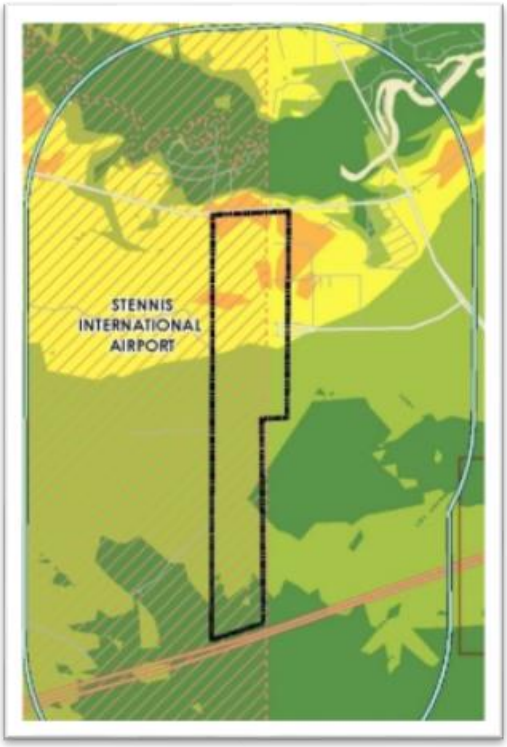
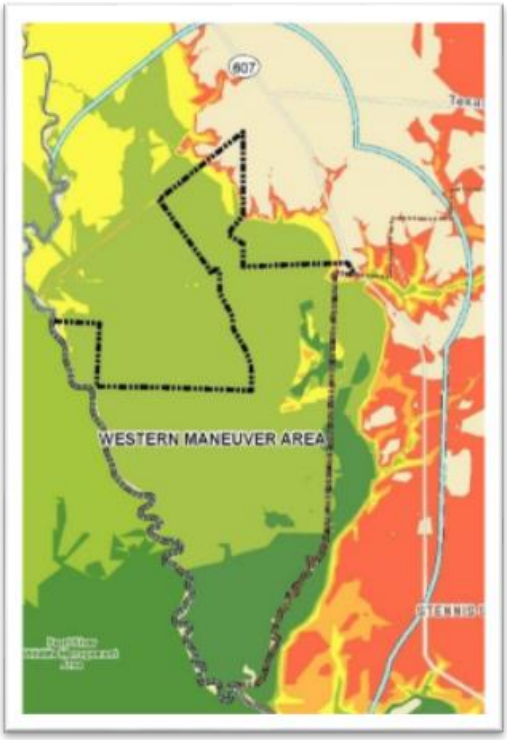


Figure 48 Category 1 - 5 storm surge in the Stennis International Airport and WMA study areas



in damages. Katrina's storm surge was the most extensive, as well as the highest, in the documented history of the United States; large portions of Hancock County, Harrison County, and Jackson County were inundated by the storm surge, affecting most of the populated areas.

The Community has learned from this event and put Hazard Mitigation Plans in place. The Navy and local governments have mutual aid agreements in place as well to assist with fires and other emergencies that may occur. However, these relationships can be strengthened to share resources and assist one another should the need arise.

Applicable Compatibility Factors

The following compatibility factors apply to the Emergency Preparedness Area of Interest.

Table 6.1.5: Emergency Preparedness Compatibility Factors

Natural Resource Factors
Climate Adaptation

Priority Ranking

Medium

The Emergency Preparedness Area of Interest received a medium priority ranking meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

6.1.6 UNMANNED AIRCRAFT SYSTEMS

Area of Interest

Private unmanned aircraft systems (UAS), commonly referred to as drones, flying over the installation, special areas, and Stennis International Airport create concerns for military activities.

Background

Due to the relatively new, but prolific presence of UAS, the rules are still evolving. The UAS are subject to regulation by the FAA to ensure safety of flight and safety of people and property on the ground. Many states and local jurisdictions are also beginning to incorporate policies into their regulations. State and local restrictions affecting UAS operations must be consistent with federal statutory and regulatory framework pertaining to the following:

- control of the airspace,
- flight management and efficiency,
- air traffic control,
- aviation safety,
- navigational facilities, and
- the regulation of aircraft noise at its source.

According to the *"FAA's State and Local Regulation of Unmanned Aircraft Systems Fact Sheet,"* on February 15, 2015, the FAA proposed a framework of regulations that would allow routine commercial use of certain small UAS within the aviation system, while maintaining flexibility to accommodate future technological innovations. The FAA's Notice of Proposed Rulemaking offered safety rules for small UAS (under 55 pounds) conducting non-recreational or non-hobby operations. The proposed rule defines permissible hours of flight, line-of-sight observation, altitude, operator certification, optional use of visual observers, aircraft registration and marking, and operational limits.

Consistent with its statutory authority, the FAA is requiring Federal registration of UAS in order to operate a UAS. Registering UAS will help protect public safety in the air and on the ground, aid the FAA in the enforcement of safety-related requirements for the operation of UAS, and build a culture of accountability and responsibility among users operating in U.S. airspace. No state or local UAS registration law may relieve a UAS owner or operator from complying with the Federal UAS registration requirements. Because Federal registration is the exclusive means for registering UAS for purposes of operating an aircraft in navigable airspace, no state or local government may impose an additional registration requirement on the operation of UAS in navigable airspace without first obtaining FAA approval.

Compatibility Review

Figure 49 Drones flying over the base are a concern for the military
http://geekongadgets.com/2016/09/23/the-rise-of-the-drone-craze/

The frequency of UAS has increased throughout the United States, and the occurrence within Mississippi is no different. According to reports filed with the armed forces or FAA, there have been at least 35 cases of small drones interfering with military aircraft or operating too close to military airfields. In a July 31, 2015 intelligence bulletin, the Department of Homeland Security said it had recorded more than 500 incidents since 2012 in which rogue drones hovered over "sensitive sites and critical installations," such as military bases and nuclear plants.

The FAA has imposed guidelines requiring height and location of the UAS, but the regulations are hard to enforce and wouldn't protect NCBC as it does not contain an airport or restricted air space.

Although NCBC Gulfport + Special Areas has not yet had an incident caused by UAS flying over the base, advisors and technical experts are concerned of the potential impacts. Conflicts may arise including competing airspace, decreased training abilities as well as concern over anti-terrorism / force protection.

Applicable Compatibility Factors

The following compatibility factors apply to the Unmanned Aircraft Systems Area of Interest.

Table 6.2.6: Unmanned Aircraft Systems Compatibility Factors

Development Factors	
	Public and Military Base Safety
	Anti-Terrorism / Force Protection
Natural Resource Factors	
	Land / Air / Sea Spaces

Priority Ranking

The Unmanned Aircraft Systems Area of Interest received a medium priority ranking meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

6.1.7 THREATENED AND ENDANGERED SPECIES

Area of Interest

Threatened and endangered species are likely present within the JLUS study area as well as NCBC Gulfport + Special Areas. The Navy is required to meet National Environmental Policy Act (NEPA) regulations and any private development must comply with state and federal regulations.

Background

The Endangered Species Act (ESA) defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range." Endangered species are automatically protected *from* harming, harassing, collecting, or killing, under Section 9 of the ESA.

The ESA defines a threatened species as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Threatened species receive protections through separate regulations issued under Section 4(d) of the ESA. These regulations occur separately from the listing and detail what prohibitions are in effect.

National Oceanic and Atmospheric Administration (NOAA) scientists use the best scientific and commercial information available as the basis for their listing decisions. Scientists may not consider the economic impact of listing a particular species. A species is listed as threatened or endangered if any of the following factors are met:

- Present or threatened destruction, modification, or curtailment of its habitat or range.
- Overutilization for commercial, recreational, scientific, or educational purposes.
- Disease or predation.
- Inadequacy of existing regulatory mechanisms.
- Other natural or human-made factors affecting its continued existence.

The following species are identified as Threatened or Endangered by the USFWS within Hancock and/or Harrison counties. It is important to note that just because they are located within the county, it does not mean they are within the study area or on the installation.

Figure 50 Top Row: Black Pine Snake, Dusky Gopher Frog; Bottom Row: Gopher Tortoise, Piping Plover
Sources: ww.thirdeyeherp.com/blackpine.htm, www.allaboutbirds.org/guide/Piping_Plover/id
www.nature.org/ourinitiatives/regions/northamerica/unitedstates/mississippi/explore/dusky-gopher-frog-profile.xml, www.animalspot.net/gopher-tortoise.html

Table 6.1.6.a: USFWS Threatened and Endangered Species in Harrison and Hancock Counties

GROUP	COMMON NAME	SCIENTIFIC NAME	STATUS	LOCATION
Amphibians	Dusky Gopher Frog	Rana sevosa	Endangered	Harrison County
Birds	Red-Cockaded Woodpecker	Picoides borealis	Endangered	Harrison County
Birds	Wood Stork	Mycteria americana	Threatened	Harrison and Hancock counties
Birds	Piping Plover	Charadrius melodus	Endangered	Harrison and Hancock counties
Birds	Red Knot	Calidris canutus rufa	Threatened	Harrison and Hancock counties

GROUP	COMMON NAME	SCIENTIFIC NAME	STATUS	LOCATION
Clams	Alabama Heelsplitter	Potamilus inflatus	Threatened	Hancock County
Ferns and Allies	Louisiana Quillwort	Isoetes louisianensis	Endangered	Harrison and Hancock counties
Fishes	Atlantic Sturgeon (Gulf Subspecies)	Acipenser oxyrinchus desotoi	Threatened	Harrison and Hancock counties
Mammals	West Indian Manatee	Trichechus manatus	Endangered	Harrison and Hancock counties
Mammals	Louisiana Black Bear	Ursus americanus luteolus	Recovery	Harrison and Hancock counties
Reptiles	Hawksbill Sea Turtle	Eretmochelys imbricata	Endangered	Harrison and Hancock counties
Reptiles	Leatherback Sea Turtle	Dermochelys coriacea	Endangered	Harrison and Hancock counties
Reptiles	Kemp's Ridley Sea Turtle	Lepidochelys kempii	Endangered	Harrison and Hancock counties
Reptiles	Loggerhead Sea Turtle	Caretta caretta	Threatened	Harrison and Hancock counties
Reptiles	Ringed Map Turtle	Graptemys oculifera	Threatened	Hancock County
Reptiles	Alabama Red-Belly Turtle	Pseudemys alabamensis	Endangered	Harrison County
Reptiles	Black Pine Snake	Pituophis melanoleucus lodingi	Threatened	Harrison County
Reptiles	Gopher Tortoise	Gopherus polyphemus	Threatened	Harrison and Hancock counties

Source: USFWS, Species by County Report, retrieved November 18, 2016

Compatibility Review

Threatened and Endangered Species are primarily managed through National Environmental Policy Act (NEPA) regulations and the U.S. Fish and Wildlife Service (USFWS). It is important to be cognizant of the species that exist within the region and the potential impact they could have on both the mission of NCBC Gulfport + Special Areas and future development within the community.

However, they do not represent a significant challenge regarding future development or the mission of the base.

Applicable Compatibility Factors

The following compatibility factors apply to the Threatened and Endangered Species Area of Interest.

Table 6.1.6.b: Threatened and Endangered Species Compatibility Factors

Natural Resource Factors
Threatened and Endangered Species
Marine Environment

Priority Ranking

Low

The Threatened and Endangered Species Area of Interest received a low priority ranking meaning the recommendations should be implemented within 10 years upon completion of the JLUS.

6.2 NCBC GULFPORT AREAS OF INTEREST

NCBC Gulfport is a 1,100 acre facility located within the City of Gulfport adjacent to the City of Long Beach and Harrison County. Functions at NCBC Gulfport include logistics, training, training ranges, and medical/dental.

6.2.1 LAND USE

Area of Interest

The regulations currently in place guiding development around the base are consistent with the mission of NCBC Gulfport; however, safeguards should be strengthened to maintain these standards.

Background

Military installations were traditionally established in rural areas with little development outside the gates. However, as cities and counties have grown, development surrounding the installation has blossomed. Communities found that siting residential and non-residential uses in proximity to installations provided an economic boom for the community and fulfilled a need for the military personnel and their dependents. Without the proper tools in place, growth surrounding the

installation can actually harm the mission of the military by encroaching on the facility leading to reduced or restricted trainings, altered base missions, and / or base closure.

Due to the dynamic nature of the military operations and training exercises, many different types of development can qualify as encroachment (tall structures, such as residential and/or office high-rise buildings, cell towers or wind turbines, or a manufacturing plant) if not appropriately regulated. Incompatible uses adjacent to the military installations, particularly when located within noise contours or safety zones, include the following:

- Uses that concentrate people in small areas;
- Sensitive land uses such as hospitals, schools, or day cares;
- Uses that attract birds;
- Uses that emit electrical emissions;
- Uses that produce excessive lighting; and
- Uses that release smoke, dust, or steam.

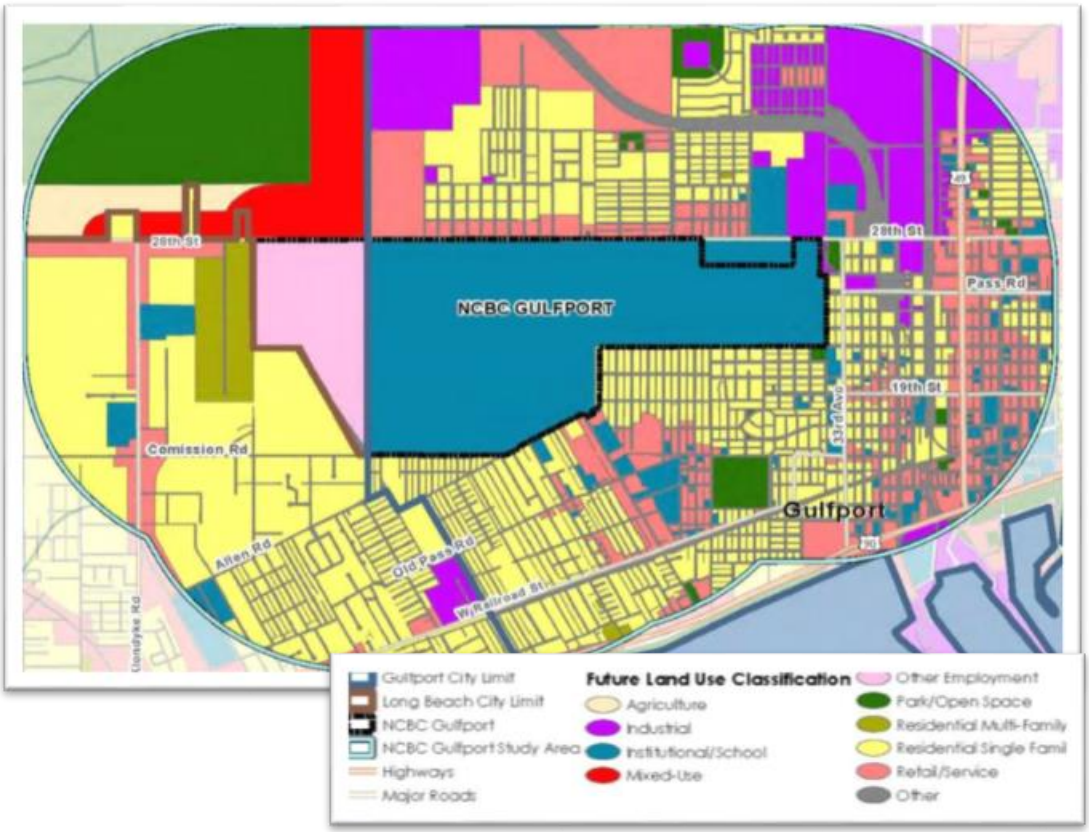


Figure 51 Harrison County, Long Beach and Gulfport's Future Land Use map provides guidance for future development

Compatibility Review

The majority of the land surrounding NCBC Gulfport is developed. The current use patterns of low density residential, commercial, and industrial are predominately compatible with the training exercises and activities taking place on the base.

Although there are no specific land uses that could be identified that would be considered detrimental to the base, there are compatibility concerns that should be considered when planning for future growth. For example, large groupings of residential housing could be negatively impacted by the heavy equipment and simunitions training conducted on base.

Applicable Compatibility Factors

The following compatibility factors apply to the Land Use Area of Interest.

Table 6.2.1: Land Use Compatibility Factors

Development Factors
Land Use
Land Suitability

Priority Ranking

HIGH

The Land Use Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.2.2 BASE INGRESS AND EGRESS

Area of Interest

Base ingress and egress can have impacts on the community's infrastructure and economy.

Background

NCBC Gulfport is centrally located within the City of Gulfport. The base has direct access to the Port of Gulfport and Interstate-10 through important local connector roads.

The Department of Transportation (DOT), Federal Highway Administration (FHWA), designates roads as part of the Strategic Highway Network (STRAHNET) that provide "defense access, continuity, and emergency capabilities for movements of personnel and equipment in both peace and war." The STRAHNET includes long distance travel routes and connector roads to link individual installations to the highway routes. Individual states are encouraged to focus federal funds on improving the efficiency and safety of this network. Canal Road is classified as a Major

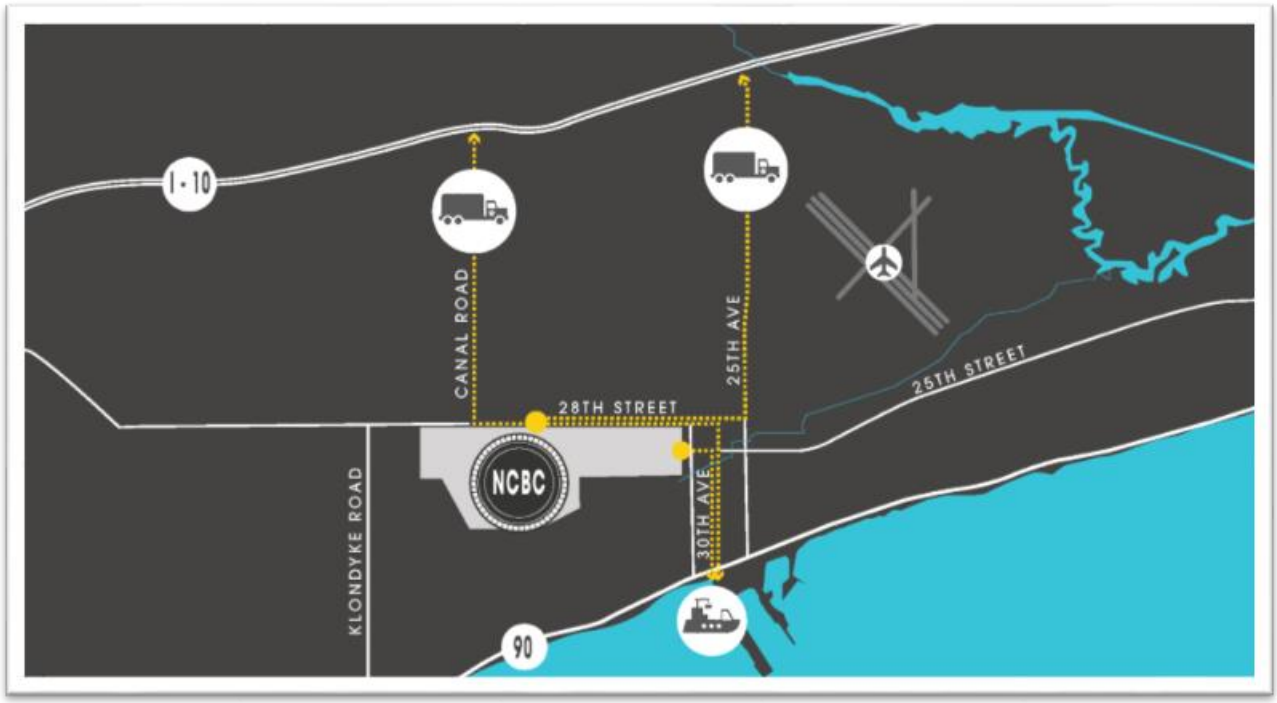


Figure 52 Convoy Ingress and Egress for NCBC Gulfport to Interstate-10 and the Port of Gulfport

Strategic Highway Network Connector utilized as a connector route from NCBC Gulfport to Interstate-10.

In addition to the STRAHNET, the FHWA utilizes the Defense Access Road (DAR) program as a means for the military to pay their share of the cost of public highway improvements necessary to mitigate an unusual impact of a defense activity. The legal authority for the DAR program originates in Title 23, United States Code, "Highways," section 210 (23 USC 210). State and local highway agencies are expected to develop and maintain adequate highways accessible to defense installations in the same way they do for nondefense-related traffic generators, such as new commercial developments or residential subdivisions. Officials with DOD installations coordinate closely with local authorities to ensure that transportation improvement programs include upgrades and maintenance projects to support ongoing, long-term defense transportation needs. However, when local transportation authorities are unable to provide solutions through their regular programs, DOD installation commanders can initiate a DAR needs report, which describes the current deficiencies of the access road and the defense-generated impacts. The report also outlines the project proposed to mitigate the condition and provides supporting traffic data. In the past, DAR funding was utilized for improvements to 28th Street.

In addition to military funded roadway improvements, the Mississippi Department of Transportation (MDOT) was tasked with overseeing a Port Connector Road to connect Interstate-10 to the Port of Gulfport. Preliminary engineering, rights-of-way purchases from private property

owners, utility relocation, and land clearing initially began more than 20 years ago. However, legal issues have halted the progression of the road as well as inadequate funding. Should the Port Connector Road move forward, the alternative transportation routes could have an impact on ingress / egress of NCBC Gulfport.

Another important component of the ingress / egress of the base are the base gates. In recent years, the number of access points have been reduced primarily due to lack of manpower funding. The community has felt a significant impact from the closings, particularly from the closing of the Commission Road gate and the reduced hours of the Broad Avenue gate. Long Beach and Gulfport have each lost several restaurants because of decreased military patronage as a result of the gate closure.

Compatibility Review

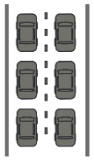
The strategic location provides an easily accessible route to the Port of Gulfport or to the Interstate in times of emergency or for general training. Leaving the 28th Street Gate, trucks are able to access the Interstate via Canal Road or 25th Avenue. The 28th Street or the Pass Road Gate to 30th Avenue provides direct access to the Port of Gulfport where staging can take place. These routes provide important access and must be preserved for future emergency and/or training needs.

Additionally, the ingress and egress points of the base should be carefully considered to minimize economic impacts from closings or changes to gate hours. The community, the Navy, and elected officials need to work together to ensure adequate communication is maintained to keep abreast of any potential changes.

Applicable Compatibility Factors

The following compatibility factors apply to the Base Ingress and Egress Area of Interest.

Table 6.2.2: Base Ingress and Egress Compatibility Factors

Development Factors	
	Infrastructure Extensions and Capacity
	Anti-Terrorism / Force Protection

Priority Ranking

HIGH

The Base Ingress and Egress Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.2.3 FLOODING AND DRAINAGE

Area of Interest

The lack of adequate drainage has caused and may continue to cause drainage problems, including flooding at NCBC Gulfport.

Background

NCBC Gulfport is located within two major drainage basins. Brickyard Bayou drains the southern and eastern portions of the base by draining east to Bernard Bayou, then the Back Bay of Biloxi and ultimately the Mississippi Sound.

Canal No. 1, which is man-made, drains the western portion of NCBC Gulfport to Johnson Bayou, then Bayou Portage, then Bay St. Louis and ultimately the Mississippi Sound.

Figure 53 Drainage canal located within NCBC Gulfport

Brickyard Bayou

A small portion of the extreme southeastern portion of NCBC Gulfport lies within the 100-year flood plain of Brickyard Bayou. The community to the south of NCBC Gulfport, particularly those west of U.S. Highway 49 upstream to Stewart Avenue, experience at least street flooding on an annual, or even more frequent basis. Often times a number of residential and commercial structures are flooded by heavy rainfall and the limited drainage capacity of Brickyard Bayou.

The City of Gulfport has studied the drainage problems and has developed a conceptual plan for improvements from 8th Avenue to Stewart Avenue along Brickyard Bayou. Given the overall cost to make improvements along with the number of easements and/or property acquisitions necessary, improvements will likely occur in phases over several years, if not decades. The City of Gulfport does, however, have firm plans and funding available for improvements and

easements/acquisitions for Brickyard Bayou improvements from 8th Avenue to 30th Avenue, which are anticipated to be completed by the end of 2018. Additional improvements will be necessary upstream of 30th Avenue to significantly reduce frequent structure and street flooding and to reduce the base flood elevation such that the 100-year flood plain can be removed from the southeastern portion of NCBC Gulfport.

Canal No. 1 and Turkey Creek

During typical rain events, runoff from the western portion of NCBC Gulfport drains to Canal No. 1, which traverses the base. Canal No. 1 carries runoff west through the cities of Long Beach and Pass Christian to Johnson Bayou and ultimately the Mississippi Sound.

During extreme rainfalls, which seem to occur annually to every five years, flood waters from Turkey Creek (which lies north of NCBC Gulfport) overflow its banks. This overflow from Turkey Creek flows overland south across 28th Street and into the Canal No. 1 watershed. When these extreme rainfall events occur, flooding within the Canal No. 1 watershed lasts from several hours and in some areas, exceeds 24 hours. This overflow from Turkey Creek is the primary reason that approximately 140 acres of the western portion of NCBC Gulfport lie within the 100-year flood plain.

Canal No. 1 is in generally good condition and is maintained by the Long Beach Water Management District.

There have been several analyses and studies that have considered drainage improvements of Turkey Creek and its watershed. The Mississippi Department of Environmental Quality (MDEQ) is currently considering further studies and funding that may lead to drainage and other improvements to Turkey Creek. However, there are a number of issues to be considered along with drainage improvements to Turkey Creek, including environmental, historical, land use and ownership, cost, and others.

Compatibility Review

The western portions of NCBC Gulfport that are within the 100-year flood plain, and more importantly, subject to frequent street flooding include an area formerly used as a golf course, residential and wooded areas. It is anticipated that drainage and flooding conditions will remain the same for the next five years with the potential for improvements to the western portion of the base as MDEQ, or others, are able to make improvements to Turkey Creek. Continued flooding on the western side of NCBC Gulfport may negatively affect the Navy's use of the area, possibly preventing the future expansion of facilities within the base.

The community lying west and north of NCBC Gulfport and part of the Turkey Creek Basin will likely continue to have similar flooding over the next five years. The area located north and west

of NCBC Gulfport experiences more severe flooding than on the installation due to the depth of flood waters and duration of flooding that affect the streets and structures.

The areas east and south of NCBC Gulfport may see drainage improvements over the next five years. The City of Gulfport has plans for improvements to the channel from 8th Avenue upstream to 30th Avenue in the next two years. Beyond the planned improvements, additional funding and property acquisition will be necessary for Brickyard Bayou improvements west (upstream) of 30th Avenue, which is where future improvements will have the most benefit to streets and structure flooding.

Applicable Compatibility Factors

The following compatibility factors apply to the Flooding and Drainage Area of Interest.

Table 6.2.3: Flooding and Drainage Compatibility Factors

Natural Resource Factors
Water Quality / Quantity

Priority Ranking

HIGH

The Flooding and Drainage Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.2.4 NOISE, VIBRATION, AND DUST

Area of Interest

Heavy Equipment Training can sometimes create noise, vibrations, and dust which has the potential to impact adjacent neighbors. The noise contours associated with these activities and the dust resulting from them can extend out of the boundary of the Installation.

Figure 54 Heavy equipment training at NCBC Gulfport

Background

Noise is generally described as unwanted sound. Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Unwanted sound can be based on objective effects (such as hearing loss and speech interruptions) or subjective judgments (such as noise complaints and annoyance).

Noise is measured using several metrics that reflect different noise characteristics. There are differences in continuous (e.g., aircraft flying) versus impulsive (e.g., weapons firing) types of noise, variations in frequency, and duration of noise exposure. Duration of noise exposure also dictates how a person perceives noise; a relatively long steady noise, like a train, aircraft passing or traffic, "feels" different than a rapid loud gunshot type noise. Noise metrics for this analysis are used for the day-night average sound level. The day-night average sound level (Ldn or DNL) is the average noise level over a 24-hour period. Because noise is considered more intrusive at night, a 10-decibel penalty is applied for operations occurring during nighttime hours, between 10:00 p.m. and 7:00 a.m. Noise contours are depicted on maps identifying the level of noise exposure based on the DNL.

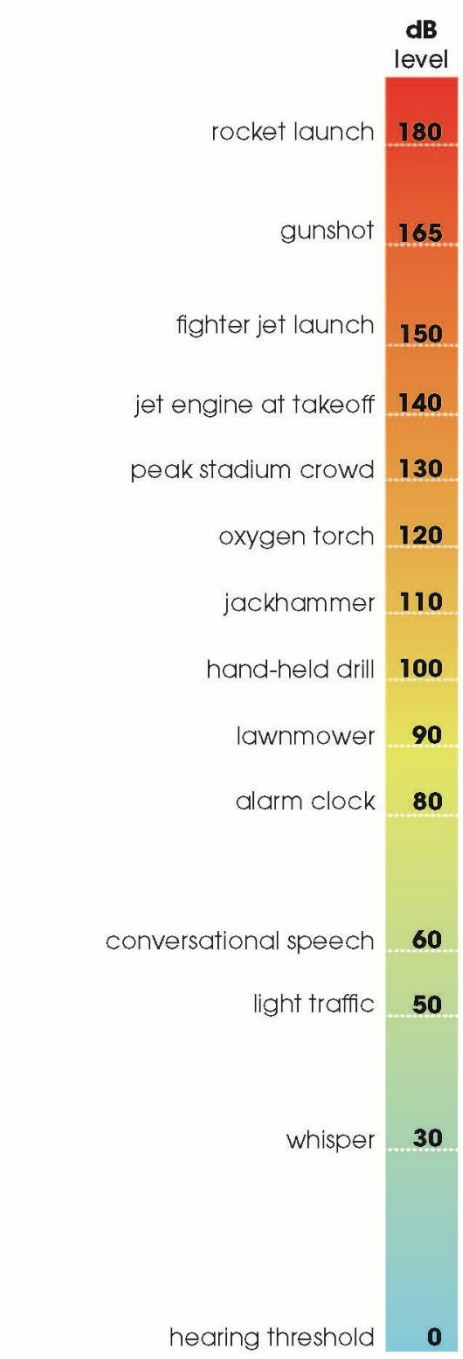


Figure 55 Noise Level Chart

Compatibility Review

Opportunities for potential noise complaints could come from the heavy equipment – which includes dump trucks and bulldozers – used for training along the southwestern edge or the force-on-force training that takes place in the northwestern portion of the Installation. Training is primarily conducted Monday through Friday from 8:00 am to 5:00 pm.

The heavy equipment training has taken place on this portions of the property for years, possibly creating noise and dust. Although a noise contour study has not been conducted for this type of training, it is speculated that heavy equipment noise could be heard off Base and that dust could drift into the adjacent areas. No noise or dust complaints have been documented.

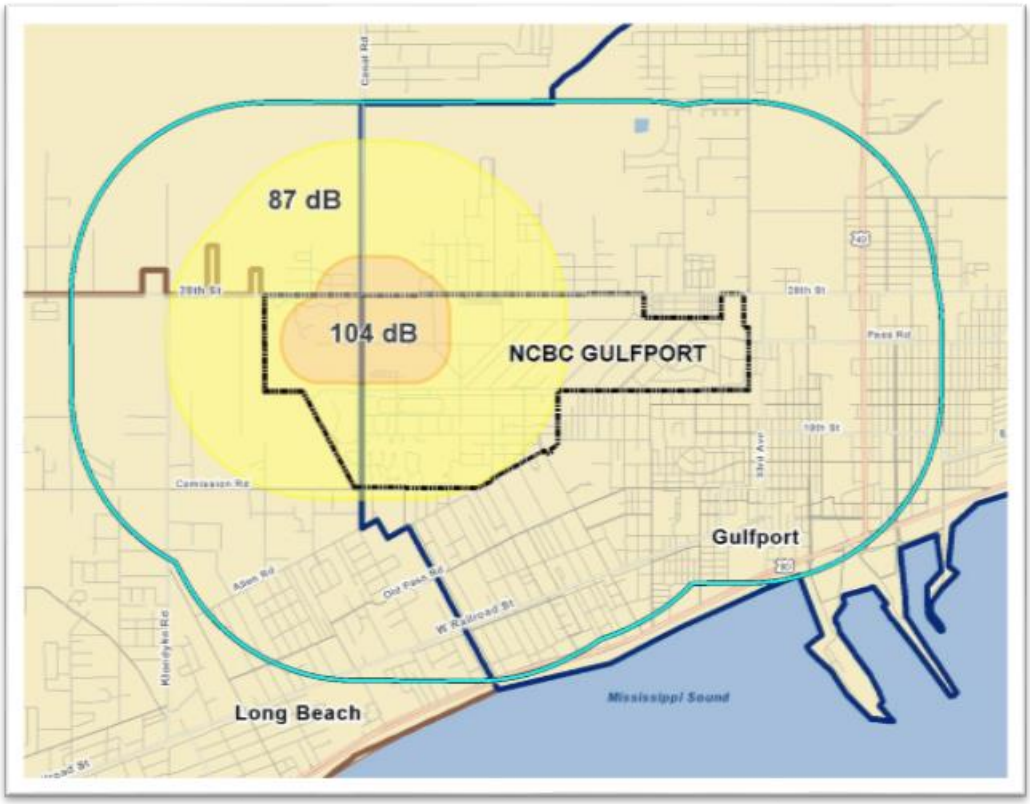


Figure 56 Noise Contours from the force-on-force training area at NCBC Gulfport

The force-on-force training began in 2012 and is continually evolving. Training includes fixed firing, target lanes, and munitions including small arms blanks and Special Effects Small Arms Marking System (SEASAMS). The noise study conducted for this training depicts the 104 dB noise contour extending outside of the NCBC Gulfport boundary into residential and commercial areas. The 87 dB noise contour extends even farther into Harrison County, the City of Long Beach, and the City of Gulfport. However, training activities creating 87 dB noise levels (small arms blank fire) have not been conducted since 2012. New training ammunition will be tested in 2017 and will become in effect beginning in 2019 but will fall within the same noise contours.

It is important to note that no formal noise complaints have been reported. In an effort to maintain the compatibility, the type of development within the noise contours should be carefully considered as well as the possibility for buffering, and the addition of sound attenuation procedures.

Applicable Compatibility Factors

The following compatibility factors apply to the Noise, Vibration, and Dust Area of Interest.

Table 6.2.4: Noise, Vibration, and Dust Compatibility Factors

Development Factors
Noise and Vibration
Dust / Smoke Steam

Priority Ranking

Medium

The Noise, Vibration, and Dust Area of Interest received a medium priority ranking meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

6.2.5 FENCELINE PROTECTION

Area of Interest

The community is continuing to grow around the Installation leading to decreased fenceline buffers and an increase in accident potential from the heavily travelled roadways bordering the Installation.

Compatibility Review

The perimeter of NCBC Gulfport is enclosed by a chain-link fence with portions topped by barbed wire. The fenceline is directly on the edge of the property line. The location of the fence provides

Figure 57 Trees overhanging the NCBC Gulfport fenceline

no buffers from adjacent development and requires each landowner be contacted for regular maintenance of the tree line or fence repairs. Periodically vehicle accidents have occurred leaving the fences vulnerable to intrusion or putting personnel at risk.

Applicable Compatibility Factors

The following compatibility factors apply to the Fenceline Protection Area of Interest.

Table 6.2.5: Fenceline Protection Compatibility Factors

Development Factors	
	Anti-Terrorism / Force Protection
People Factors	
	Public and Military Base Safety

Priority Ranking

The Fenceline Protection Area of Interest received a medium priority ranking meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

6.3 WOOLMARKET AREAS OF INTEREST

Woolmarket Range is a 2,483 acre facility located along U.S. Highway 67 in the unincorporated area of Woolmarket, Harrison County within the DeSoto National Forest. The facility includes a small arms range with three bays, a Joint Improvised Explosive Devices Defeat Organization (JIEDDO) training course, convoy training, and a field training exercise area.

6.3.1 LAND USE

Area of Interest

Local regulations are not currently in place to minimize incompatibilities between Woolmarket Range and future growth.

Background

Military installations were traditionally established in rural areas with little development outside of the gates. However, as cities and counties have grown, development surrounding the installation has blossomed. Communities found that siting residential and non-residential uses in proximity to installations provided an economic boom for the community and fulfilled a need for the military personnel and their dependents. Without the proper tools in place, growth

surrounding the installation can actually harm the mission of the military by encroaching on the facility leading to reduced or restricted trainings, altered base missions, and / or base closure.

Due to the dynamic nature of the military operations and training exercises, many different types of development can qualify as encroachment. For example, tall structures, such as residential and/or office high-rise buildings, cell towers or wind turbines, or a manufacturing plant – if not appropriately regulated. Incompatible uses adjacent to the military installations, particularly when located within noise contours or safety zones include the following:

- Uses that concentrate people in small areas;
- Sensitive land uses such as hospitals, schools, or day cares;
- Uses that attract birds;
- Uses that emit electrical emissions;
- Uses that produce excessive lighting; and
- Uses that release smoke, dust, or steam.

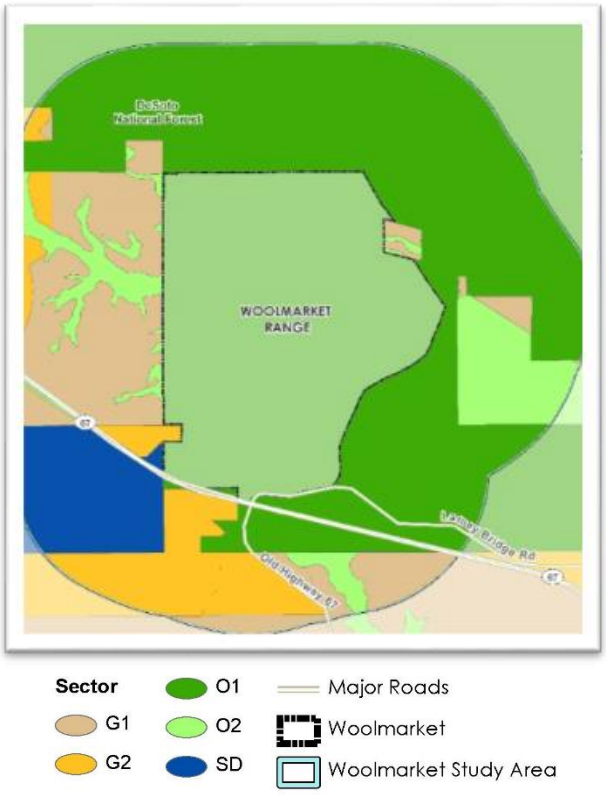


Figure 58 Future Land Use designations surrounding Woolmarket Range

Compatibility Review

Woolmarket Range is located within the DeSoto National Forest providing a significant buffer from development to the north, east, and portions of the south. Residential and commercial development are located south and southwest of Woolmarket Range in the Woolmarket Community. Residential clusters also exist northeast and northwest of Woolmarket Range.

The area is experiencing steady growth due to the availability of land, a good education system, and adequate infrastructure including roadways and water and sewer. It is anticipated that this trend in development will continue with steady growth in the Woolmarket and surrounding community.

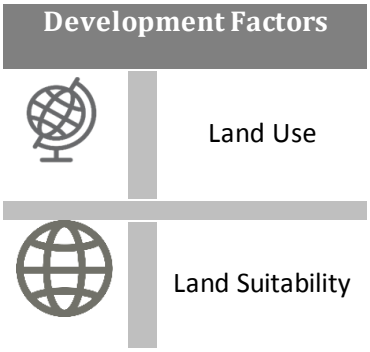
A review of the Harrison County Comprehensive Plan and Zoning Ordinances did not identify adequate tools to address compatibility surrounding Woolmarket Range. The inclusion of military compatibility

tools within the regulatory documents of Harrison County could mitigate potential safety concerns while maintaining the growth in the area.

Applicable Compatibility Factors

The following compatibility factors apply to the Land Use Area of Interest.

Table 6.3.1: Land Use Compatibility Factors



Priority Ranking

The Land Use Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.3.2 NOISE

Area of Interest

The areas surrounding Woolmarket Range can hear and feel the repercussions from the daily training activities and the special trainings that occur onsite.

Background

Noise is generally described as unwanted sound. Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Unwanted sound can be based on objective effects (such as hearing loss and speech interruptions) or subjective judgments (such as noise complaints and annoyance).

Noise is measured using several metrics that reflect different noise characteristics. There are differences in continuous (e.g., aircraft flying) versus impulsive (e.g., weapons firing) types of noise, variations in frequency, and duration of noise exposure. Duration of noise exposure also dictates how a person perceives noise; a relatively long steady noise, like a train, aircraft passing or traffic, "feels" different than a rapid loud gunshot type noise. Noise metrics are used as follows:

- The day-night average sound level (Ldn or DNL) is the average noise level over a 24-hour period. Because noise is considered more intrusive at night, a 10-decibel penalty is

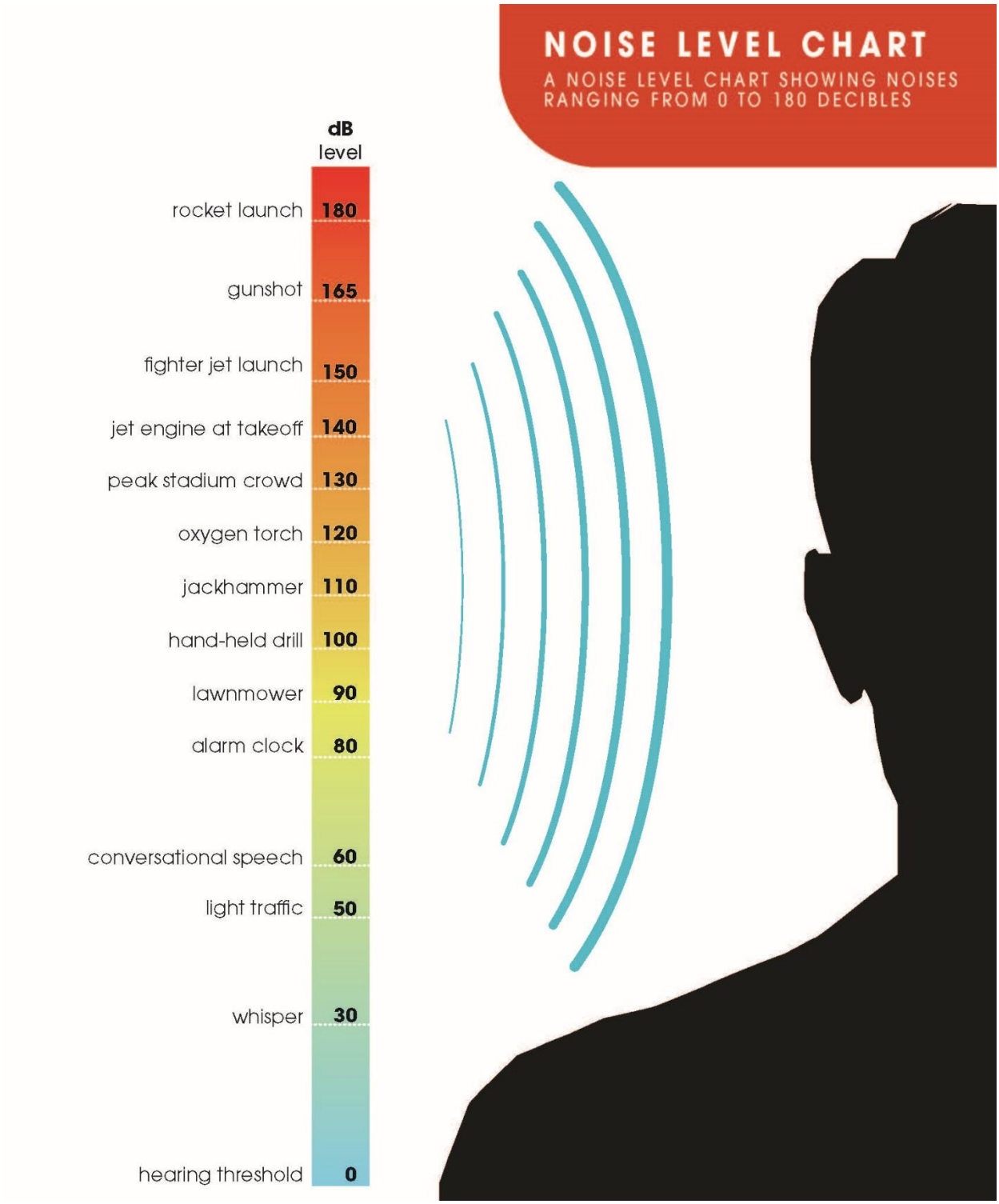


Figure 59 Noise Chart

- applied for operations occurring during nighttime hours, between 10:00 p.m. and 7:00 a.m.
- Peak 15 sound is the instantaneous, unweighted maximum value reached by the sound pressure produced by small and large caliber weapons. Peak measures the impulsive sounds generated by small and large munitions, explosions, and sonic booms. It represents a single event where the maximum noise level is likely to be exceeded 15% of the time.

Noise contours are depicted on maps identifying the level of noise exposure based on the DNL or Peak 15 levels.

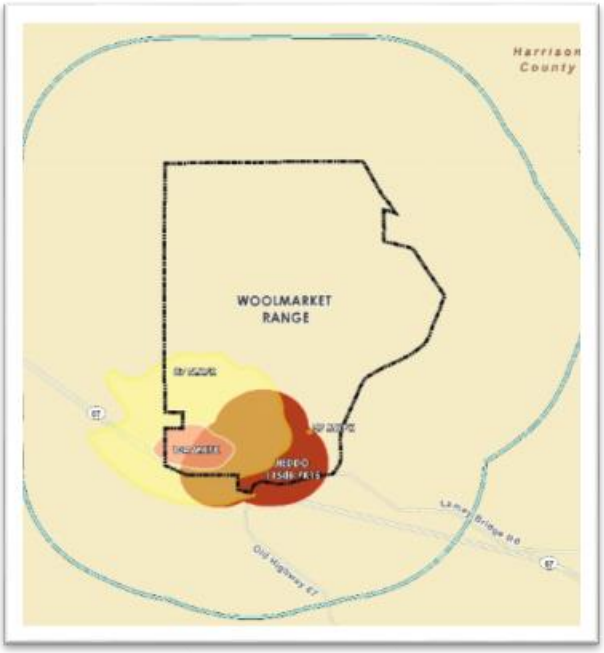
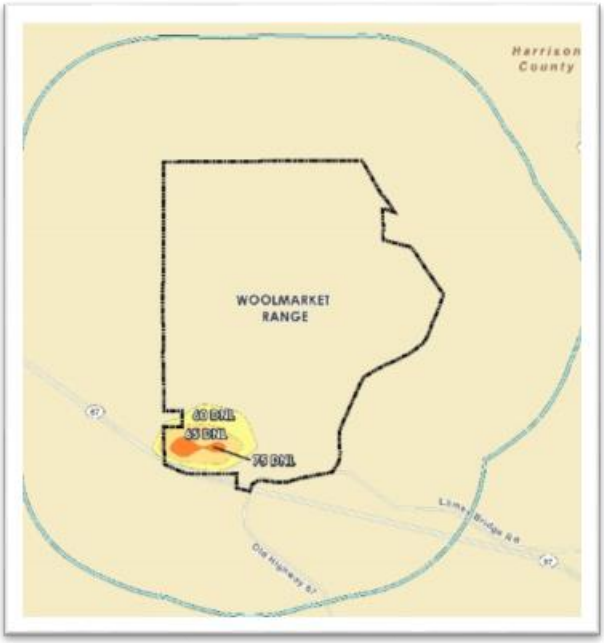


Figure 60 Above: Max Peak Noise from the JIEDDO course and the small arms range
Below: DNL noise contours from the small arms range



Compatibility Review

The Range is located within the growing community of Woolmarket. Although much of the development came after the establishment of the Range, the residents and visitors to the area are not always aware of the training that takes place and the sounds emanating because of it. Noise is typically generated from three small arms bays and a counter-IED training area. Other non-routine training events have also occurred creating noise for nearby residents.

A Small Arms Range Noise Assessment Model (SARNAM) was conducted to identify how far the noise from the range reached into the community at unwanted levels. The DNL noise contours for the range remain primarily within the confines of Woolmarket Range. The Peak noise contours, however, can be heard outside of the range. The 87db Peak 15 extends the farthest into the community – west

and south of the range. The contours cover A-1 General Agriculture, C-1 Neighborhood Commercial, R-1 Low Density Residential, and E-1 Very Low Density Residential Districts as identified on the Harrison County Zoning Map. The 115db Peak 15 from the JIEDDO course also extends southward out of the range and into the A-1 General Agriculture, C-1 Neighborhood Commercial, and R-1 Low Density Residential zoning districts.

In addition to the noise emanating from the Range and JIEDDO course, adjacent to the facility is the Coast Rifle and Pistol Club Range. It is a private range that is open 24 hours a day, seven days per week. The private range does not conduct noise studies. Because the two SAR ranges are in such close proximity, when a noise complaint is submitted it is difficult to determine which small arms range activity generated the complaint.

Natural tree buffers were existing adjacent to Highway 67 for many years, some believe the trees reduced the effects of the range on the neighborhoods. In the recent past, the buffers were removed for the widening of Highway 67 and the installation of a USFS weather station.

Through stakeholder meetings, site visits, and public workshops, there has been a significant amount of discussion regarding the noise emanating from the Range. However, there have been no official reports filed with the Harrison County Sheriff's Office and only one complaint received by the Range. Instead of following traditional routes of complaints, residents often contact their Harrison County Supervisor to notify them of the problem. This course of action doesn't provide official documentation that can be tracked.

Applicable Compatibility Factors

The following compatibility factors apply to the Noise Area of Interest.

Table 6.3.2: Noise Compatibility Factors

Development Factors	
	Land Use
	Noise and Vibration
People Factors	
	Coordination / Communication

Priority Ranking

The Noise Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.3.3 LOW FLYING AIRCRAFT

Area of Interest

The Range does not have a special use airspace designation which would create a process to notify other aviators of the potential for ricochet when flying over the range.

Background

Special use airspace is an area designated for operations, primarily military, that may impose limitations on aircraft not participating on the operations. Special use air space includes the following:

- Restricted Airspace,
- Military Operations Area,
- Warning Area,
- Alert Areas,
- Temporary Flight Restrictions,
- National Security Areas, and
- Controlled Firing Areas.

Restricted airspace is an area within which the operation of aircraft is subject to restriction. Restricted airspace is established to separate activities considered to be hazardous to other aircraft, such as artillery firing or aerial gunnery. Restricted airspace may not be active at all times in which case a schedule of dates and times when aviation may occur is posted.

Compatibility Review

The Range does not have a special use airspace designation which would create a process to notify other aviators of the potential for ricochet when flying over the range. The concern is that low flying aircraft over the Range could be exposed to ricochet hazards from small arms fire or other training activities.

Figure 61 Sign warning that the firing range is a restricted area

Keesler Air Force Base flies C-5 and C-130 aircraft from north to south over the Range. Additionally, the Harrison County Police Department fly helicopters over the Range when looking for inmates that have escaped from the prison near the Range on Highway 67. Air traffic may also come from the Gulfport/Biloxi International Airport and the Air National Guard Airfield. Due to the nature of their assignments, the planes are often flying at a low level, exposing them to risk of ricochets from the training taking place at the Range. If notified of low-flying aircraft or observed by the Range Safety Officer, training activities are halted until the aircraft has cleared the range. There is not always adequate coordination between the Range and users of the airspace to identify potential conflicts.

Applicable Compatibility Factors

The following compatibility factors apply to the Low Flying Aircraft Area of Interest.

Table 6.3.3: Low Flying Aircraft Compatibility Factors

People Factors	
	Coordination / Communication
Natural Resource Factors	
	Land/ Air / Sea Spaces

Priority Ranking

The Low Flying Aircraft Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.3.4 TRANSIENT ACCESS INTO WOOLMARKET RANGE

Area of Interest

Due to the Range location within the DeSoto National Forest, the facility must allow public access leading to unanticipated civilian entries.

Background

The DeSoto National Forest is characterized by gently rolling terrain covered by southern pine ridges and hardwood bottoms with streams meandering throughout. Year-round recreation opportunities are available for hikers, bicyclists, campers, canoeists, ATV riders, horse enthusiasts, hunters, and fishermen.

The U.S. Navy operates Woolmarket Range wholly within the DeSoto National Forest under a special use permit with the U.S. Forestry Service. The special use permit grants "compatible use" which can include activities such as hunting, hiking, and other recreational activities. The entirety

Figure 62 Above Left: Gate restricting access into Woolmarket Range; Above Right: Gate that has been opened leading into the northern portion of Woolmarket Range; Above: Main entry gate into Woolmarket Range with the red flag flying denoting live fire

of the Range is fenced – three sides with 3 strand barbed wire and the side facing Highway 67 has chain link.

Compatibility Review

Recreational enthusiasts have been utilizing the DeSoto National Forest since it was first established in 1936. Local residents often feel a sense of ownership to the land within the forest as they have been visiting and hunting within the boundaries for decades. Particularly during hunting season – October through March – visitors can be found within the forest surrounding the Range.

As a safety precaution, visitors are asked to stay outside of the safety zones – identified through fencing and signage – to provide protection from training hazards and any potential unexploded

ordnance (UXO) that could exist. Often, due to their familiarity with the land, visitors disregard the fencing and signage and either intentionally or unknowingly enter the safety zones. Portions of the fence are sometimes cut to allow unrestricted access. The Navy thoroughly checks the fenceline on a regular basis as well as the roadway looking for signs of potential hunters which is an increased burden on personnel-hours and time.

Applicable Compatibility Factors

The following compatibility factors apply to the Transient Access Into Woolmarket Range Area of Interest.

Table 6.3.4: Transient Access Compatibility Factors

Development Factors	
	Safety Zone
	Anti-Terrorism / Force Protection
	UXO and Munitions
People Factors	
	Coordination / Communication
	Public and Military Base Safety
Natural Resource Factors	
	Land/ Air / Sea Spaces

Priority Ranking

The Transient Access into Woolmarket Range Area of Interest received a medium priority ranking meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

6.4 WESTERN MANEUVER AREA AREAS OF INTEREST

The WMA is a 3,200 acre facility located within the Stennis Acoustic Buffer Zone of Hancock County. NSW forces conduct jungle, maritime, and riverine training and operations within the WMA. The vast amount of land, native vegetation and varied terrain of the lower Pearl River

Basin provides a realistic environment for combination river-to-jungle training exercises, maneuver and convoy operations, hard target sites, and direct access to the Gulf of Mexico.

6.4.1 TRANSIENT ACCESS INTO THE WMA

Area of Interest

Access is restricted to a portion of the WMA because NASA owns restrictive rights to the Main Canal and man-made basin but it doesn't include the Pearl, Mike's, or McCarthy rivers. Recreational fishermen and hikers enter the property, either intentionally or unknowingly.

Background

The Mississippi Gulf Coast offers superb inshore and offshore fishing, hunting and recreational opportunities. Multiple boat launches are located along the coast and up the Pearl River allowing boaters to gain access to the Pearl River Wildlife Management Area, the Bogue Chitto National Wildlife Refuge, streams, bayous, and the Gulf of Mexico. During the spring and summer fisherman can be found in the freshwater rivers searching for trophy bream, catfish, crappie, and large mouth bass. Game species include deer, squirrels, rabbits, feral hogs, turkeys, wildfowl, and woodcock.

Figure 63 The Pearl River flowing through the WMA

Figure 64 Sign warning of live-fire training taking place along the Pearl River within the WMA

The Pearl, Mike's, and McCarthy rivers as well as portions of the WMA are used by the Navy for live-fire jungle, maritime, and riverine operations. The waterways where this training is taking place are generally open to the public. The Navy has no legal authority to stop the public from

entering the waterways in which they train. The Navy has applied to establish a danger zone consistent with 33 CFR 334, Danger Zone and Restricted Area Regulations, which would provide legal enforcement to keep the public out of certain areas during live-fire weapons training. The request is currently under review by the Army Corps of Engineers. It is anticipated the request for establishment of a Danger Zone will be approved.

Compatibility Review

Transients use portions of the WMA for hunting, fishing, hiking, canoeing, boating, and other recreational activities. The Navy often encounters these fisherman and recreational boaters when on the Pearl, Mike's, and McCarthy rivers for water based training. In order to prevent transients from entering live training missions, the Navy posts signs and places picket boats at the boundaries of the training locations along the river to warn transients to stay out; personnel on the boats are stationed at each end of the river to provide verbal confirmation that training is taking place. Transients and boaters are asked to move to another location, but the Navy doesn't currently have full legal authority to stop civilians from entering the training areas. Although the boaters and other transients typically comply, they are often frustrated that their recreational activities must be cancelled or moved to another location on the river.

Applicable Compatibility Factors

The following compatibility factors apply to the Transient Access Into the WMA Area of Interest.

Table 6.4.1: Transient Access Compatibility Factors

Development Factors	
	Safety Zone
	Anti-Terrorism / Force Protection
	UXO and Munitions
People Factors	
	Coordination / Communication
	Public and Military Base Safety
Natural Resource Factors	
	Land/ Air / Sea Spaces

Priority Ranking

HIGH

The Transient Access into the WMA Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.4.2 COORDINATION

Area of Interest

Coordination between Hancock County and the Navy is needed regarding scheduling training activities, managing public works and services, and environmental compliance. Coordination should also include entities on both sides of the Pearl River (Mississippi and Louisiana).

Compatibility Review

The WMA is located within Hancock County, Mississippi with the Pearl River and Louisiana making up the border to the west. It is in a unique position in that it is sheltered from development due to the Stennis Acoustic Buffer Zone and the Wildlife Management Area in Louisiana. Development and recreation issues and opportunities that arise should be coordinated with Hancock County, Mississippi, and Louisiana.

The Navy does not have agreements currently in place to train within the boundary of Louisiana; therefore, they have not been a part of the JLUS process. It is important to get Louisiana and St. Tammany Parish to coordinate with Hancock County, the Navy, and Mississippi. This coordination will help to limit potential encroachment issues stemming from Louisiana and potentially expand future training missions for the Navy.

Applicable Compatibility Factors

The following compatibility factors apply to the Coordination Area of Interest.

Table 6.4.2: Coordination Compatibility Factors

People Factors
Coordination / Communication

Priority Ranking

HIGH

The Coordination Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

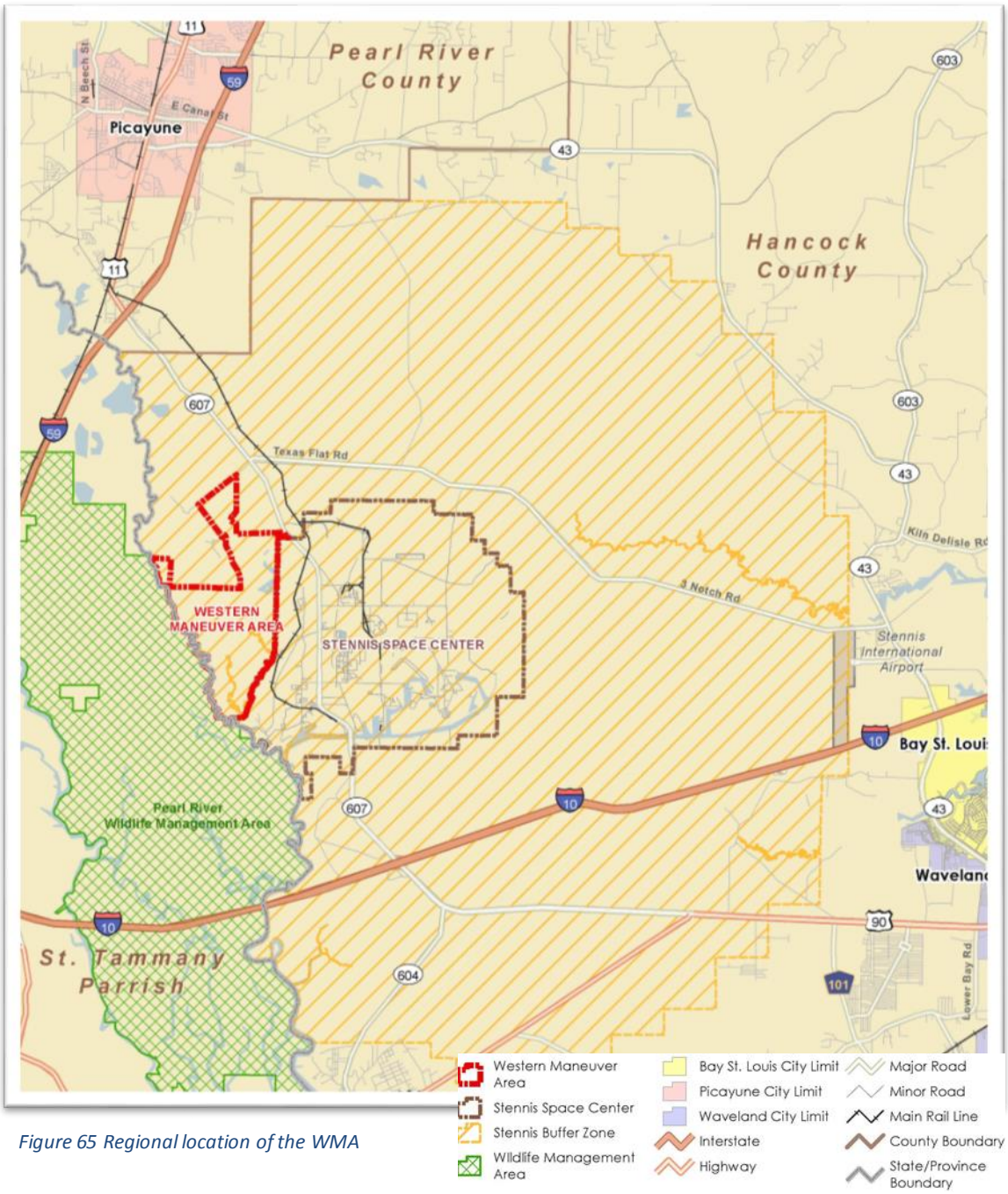


Figure 65 Regional location of the WMA

6.4.3 WATERWAYS AND SUBMERGED LANDS OWNERSHIP

Area of Interest

The waterways and submerged lands are owned and regulated by the State of Mississippi.

Background

Title 51, Chapter 1 of the Mississippi Code states that

> *"Such portions of all natural flowing streams in this state having a mean annual flow of not less than one hundred (100) cubic feet per second, as determined and designated on appropriate maps by the Mississippi Department of Environmental Quality, shall be public waterways of the state on which the citizens of this state and other states shall have the right of free transport in the stream and its bed and the right to fish and engage in water sports.*
>
> *Nothing contained in this section shall authorize anyone utilizing public waterways, under the authority granted by this section, to trespass upon adjacent lands or to launch or land any commercial or pleasure craft along or from the shore of such waterways except at places established by public or private entities for such purposes. Nothing contained in this section shall authorize any person utilizing those public waterways, under the authority granted by this section, to disturb the banks or beds of such waterways or the discharge of any object or substance into such waters or upon or across any lands adjacent thereto or to hunt or fish or go on or across any adjacent lands under floodwaters beyond the natural banks of the bed of the public waterway. Floodwater which has overflowed the banks of a public waterway is not a part of the public waterway."*

The Statute identifies the public's ability to use the navigable waters of the state without obstruction. It also goes on to say that the beds and banks are subject to private ownership and can exclude others from entering.

As part of the land owned by the state, the Mississippi Secretary of State oversees the use and monitoring of all waterways that are affected by the ebb and flow of the tide up to the mean high water mark. Any plans to remove debris must be approved by the Secretary of State.

Figure 66 The Pearl River is a public waterway; therefore, it is regulated by the State of Mississippi

Compatibility Review

The Pearl River is identified as a Public Waterway in the State of Mississippi. It begins in Neshoba County, Mississippi and meanders south 444 miles to the Gulf of Mexico in Hancock County, Mississippi. The lower part of the river forms the boundary between Mississippi and Louisiana.

The Pearl River flows along the western edge of the WMA and is used as a primary riverine training area. Any improvements, clearing, or modification must be approved by the Mississippi Secretary of State.

Applicable Compatibility Factors

The following compatibility factors apply to the Waterways and Submerged Lands Ownership Area of Interest.

Table 6.4.3: Waterways and Submerged Lands Ownership Compatibility Factors

Natural Resource Factors
Land / Air / Sea Spaces
Marine Environment

Priority Ranking

Medium

The Waterways and Submerged Lands Ownership Area of Interest received a medium priority ranking meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

6.4.4 PRIVATE LAND HOLDINGS

Area of Interest

Land use is limited due to the existing buffer zone but private landowners still own property within the area. The privately held lands are currently used for mining and provide a flow of civilians in and out of the area.

Background

The WMA is located wholly within the Stennis Acoustic Buffer Zone. The buffer zone provides the surrounding communities protection from the potential effects of rocket engine testing that takes place within NASA-owned land and other loud noise created by live-fire training. Restrictive easements have been placed on all properties within the buffer zone, which prohibit inhabitable structures as well as limit use to passive recreation only.

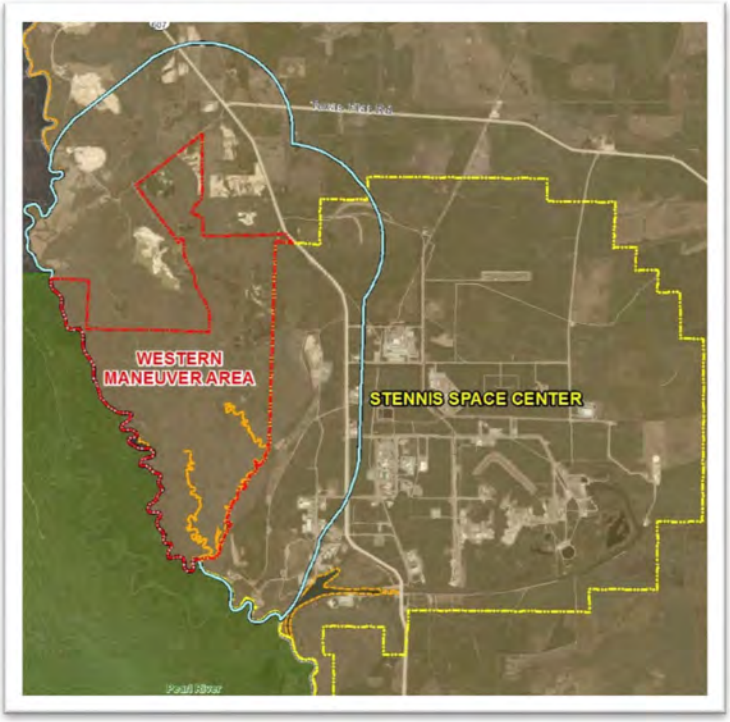


Figure 67 The mining areas can be seen north of the WMA

Outside the Navy owned lands, NASA and private landowners hold property surrounding the WMA. Much of the land adjacent and to the north of the WMA is owned by private landowners primarily consisting of mining entities that use the land to mine sand and gravel. The privately held land south of Old Highway 11 is part of an ongoing Navy land acquisition plan.

Compatibility Review

The Acoustic Buffer Zone provides adequate protection for the WMA against development; however, privately owned land still exists within the buffer area. These private landowners access the areas adjacent to the WMA. Navy training capabilities are somewhat constrained by the current size of the WMA. These constraints could be significantly reduced should the Navy's land acquisition plan move forward.

Applicable Compatibility Factors

The following compatibility factors apply to the Private Land Holdings Area of Interest.

Table 6.4.4: Private Land Holdings Compatibility Factors

Development Factors
Land Use
People Factors
Public and Military Base Safety
Natural Resource Factors
Land / Air / Sea Spaces

Priority Ranking

The Private Land Holdings Area of Interest received a low priority ranking meaning the recommendations should be implemented within ten years upon completion of the JLUS.

6.5 STENNIS INTERNATIONAL AIRPORT AREAS OF INTEREST

Stennis International Airport is a 585-acre general aviation airport, owned and operated by the HCPHC. Stennis International Airport is located on the eastern edge of the Stennis Acoustic Buffer Zone. The facility includes an 8,497-foot long, 150-wide, main runway with sufficient pavement strength to support passenger and cargo aircraft.

The airport supports training and operations from most military agencies. Specific to the Navy, training opportunities include aircraft loading and equipment staging, military freefall and static line jumping, helicopter fast rope and rappelling, and drop zone and convoy training.

6.5.1 LAND USE

Area of Interest

Regulations are not in place to provide long-term protection of the airport.

Background

Historically, comprehensive plans prepared by local governments have not fully analyzed the implications of airport facilities. Local land use planning is an important tool that can be used to determine compatible and incompatible use of properties around airports. Airports and local governments can use land use policy and regulatory techniques to ensure consistency between

the two. Often, however, land use planning coordination is hindered by the fact that airport facilities can be surrounded by a multitude of individual local governmental jurisdictions, each with their own planning process.

Incompatible land uses around airports jeopardize the safety and efficiency of flying activities and the quality of life of the community's residents. Incompatible airport land uses include residential development, schools, community centers and libraries, hospitals, and buildings used for religious services and tall structures, smoke and electrical signal generators, landfills, and other bird/wildlife attractants. The objectives of compatible land use planning are to encourage land uses that are generally considered to be incompatible with airports (such as residential, schools, and churches) to locate away from airports and to encourage land uses that are more compatible (such as industrial and commercial uses) to locate around airports.

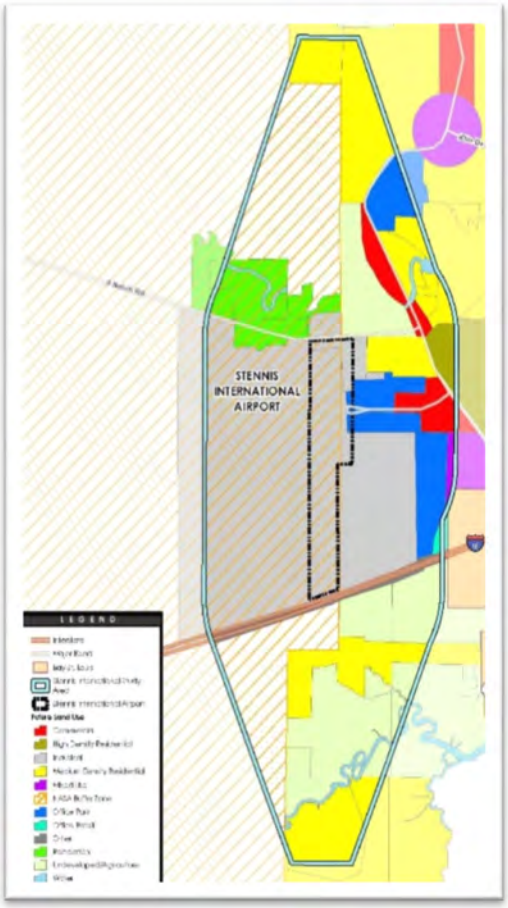


Figure 68 Above: Adopted Hancock County Future Land Uses within the study area.

Compatibility Review

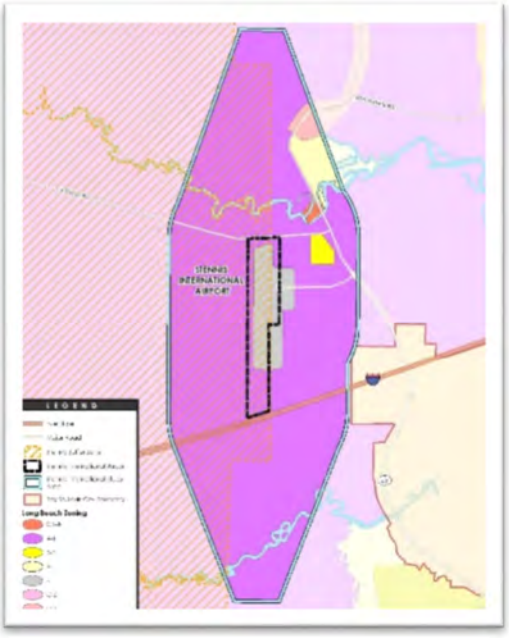
Stennis International Airport is recognized as an economic engine within Hancock County that must be protected and facilitated. The Comprehensive Plan contains several goals and policies that would provide land use compatibility measures for any new development or redevelopment around the Stennis Space Center and Stennis International Airport. The goals and objectives that were identified during the analysis consist of the following:

- Policy 10.5: The Future Land Use Map establishes a land use pattern that will accommodate anticipated commercial and residential growth in the community. Prior to amending the Future Land Use Map, make findings that the proposed amendment:
  - Would be consistent with the Plan goals.
  - Would be compatible with future land uses for surrounding areas of the community,
- Policy 10.6: Protect neighborhoods from encroachment of incompatible land uses by ensuring that zoning is consistent with the Future Land Use Map, by developing and implementing area plans and by enforcing compatibility standards that address noise, traffic and aesthetics.

- Policy 10.13: Ensure that development in the vicinity of the airport does not constrain future growth and operations of the airport.

- Goal 11: To promote the concept of land use compatibility with Airport operations on lands surrounding Stennis International Airport.
- Policy 11.1: Prevent or discourage residential uses around Stennis International Airport.
- Policy 11.2 The County should work with Airport Management to develop appropriate land use controls that can be used to manage proposed land use changes to insure continued compatibility.

Stennis International Airport and the immediately surrounding area primarily consists of Industrial future land use designations. The area to the west is protected by the NASA acoustic buffer zone limiting development potential. The County has designated portions of industrial and recreation lands within that area while another portion remains undesignated. Medium density residential, undeveloped / agriculture make up the majority of the lands to the north. To the east includes industrial, office park, medium density residential, and commercial. The southern portion of the study area, south of Interstate-10 consists of primarily undeveloped / agriculture and medium density residential.



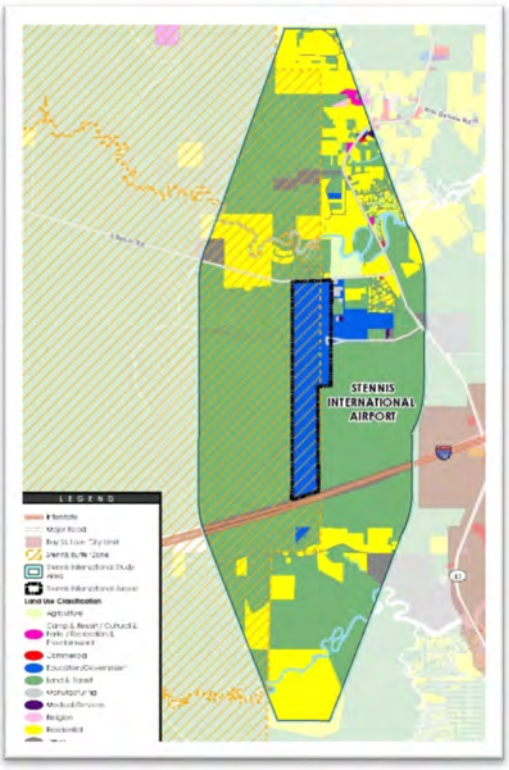


Figure 69 Above: Adopted Hancock County Zoning within the study area. Below: Existing Land uses within the study area.

Table 6.5.1a: Hancock County Future Land Uses within Stennis International Airport Study Area

FUTURE LAND USE DESIGNATION	ACREAGE	PERCENT OF TOTAL STUDY AREA
Office Retail	14	0%
Mixed Use	34	0%
Other	55	1%
Water	69	1%
High Density Residential	88	1%
Commercial	235	3%
Office Park	495	6%
Industrial	618	8%
Undeveloped/Agriculture	1,226	16%
Medium Density Residential	1,361	18%
NASA Buffer Zone	3,571	46%
Total	**7,765**	**100%**

Source: Hancock County GIS

Each future land use designation has a different character and allowable uses. The future land uses around the airport need to be carefully considered to ensure that compatible development continues to occur in the future. The adopted future land use designations include the following:

Table 6.5.1b: Hancock County Future Land Use Descriptions within Stennis International Airport Study Area

FUTURE LAND USE DESIGNATION	CHARACTER	USES
Office Retail	This classification allows a mix of retail and office businesses in the same area or building.	The typical range of uses would include offices related to professional service providers and design related professions, and retail uses that could compliment these businesses.
Mixed Use	This classification combines several types of land uses to provide a unique experience. Allowable land uses within this classification include retail, services, offices, restaurants, public uses and semi-public uses and living spaces integrated	Land uses can include services, retail, offices, restaurants, public and semi-public land uses, as well as residential land uses, preferably on upper floors.

FUTURE LAND USE DESIGNATION	CHARACTER	USES
	into an urban form. Densities within this district would be between four (4) and thirty (30) units per acre with limited commercial land uses.	
High Density Residential	The intent of the high-density residential classification is to allow for a wide variety of residential development.	Single family housing will be allowed. Attached dwellings, duplexes, townhouses, apartments, and elderly housing are also permitted.
Commercial	This classification is intended to accommodate a wide range of retail trade, service-oriented businesses, offices and mixed retail/residential development, but does not allow exclusively residential development unless it is coordinated with an abutting retail development.	The typical range of retail and service commercial business will be allowed. If residential development is part of the retail development, or a mixed use development it may range from 6 to 30 dwelling per residential acre.
Office Park	This category is devoted to office and service uses. Retail uses, such as restaurants, are limited to those serving businesses in the same area or building.	Uses may include high technology businesses, offices with light storage components, medical office parks, etc.
Industrial	The purpose of this land use category is to create a district for use in the county where it is desirable to locate manufacturing establishments.	The use within this classification will include manufacturing.
Undeveloped / Agriculture	Very low intensity developed land uses. Low density residential may be within the area. The maximum density for residential units is one unit per half acre.	This land use will be defined as the single purpose of the land area to produce crops or to raise animals.
Medium Density Residential	Medium-density residential district is a residential district that allows a mix of single-family and attached types of dwelling units. Neighborhood scale commercial development could be allowed as part of a mixed use development.	Residential dwelling units of between three (3) and eight (8) dwelling units dwelling units per acre.

Source: Hancock County, Mississippi Comprehensive Plan (November 2010).

The zoning ordinance is used to implement the future land use designations and provides additional details such as lot coverage, height, and other bulk requirements for developments. Stennis International Airport zoned Light Industrial and is primarily surrounded by General Agriculture.

Table 6.5.1c: Hancock County Zoning Designations within Stennis International Airport Study Area

FUTURE LAND USE DESIGNATION	ACREAGE	PERCENT OF TOTAL STUDY AREA
General Agriculture (A-1)	3,588	46%
Neighborhood Commercial (C-1)	82	1%
Light Neighborhood Commercial (C-1A)	22	0%
Highway Commercial (C-2)	8	0%
Light Industrial (I-1)	123	2%
Single Family Residential (R-1)	186	2%
Medium Density Residential (R-2)	61	1%
Water	129	2%
Acoustic Buffer Zone	3,566	46%
Total	**7,765**	**100%**

Source: Hancock County GIS

A description of each zoning designation found within the study area, the maximum lot coverage and maximum allowable height are identified in the table below.

Table 6.5.1d: Hancock County Zoning Designation Descriptions within Stennis International Airport Study Area

ZONING DESIGNATION	PURPOSE	MAX LOT COVERAGE	HEIGHT
General Agriculture (A-1)	Provide areas primarily for agriculture purposes and low density residential development.	60%	50 ft.
Neighborhood Commercial (C-1)	Purpose is to serve the residential areas with everyday retail and personal service needs.	50%	50 ft.
Light Neighborhood Commercial (C-1A)	Provide for a carefully controlled selection of light commercial uses.	50%	35 ft.

ZONING DESIGNATION	PURPOSE	MAX LOT COVERAGE	HEIGHT
Highway Commercial (C-2)	Purpose is to serve high traffic retail and service type trade.	60%	50 ft.
Light Industrial (I-1)	Light manufacturing, wholesaling, and similar uses.	75%	35 ft.*
Single Family Residential (R-1)	Single family dwellings and related recreational, religious, and educational facilities.	60%	35 ft.
Medium Density Residential (R-2)	Medium population density.	60%	35 ft.

**Building height can be exceeded if a site plan is provided and adequate approval granted.*
Source: Hancock County Zoning Ordinance

Article V of the Zoning Ordinance, Special and Overlay Districts, establishes an Airport Overlay District for the area around Stennis International Airport and consists of the following:

- Airport District: To include such compatible and related activities air fields, air strips, and other related uses, provided however, that any and all uses, improvements to facilities and buildings shall be erected and constructed in accordance with current regulations of the Federal Aviation Administration of the United States Government.

Although the Airport Overlay is established within the Zoning Ordinance, a geographic boundary for the overlay has not been established nor have any regulations been put into place. The overlay references that improvements must be in compliance with FAA regulations; however, that is not sufficient to protect the airport from incompatible development. The FAA regulations are not comprehensive and do not regulate land uses around the airport, only items such as height.

The existing land use identifies what is actually occurring on the ground. Stennis International Airport itself is identified as Education/Government as well as the area to the east containing the school facilities. The majority of the land within the study area is identified as land and forest or residential.

Table 6.5.1e: Hancock County Existing Land Use within Stennis International Airport Study Area

EXISTING LAND USE DESIGNATIONS	ACREAGE	PERCENT OF TOTAL STUDY AREA
Agriculture	58	1%
Camp and Resort	19	0%
Commercial	4	0%

EXISTING LAND USE DESIGNATIONS	ACREAGE	PERCENT OF TOTAL STUDY AREA
Education	129	2%
Land and Forest	2,388	31%
Manufacturing	10	0%
Medical	8	0%
Other	245	3%
Religion	5	0%
Residential	1,216	16%
Water	115	1%
Acoustic Buffer Zone	3,566	46%
Total	**7,765**	**100%**

Source: Hancock County GIS

The current pattern of development is compatible with Stennis International Airport. However, as growth continues within the area, incompatible development could occur. The Comprehensive Plan and Zoning Regulations could be strengthened to provide additional existing and long-term compatibility measures and to establish an Airport Overlay District for the areas located in close proximity of Stennis International Airport.

Applicable Compatibility Factors

The following compatibility factors apply to the Land Use Area of Interest.

Table 6.5.1f: Land Use Compatibility Factors

Development Factors
Land Use

Priority Ranking

HIGH

The Land Use Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.5.2 BIRD ATTRACTION HAZARDS

Area of Interest

Bird Attraction Hazards are present near runways leading to increased wildlife / aircraft conflicts.

Background

Aircraft collisions with wildlife, also commonly referred to as wildlife strikes, cost the aviation industry billions of dollars in direct damage and thousands of hours of aircraft down time. According to the FAA, birds make up 97% of the reported strikes, mammals about 3% and reptiles less than 1%.

Figure 70 Birds approaching an aircraft
Source: https://www.linkedin.com/pulse/airplanes-losing-bird-strike-war-amreen-khan

Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas present potential hazards to aviation if they encourage wildlife to enter an airport's approach or departure airspace or air operations area. Areas such as poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, waste disposal operations (such as landfills), wastewater treatment plants, agricultural or aquaculture activities, surface mining, or wetlands can provide wildlife with ideal habitats. The FAA and military recommends that these land uses be located at least 10,000 feet from the airfield.

The FAA regulates the Wildlife Hazard Mitigation Program for civilian airports. The FAA addresses wildlife hazards with aircraft through regulatory guidance, data collection, research, partnerships, and outreach. As part of their requirements, the FAA has successfully encouraged all Part 139 airports to conduct Wildlife Hazard Assessments, followed by a Wildlife Hazard Mitigation Plan. As of October 2016, all Part 139 certificated airports have completed or initiated an assessment. The Department of Defense also implements aviation safety programs geared towards safety conditions specific for the military. One of these programs is the Bird/Wildlife Aircraft Strike Hazard (BASH) Prevention Program similar to the civilian Wildlife Hazard Mitigation Plan.

Compatibility Review

One of the most significant duties of an airport operator is to maintain a safe operating environment. As part of that duty, the FAA requires that a Wildlife Hazard Mitigation Plan be put in place if there has been a wildlife strike at the airport. The Wildlife Hazard Management Plan identifies the specific actions the airport will take to mitigate the risk of wildlife strikes on or near the airport.

Stennis International Airport is surrounded by wetlands and forested areas – two major wildlife attractants. It is no surprise that wildlife strikes have occurred there. In fact, 14 wildlife strikes have occurred between 2007 and 2014, based on the FAA website.

Table 6.5.2.a: Wildlife Strikes Reported by FAA at Stennis International Airport

DATE	OPERATOR	AIRCRAFT TYPE	SPECIES
10/2/2014	Military	C-130	Unknown
9/10/2013	Military	C-130	Chimney swift
5/29/2013	Military	C-130	Brazilian free-tailed bat
10/15/2012	Military	UNKNOWN	Gray catbird
8/14/2012	Military	C-130	Brazilian free-tailed bat
3/1/2012	Military	C-130	Sora
11/3/2011	Military	C-130	Pigeons, doves
10/5/2011	Military	C-130	Red-eyed vireo
8/2/2011	Military	C-130	Chimney swift
7/26/2011	Military	C-130	Eastern meadowlark
5/3/2011	Military	C-130	Barn swallow
4/13/2011	Military	C-130	Unknown bird
9/30/2010	U.S. Coast Guard	CASA C-212	Unknown bird - small
1/11/2007	Military	C-130J	Perching birds (y)

Source: FAA Wildlife Strike Database, Stennis International Airport, Hancock County, Mississippi

Applicable Compatibility Factors

The following compatibility factors apply to the Bird Attraction Hazards Area of Interest.

Table 6.5.2.b: Bird Attraction Hazards Compatibility Factors

Development Factors
Land Use
Safety Zones

Priority Ranking

HIGH

The Bird Attraction Hazards Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.5.3 VERTICAL OBSTRUCTIONS

Area of Interest

The introduction of vertical obstructions can interfere with the safe operations of the airport. The vertical obstructions can include not only trees and buildings but also telecommunication towers.

Figure 71 Cell towers can interfere with the safe navigation of airplanes

Background

Tall structures such as buildings, construction cranes, and cell towers within the vicinity of an airport can be hazardous to the navigation of airplanes. The FAA, through FAR Part 77, established a method of identifying surfaces that should be free from penetration by obstructions in order to maintain sufficient airspace around airports. FAR Part 77 identifies the maximum height at which a structure would be considered an obstacle at any given point around an airport. The extent of the area needing to be evaluated for tall structure impacts can extend miles from an airport facility. Tall structure impacts have historically involved the height of buildings and the height of cranes used in construction. However, antennae and telecommunication towers also need careful review for future sitings. The location of tall structures within local airspace can significantly affect the ability of FAA's Air Traffic Control to route aircraft into and out of an airport and can also reduce an airport's capacity.

Figure 72 Construction cranes can be considered an obstacle around an airport

Aviation electronic navigation aids (such as radar facilities, and instrument landing systems) are necessary to provide for the safe movement of aircraft. Although many of the navigation systems are located on the airport, some systems are located off airport property. Such electronic systems have the potential of being interfered with if non-aviation related electronic sources are placed in proximity or if structures are constructed which could block the navigation

aid signals. Where off-airport electronic navigation facilities occur, any development proposed to be located near these facilities needs to be reviewed by the FAA to determine if any interference to the use of the navigation aid would occur.

Compatibility Review

The Hancock County Zoning Ordinance identifies the height requirements for each of the zoning designations within the County. Currently, the code allows a maximum height of 200 feet for the Commercial Resort (C-3) District and no height limit for the Commercial Resort (C-4) District. The majority of the remaining districts are between 35 and 50 feet. Table 6.5.3a provides a breakdown of the zoning districts and the allowable heights.

Table 6.5.3.a: Zoning District Height Requirements

Zoning District	Height Requirement
General Agriculture (A-1)	50 ft.
Single Family Residential (R-1)	35 ft.
Single Family Residential (R-1A)	35 ft.
Medium Density Residential (R-2)	35 ft.
Medium Density Residential (R-2A)	35 ft.
Multi-Family Residential (R-3)	50 ft.
Neighborhood Commercial (C-1)	50 ft.
Highway Commercial (C-2)	50 ft.
Commercial Resort (C-3)	200 ft.
Commercial Resort (C-4)	None
Light Industrial (I-1)	35 ft.
Heavy Industrial (I-2)	35 ft.
Planned Industrial Park (I-3)	35 ft.

Source: Hancock County Zoning Ordinance

Specific to the study area, the maximum height allowable is 50 ft. Under the current code, C-3 and C-4 zoning district could cause a significant vertical obstruction issue if located adjacent to the airport. However, development is an evolving process and without appropriate measures in

place, changes in development patterns could take place that hinder the success of Stennis International Airport.

Applicable Compatibility Factors

The following compatibility factors apply to the Vertical Obstructions Area of Interest.

Table 6.5.3.b: Vertical Obstructions Compatibility Factors

Development Factors
Land Use
Vertical Obstruction
Frequency Spectrum

Priority Ranking

HIGH

The Vertical Obstructions Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.5.4 FLIGHT PATHS

Area of Interest

Flight paths need to be protected from incompatible development and land uses such as those that produce dust, smoke, or steam; lighting that could impair the pilots vision; and renewable energy sources such as solar panels and wind turbines.

Background

As has been described in the previous Areas of Interest, determining the appropriate land use surrounding the aviation facility is vital to the safety of the pilots and the community. In the same vein, it is important to consider those same land uses in regard to flight paths. Land uses and their associated impacts need to be considered in order to minimize the following:

- ***Lighting*** – glare that could interfere with the pilots vision, distort their vision, or create confusion between the runway and city lights;
- ***Dust, Smoke, or Steam*** – the pilots vision could be distorted or hampered;
- ***Renewable Energy*** – interruption of frequencies from wind turbines could lead to loss of communication and the effects of solar glare could temporarily blind the pilot.

Compatibility Review

As growth around the airport continues, the land uses directly under the flight paths need to be carefully considered. Impacts from lighting, dust, smoke, steam, or renewable energy could cause detrimental impacts to the pilot, the mission of the military plane, or the success of a commercial aircraft.

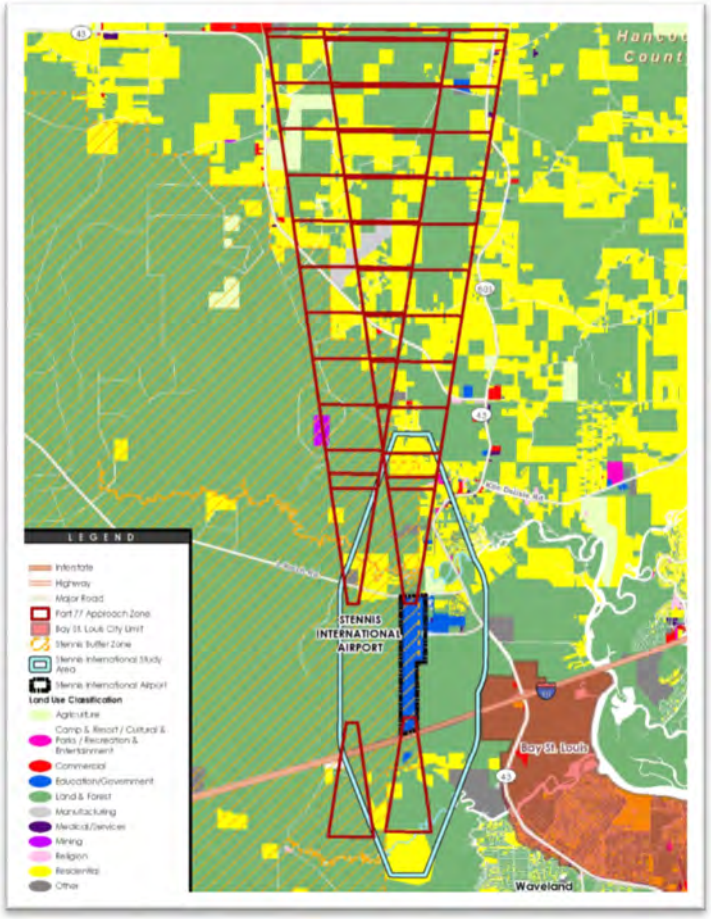


Figure 73 Existing land uses within the flight paths of Stennis International Airport.

In particular, night testing and training is an important element of the training that takes place at Stennis International Airport. Light pollution from the upward and outward distribution of light can interfere with military training activities such as night time training, low level flight operations, and the aviator's vision. Street lights, building lights, and lights associated with uses such as retail, commercial, outdoor storage, and outdoor sports fields can be major contributors to light pollution if not regulated properly.

It is also possible that land uses around airfields may emit smoke, fly ash, dust, steam, vapor, gases, or other forms of air emissions that can impair visibility in the vicinity of the airfield, interfere with the safe operation of aircraft, and endanger the landing, take off, or maneuvering of aircraft at the airfield.

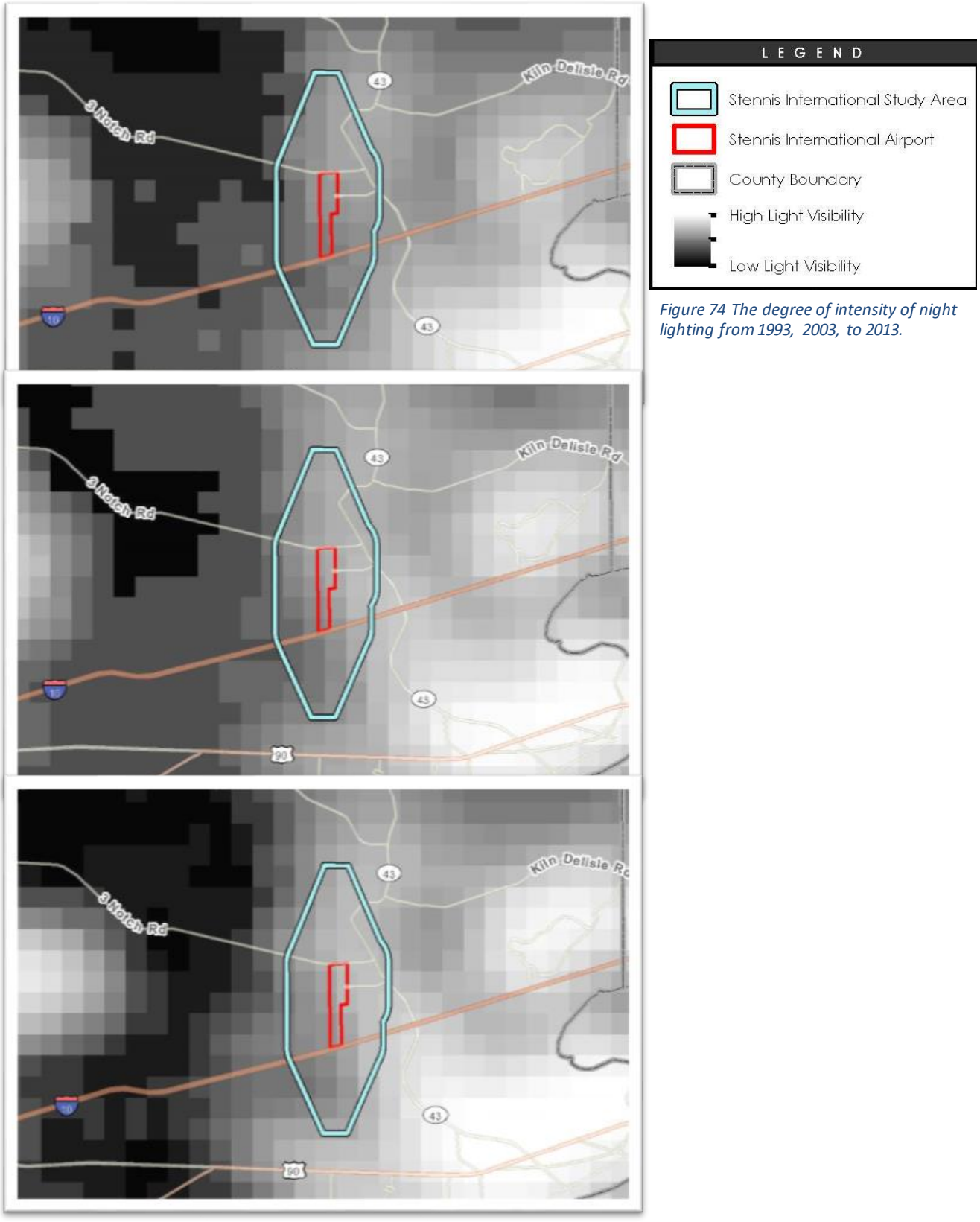


Figure 74 The degree of intensity of night lighting from 1993, 2003, to 2013.

Applicable Compatibility Factors

The following compatibility factors apply to the Flight Paths Area of Interest.

Table 6.5.4: Flight Paths Compatibility Factors

Development Factors
Land Use
Vertical Obstruction
Dust / Smoke / Steam
Light and Glare
Energy Development
Frequency Spectrum

Priority Ranking

HIGH

The Flight Paths Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.5.5 APPROACH ZONES

Area of Interest

The Stennis International Airport is not designated as a military airport; however, the primary users are military. In order to preserve the military functionality of the airport, when possible, the clear zones and approach zones should follow standards as outlined by the Navy.

Background

The Navy identified areas of accident potential as a method to assist in land use planning leading to the Air Installation Compatible Use Zone (AICUZ) Program and the formulation of the Clear Zones and Approach Zones (APZs). In the 1970s the military conducted a tri-service study of earlier

Table 6.5.5.a: Navy Class B Clear Zone and Accident Potential Zone Dimensions

ZONE	LENGTH	WIDTH
Clear Zone	3,000 ft	2,000 ft
APZ 1	5,000 ft	3,000 ft
APZ 2	7,000 ft	3,000 ft

Source: Air Force Instruction AFI 32-7063 (December 18, 2015).

accident and operations data. The study showed that most aircraft mishaps occur on or near the runway or along the centerline of the runway, diminishing in likelihood with distance. Using the study, the DoD has identified APZs as areas where an aircraft accident is most likely to occur (if one were to occur); the APZs do not reflect the probability of an accident. They are based upon analysis of historical data and are designed to minimize the potential harm if a mishap does occur by limiting activities in the designated APZ areas. APZs follow departure, arrival, and pattern flight tracks and are based upon analysis of historical data.

An accident is more likely to occur in APZ I than in APZ II, and is more likely to occur in the Clear Zone than in APZ I or APZ II. An APZ II area is designated whenever APZ I is required. APZs extend from the end of the runway, but apply to the predominant arrival and departure flight tracks used by the aircraft. Therefore, if an airfield has more than one predominant flight track to or from the runway, APZs can extend in the direction of each flight track.

The Stennis International Airport runways would be classified as Navy Class B runways if it were a military airport. Navy Class B runways are used by large aircraft such as refueling and airlift aircraft as well as high-speed tactical aircraft. The dimensions of the Clear Zone and APZs are identified in Table 6.5.5.a.

Although the likelihood of an accident is remote, the AICUZ guidelines recommend that certain land uses that concentrate large numbers of people, such as apartments, churches, and schools, be avoided within the APZs. Within the Clear Zone, most uses are incompatible with military aircraft operations. Within APZ I and APZ II, a variety of land uses are compatible; however, people-intensive uses such as schools, shopping malls, and theaters, should be restricted because of the greater risk in these areas. Certain land uses are considered compatible under certain conditions. For example, recreational uses, such as parks, are considered compatible under APZ I provided that the recreational use does not include a high density of people (e.g., spectator sports).

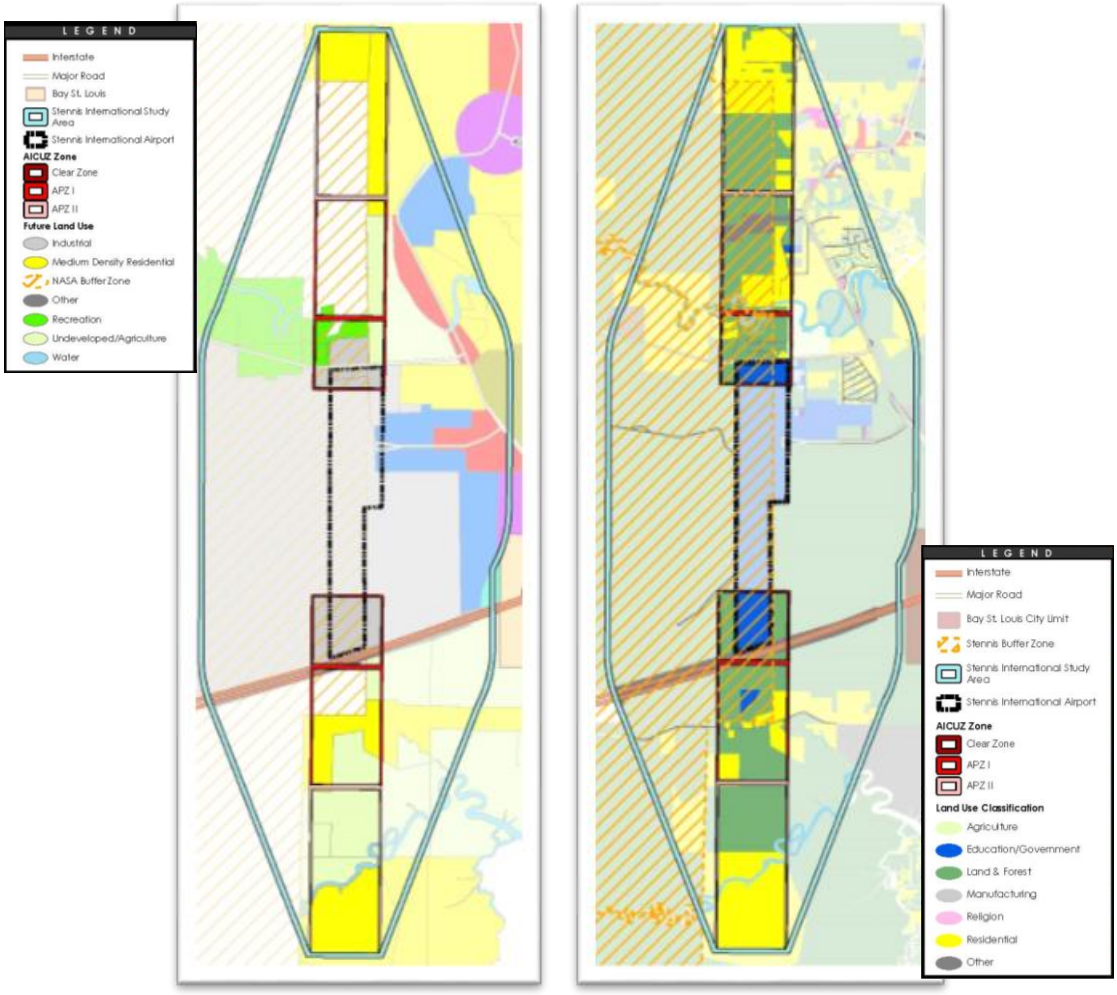


Figure 75 Future land uses (left) and existing land uses (right) occurring within the applied CZ and APZs.

Compatibility Review

The stringent standards applied by the AICUZ guidelines are not necessarily applicable to the study area of the Stennis International Airport; however, it is important to know where major incompatibilities could occur. The Stennis Acoustic Buffer Zone helps to prevent a significant amount of development occurring within the CZ, APZ I, or APZ II. But, existing land uses and future land use designations depict some incompatible uses within the CZ, APZ I, or APZ II.

Table 6.5.5.b: Future Land Uses within the Clear Zones and Approach Zones

FUTURE LAND USE DESIGNATION	ACREAGE WITHIN CZ	ACREAGE WITHIN APZ I	ACREAGE WITHIN APZ II
Industrial	56	-	-
Undeveloped/Agriculture	39	196	245
Medium Density Residential	-	139	460

FUTURE LAND USE DESIGNATION	ACREAGE WITHIN CZ	ACREAGE WITHIN APZ I	ACREAGE WITHIN APZ II
NASA Buffer Zone	312	353	240

Source: Hancock County GIS and Stantec (March 2017)

Table 6.5.5.c: Existing Land Uses within the Clear Zones and Approach Zones

EXISTING LAND USE DESIGNATION	ACREAGE WITHIN CZ	ACREAGE WITHIN APZ I	ACREAGE WITHIN APZ II
Agriculture	9	2	-
Government	17	3	-
Land and Forest	59	173	243
Manufacturing	2	-	-
Religion	-	-	1
Residential	2	112	472
NASA Buffer Zone	312	353	240

Source: Hancock County GIS and Stantec (March 2017)

The Environmental Assessment report for the *Redesignation and Expansion of RA to Support Military Air-to-Ground Munitions Training and NASA Rocket Engine Testing at SSC*, which extends the special use air space around the WMA outside of the buffer zone and into Unincorporated Hancock and Pearl Counties, recommends an RAICUZ program that would include recommendations for the land underlying the expanded air space. The report goes on to state that the RAICUZ would include representatives of the Navy working with Hancock and Pearl counties to encourage the adoption of compatible land use zoning measures. A similar process should take place surrounding Stennis Airport to ensure those communication measures are taken to mitigate potential future encroachment.

Applicable Compatibility Factors

The following compatibility factors apply to the Approach Zones Area of Interest.

Table 6.5.5.b: Approach Zones Compatibility Factors

Development Factors	
	Land Use

Priority Ranking

HIGH

The Approach Zones Area of Interest received a high priority ranking meaning the recommendations should be implemented between one and three years upon completion of the JLUS.

6.5.6 NOISE

Area of Interest

Noise contours have not been established for Stennis International Airport, but there have been complaints regarding the noise levels when military planes use the facility.

Background

Noise is generally described as unwanted sound. Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Unwanted sound can be based on objective effects (such as hearing loss and speech interruptions) or subjective judgments (such as noise complaints and annoyance).

Noise is measured using several metrics that reflect different noise characteristics. There are differences in continuous (e.g., aircraft flying) versus impulsive (e.g., weapons firing) types of noise, variations in frequency, and duration of noise exposure. Duration of noise exposure also dictates how a person perceives noise; a relatively long steady noise, like a train, aircraft passing or traffic "feels" different than a rapid loud gunshot type noise. Noise metrics are used as follows:

- The day-night average sound level (Ldn or DNL) is the average noise level over a 24-hour period. Because noise is considered more intrusive at night, a 10-decibel penalty is applied for operations occurring during nighttime hours, between 10:00 p.m. and 7:00 a.m.
- Peak 15 sound is the instantaneous, unweighted maximum value reached by the sound pressure produced by small and large caliber weapons. Peak measures the impulsive sounds generated by small

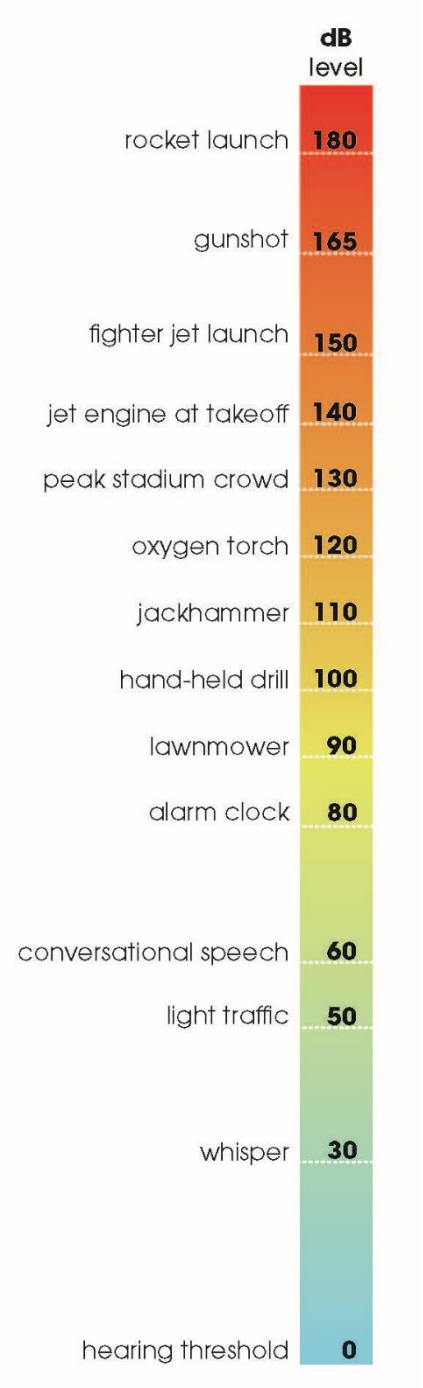


Figure 76 Noise Level Chart

and large munitions, explosions, and sonic booms. It represents a single event where the maximum noise level is likely to be exceeded 15% of the time.

Noise contours are depicted on maps identifying the level of noise exposure based on the DNL or Peak 15 levels.

Figure 77 The few noise complaints that Stennis International Airport has received have occurred when large military aircraft takes off from the airport

Compatibility Review

It is important to note that Stennis International Airport is in a unique position being located on the edge of the Stennis Acoustic Buffer Zone. Because the noise originates within the buffer zone there are minimal impacts. To date, there have been few complaints regarding noise from the adjacent residential and nonresidential uses. The complaints that have occurred are primarily when large military aircraft take off from the facility.

Stennis International Airport attempts to minimize any noise complaints by directing heavy aircraft to use the flight paths over the buffer zone. This not only mitigates noise, but is also used as a safety precaution. However, due to the pattern of development and the potential for increased development in the area, it is possible that these measures might not offer enough mitigation and noise could become a more significant incompatibility subject.

One of the best mechanisms available to address aircraft noise compatibility planning is the Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Program. The FAR Part 150 Program was established under the Aviation Safety and Noise Abatement Act of 1979 and allows airport operators to voluntarily submit noise exposure maps and noise compatibility programs to the FAA for review and approval. Typically recommended noise abatement measures fall into three categories:

- Operational measures such as changes in runway use or changes in flight track location.
- Preventive measures such as compatible land use zoning or noise overlay zoning within off-airport noise exposure areas.

Applicable Compatibility Factors

The following compatibility factors apply to the Noise Area of Interest.

Table 6.5.6: Noise Compatibility Factors

Development Factors
Land Use
Noise and Vibration

Priority Ranking

Medium

The Noise Area of Interest received a medium priority ranking meaning the recommendations should be implemented between four and six years upon completion of the JLUS.

7.0 RECOMMENDATIONS

The Recommendations portion of the report provides a list of strategies and actions that can be used to resolve, prevent, and mitigate Areas of Interest identified within the Compatibility Analysis. The Recommendations follow the same sequence as the Compatibility Analysis – beginning with the Areas of Interest identified for the overall JLUS project area and then moving forward to NCBC Gulfport, Woolmarket Range, WMA, and Stennis International Airport.

Each section provides a brief summary of the Area of Interest, and the accompanying table provides a series of recommendations to resolve, prevent, or mitigate the topic. The approximate timeframe as to when the recommendations should be implemented can be found in the far-left column. The black diamond (◆) denotes the entity that will be primarily responsible for implementing the recommendation. The white diamond (◇) denotes the partner entity that will be necessary to assist with the implementation. Other includes a variety of other entities that could assist with the implementation including such organizations as GRPC, MDOT, HCPHC, State of Mississippi, etc.

7.1 GENERAL AREAS OF INTEREST RECOMMENDATIONS

The General Areas of Interest Recommendations correspond to the compatibility analysis for the overall special areas including NCBC Gulfport, Woolmarket Range, WMA, and Stennis International Airport.

7.1.1 FREQUENCY INTERFERENCE

Public telecommunication and infrastructure may cause frequency interference with military communication equipment and the community.

Table 7.4.1: Frequency Interference Recommendations

	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 – 3 YEARS	Prepare and Execute a Frequency Memorandum of Understanding (MOU).		◆	◆	◆	◆	◆	
	Coordinate with municipalities to establish procedures to identify proposed projects that may potentially involve a source of frequency		◆	◆	◆	◆	◇	

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	emissions (including large scale Wi-Fi).						
1 – 3 YEARS	Develop regulations for incorporation into municipal Zoning Ordinances that designate frequencies to avoid interference with military training and operations.	◆	◆	◆	◆	◇	
	Develop a business registration program for new businesses within the MIOD regarding frequency spectrum usage.	◆	◆	◆	◆	◇	
	Include Navy on telecommunication tower siting and approval process.	◆	◆	◆	◆	◇	

7.1.2 COORDINATION AND COMMUNICATION

The community has a great working relationship with the military. A more formalized communication process will only aid in solidifying the relationship.

Table 7.1.2: Coordination and Communication Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
YEARS	Maintain a designated liaison between NCBC and the community.	◇	◇	◇	◇	◆	
1 - 3	Identify designated Navy and jurisdictional points of contact and make widely known.	◇	◇	◇	◇	◇	◆

	Recommendations	Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Create a communication coordination manual to be shared with identified individuals.	◇	◇	◇	◇	◇	◆
1 – 3 YEARS	Expand communication efforts with all jurisdictions. These efforts may include sharing updates to jurisdictions, regional planning organizations and the Navy; updates to local and military websites; sharing of important designated contacts and their information; and notifying entities of relevant activities.	◇	◇	◇	◇	◇	◆
	Seek regular input from the Navy by designating an NCBC liaison as an Ex Officio member on the Planning Commission.	◆	◆	◆	◆	◇	
	Analyze the potential for and impacts of adding new training commands/missions at NCBC + Special Areas.	◆	◆	◆	◆	◆	◆

7.1.3 IMPLEMENTATION

Through a team approach, the JLUS can be successfully implemented to promote compatibility and defend against encroachment for NCBC Gulfport + Special Areas, Harrison County, Hancock County, Gulfport, and Long Beach.

Table 7.1.3: Implementation Recommendations

	Recommendations	Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 – 3 YEARS	The NCBC JLUS Technical Committee should transition to a JLUS Implementation Committee and be responsible for monitoring the implementation of the recommended JLUS strategies and act as a forum for continued communication and sharing of information and current events associated with JLUS.	◆	◆	◆	◆	◆	◆
	Establish and maintain a NCBC JLUS GIS Database that includes the main installation and the special areas. NCBC JLUS GIS Database would incorporate all the JLUS GIS data layers as well as other regional, state and federal data sets to be utilized by city and county governments during the implementation process and subsequently through the development approval process.	◇	◇	◇	◇	◇	◆

7.1.4 AIR ATTAINMENT

Mississippi has always been designated as attaining all U.S. Environmental Protection Agency (EPA) ambient air quality standards. However, EPA has recently revised standards for ground-level ozone and fine particulate matter that are designed to be more protective of human health and welfare. These standards present new challenges for the state to continue to be designated as attainment.

Table 7.1.4: Air Attainment Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 – 3 YEARS	Continue to coordinate with Mississippi Department of Environmental Quality and the Clean Air Advisory Group to continue to promote ozone reduction awareness.	◆	◆	◆	◆	◆	◆

7.1.5 EMERGENCY PREPAREDNESS

Coastal storms, flooding, tornadoes, and other natural disasters have had a substantial impact on the Mississippi Gulf Coast and have the potential to occur in the future.

Table 7.1.5: Emergency Preparedness Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
4 – 6 YEARS	Coordinate emergency response plans for relevant jurisdictions and NCBC for hurricane preparedness, including assistance from and aid to NCBC.	◆	◆	◆	◆	◆	◆

7.1.6 UNMANNED AIRCRAFT SYSTEMS

Private unmanned aircraft systems (UAS), commonly referred to as drones, flying over the installation, special areas, and Stennis International Airport create concerns for military activities.

Table 7.1.6: Unmanned Aircraft Systems Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
YEARS	Create an education program to alert those flying drones of the impacts they may have on installations and facilities.	◆	◆	◆	◆	◇	
4 – 6	Coordinate with the FAA to identify potential opportunities for restricted access.					◆	◆
	Analyze potential route for UAS flight corridors.	◇	◇	◇	◇	◇	◆
	Establish communication networks for the facilities utilizing UAS within the region.	◇	◇	◇	◇	◇	◆

7.1.7 THREATENED AND ENDANGERED SPECIES

Threatened and endangered species are likely present within the JLUS study area as well as NCBC + Special Areas. The Navy is required to meet NEPA regulations and any private development must comply with state and federal regulations.

Table 7.1.6: Threatened and Endangered Species Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
10 YEARS	Continue to assist the Navy and municipalities with ensuring NEPA regulations are met.	◆	◆	◆	◆	◆	◇
WITHIN	Continue to coordinate with the U.S. Fish and Wildlife Services to identify potential habitat for species.	◆	◆	◆	◆	◆	◇

7.2 NCBC GULFPORT RECOMMENDATIONS

7.2.1 LAND USE

The regulations currently in place guiding development around the base are consistent with the mission of NCBC Gulfport; however, safeguards should be strengthened to maintain these standards.

Table 7.2.1: Land Use Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
YEARS	Establish a Military Influence Area (MIA) with a Military Overlay District (MIOD).		◆	◆	◆		
1 - 3	Update jurisdictional comprehensive plans to incorporate MIA and MIOD.		◆	◆	◆		
	Update jurisdictional zoning regulations to incorporate MIA and MIOD.		◆	◆	◆		

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Create a Military Compatibility Element in the impacted jurisdictions Comprehensive Plans.		◆	◆	◆		
1 – 3 YEARS	Develop and distribute property owner information to provide details on applicable regulations that govern development within the MIOD.		◆	◆	◆		
	Prepare and execute a formal notification MOU for new development proposals.		◆	◆	◆		

7.2.2 BASE INGRESS AND EGRESS

Base ingress and egress can have impacts on the community's infrastructure and economy.

Table 7.2.2: Base Ingress and Egress Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 -3 YEARS	Conduct a transportation study for Canal Road and 30th Avenue to make improvements for strategic routes.		◇	◇	◇	◇	◆
	Utilize Mississippi Department of Transportation (MDOT) funding from the Defense Access Road program and/or through the Strategic Highway Network program to		◇	◇	◇		◆

	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	make transportation improvements on strategic routes.							
	Prepare coordination and development standards for properties along and for projects that may affect any roads eligible for Defense Access Road funding or are part of the Strategic Highway Network.			◆	◆	◆		◇
1 - 3 YEARS	Develop and implement a signage program along roads eligible for Defense Access Road funding or the Strategic Highway Network to identify the route and its purpose.			◆	◆	◆		◇
	Develop a plan to coordinate, should the need arise, for an emergency route from the installation to the Port to be utilized during times of activation or heavy use of the port facility by NCBC.				◆		◆	◆
	Conduct a traffic study to assess community impacts regarding traffic demand cycles and gate ingress/egress.				◆	◆	◆	
	Require coordination with City and County when reviewing proposed projects, particularly when			◆	◆	◆	◇	

	Recommendations	Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	impacting a defense access road (28th St.) or Strategic Highway Network (Canal Rd.) designated roadway.						
	Monitor development / changes of the I-10 / Port Connector Road.		◇	◇			◆
1 - 3 YEARS	Review the impacts of reopening or expanding the hours of the Broad Ave gate. Include coordination with the State of Mississippi for funding opportunities.					◆	◇
	Notify and coordinate capital improvement projects with NCBC such as potable water and/or sanitary sewer infrastructure expansion plans within the MIA.		◆	◆	◆	◇	

7.2.3 FLOODING AND DRAINAGE

The lack of adequate drainage has caused and may continue to cause drainage problems, including flooding at NCBC Gulfport.

Table 7.2.3: Flooding and Drainage Recommendations

	Recommendations	Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 -3 YEARS	Establish a formal communication and coordination process between the local governments and the Navy related to		◆	◆	◆	◆	

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	impacting a defense access road (28th St.) or Strategic Highway Network (Canal Rd.) designated roadway.						
	Monitor development / changes of the I-10 / Port Connector Road.		◇	◇			◆
1 - 3 YEARS	Review the impacts of reopening or expanding the hours of the Broad Ave gate. Include coordination with the State of Mississippi for funding opportunities.					◆	◇
	Notify and coordinate capital improvement projects with NCBC such as potable water and/or sanitary sewer infrastructure expansion plans within the MIA.		◆	◆	◆	◇	

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Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 -3 YEARS	Establish a formal communication and coordination process between the local governments and the Navy related to		◆	◆	◆	◆	

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
YEARS	Amend building and zoning codes to require sound attenuation where necessary.		◆	◆	◆		
4 – 6	Identify noise compatibility policies for inclusion in local planning documents.		◆	◆	◆		
	Educate local builders on sound attenuation.		◆	◆	◆		

7.2.5 FENCELINE PROTECTION

The community is continuing to grow around the base leading to decreased fenceline buffers and an increase in accident potential from the heavily travelled roadways bordering the installation.

Table 7.2.5: Fenceline Protection Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Develop requirements for easements on parcels adjacent to the base to be used for fenceline clearing and maintenance.					◆	
4 – 6 YEARS	Develop design standards within the Land Development Code for parcels adjacent to the base to ensure proper separation.		◆	◆	◆		
	Develop requirements within the Land Development Code to		◆	◆	◆	◇	

	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	strategically locate screening to protect on-installation assets.							
4 – 6 YEARS	The Navy should evaluate the possibility and feasibility of relocating all or at least the most impacted portions of the installation's fenceline to provide for a buffer between the adjoining private properties. The buffer would also strengthen security and provide for better maintenance of the fenceline.						◆	
	Design and construct guardrails along heavily travelled roadways where accident potential is the most likely.			◆	◆	◆	◇	

7.3 WOOLMARKET RANGE RECOMMENDATIONS

7.3.1 LAND USE

Local regulations are not currently in place to minimize incompatibilities between Woolmarket Range and future growth.

Table 7.3.1: Land Use Recommendations

	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Establish a MIA with a MIOD.			◆				

	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Update jurisdictional comprehensive plans to incorporate MIA and MIOD.			◆				
YEARS	Update jurisdictional zoning regulations to incorporate MIA and MIOD.			◆				
1 – 3	Create a Military Compatibility Element in the impacted governments' Comprehensive Plans.			◆				
	Develop and distribute property owner information to provide details on applicable regulations that govern development within the MIOD.			◆				
	Prepare and execute a Formal Notification MOU for new development proposals.			◆				

7.3.2 NOISE

The areas surrounding Woolmarket Range can hear and feel the repercussions from the daily training activities and the special trainings that occur onsite.

Table 7.3.2: Noise Recommendations

	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Incorporate noise contour maps into			◆				

	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Update jurisdictional comprehensive plans to incorporate MIA and MIOD.			◆				
YEARS	Update jurisdictional zoning regulations to incorporate MIA and MIOD.			◆				
1 – 3	Create a Military Compatibility Element in the impacted governments' Comprehensive Plans.			◆				
	Develop and distribute property owner information to provide details on applicable regulations that govern development within the MIOD.			◆				
	Prepare and execute a Formal Notification MOU for new development proposals.			◆				

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	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Incorporate noise contour maps into			◆				

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	disclosure should state that the building / structure for sale or lease is located within the Woolmarket Range MIA and that weapons firing and explosives operations are conducted within the area that may have an impact on the community such as noise or vibration.						
1 – 3 YEARS	Increase public understanding of noise sources. Utilize such resources as: the local media, newsletters, brochures, and annual outreach functions.		◆				
	Establish a Working Group to include Coast Rifle and Pistol Club Range, Woolmarket Range, Harrison County, and GRPC to coordinate noise attenuation and compatibility efforts.		◆			◆	◆

7.3.3 LOW FLYING AIRCRAFT

Woolmarket Range does not have a special use airspace designation which would create a process to notify other aviators of the potential for ricochet when flying over the range.

Table 7.3.3: Low Flying Aircraft Recommendations

	Recommendations	Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 – 3 YEARS	Coordinate with Harrison County and other military entities operating within Harrison County to develop and establish procedures when flying over Woolmarket.		◆			◇	◇
	Coordinate with the Navy to lobby the FAA to establish restricted air space over Woolmarket Range.		◆			◇	◇

7.3.4 TRANSIENT ACCESS INTO WOOLMARKET RANGE

Due to the Range location within the DeSoto National Forest, the facility must allow public access leading to unanticipated civilian entries.

Table 7.3.4: Transient Access into Woolmarket Range Recommendations

	Recommendations	Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
4 – 6 YEARS	Coordinate with the U.S. Forestry Service, Harrison County, and the Navy on fenceline maintenance in an effort to restrict transient entry.		◆			◆	◆
	Evaluate the need for a closure order or a land transfer to completely restrict public access.					◆	◇

	Recommendations	Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Provide a notification system on major roadways surrounding the Range, through websites, and/or social media sources to alert residents and visitors of restricted access when training activities are taking place. Include additional signage or flag notification at the Range itself.		◆			◇	◇
4 – 6 YEARS	Provide educational material on websites (including U.S. Forestry Service, Navy, and associated agencies) to notify visitors of the potential dangers of entering the facility. Dangers may include UXO and live fire training activities.		◆			◇	◇
	Establish an MOU for all entities using the Woolmarket Range.		◆			◆	◆

7.4 WESTERN MANEUVER AREA RECOMMENDATIONS

7.4.1 TRANSIENT ACCESS INTO THE WESTERN MANEUVER AREA

Access is restricted to a portion of the WMA because NASA owns restrictive rights to the Main Canal and man-made basin but it doesn't include the Pearl, Mike's, or McCarthy rivers. Recreational fishermen and hikers enter the property, either intentionally or unknowingly.

Table 7.4.1: Transient Access into the WMA Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Prepare and distribute maps that identify the areas used for military purposes where civilian entry may be limited.	◆				◇	
	Analyze the WMA for breeches to determine the best notification strategy.					◆	
1 – 3 YEARS	Provide educational material on websites (including NASA, Navy, and associated agencies) to notify visitors of the potential dangers of entering the facility. Dangers may include UXO, live fire training activities, and other trainings.	◆				◇	

	Recommendations		Responsible Entity					
			Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Expand outreach to the boating community including the following: increased and enhanced signage, engagement of boating community through marinas and boating associations, expanded radio communications, requirement of all boaters in the area to have an onboard radio, add information to Coast Guard publications, and increase signage and buoy placement.		◆				◇	◇
1 – 3 YEARS	In order to adequately understand who the users of the rivers are, where they are coming from, and how best to inform them about military operations, an organized effort to monitor users on the river needs to be conducted.		◆					
	Maintain a database of agencies that utilize the river or have authority over portions of the river and include points of contact.		◆					
	Provide additional signage at boat ramps and trailheads to notify recreational users of the		◆				◇	◇

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	existing training on navy lands.						
	Use radio communications to notify recreational users of active military training.	◆				◆	◇

7.4.2 COORDINATION

Coordination between Hancock County and the Navy is needed regarding scheduling training activities, managing public works and services, and environmental compliance. Coordination should also include entities on both sides of the Pearl River (Mississippi and Louisiana).

Table 7.4.2: Coordination Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 – 3 YEARS	Create a formal process to ensure adequate notification and coordination of services between the Navy, Hancock County, and Louisiana.	◆				◆	
	Conduct a feasibility study for additional coordination between the WMA and Port Bienville for utilization of the strategic port facilities.					◆	◆

7.4.3 WATERWAYS AND SUBMERGED LANDS OWNERSHIP

The waterways and submerged lands are owned and regulated by the state of Mississippi.

Table 7.4.3: Waterways and Submerged Lands Ownership Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
4 – 6 YEARS	Continue to coordinate with the Mississippi Secretary of the State, the Navy, Mississippi Department of Environmental Quality, and Hancock County regarding waterways and submerged lands.	◆				◆	

7.4.4 PRIVATE LAND HOLDINGS

Land use is limited due to the existing buffer zone but private landowners still own property within the area. The privately held lands are currently used for mining and a variety of other uses and provide a flow of civilians in and out of the area.

Table 7.4.4: Private Land Holdings Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
10 YEARS	Continue to pursue alternative funding sources to acquire private land holdings.					◆	

7.5 STENNIS INTERNATIONAL AIRPORT RECOMMENDATIONS

7.5.1 LAND USE

Regulations are not in place to provide long-term protection of the airport.

Table 7.5.1: Land Use Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Establish an Airport Overlay District which encompasses the entirety of the Stennis International Airport Study Area.	◆					
	Update Hancock County and other impacted jurisdiction's Comprehensive Plan to incorporate the Airport Overlay District.	◆					
1 – 3 YEARS	Update Hancock County and other impacted jurisdiction's zoning regulations to incorporate the Airport Overlay District.	◆					
	Create an Airport Compatibility Element within the Comprehensive Plans of impacted jurisdictions.	◆					
	Develop and distribute property owner information to provide details on applicable regulations that govern development within the Airport Overlay District.	◆					

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Limit incompatible uses within the Airport Overlay District.	◆					
	Control land use density and intensity with Airport Overlay District.	◆					

7.5.2 BIRD ATTRACTION HAZARDS

Bird attraction hazards are present near runways leading to increased wildlife / aircraft conflicts.

Table 7.5.2: Bird Attraction Hazards Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Maintain the FAA Wildlife Hazard Mitigation Plan.	◇					◆
1 – 3 YEARS	Coordinate with the Navy to incorporate any BASH requirements that might assist with ensuring military use of the airport.	◆				◇	◆
	Incorporate FAA Wildlife Hazard Mitigation protections into the Hancock County and affected jurisdictions Land Development Code.	◆					◇

7.5.3 VERTICAL OBSTRUCTIONS

The introduction of vertical obstructions can interfere with the safe operations of the airport. The vertical obstructions can include not only trees and buildings but also telecommunication towers.

Table 7.5.3: Vertical Obstructions Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Increase public awareness of the issues resulting from vertical obstructions and the impacts to the airport.	◆					◇
	Identify/map areas of concern for vertical obstructions.	◆					◇
	Establish height limits through the Airport Overlay.	◆					◇
1 – 3 YEARS	Require coordination between the FAA, Hancock County, and the Navy on telecommunication tower approvals.	◆				◇	◇
	Require Part 77 compliance for all new, redeveloped or rehabilitated structures to minimize vertical obstructions.	◆					

7.5.4 FLIGHT PATHS

Flight paths need to be protected from incompatible development and land uses such as those that produce dust, smoke, or steam; lighting that could impair the pilots vision; and renewable energy sources such as solar panels and wind turbines.

Table 7.5.4: Flight Paths Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
	Develop regulations that apply within the flight paths that limit certain incompatible land uses.	◆					◇
YEARS	Develop and adopt Dark Sky Lighting ordinance.	◆					◇
1 – 3	Develop and adopt solar siting guidelines.	◆					◇
	Identify and map locations suitable for wind energy development.	◆					◇

7.5.5 APPROACH ZONES

The Stennis International Airport is not designated as a military airport; however, the primary users are military. In order to preserve the military functionality of the airport, when possible, the clear zones and approach zones should follow standards as outlined by the Navy.

Table 7.5.5: Approach Zones Recommendations

Recommendations		Responsible Entity					
		Hancock County	Harrison County	City of Gulfport	City of Long Beach	NCBC	OTHER
1 - 3	Conduct a land use analysis within the airport overlay district to	◆					◇

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YEARS	Develop and adopt Dark Sky Lighting ordinance.	◆					◇
1 – 3	Develop and adopt solar siting guidelines.	◆					◇
	Identify and map locations suitable for wind energy development.	◆					◇

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1 - 3	Conduct a land use analysis within the airport overlay district to	◆					◇

7.4 SUMMARY RECOMMENDATIONS

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
GENERAL AREAS OF INTEREST							
FREQUENCY INTERFERENCE Public telecommunication and infrastructure may cause frequency interference with military communication equipment and the community.							
Prepare and Execute a Frequency Memorandum of Understanding (MOU).	1 – 3 Years	◆	◆	◆	◆	◆	
Coordinate with municipalities to establish procedures to identify proposed projects that may potentially involve a source of frequency emissions (including large scale Wi-Fi).	1 – 3 Years	◆	◆	◆	◆	◇	
Develop regulations for incorporation into municipal Zoning Ordinances that designate frequencies to avoid interference with	1 – 3 Years	◆	◆	◆	◆	◇	

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
military training and operations.							
Develop a business registration program for new businesses within the MIOD regarding frequency spectrum usage.	1 – 3 Years	◆	◆	◆	◆	◇	
Include Navy on telecommunication tower siting and approval process.	1 – 3 Years	◆	◆	◆	◆	◇	
COORDINATION AND COMMUNICATION The community has a great working relationship with the military. A more formalized communication process will only aid in solidifying the relationship.							
Maintain a designated liaison between NCBC and the community.	1 – 3 Years	◇	◇	◇	◇	◆	
Identify designated Navy and jurisdictional points of contact and make widely known.	1 – 3 Years	◇	◇	◇	◇	◇	◆
Create a communication coordination manual to be shared with identified individuals.	1 – 3 Years	◇	◇	◇	◇	◇	◆

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Expand communication efforts with all jurisdictions. These efforts may include sharing updates to jurisdictions, regional planning organizations and the Navy; updates to local and military websites; sharing of important designated contacts and their information; and notifying entities of relevant activities.	1 – 3 Years	◇	◇	◇	◇	◇	◆
Seek regular input from the Navy by designating an NCBC liaison as an Ex Officio member on the Planning Commission.	1 – 3 Years	◆	◆	◆	◆	◇	
Analyze the potential for and impacts of adding new training commands/missions at NCBC + Special Areas.	1 – 3 Years	◆	◆	◆	◆	◆	◆

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
IMPLEMENTATION Through a team approach, the JLUS can be successfully implemented to promote compatibility and defend against encroachment for NCBC Gulfport + Special Areas, Harrison County, Hancock County, Gulfport, and Long Beach.							
The NCBC JLUS Technical Committee should transition to a JLUS Implementation Committee and be responsible for monitoring the implementation of the recommended JLUS strategies and act as a forum for continued communication and sharing of information and current events associated with JLUS.	1 – 3 Years	◆	◆	◆	◆	◆	◆
Establish and maintain a NCBC JLUS GIS Database that includes the main installation and the special areas. NCBC JLUS GIS Database would incorporate all the JLUS GIS data layers as well as other regional, state and federal	1 – 3 Years	◇	◇	◇	◇	◇	◆

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
data sets to be utilized by city and county governments during the implementation process and subsequently through the development approval process.							
AIR ATTAINMENT Mississippi has always been designated as attaining all U.S. Environmental Protection Agency (EPA) ambient air quality standards. However, EPA has recently revised standards for ground-level ozone and fine particulate matter that are designed to be more protective of human health and welfare. These standards present new challenges for the state to continue to be designated as attainment.							
Continue to coordinate with Mississippi Department of Environmental Quality and the Clean Air Advisory Group to continue to promote ozone reduction awareness.	1 – 3 Years	◆	◆	◆	◆	◆	◆
EMERGENCY PREPAREDNESS Coastal storms, flooding, tornadoes, and other natural disasters have had a substantial impact on the Mississippi Gulf Coast and have the potential to occur in the future.							
Coordinate emergency response plans for relevant	4 – 6 Years	◆	◆	◆	◆	◆	◆

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
jurisdictions and NCBC for hurricane preparedness, including assistance from and aid to NCBC.							
UNMANNED AIRCRAFT SYSTEMS Private unmanned aircraft systems (UAS), commonly referred to as drones, flying over the installation, special areas, and Stennis International Airport create concerns for military activities.							
Create an education program to alert those flying drones of the impacts they may have on installations and facilities.	4 – 6 Years	◆	◆	◆	◆	◇	
Coordinate with the FAA to identify potential opportunities for restricted access.	4 – 6 Years					◆	◆
Analyze potential route for UAS flight corridors.	4 – 6 Years	◇	◇	◇	◇	◇	◆
Establish communication networks for the facilities utilizing UAS within the region.	4 – 6 Years	◇	◇	◇	◇	◇	◆

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
THREATENED AND ENDANGERED SPECIES Threatened and endangered species are likely present within the JLUS study area as well as NCBC + Special Areas. The Navy is required to meet NEPA regulations and any private development must comply with state and federal regulations.							
Continue to assist the Navy and municipalities with ensuring NEPA regulations are met.	Within 10 Years	◆	◆	◆	◆	◆	◇
Continue to coordinate with the U.S. Fish and Wildlife Services to identify potential habitat for species.	Within 10 Years	◆	◆	◆	◆	◆	◇

NCBC GULFPORT RECOMMENDATIONS

LAND USE The regulations currently in place guiding development around the base are consistent with the mission of NCBC Gulfport; however, safeguards should be strengthened to maintain these standards.							
Establish a Military Influence Area (MIA) with a Military Overlay District (MIOD).	1 – 3 Years		◆	◆	◆		

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Update jurisdictional comprehensive plans to incorporate MIA and MIOD.	1 – 3 Years		◆	◆	◆		
Update jurisdictional zoning regulations to incorporate MIA and MIOD.	1 – 3 Years		◆	◆	◆		
Create a Military Compatibility Element in the impacted jurisdictions Comprehensive Plans.	1 – 3 Years		◆	◆	◆		
Develop and distribute property owner information to provide details on applicable regulations that govern development within the MIOD.	1 – 3 Years		◆	◆	◆		
Prepare and execute a formal notification MOU for new development proposals.	1 – 3 Years		◆	◆	◆		

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
BASE INGRESS AND EGRESS Base ingress and egress can have impacts on the community's infrastructure and economy.							
Conduct a transportation study for Canal Road and 30th Avenue to make improvements for strategic routes.	1 – 3 Years		◇	◇	◇	◇	◆
Utilize Mississippi Department of Transportation (MDOT) funding from the Defense Access Road program and/or through the Strategic Highway Network program to make transportation improvements on strategic routes.	1 – 3 Years		◇	◇	◇		◆
Prepare coordination and development standards for properties along and for projects that may affect any roads eligible for Defense Access Road funding or are	1 – 3 Years		◆	◆	◆		◇

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
part of the Strategic Highway Network.							
Develop and implement a signage program along roads eligible for Defense Access Road funding or the Strategic Highway Network to identify the route and its purpose.	1 – 3 Years		◆	◆	◆		◇
Develop a plan to coordinate, should the need arise, for an emergency route from the installation to the Port to be utilized during times of activation or heavy use of the port facility by NCBC.	1 – 3 Years			◆		◆	◆
Conduct a traffic study to assess community impacts regarding traffic demand cycles and gate ingress/egress.	1 – 3 Years			◆	◆	◆	
Require coordination with City and County when reviewing proposed projects, particularly when impacting a	1 – 3 Years		◆	◆	◆	◇	

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
defense access road (28th St.) or Strategic Highway Network (Canal Rd.) designated roadway.							
Monitor development / changes of the I-10 / Port Connector Road.	1 – 3 Years		◇	◇			◆
Review the impacts of reopening or expanding the hours of the Broad Ave gate. Include coordination with the State of Mississippi for funding opportunities.	1 – 3 Years					◆	◇
Notify and coordinate capital improvement projects with NCBC such as potable water and/or sanitary sewer infrastructure expansion plans within the MIA.	1 – 3 Years		◆	◆	◆	◇	

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
FLOODING AND DRAINAGE The lack of adequate drainage has caused and may continue to cause drainage problems, including flooding at NCBC Gulfport.							
Establish a formal communication and coordination process between the local governments and the Navy related to stormwater infrastructure improvements planned or scheduled both on the installation and surrounding the installation.	1 – 3 Years		◆	◆	◆	◆	
Review prior drainage studies to determine a locally compatible solution to the drainage problem.	1 – 3 Years		◇	◇	◇	◇	◆
Facilitate community outreach program to create consensus regarding the drainage strategy for Brickyard Bayou, Turkey Creek, and Canal #1.	1 – 3 Years		◆	◆	◆	◇	◇

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Pursue funding and permit approvals for the locally acceptable drainage solutions(s).	1 – 3 Years		◆	◆	◆	◇	◇
NOISE, VIBRATION, AND DUST Heavy Equipment Training creates noise, vibrations, and dust which impacts adjacent neighbors. The noise contours associated with these activities and the dust resulting from them can extend out of the boundary of the base.							
Incorporate noise contour maps into municipal planning documents.	4 – 6 Years		◆	◆	◆		
Amend building and zoning codes to require sound attenuation where necessary.	4 – 6 Years		◆	◆	◆		
Identify noise compatibility policies for inclusion in local planning documents.	4 – 6 Years		◆	◆	◆		
Educate local builders on sound attenuation.	4 – 6 Years		◆	◆	◆		

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
FENCELINE PROTECTION The community is continuing to grow around the base leading to decreased fenceline buffers and an increase in accident potential from the heavily travelled roadways bordering the installation.							
Develop requirements for easements on parcels adjacent to the base to be used for fenceline clearing and maintenance.	4 – 6 Years					◆	
Develop design standards within the Land Development Code for parcels adjacent to the base to ensure proper separation.	4 – 6 Years		◆	◆	◆		
Develop requirements within the Land Development Code to strategically locate screening to protect on-installation assets.	4 – 6 Years		◆	◆	◆	◇	
The Navy should evaluate the possibility and feasibility of relocating all or at least the most impacted portions of the installation's fenceline to	4 – 6 Years					◆	

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
provide for a buffer between the adjoining private properties. The buffer would also strengthen security and provide for better maintenance of the fenceline.							
Design and construct guardrails along heavily travelled roadways where accident potential is the most likely.	4 – 6 Years		◆	◆	◆	◇	

WOOLMARKET RANGE RECOMMENDATIONS

LAND USE

Local regulations are not currently in place to minimize incompatibilities between Woolmarket Range and future growth.

Establish a MIA with a MIOD.	1 – 3 Years		◆				
Update jurisdictional comprehensive plans to incorporate MIA and MIOD.	1 – 3 Years		◆				

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Update jurisdictional zoning regulations to incorporate MIA and MIOD.	1 – 3 Years		◆				
Create a Military Compatibility Element in the impacted governments' Comprehensive Plans.	1 – 3 Years		◆				
Develop and distribute property owner information to provide details on applicable regulations that govern development within the MIOD.	1 – 3 Years		◆				
Prepare and execute a Formal Notification MOU for new development proposals.	1 – 3 Years		◆				
NOISE The areas surrounding Woolmarket Range can hear and feel the repercussions from the daily training activities and the special trainings that occur onsite.							
Incorporate noise contour maps into municipal planning documents.	1 – 3 Years		◆				

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Amend building and zoning codes to require sound attenuation.	1 – 3 Years		◆				
Identify noise compatibility policies for inclusion in local planning documents.	1 – 3 Years		◆				
Educate local builders on sound attenuation.	1 – 3 Years		◆				
Create a notification system to alert residents of increased training and noise impacts occurring within the Woolmarket Range. Examples may include email blasts, websites, texts, or signage on major roadways.	1 – 3 Years		◆			◆	◇
Conduct an analysis to determine if any noise attenuation, or what type, would be beneficial to surrounding community.	1 – 3 Years		◆			◆	◇
Develop an enhanced real estate disclosure statement that includes appropriate	1 – 3 Years		◆				

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
information about Woolmarket Range operations and potential noise and vibration effects that may result from certain types of events and activities performed. The disclosure should state that the building / structure for sale or lease is located within Woolmarket Range MIA and that weapons firing and explosives operations are conducted within the area that may have an impact on the community such as noise or vibration.							
Increase public understanding of noise sources. Utilize such resources as: the local media, newsletters, brochures, and annual outreach functions.	1 – 3 Years		◆				
Establish a Working Group to include Coast Rifle and Pistol Club Range, Woolmarket	1 – 3 Years		◆			◆	◆

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Range, Harrison County, and GRPC to coordinate noise attenuation and compatibility efforts.							
LOW FLYING AIRCRAFT Woolmarket Range does not have a special use airspace designation which would create a process to notify other aviators of the potential for ricochet when flying over the range.							
Coordinate with Harrison County and other military entities operating within Harrison County to develop and establish procedures when flying over Woolmarket.	1 – 3 Years		◆			◇	◇
Coordinate with the Navy to lobby the FAA to establish restricted air space over Woolmarket Range.	1 – 3 Years		◆			◇	◇

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
TRANSIENT ACCESS INTO WOOLMARKET RANGE Due to Woolmarket Range location within the DeSoto National Forest, the facility must allow public access leading to unanticipated civilian entries.							
Coordinate with the U.S. Forestry Service, Harrison County, and the Navy on fenceline maintenance in an effort to restrict transient entry.	4 – 6 Years		◆			◆	◆
Evaluate the need for a closure order or a land transfer to completely restrict public access.	4 – 6 Years					◆	◇
Provide a notification system on major roadways surrounding the Range through websites, and/or social media sources to alert residents and visitors of restricted access when training activities are taking place. Include additional	4 – 6 Years		◆			◇	◇

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
signage or flag notification at the Range itself.							
Provide educational material on websites (including U.S. Forestry Service, Navy, and associated agencies) to notify visitors of the potential dangers of entering the facility. Dangers may include UXO and live fire training activities.	4 – 6 Years		◆			◇	◇
Establish an MOU for all entities using the Woolmarket Range.	4 – 6 Years		◆			◆	◆

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
WESTERN MANEUVER AREA RECOMMENDATIONS							
TRANSIENT ACCESS INTO THE WESTERN MANEUVER AREA Access is restricted to a portion of the WMA because NASA owns restrictive rights to the Main Canal and man-made basin but it doesn't include the Pearl, Mike's, or McCarthy rivers. Recreational fishermen and hikers enter the property, either intentionally or unknowingly.							
Prepare and distribute maps that identify the areas used for military purposes where civilian entry may be limited.	1 – 3 Years	◆				◇	
Analyze the WMA for breeches to determine the best notification strategy.	1 – 3 Years					◆	
Provide educational material on websites (including NASA, Navy, and associated agencies) to notify visitors of the potential dangers of entering the facility. Dangers may include UXO, live fire training activities, and other trainings.	1 – 3 Years	◆				◇	

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Expand outreach to the boating community including the following: increased and enhanced signage, engagement of boating community through marinas and boating associations, expanded radio communications, requirement of all boaters in the area to have an onboard radio, add information to Coast Guard publications, and increase signage and buoy placement.	1 – 3 Years	◆				◇	◇
In order to adequately understand who the users of the rivers are, where they are coming from, and how best to inform them about military operations, an organized effort to monitor users on the river needs to be conducted.	1 – 3 Years	◆					

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Maintain a database of agencies that utilize the river or have authority over portions of the river and include points of contact.	1 – 3 Years	◆					
Provide additional signage at boat ramps and trailheads to notify recreational users of the existing training on navy lands.	1 – 3 Years	◆				◇	◇
Use radio communications to notify recreational users of active military training.	1 – 3 Years	◆				◆	◇
COORDINATION Coordination between Hancock County and the Navy is needed regarding scheduling training activities, managing public works and services, and environmental compliance. Coordination should also include entities on both sides of the Pearl River (Mississippi and Louisiana).							
Create a formal process to ensure adequate notification and coordination of services between the Navy, Hancock County, and Louisiana.	1 – 3 Years	◆				◆	◇

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Conduct a feasibility study for additional coordination between the WMA and Port Bienville for utilization of the strategic port facilities.	1 – 3 Years					◆	◆
WATERWAYS AND SUBMERGED LANDS OWNERSHIP The waterways and submerged lands are owned and regulated by the state of Mississippi.							
Continue to coordinate with the Mississippi Secretary of the State, the Navy, Mississippi Department of Environmental Quality, and Hancock County regarding waterways and submerged lands.	4 – 6 Years	◆				◆	◆

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
PRIVATE LAND HOLDINGS Land use is limited due to the existing buffer zone but private landowners still own property within the area. The privately held lands are currently used for mining and a variety of other uses and provide a flow of civilians in and out of the area.							
Continue to pursue alternative funding sources to acquire private land holdings.	Within 10 Years					◆	
STENNIS INTERNATIONAL AIRPORT RECOMMENDATIONS							
LAND USE Regulations are not in place to provide long-term protection of the airport.							
Establish an Airport Overlay District which encompasses the entirety of the Stennis International Airport Study Area.	1 – 3 Years	◆					
Update Hancock County and other impacted jurisdiction's	1 – 3 Years	◆					

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Comprehensive Plans to incorporate the Airport Overlay District.							
Update Hancock County and other impacted jurisdiction's zoning regulations to incorporate the Airport Overlay District.	1 – 3 Years	◆					
Create an Airport Compatibility Element within the Comprehensive Plans of impacted jurisdictions.	1 – 3 Years	◆					
Develop and distribute property owner information to provide details on applicable regulations that govern development within the Airport Overlay District.	1 – 3 Years	◆					
Limit incompatible uses within the Airport Overlay District.	1 – 3 Years	◆					
Control land use density and intensity with Airport Overlay District.	1 – 3 Years	◆					

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
BIRD ATTRACTION HAZARDS Bird attraction hazards are present near runways leading to increased wildlife / aircraft conflicts.							
Maintain the FAA Wildlife Hazard Mitigation Plan.	1 – 3 Years	◇					◆
Coordinate with the Navy to incorporate any BASH requirements that might assist with ensuring military use of the airport.	1 – 3 Years	◆				◇	◆
Incorporate FAA Wildlife Hazard Mitigation protections into the Hancock County and affected jurisdictions Land Development Code.	1 – 3 Years	◆					◇
VERTICAL OBSTRUCTIONS The introduction of vertical obstructions can interfere with the safe operations of the airport. The vertical obstructions can include not only trees and buildings but also telecommunication towers.							
Increase public awareness of the issues resulting from vertical obstructions and the impacts to the airport.	1 – 3 Years	◆					◇

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Identify/map areas of concern for vertical obstructions.	1 – 3 Years	◆					◇
Establish height limits through the Airport Overlay.	1 – 3 Years	◆					◇
Require coordination between the FAA, Hancock County, and the Navy on telecommunication tower approvals.	1 – 3 Years	◆				◇	◇
Require Part 77 compliance for all new, redeveloped or rehabilitated structures to minimize vertical obstructions.	1 – 3 Years	◆					
FLIGHT PATHS Flight paths need to be protected from incompatible development and land uses such as those that produce dust, smoke, or steam; lighting that could impair the pilots vision; and renewable energy sources such as solar panels and wind turbines.							
Develop regulations that apply within the flight paths that limit certain incompatible land uses.	1 – 3 Years	◆					◇
Develop and adopt Dark Sky Lighting ordinance.	1 – 3 Years	◆					◇

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
Develop and adopt solar siting guidelines.	1 – 3 Years	◆					◇
Identify and map locations suitable for wind energy development.	1 – 3 Years	◆					◇
APPROACH ZONES The Stennis International Airport is not designated as a military airport; however, the primary users are military. In order to preserve the military functionality of the airport, when possible, the clear zones and approach zones should follow standards as outlined by the Navy.							
Conduct a land use analysis within the airport overlay district to identify incompatibilities, similar to an AICUZ study.	1 – 3 Years	◆					◇
Pursue funding sources to acquire lands within the Clear Zones.	1 – 3 Years	◆					◇
Implement land development regulations within the airport overlay similar to AICUZ standards within the Clear Zone and Approach Zones.	1 – 3 Years	◆					◇

RECOMMENDATIONS	IMPLEMENTATION PERIOD	RESPONSIBLE ENTITY					
		HANCOCK COUNTY	HARRISON COUNTY	CITY OF GULFPORT	CITY OF LONG BEACH	NCBC	OTHER
NOISE Noise contours have not been established for the Stennis International Airport, but there have been complaints regarding the noise levels when military planes use the facility.							
Conduct a noise study to determine the effects of noise in the surrounding areas.	4 – 6 Years	◆					
Identify noise compatibility policies that can be incorporated into planning documents. Utilize Military standards where possible.	4 – 6 Years	◆					
Educate local builders on sound attenuation standards and practices.	4 – 6 Years	◆					

IMPLEMENTATION PLAN 8.0

8.0 IMPLEMENTATION PLAN

The foundation of the NCBC Gulfport + Special Areas JLUS is a community-driven, cooperative, strategic planning process among NCBC Gulfport, the Cities of Gulfport and Long Beach, Harrison and Hancock Counties, stakeholders, elected officials, and the community. As such, the coordinated project represents a truly collaborative planning process. The 108 recommendations in the previous section are the product of consensus among stakeholders, and provide a practical, coordinated approach to continued regional planning for military and civilian compatibility.

Each of the recommendations incorporate one or more actions that can be implemented to promote compatible land use, prevent further encroachments upon the military mission, mitigate existing incompatibility, and facilitate compatible economic development. The recommended strategies function as tools to aid the community in their goal of ensuring the continued sustainability of the military mission at NCBC Gulfport, Woolmarket, WMA, and Stennis International Airport. Collectively, these strategies represent an assertive and coordinated approach that will demonstrate the community's commitment to that goal.

The question then becomes, "How do we implement the recommendations?" The process for implementation can be confusing and complicated. The recommendations themselves vary as well as the processes and procedures of the municipalities implementing them. However, if the Recommendations remain as words in a report, the intent of the study is not yet accomplished. Through actual implementation, the community and the military are able to fulfill the goal of the JLUS and work together to create a thriving community while maintaining support for the mission of the Installation.

The following Implementation Plan will provide a general overview for each municipality to put into place the recommendations set forth within the JLUS.

8.1 CITY OF GULFPORT

The land surrounding NCBC Gulfport to the north, south, and east are located within the City of Gulfport city limits. It is important for the City to coordinate with GRPC to ensure the establishment of the NCBC JLUS Implementation Committee and to serve as an active member of the Committee. The NCBC JLUS Implementation Committee will be responsible for monitoring and coordinating with all participating entities for the overall implementation for the JLUS. The recommendations summarized in the following section will be crafted with guidance from them. The process below provides a general overview of the steps that City of Gulfport can take to implement their portion of the JLUS process. Only the recommendations that identified Gulfport as the primary responsible party were discussed.

8.1.1 COMPREHENSIVE PLAN UPDATES

The first, and most crucial step for implementing the JLUS within the City of Gulfport is to lay the foundation within the adopted planning documents of the city by establishing the Military Influence Overlay District (MIOD). The MIOD is a geographic boundary consisting of the JLUS study area boundary around NCBC Gulfport. Within the MIOD specific concerns can be addressed through the Military Influence Area (MIA). The MIAs consist of the Frequency MIA and Noise MIA.

Frequency MIA

The Frequency MIA will contain the entirety of the land within the JLUS area boundary / MIOD. The extensive use of the frequency spectrum leads to a growing concern with interference in the frequency spectrum. The establishment of the MIA provides the opportunity to incorporate regulations that will designate frequencies that can cause military interference. Within the geographic area of the Frequency MIA, the City of Gulfport will adopt regulations requiring a specific, detailed review of projects that may involve a source of frequency emissions. These requirements will be incorporated into the comprehensive plan and will be applied as part of the development review process.

Noise MIA

The Noise MIA will contain all lands located off of the installation within the noise contours. New residential development and other new noise sensitive uses should be subject to sound attenuation standards to reduce interior noise levels and to enhance the quality of life. To apply the noise attenuation standards, the builders need to be educated on the technique and the attenuation requirements need to be incorporated into the comprehensive plan and the zoning regulations. This includes adopting the noise contour maps into municipal planning documents.

In addition to establishing the MIOD and MIAs, other elements of the comprehensive plan a need to be revised. For example, a military compatibility element should be incorporated into the City of Gulfport's Comprehensive Plan. The Element would provide supportive language and coordination strategies for continued collaboration with NCBC Gulfport.

8.1.2 LAND DEVELOPMENT REGULATION UPDATES

Just as the MIOD and MIAs are established within the Comprehensive Plan, they also need to be incorporated into the Zoning Ordinance. The same boundaries and overlays will be incorporated into the Zoning Ordinance and applied just as a zoning overlay. Programs and regulations will be applied specifically to the Frequency MIA, the Noise MIA, or within the overall MIOD boundary.

MIOD

- The importance of the Defense Access Roads and Strategic Highway Network have been emphasized. In order to preserve their functionality, design standards should be incorporated into the Land Development Regulations. The design standards would protect the roadway

through street standards including pavement thickness, curb cuts, driveway connection standards, drainage standards, and other similar requirements.

- Design Standards within the Land Development Regulations would assist NCBC Gulfport in reducing Anti-Terrorism / Force Protection and safety standards. The design regulations would limit adjacent development from attaching to the NCBC fenceline, creating berms to broach the fence, minimum set back standards from the fenceline, screening standards to protect the on-installation assets, and other similar standards.

Frequency MIA

- A business registration program, applicable to any new business that uses the frequency spectrum, will also be established within the MIA.

8.1.3 DEVELOPMENT REVIEW

As part of the continued coordination between the Navy and the City of Gulfport, review of development and proposed changes need to be shared. The Navy could be incorporated as part of the development review process, and a representative could be designated to sit as an Ex Officio member of the Planning Commission.

In particular, the need has been identified for the following:

- If a project is proposed that would impact a defense access road (28th Street) or Strategic Highway Network (Canal Road).
- The Navy needs to be included as part of the development review process for the approval of new telecommunication towers.
- Capital improvement projects that occur within the MIOD such as potable water or sanitary sewer.

8.1.4 MEMORANDUM OF UNDERSTANDING

A Memorandum of Understanding (MOU) is a formal agreement established between multiple parties. Although it is not legally binding, it is a valuable agreement that indicates an intended common action. They aid in establishing the role of each party and can provide guidance for intended future actions. The MOU provides a tool that can be referenced when a question arises. A Communication MOU is recommended for formal notification on new developments proposed within the MIOD as well as a Frequency MOU for any new developments that may cause frequency interference within the Frequency MIA.

8.1.5 STUDIES, DESIGNS, AND PROJECTS

The implementation of the JLUS can often lead to additional studies or projects that need to take place before the next steps can be implemented. The following projects or studies will lead the city into the next phases of implementation:

- New military training programs have the potential to come to the Mississippi Gulf Coast. The City and NCBC Gulfport need to be able to react quickly and work cohesively with other military installations and communities in the area to maintain their attraction for emerging military mission.
- A signage program notifying travelers of the importance of the Defense Access Road and Strategic Highway Network should be established. Signs could be posted on the designating roadway as well as information on the City's website.
- A traffic study analyzing the traffic demand cycles at the gates ingress and egress points would help to assess the community impacts created by the installation.
- Heavily travelled roads around NCBC Gulfport should provide protection to those on the Base as well as those using the roadway. Guardrails can assist with that protection when designed and incorporated into the landscape. The guardrails should be constructed where accidents are deemed most likely to occur.
- A significant number of prior drainage studies have been completed to provide a solution to the drainage problem within the area. A thorough review of the drainage studies by a certified engineer needs to be completed to determine a best possible solution for the area and the steps necessary to move forward, including pursuit of funding.

8.1.6 COORDINATION AND COMMUNICATION

Additional communication and coordination can help aid many of the situation that were identified within the JLUS. Communication and coordination assists in educating the public on particular issues, sharing information, and providing a forum to receive feedback. Some of the measures that were identified include the following:

- To better educate the public, development industry, government officials, and others distribute property owner information about the newly established MIOD and MIA. The materials should share the purpose of the overlay as well as what new regulations are in place that might impact the community.
- Coordination is imperative in times of emergency – particularly when NCBC Gulfport needs to access the Port. A communication plan should be in place to facilitate an emergency route from NCBC Gulfport to the Port to be utilized during heavy use of the Port. The communication plan should include a process for temporary closing side streets where necessary and the crossing of the emergency route with Highway 90 (Beach Boulevard).
- The flooding issues in the community have been widely discussed but a solution has not been agreed upon. The community needs to come to a consensus on the preferred drainage strategy for Brickyard Bayou, Turkey Creek, and Canal #1. A consensus could be reached through facilitated discussion with the community, elected officials, local governmental departments, Army Corp of Engineers, and Department of Marine Resources.

- To continue to be designated as attaining all US EPA ambient air quality standards, the City of Gulfport must continue to coordinate with the MDEQ and the Clean Air Advisory Group.
- Emergency response plans are an important asset to the Mississippi Gulf Coast. As a component to the plans, the region needs to communicate with one another to share information regarding hurricane and weather preparedness. NCBC Gulfport + Special Areas are important assets that need to be included in the conversation to ensure all possible opportunities are capitalized. The discussion could be facilitated through a newly formed committee or could be added as part of an existing committee.
- Drones are becoming more prevalent in the area but education has not followed as quickly. The drones can have a substantial impact not only to the installation but also to the airports in the area. An educational program would help to notify drone users of the impact they may have in the community. The program could consist of flyers, pamphlets, a workshop, and / or a class.

8.2 CITY OF LONG BEACH

The western portion of NCBC Gulfport and the lands surrounding the western side are located within the city limits of the City of Long Beach. Most of the Areas of Interest and the associated recommendations that applied to the City of Gulfport will also apply to the City of Long Beach, therefore, there implementation strategy is very similar.

It is important for the City to coordinate with GRPC to ensure the establishment of the NCBC JLUS Implementation Committee and to serve as an active member of the Committee. The NCBC JLUS Implementation Committee will be responsible for monitoring and coordinating with all participating entities for the overall implementation for the JLUS. The recommendations summarized in the following section will be crafted with guidance from them. The process below provides a general overview of the steps that City of Long Beach can take to implement their portion of the JLUS process. Only the recommendations that identified Long Beach as the primary responsible party were discussed.

8.2.1 COMPREHENSIVE PLAN UPDATES

The first, and most crucial step for implementing the JLUS within the City of Long Beach is to lay the foundation within the adopted planning documents of the city by establishing the Military Influence Overlay District (MIOD). The MIOD is a geographic boundary consisting of the JLUS study area boundary around NCBC Gulfport. Within the MIOD specific concerns can be addressed through the Military Influence Area (MIA). The MIAs consist of the Frequency MIA and Noise MIA.

Frequency MIA

The Frequency MIA will contain the entirety of the land within the JLUS area boundary / MIOD. The extensive use of the frequency spectrum leads to a growing concern with interference in the frequency spectrum. The establishment of the MIA provides the opportunity to incorporate

regulations that will designate frequencies that can cause military interference. Within the geographic area of the Frequency MIA, the City of Long Beach will adopt regulations requiring a specific, detailed review of projects that may involve a source of frequency emissions. These requirements will be incorporated into the comprehensive plan and will be applied as part of the development review process.

Noise MIA

The Noise MIA will contain all lands located off of the installation within the noise contours. New residential development and other new noise sensitive uses should be subject to sound attenuation standards to reduce interior noise levels and to enhance the quality of life. To apply the noise attenuation standards, the builders need to be educated on the technique and the attenuation requirements need to be incorporated into the comprehensive plan and the zoning regulations. This includes adopting the noise contour maps into municipal planning documents.

In addition to establishing the MIOD and MIAs, other elements of the comprehensive plan a need to be revised. For example, a military compatibility element should be incorporated into the City of Long Beach's Comprehensive Plan. The Element would provide supportive language and coordination strategies for continued collaboration with NCBC Gulfport.

8.2.2 LAND DEVELOPMENT REGULATION UPDATES

Just as the MIOD and MIAs are established within the Comprehensive Plan, they also need to be incorporated into the Zoning Ordinance. The same boundaries and overlays will be incorporated into the Zoning Ordinance and applied just as a zoning overlay. Programs and regulations will be applied specifically to the Frequency MIA, the Noise MIA, or within the overall MIOD boundary.

MIOD

- The importance of the Defense Access Roads and Strategic Highway Network have been emphasized. In order to preserve their functionality, design standards should be incorporated into the Land Development Regulations. The design standards would protect the roadway through street standards including pavement thickness, curb cuts, driveway connection standards, drainage standards, and other similar requirements.
- Design Standards within the Land Development Regulations would assist NCBC Gulfport in reducing Anti-Terrorism / Force Protection and safety standards. The design regulations would limit adjacent development from attaching to the NCBC fenceline, creating berms to broach the fence, minimum set back standards from the fenceline, screening standards to protect the on-installation assets, and other similar standards.

Frequency MIA

- A business registration program, applicable to any new business that uses the frequency spectrum, will also be established within the MIA.

8.2.3 DEVELOPMENT REVIEW

As part of the continued coordination between the Navy and the City of Long Beach, review of development and proposed changes need to be shared. The Navy could be incorporated as part of the development review process, and a representative could be designated to sit as an Ex Officio member of the Planning Commission.

In particular, the need has been identified for the following:

- If a project is proposed that would impact a defense access road (28th Street) or Strategic Highway Network (Canal Road).
- The Navy needs to be included as part of the development review process for the approval of new telecommunication towers.
- Capital improvement projects that occur within the MIOD such as potable water or sanitary sewer

8.2.4 MEMORANDUM OF UNDERSTANDING

A Memorandum of Understanding (MOU) is a formal agreement established between multiple parties. Although it is not legally binding, it is a valuable agreement that indicates an intended common action. They aid in establishing the role of each party and can provide guidance for intended future actions. The MOU provides a tool that can be referenced when a question arises. A Communication MOU is recommended for formal notification on new developments proposed within the MIOD as well as a Frequency MOU for any new developments that may cause frequency interference within the Frequency MIA.

8.2.5 STUDIES, DESIGNS, AND PROJECTS

The implementation of the JLUS can often lead to additional studies or projects that need to take place before the next steps can be implemented. The following projects or studies will lead the city into the next phases of implementation:

- New military training programs have the potential to come to the Mississippi Gulf Coast. The City and NCBC Gulfport need to be able to react quickly and work cohesively with other military installations and communities in the area to maintain their attraction for emerging military mission.
- A signage program notifying travelers of the importance of the Defense Access Road and Strategic Highway Network should be established. Signs could be posted on the designating roadway as well as information on the City's website.
- A traffic study analyzing the traffic demand cycles at the gates ingress and egress points would help to assess the community impacts created by the installation.
- Heavily travelled roads around NCBC Gulfport should provide protection to those on the Base as well as those using the roadway. Guardrails can assist with that protection when designed

and incorporated into the landscape. The guardrails should be constructed where accidents are deemed most likely to occur.

- A significant number of prior drainage studies have been completed to provide a solution to the drainage problem within the area. A thorough review of the drainage studies by a certified engineer needs to be completed to determine a best possible solution for the area and the steps necessary to move forward, including pursuit of funding.

8.2.6 COORDINATION AND COMMUNICATION

Additional communication and coordination can help aid many of the situation that were identified within the JLUS. Communication and coordination assists in educating the public on particular issues, sharing information, and providing a forum to receive feedback. Some of the measures that were identified include the following:

- To better educate the public, development industry, government officials, and others distribute property owner information about the newly established MIOD and MIA. The materials should share the purpose of the overlay as well as what new regulations are in place that might impact the community.
- The flooding issues in the community have been widely discussed but a solution has not been agreed upon. The community needs to come to a consensus on the preferred drainage strategy for Brickyard Bayou, Turkey Creek, and Canal #1. A consensus could be reached through facilitated discussion with the community, elected officials, local governmental departments, Army Corp of Engineers, and Department of Marine Resources.
- To continue to be designated as attaining all US EPA ambient air quality standards, the City of Long Beach must continue to coordinate with the MDEQ and the Clean Air Advisory Group.
- Emergency response plans are an important asset to the Mississippi Gulf Coast. As a component to the plans, the region needs to communicate with one another to share information regarding hurricane and weather preparedness. NCBC Gulfport + Special Areas are important assets that need to be included in the conversation to ensure all possible opportunities are capitalized. The discussion could be facilitated through a newly formed committee or could be added as part of an existing committee.
- Drones are becoming more prevalent in the area but education has not followed as quickly. The drones can have a substantial impact not only to the installation but also to the airports in the area. An educational program would help to notify drone users of the impact they may have in the community. The program could consist of flyers, pamphlets, a workshop, and / or a class.

8.3 HARRISON COUNTY

A portion of NCBC Gulfport and all of the Woolmarket Range is located within unincorporated Harrison County. Harrison County should work closely with the City of Gulfport and City of Long Beach to mirror implementation measures for the area of NCBC Gulfport located within the County. It is also important for Harrison County to coordinate with GRPC to ensure the establishment of the NCBC JLUS Implementation Committee and to serve as an active member of the Committee. The NCBC JLUS Implementation Committee will be responsible for monitoring and coordinating with all participating entities for the overall implementation for the JLUS. The recommendations summarized in the following section will be crafted with guidance from them. The process below provides a general overview of the steps that Harrison County can take to implement their portion of the JLUS process. Only the recommendations that identified the County as the primary responsible party are discussed.

8.3.1 COMPREHENSIVE PLAN UPDATES

The first, and most crucial step for implementing the JLUS within Harrison County is to lay the foundation within the adopted planning documents of the county by establishing the Military Influence Overlay District (MIOD) for both NCBC Gulfport and the Woolmarket Range. The MIOD is a geographic boundary consisting of the JLUS study area boundary around the portion of NCBC Gulfport located within unincorporated Harrison County and the Woolmarket Range. Within the MIOD, specific concerns can be addressed through the Military Influence Area (MIA). The MIAs consist of the Frequency MIA and Noise MIA.

Frequency MIA

The Frequency MIA will contain the entirety of the land within the JLUS area boundary within the County. The extensive use of the frequency spectrum leads to a growing concern with interference in the frequency spectrum. The establishment of the MIA provides the opportunity to incorporate regulations that will designate frequencies that can cause military interference. Within the geographic area of the Frequency MIA, Harrison County will adopt regulations requiring a specific, detailed review of projects that may involve a source of frequency emissions. These requirements will be incorporated into the comprehensive plan and will be applied as part of the development review process.

Noise MIA

The Noise MIA will contain all lands located off of the installation within the noise contours for both NCBC Gulfport and the Woolmarket Range. New residential development and other new noise sensitive uses would be subject to sound attenuation standards to reduce interior noise levels and to enhance the quality of life.

In addition to establishing the MIOD and MIAs, other elements of the comprehensive plan need to be revised. For example, a military compatibility element should be incorporated into the

Harrison County Comprehensive Plan. The Element would provide supportive language and coordination strategies for continued collaboration with NCBC Gulfport and Woolmarket Range.

8.3.2 LAND DEVELOPMENT REGULATION UPDATES

Just as the MIOD and MIAs are established within the Comprehensive Plan, they also need to be incorporated into the Zoning Ordinance. The same boundaries and overlays will be incorporated into the Zoning Ordinance and applied as a zoning overlay. Programs and regulations will be applied specifically to the Frequency MIA, the Noise MIA, or within the overall MIOD boundary.

MIOD

- The importance of the Defense Access Roads and Strategic Highway Network have been emphasized. In order to preserve their functionality, design standards should be incorporated into the Land Development Regulations. The design standards would protect the roadway through street standards including pavement thickness, curb cuts, driveway connection standards, drainage standards, and other similar requirements.
- Establish a formalized notification system to alert Woolmarket residents of increased training and noise impacts occurring within the Woolmarket Range.

Frequency MIA

- A business registration program, applicable to any new business that uses the frequency spectrum, will also be established within the MIA.

Noise MIA

- Apply sound attenuation criteria for new residential development and other new noise sensitive uses that will reduce interior noise levels and to enhance the quality of life for the areas within the noise contours for both NCBC Gulfport and the Woolmarket Range.
- Develop real estate disclosure and noticing requirements for all new developments.

8.3.3 DEVELOPMENT REVIEW

As part of the continued coordination between the Navy and Harrison County, review of development and proposed changes need to be shared. The Navy could be incorporated as part of the development review process, and a representative could be designated to sit as an Ex Officio member of the Planning Commission.

In particular, the need has been identified for the following:

- If a project is proposed that would impact a defense access road (28th Street) or Strategic Highway Network (Canal Road).
- Approval of new telecommunication towers and new development occurring within the MIOD for both NCBC Gulfport and Woolmarket Range.

- Capital improvement projects that occur within the MIOD such as potable water or sanitary sewer for both NCBC Gulfport and the Woolmarket Range.

8.3.4 MEMORANDUM OF UNDERSTANDING

A Memorandum of Understanding (MOU) is a formal agreement established between multiple parties. Although it is not legally binding, it is a valuable agreement that indicates an intended common action. They aid in establishing the role of each party and can provide guidance for intended future actions. The MOU provides a tool that can be referenced when a question arises. A Communication MOU is recommended for formal notification on new developments proposed within the MIOD as well as a Frequency MOU for any new developments that may cause frequency interference within the Frequency MIA.

8.3.5 STUDIES, DESIGNS, AND PROJECTS

The implementation of the JLUS can often lead to additional studies or projects that need to take place before the next steps can be implemented. The following projects or studies will lead the County into the next phases of implementation:

- New military training programs have the potential to come to the Mississippi Gulf Coast. The County, NCBC Gulfport, and Woolmarket Range need to be able to react quickly and work cohesively with other military installations and communities in the area to maintain their attraction for emerging military missions.
- Conduct an analysis to determine if any noise attenuation, or what type, would be beneficial to surrounding areas outside of the noise contours established for NCBC Gulfport and Woolmarket Range.
- A signage program notifying travelers of the importance of the Defense Access Road and Strategic Highway Network should be established. Signs could be posted on the designating roadway as well as information on the County's website.
- A signage program around the Woolmarket Range to better identify and notify visitors of the area of the potential dangers of entering the facility unauthorized.
- Evaluate the need for a closure order or a land transfer to completely restrict public access to the Woolmarket Range.
- An education program that increases public understanding of noise sources around NCBC Gulfport and Woolmarket Range.
- A significant number of prior drainage studies have been completed to provide a solution to the drainage problem within the NCBC Gulfport area. A thorough review of the drainage studies by a certified engineer needs to be completed to determine a best possible solution for the area and the steps necessary to move forward, including pursuit of funding.

8.3.6 COORDINATION AND COMMUNICATION

Additional communication and coordination can help aid many of the situations that were identified within the JLUS. Communication and coordination assists in educating the public on particular issues, sharing information, and providing a forum to receive feedback. Some of the measures that were identified include the following:

- To better educate the public, development industry, government officials, and others distribute property owner information about the newly established MIOD and MIA. The materials should share the purpose of the overlay as well as what new regulations are in place that might impact the community.
- To continue to be designated as attaining all US EPA ambient air quality standards, Harrison County must continue to coordinate with the MDEQ and the Clean Air Advisory Group.
- Emergency response plans are an important asset to the Mississippi Gulf Coast. As a component to the plans, the region needs to communicate with one another to share information regarding hurricane and weather preparedness. NCBC Gulfport + Special Areas are important assets that need to be included in the conversation to ensure all possible opportunities are capitalized. The discussion could be facilitated through a newly formed committee or could be added as part of an existing committee.
- Prepare and distribute maps of the Woolmarket Range to the recreational users that identifies the areas used specifically for military purposes as well as the areas that civilian entry may be limited. The materials should be available on websites (including Harrison County, U.S. Navy, and U.S. Forestry Service and others) to notify visitors of the access points and the dangers that could be encountered.
- Drones are becoming more prevalent in the area but education has not followed as quickly. The drones can have a substantial impact not only to the installation but also to the airports in the area. An educational program would help to notify drone users of the impact they may have in the community. The program could consist of flyers, pamphlets, a workshop, and / or a class.
- Educate the local builders on noise attenuation techniques and pricing.

8.4 HANCOCK COUNTY

Similar to Harrison County, Hancock County contains two Special Areas – the WMA and Stennis International Airport. They are in a unique position due to the restrictions placed on development by the Stennis Acoustic Buffer Zone that covers the entirety of the WMA and the eastern portion of the Stennis International Airport. Although development concerns are mitigated by the Buffer Zone, several recommendations have been made to relieve other potential compatibility issues that could arise in the future.

It is important for Hancock County to coordinate with GRPC to ensure the establishment of the NCBC JLUS Implementation Committee and to serve as an active member of the Committee. The

NCBC JLUS Implementation Committee will be responsible for monitoring and coordinating with all participating entities for the overall implementation for the JLUS. The recommendations summarized in the following section will be crafted with guidance from them. The process below provides a general overview of the steps that Hancock County can take to implement their portion of the JLUS process. Only the recommendations that identified the County as the primary responsible party are discussed.

8.4.1 COMPREHENSIVE PLAN UPDATES

The first, and most crucial step for implementing the JLUS within Hancock County is to lay the foundation within the comprehensive plan by establishing the Airport Overlay District. The Airport Overlay District would consist geographically of the Stennis International Airport study area, outside of the acoustic buffer zone. The WMA would not require an overlay district because it lies entirely within the acoustic buffer zone and would not be subject to development pressures regulated within the comprehensive plans or land development regulations.

In addition to establishing the overlay district, other elements of the comprehensive plan need to be revised. For example, an airport and / or military compatibility element should be incorporated into Hancock County's Comprehensive Plan. The Element would provide supportive language and coordination strategies for continued collaboration with Stennis International Airport and the WMA.

8.4.2 ZONING ORDINANCE UPDATES

Just as the overlay district is established within the Comprehensive Plan, it also needs to be incorporated into the Zoning Ordinance. The same boundary will be incorporated into the Zoning Ordinance and applied as a zoning overlay. Opportunities to mitigate impacts that could occur from community growth include the following:

- Limit incompatible uses and heights within the flight paths and within the overlay district
- Establish appropriate densities and intensities surrounding Stennis International Airport in an effort to minimize safety and quality of life concerns.
- Incorporate any Bird / Animal Aircraft Strike Hazard (BASH) techniques or FAA Wildlife Hazard Mitigation protections that would minimize safety concerns and bolster the military's use of Stennis International Airport.
- Within the identified flight paths, develop and adopt dark sky lighting requirements and solar siting guidelines.
- Identify opportunities to incorporate noise compatibility requirements within the Zoning Ordinance, and utilize military standards where feasible.

As part of the continued coordination between the Navy, Hancock County, and the Hancock County Port and Harbor Commission, review of development and proposed changes need to be

shared. The Navy could be incorporated as part of the development review process, and a representative could be designated to sit as an Ex Officio member of the Planning Commission. The Navy should also be included as part of the development review process for the approval of new telecommunication towers. Also, as part of the development review and approval process, establish a business registration program, applicable to any new business that uses the frequency spectrum, so that the Navy and Stennis International Airport will have appropriate contacts should the need arise. These changes in development review procedures should be incorporated into the Enforcement and Administration portion of the Zoning Ordinance.

An important component of the airport overlay district would be to ensure coordination for the frequency spectrum. The extensive use of the frequency spectrum leads to a growing concern with interference in the frequency spectrum. The establishment of the overlay provides the opportunity to incorporate regulations that will designate frequencies that can cause military interference. Within the geographic area of the overlay, Hancock County will adopt regulations requiring a specific, detailed review of projects that may involve a source of frequency emissions. These requirements will be applied as part of the development review process.

8.4.3 STUDIES, DESIGNS, AND PROJECTS

The implementation of the JLUS can often lead to additional studies or projects that need to take place before the next steps can be implemented. The following projects or studies will lead the county into the next phases of implementation:

- A study of the users of the Pearl, Mike's and McCarthy rivers would provide a better understanding of the audience that should be targeted. The study could consist of polling users of the river over a designated period of time or using website surveys.
- The boundary of the WMA needs to be fully surveyed and analyzed to determine how breeches have occurred. A tour of the fenceline and rivers would need to be coordinated through the WMA with breech opportunities thoroughly documented.
- The local, state, and federal agencies that utilize the rivers and have authority on the river needs to be identified and documented, including agencies points of contact.
- Create a signage and buoy notification program letting the recreational users of the training area know where the restricted portions of the WMA are located. Signs would be needed at boat ramps and trailheads leading to the WMA and buoys would be needed within the Pearl, Mike's and McCarthy rivers.
- Analyze the land uses within the airport overlay district to identify land use incompatibilities. Base the analysis on the requirements as identified within an Air Installation Compatible Use Zone (AICUZ).
- Utilizing a Stennis International Airport study area areawide standard, determine the maximum allowable height within the study area, surrounding Stennis International Airport. The maximum heights could be tapered depending on distance from the airport. Once the

standard has been determined, use ArcGIS or other mapping system to determine the areas of concern.

- Working with the Hancock County Port and Harbor Commission identify the locations that wind turbines would be the most detrimental to the airport. Once the areas have been located, communicate to the public through mapping, websites, and reports, the specific locations where wind turbines could be appropriately located.
- Conduct a sound assessment within the Stennis International Airport study area to identify and monitor the noise that occurs within the area.
- New military training programs have the potential to come to the Mississippi Gulf Coast. The City and NCBC Gulfport need to be able to react quickly and work cohesively with other military installations and communities in the area to maintain their attraction for emerging military mission.
- Research and identify potential funding sources to acquire land immediately adjacent to Stennis International Airport, specifically the land identified within the JLUS as the Clear Zone.

8.4.4 COORDINATION AND COMMUNICATION

Additional communication and coordination can help aid many of the situation that were identified within the JLUS. Communication and coordination assists in educating the public on particular issues, sharing information, and providing a forum to receive feedback. Some of the measures that were identified include the following:

- To continue to be designated as attaining all US EPA ambient air quality standards, Hancock County must continue to coordinate with the MDEQ and the Clean Air Advisory Group.
- Emergency response plans are an important asset to the Mississippi Gulf Coast. As a component to the plans, the region needs to communicate with one another to share information regarding hurricane and weather preparedness. NCBC Gulfport + Special Areas are important assets that need to be included in the conversation to ensure all possible opportunities are capitalized. The discussion could be facilitated through a newly formed committee or could be added as part of an existing committee.
- Drones are becoming more prevalent in the area but education has not followed as quickly. The drones can have a substantial impact not only to the installation but also to the airports in the area. An educational program would help to notify drone users of the impact they may have in the community. The program could consist of flyers, pamphlets, a workshop, and / or a class.
- To better educate the public, development industry, government officials, and others distribute property owner information about the newly established airport overlay district. The materials should share the purpose of the overlay as well as what new regulations are in place that might impact the community.

- The Navy, Hancock County, and the State of Louisiana need to establish a formal process to ensure notification and coordination of services. The process could be established through an MOU or regularly scheduled meeting.
- Prepare and distribute maps to the recreational users that identifies the areas used specifically for military purposes as well as the areas that civilian entry may be limited. The materials should be available on websites (including NASA, U.S. Navy, Mississippi Department of Environmental Quality, U.S. Coast Guard and others) to notify visitors of the access points and the dangers that could be encountered.
- Educate the local boating community through increased signage, engage the community through marinas and boating associations, expand radio communications and require all boaters to have onboard radios, add information to Coast Guard publications, and increase signage and buoy placement.
- Educate the local builders on noise attenuation techniques and pricing.

8.4.5 MEMORANDUM OF UNDERSTANDING

A Memorandum of Understanding (MOU) is a formal agreement established between multiple parties. Although it is not legally binding, it is a valuable agreement that indicates an intended common action. They aid in establishing the role of each party and can provide guidance for intended future actions. A Frequency MOU is recommended to be established. The MOU would provide guidance for reviewing future developments in an effort to determine if frequency interference might occur within the Stennis International Airport study area.

MAPS

MAPS

The NCBC + Special Areas Joint Land Use Study was completed using the following maps for analysis and reference.

Overall Maps

- Regional Location Map
- Overall Study Area Map

Naval Construction Battalion Center Maps

- Location
- Location (Aerial)
- Existing Land Use
- Zoning
- Future Land Use
- Environmental
- Storm Surge
- Infrastructure
- Land Suitability for Development without Regard to Military Footprint
- Land Suitability for Development with Regard to Military Footprint
- Noise Zones

Woolmarket Range Maps

- Location
- Location (Aerial)
- Existing Land Use
- Zoning
- Future Land Use
- Environmental
- Storm Surge
- Infrastructure
- Land Suitability for Development without Regard to Military Footprint
- Land Suitability for Development with Regard to Military Footprint

- Noise Zones (Max Peak)
- Noise Zones (DNL)

Western Maneuver Area Maps

- Location
- Location (Aerial)
- Existing Land Use
- Zoning
- Future Land Use
- Environmental
- Storm Surge
- Proposed Expansions

Stennis International Airport Maps

- Location
- Location (Aerial)
- Existing Land Use
- Zoning
- Future Land Use
- Environmental
- Storm Surge
- Land Suitability for Development without Regard to Military Footprint
- Land Suitability for Development with Regard to Military Footprint
- Existing Land Use and Flight Paths
- Night Lighting Average Visibility (1993)
- Night Lighting Average Visibility (2003)
- Night Lighting Average Visibility (2013)
- AICUZ Existing Land Use
- AICUZ Zoning
- AICUZ Future Land Use

Overall Maps

- Regional Location Map
- Overall Study Area Map

Stantec

Regional Installation Map

February 2017

Stantec Consulting Services Inc.
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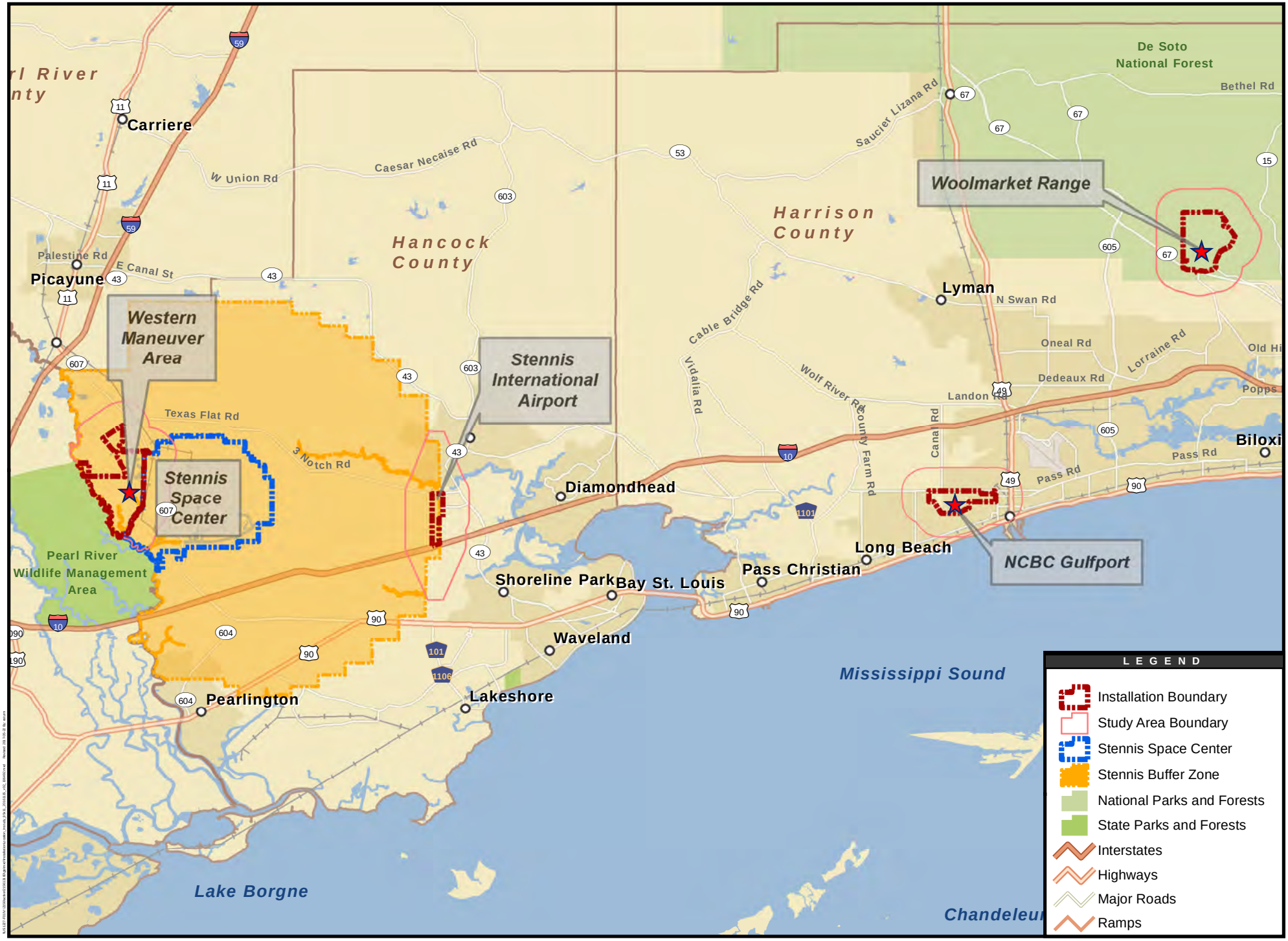
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

N

0 5 10 Miles

Prepared by: E.E.S. 01/12/17



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NCBC + Special Areas Joint Land Use Study
Study Area

May 2017

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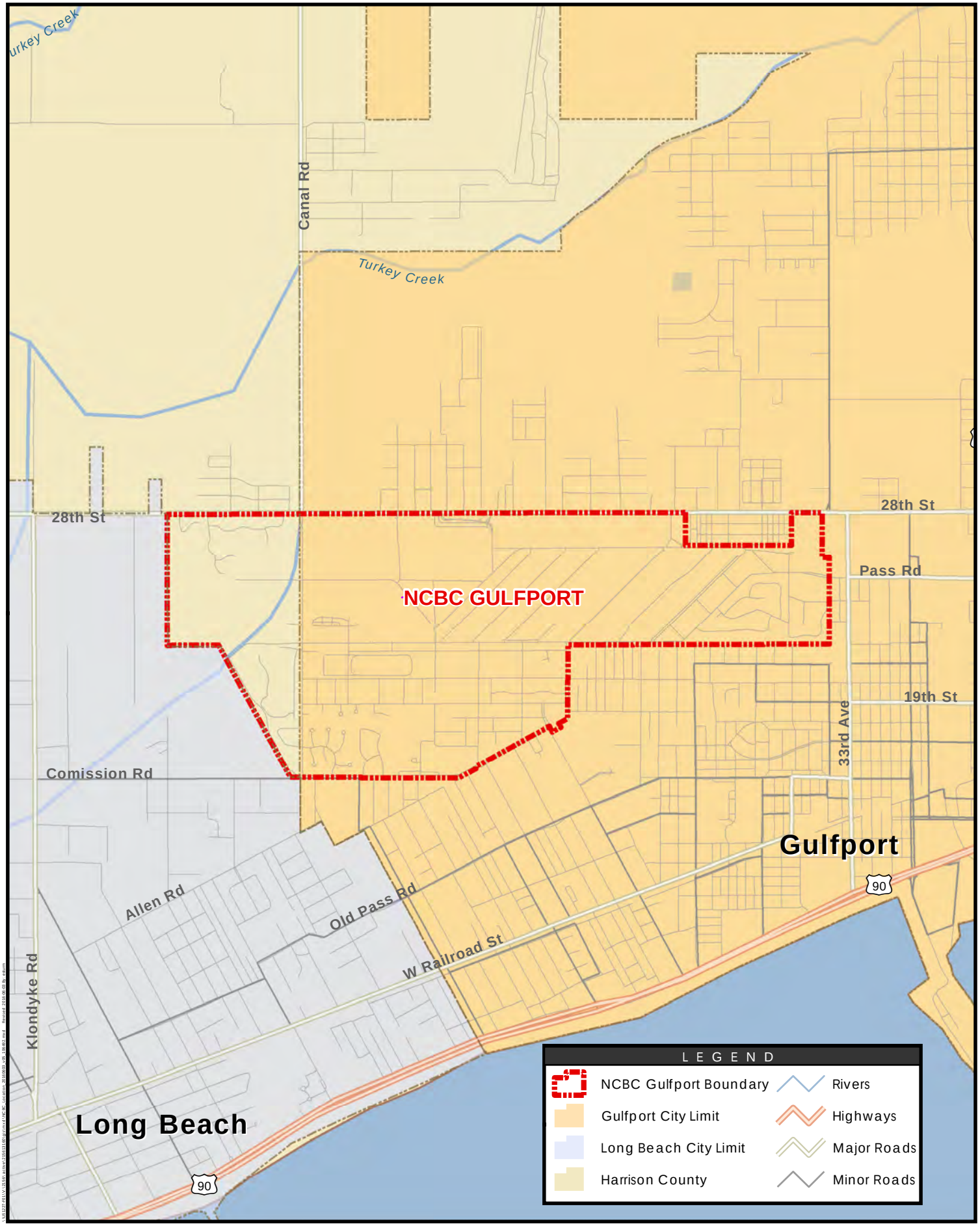
Prepared by: E.E.S. 11/15/16

Naval Construction Battalion Center Maps

- Location
- Location (Aerial)
- Existing Land Use
- Zoning
- Future Land Use
- Environmental
- Storm Surge
- Infrastructure
- Land Suitability for Development without Regard to Military Footprint
- Land Suitability for Development with Regard to Military Footprint
- Noise Zones



NCBC Gulfport Location Exhibit

June 2016

Stantec Consulting Services Inc.
6900 Professional Parkway East
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tel 941.907.6900
fax 941.907.6911

0 1,250 2,500 Feet

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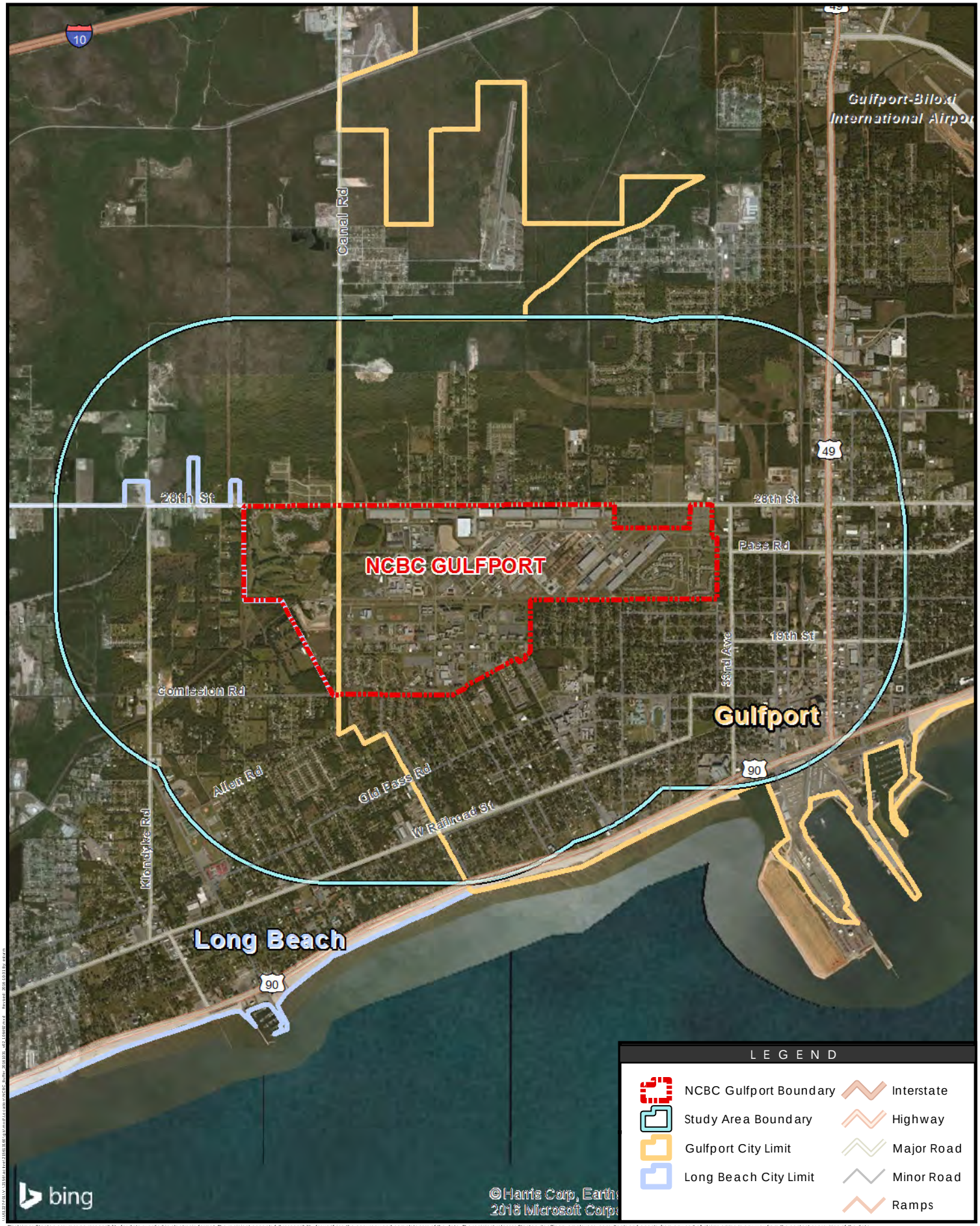
Prepared by: E.E.S. 05/23/16



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NCBC Gulfport Location Exhibit

October 2016

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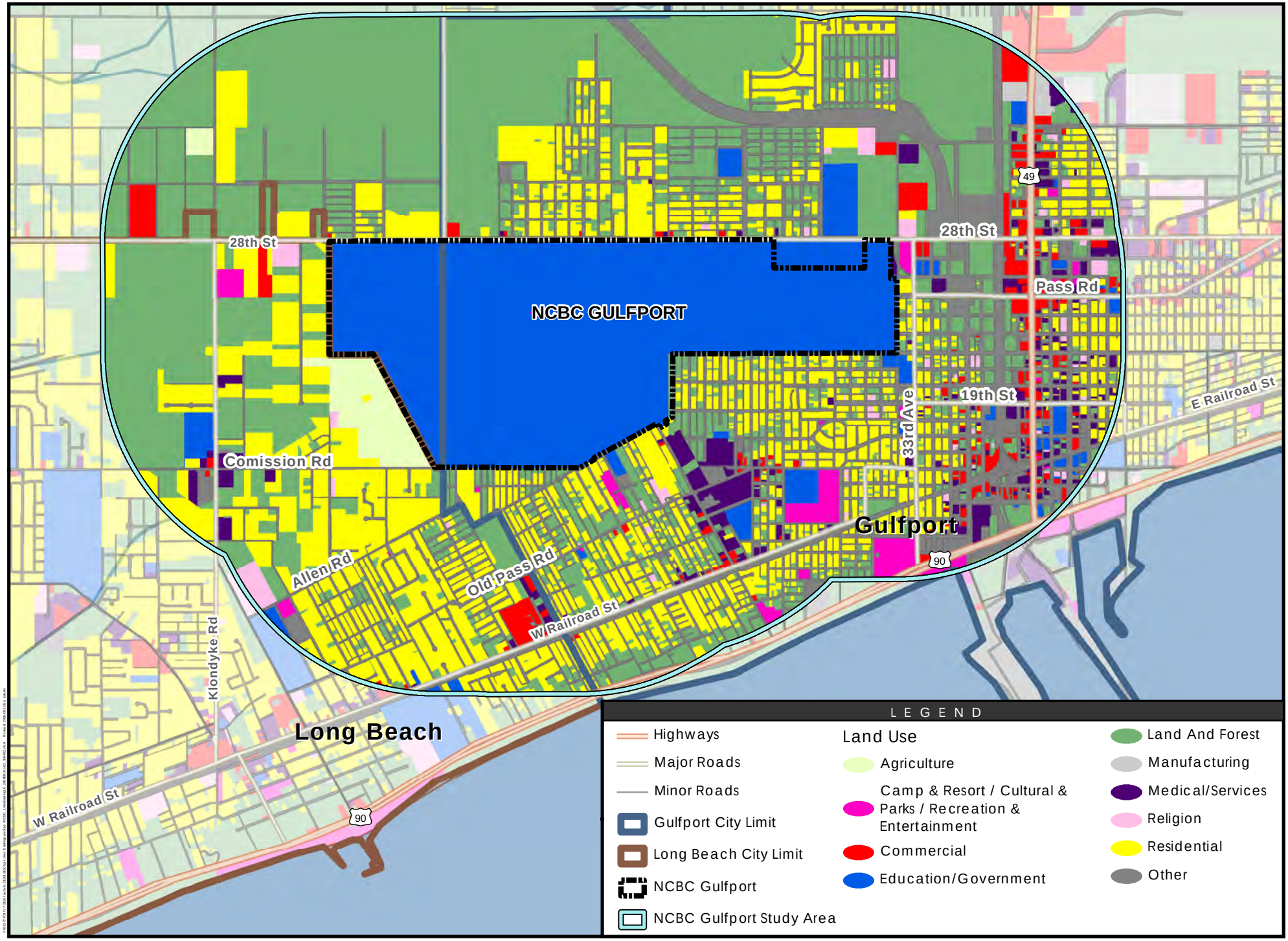
Prepared by: E.E.S.10/31/16



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NCBC Gulfport
Existing Land Use Exhibit
August 2016

Stantec Consulting Services Inc.
6900 Professional Parkway East
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tel 941.907.6900
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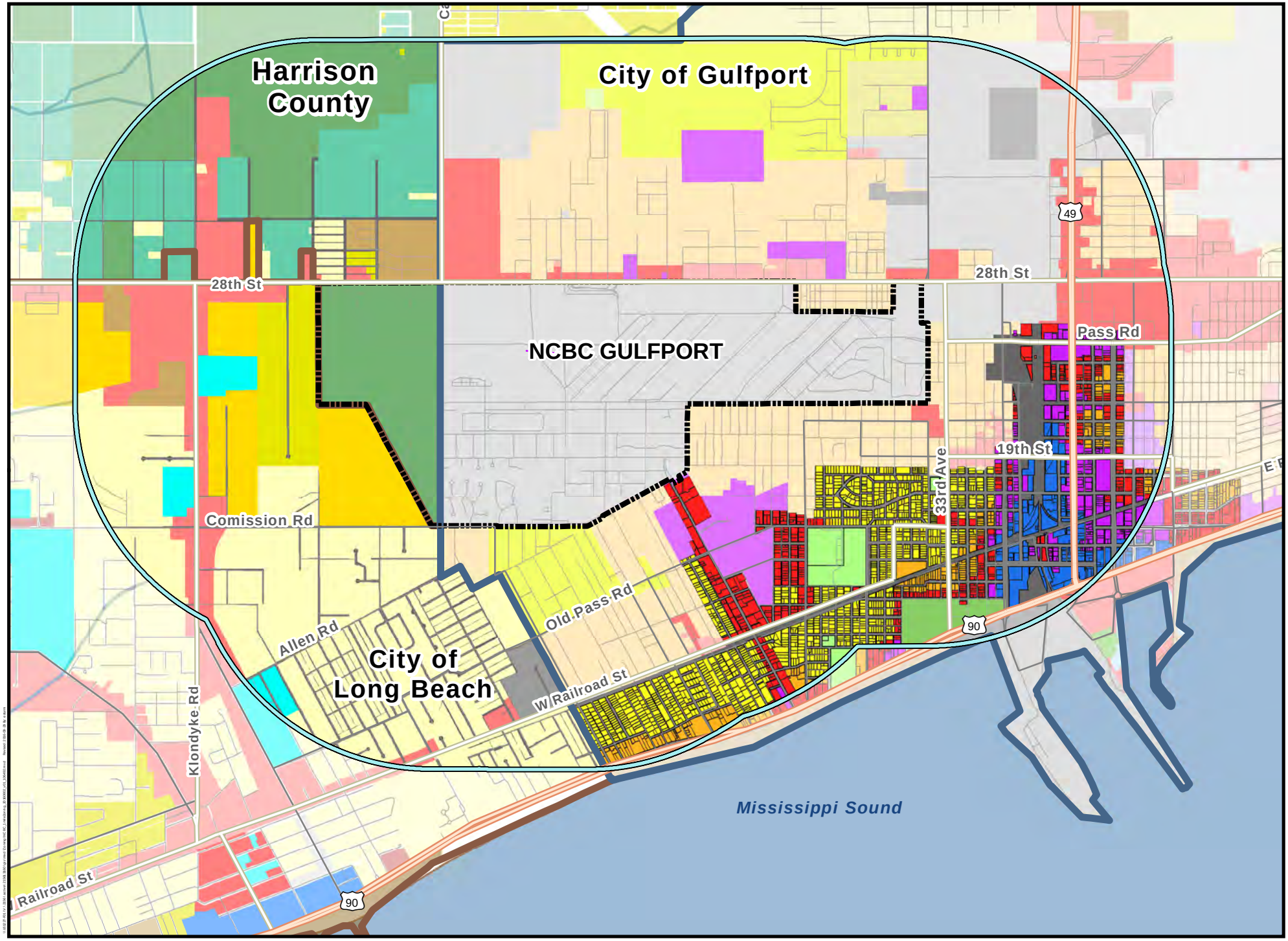
Prepared by: E.E.S. 08/03/16



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NCBC Gulfport Zoning Exhibit

September 2016

Stantec Consulting Services Inc.
6900 Professional Parkway East
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tel 941.907.6900
fax 941.907.6911

N

0 1,350 2,700 Feet

Prepared by: E.E.S. 08/02/16

NCBC Gulfport
Zoning Exhibit - Legend
September 2016

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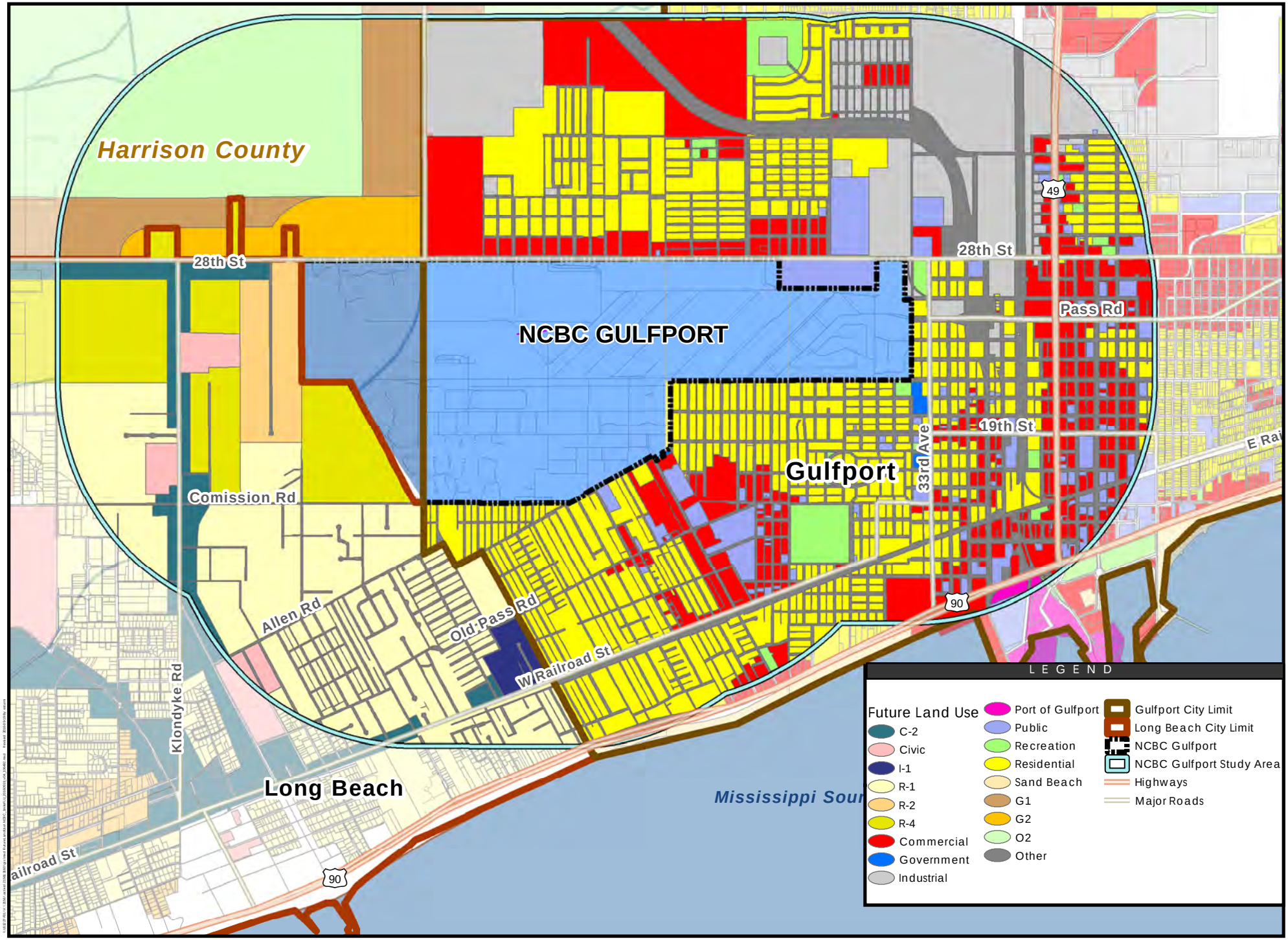
Prepared by: E.E.S. 09/29/16



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NCBC Gulfport
Future Land Use Exhibit
September 2016

Stantec Consulting Services Inc.
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tel 941.907.6900
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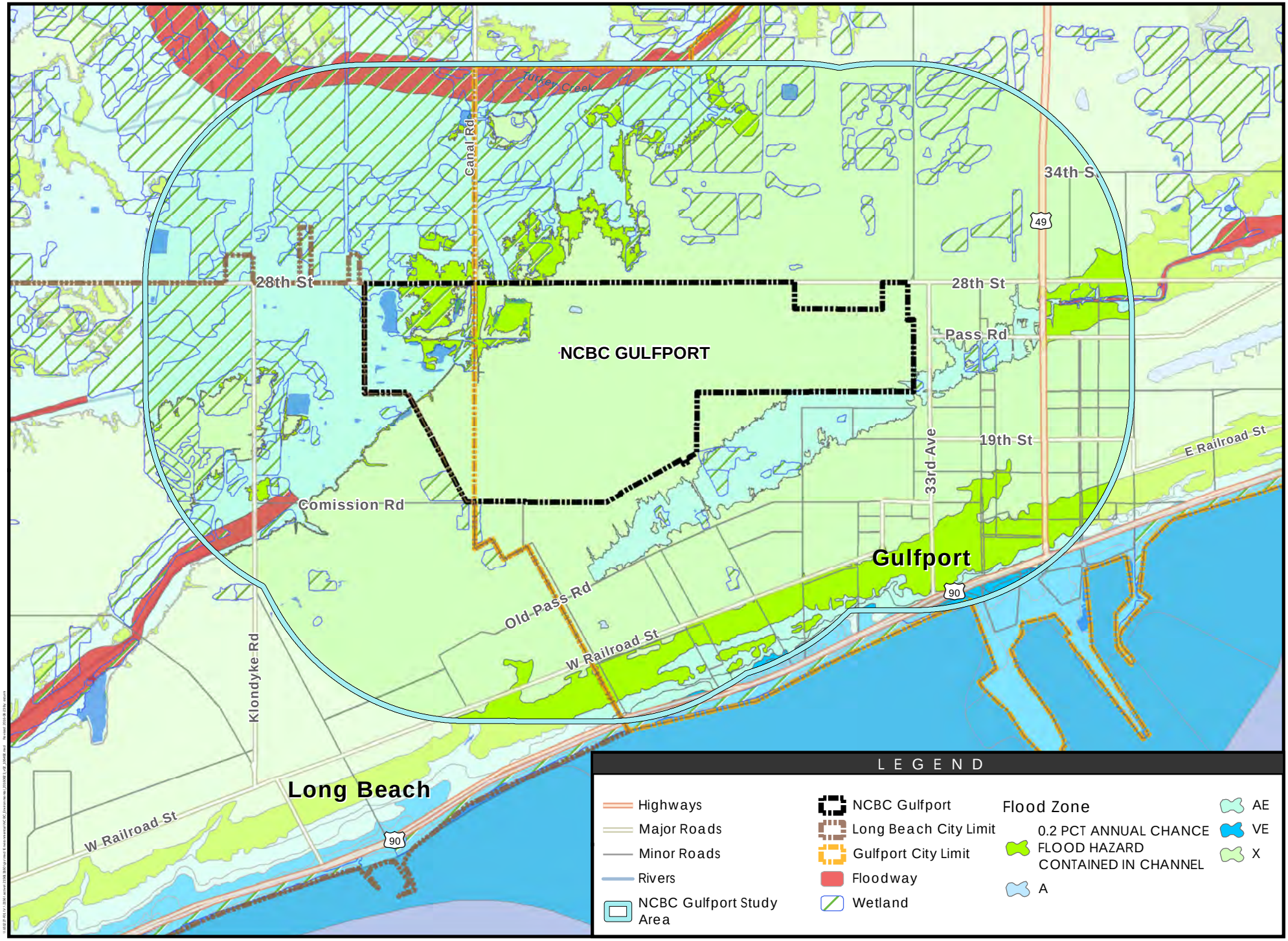
N

0 1,350 2,700 Feet

Prepared by: E.E.S. 08/02/16



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NCBC Gulfport
Environmental Factors Exhibit
August 2016

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6900 Professional Parkway East
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tel 941.907.6900
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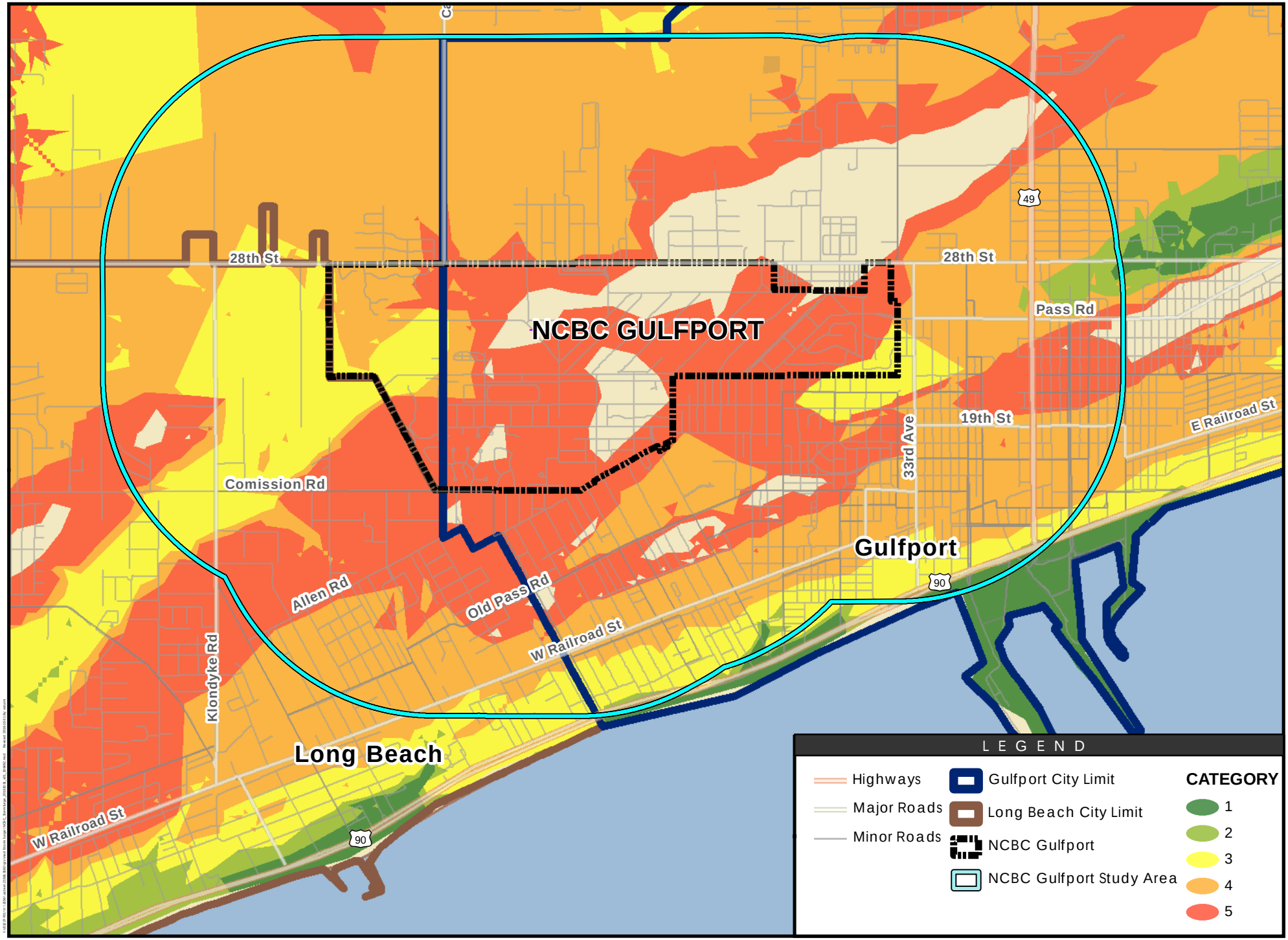
N

0 1,500 3,000 Feet

Prepared by: E.E.S. 08/12/16



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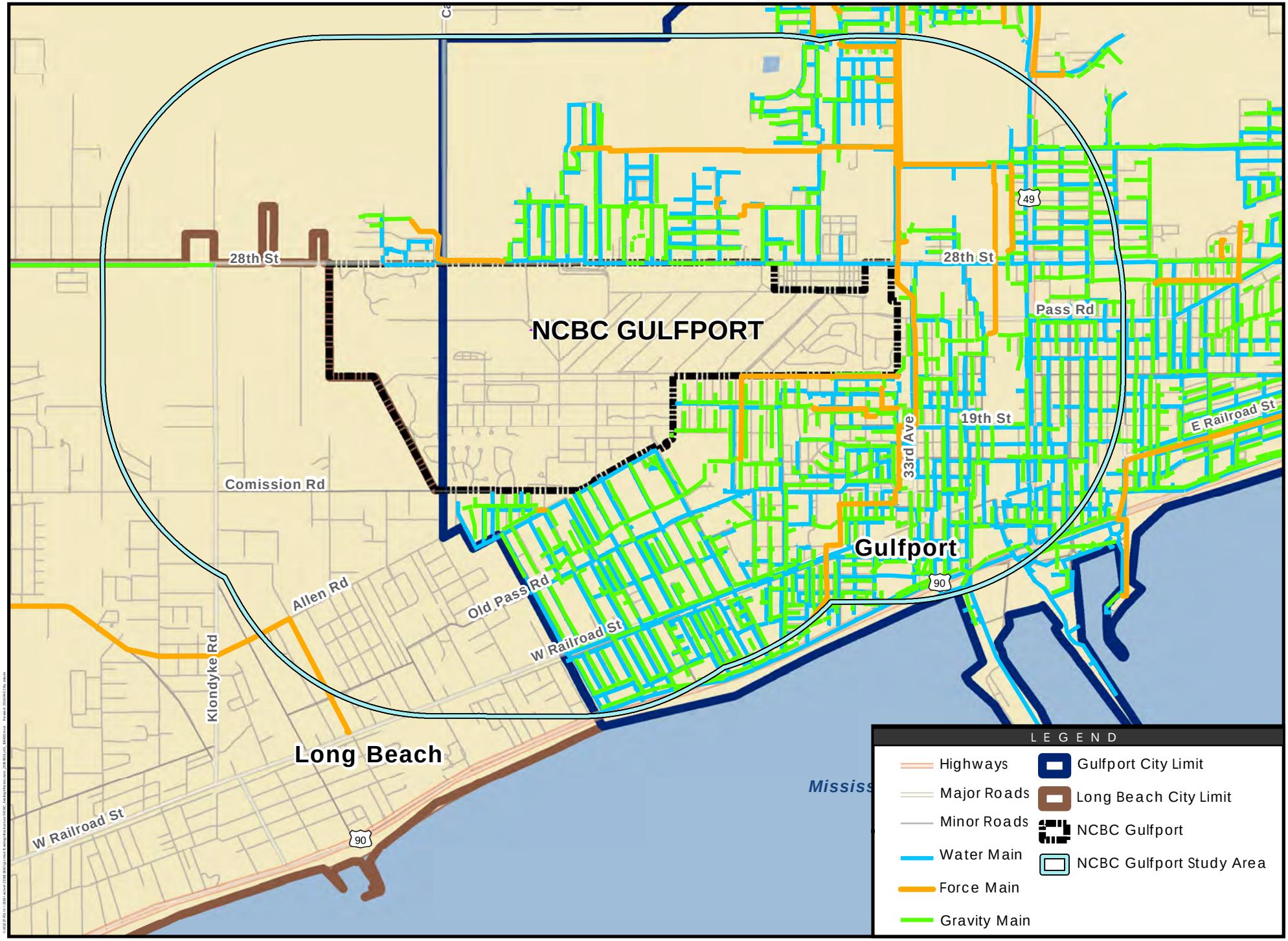
NCBC Gulfport
Storm Surge Exhibit
October 2016

Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

N

0 1,450 2,900 Feet

Prepared by: E.E.S. 10/31/16



Stantec

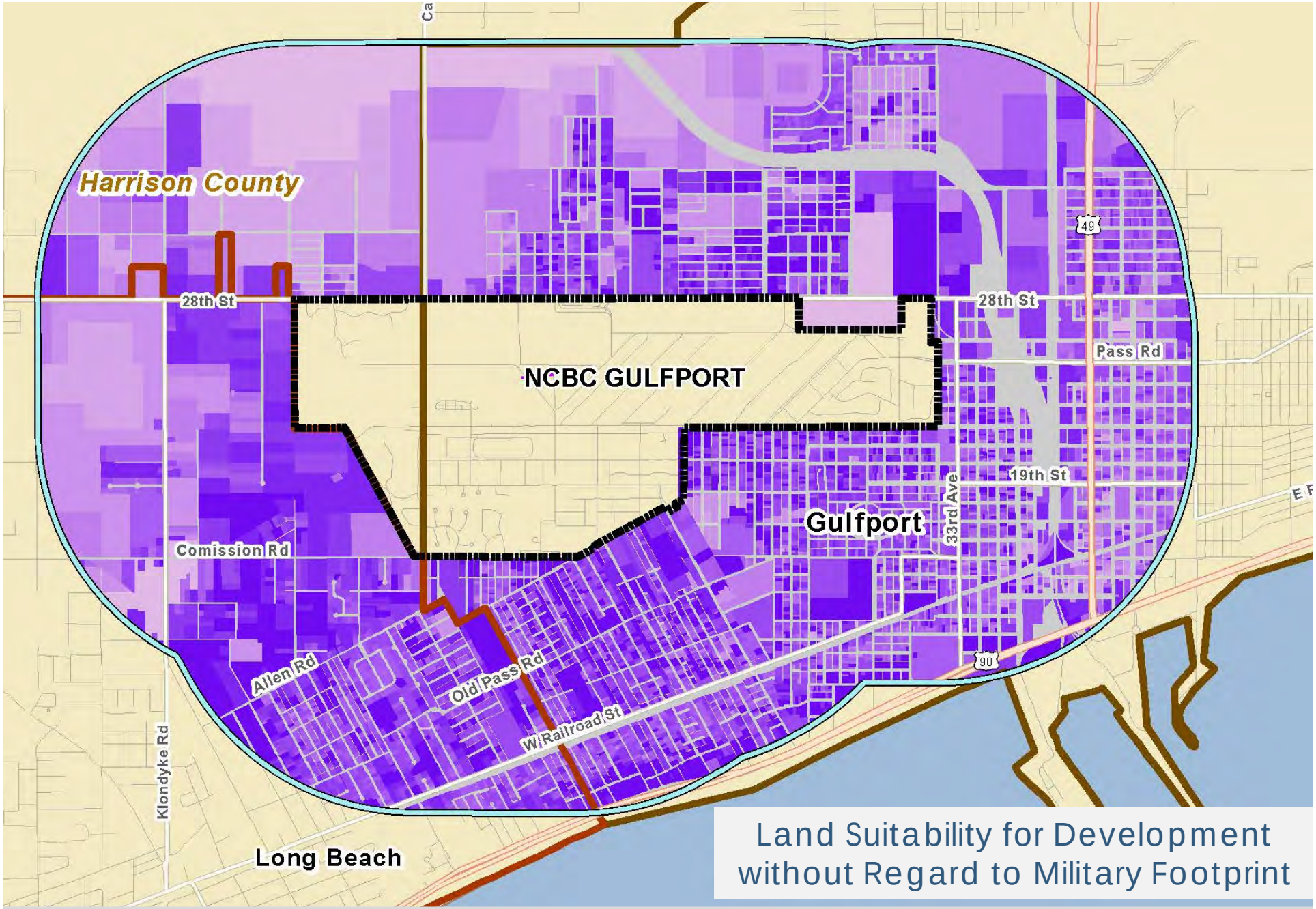
NCBC Gulfport
Existing Infrastructure Exhibit
September 2016

Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

N

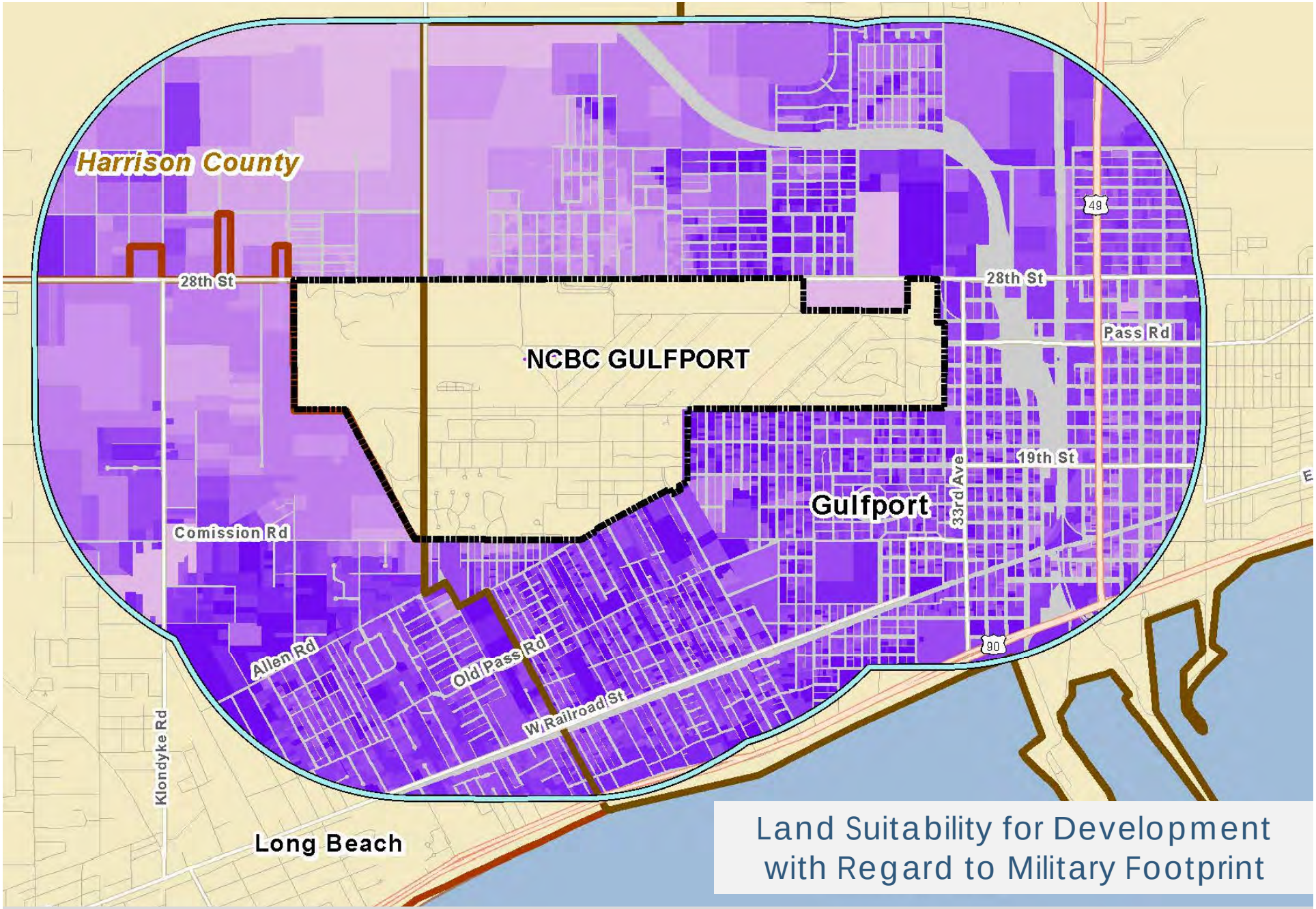
0 1,450 2,900 Feet

Prepared by: E.E.S. 08/03/16



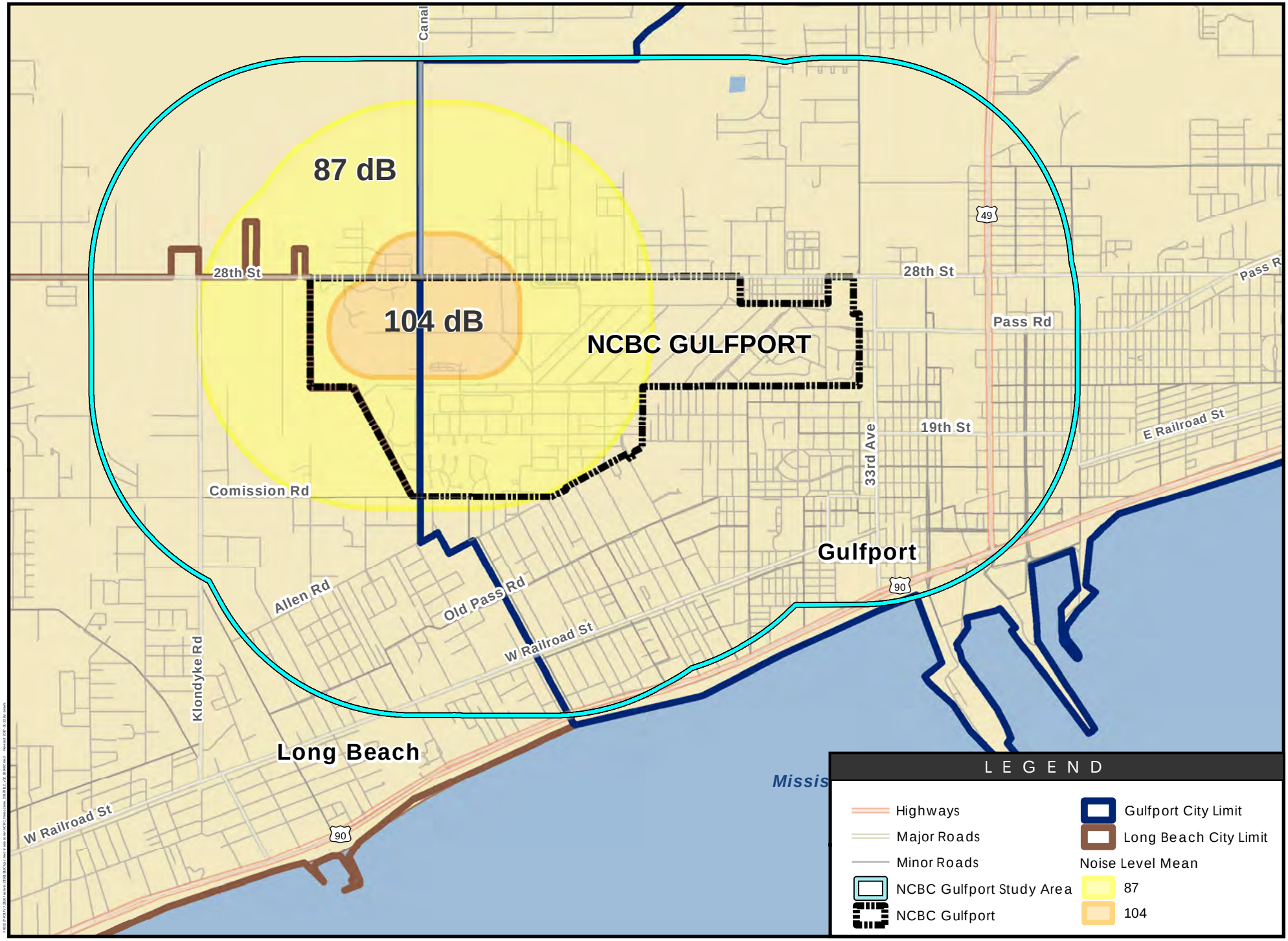
Land Suitability for Development without Regard to Military Footprint

Less Factors Attractive to Development — *More Factors Attractive to Development*



Land Suitability for Development with Regard to Military Footprint

Less Factors Attractive to Development — *More Factors Attractive to Development*



Stantec

NCBC Gulfport Noise Zones

January 2017

Stantec Consulting Services Inc.
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fax 941.907.6911

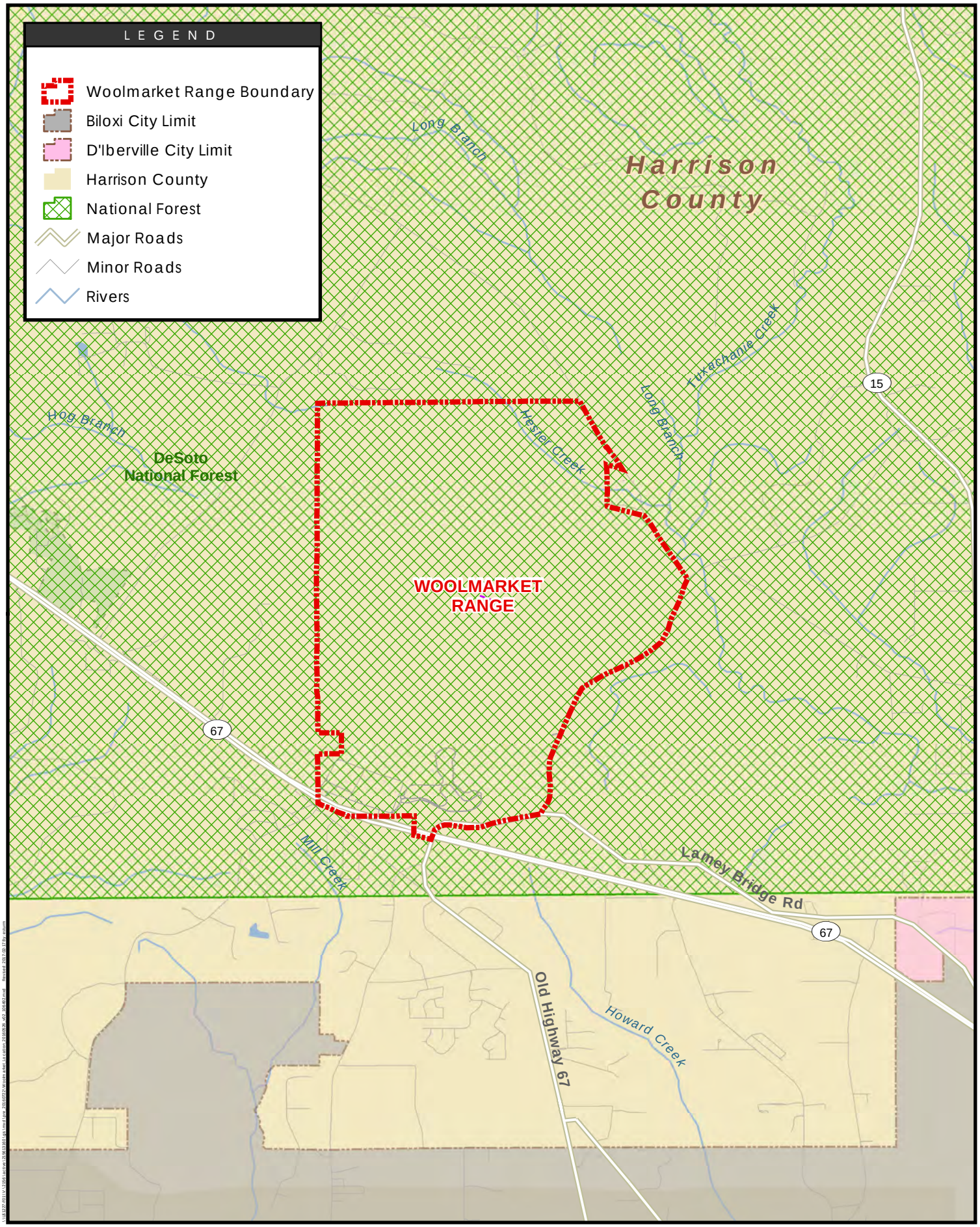
N

0 1,500 3,000 Feet

Prepared by: E.E.S. 01/12/17

Woolmarket Range Maps

- Location
- Location (Aerial)
- Existing Land Use
- Zoning
- Future Land Use
- Environmental
- Storm Surge
- Infrastructure
- Land Suitability for Development without Regard to Military Footprint
- Land Suitability for Development with Regard to Military Footprint
- Noise Zones (Max Peak)
- Noise Zones (DNL)



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Woolmarket Range Location Exhibit

February 2017

Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 2,000 4,000 Feet

N

Prepared by: E.E.S. 05/26/16

0 2,000 4,000 Feet

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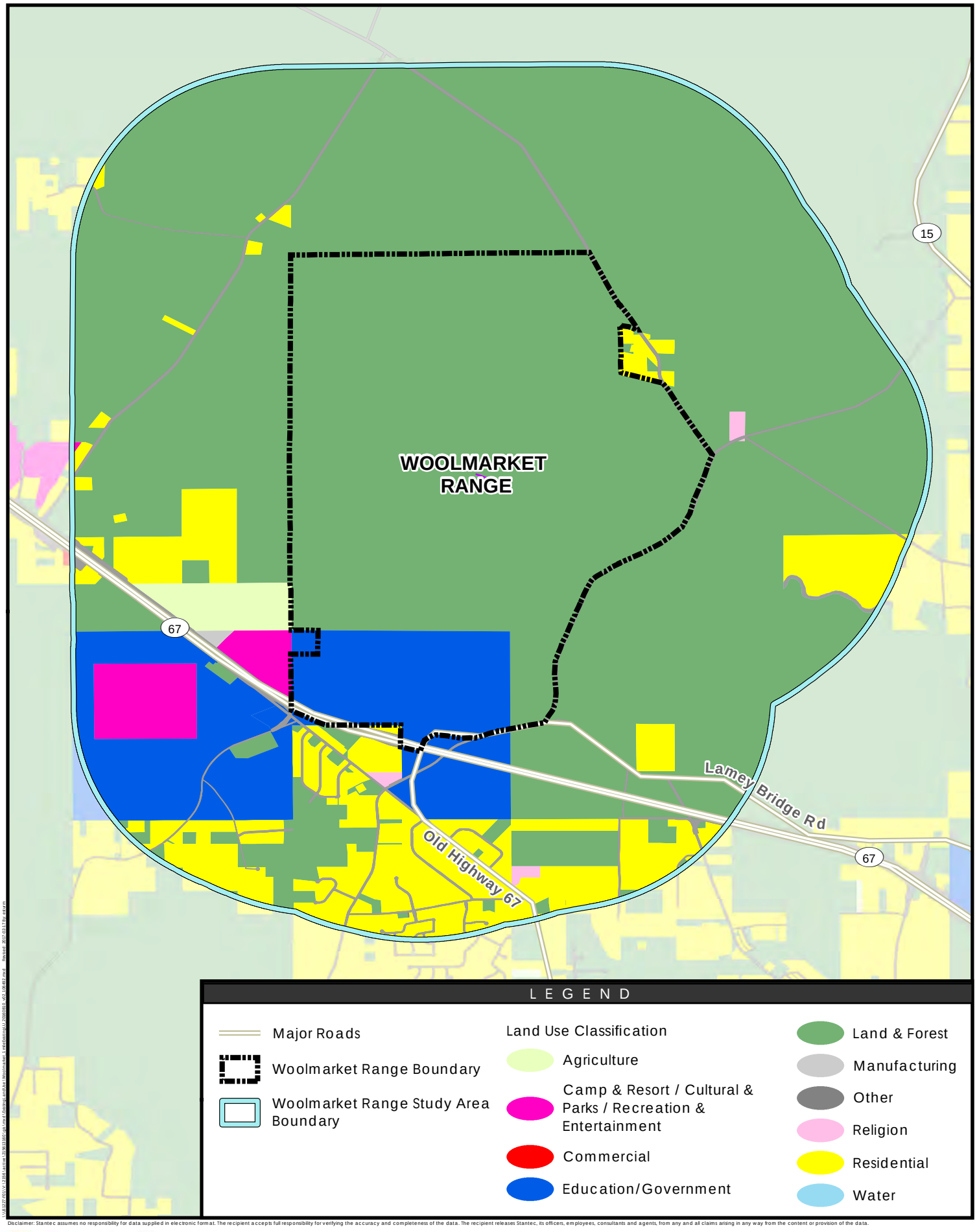
fax 941.907.6911

Woolmarket Range Location Exhibit

February 2017

N

Prepared by: E.E.S. 05/26/16



LEGEND

- Major Roads
- Woolmarket Range Boundary
- Woolmarket Range Study Area Boundary

Land Use Classification

- Agriculture
- Camp & Resort / Cultural & Parks / Recreation & Entertainment
- Commercial
- Education/Government
- Land & Forest
- Manufacturing
- Other
- Religion
- Residential
- Water

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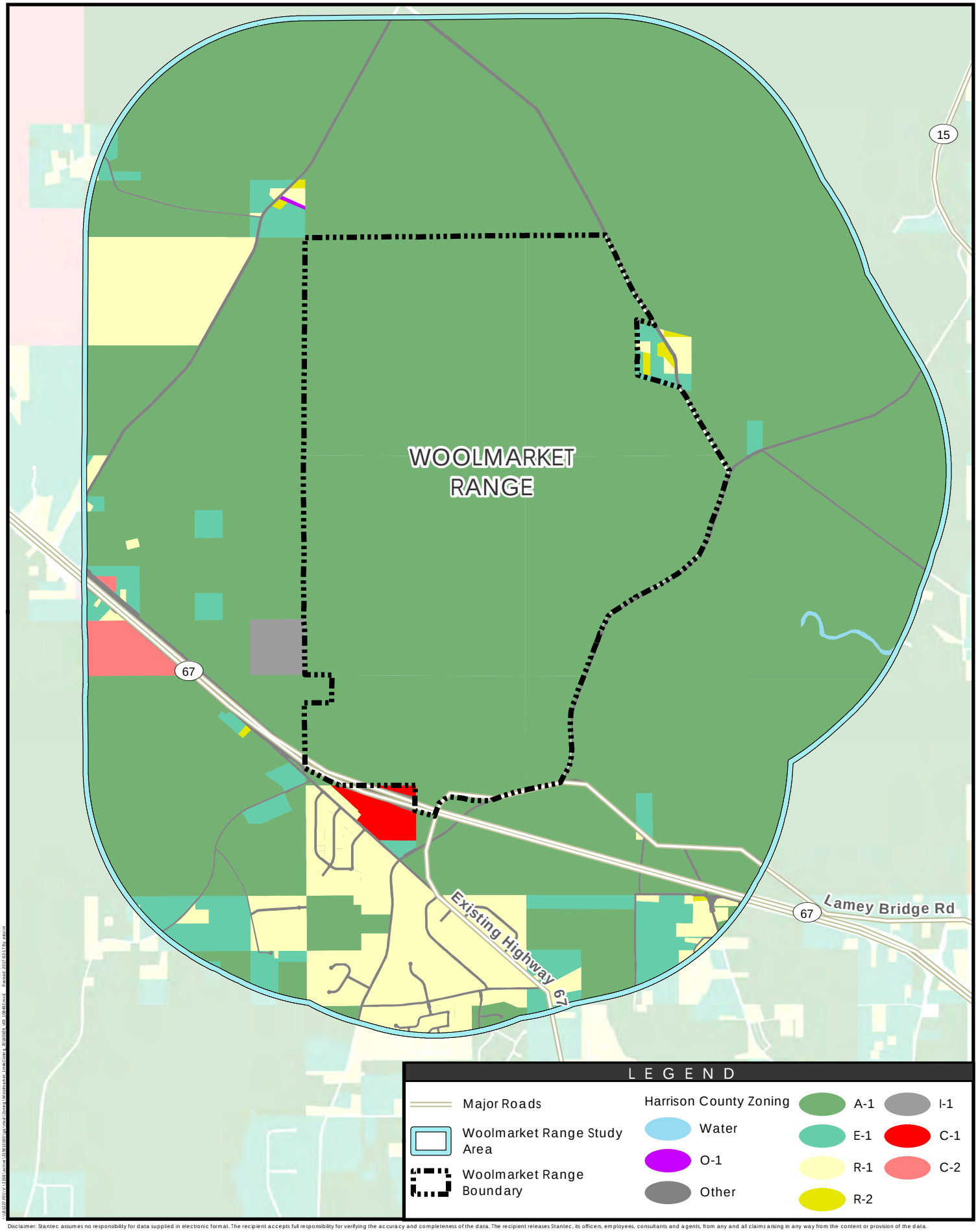
fax 941.907.6911

Woolmarket Range
Existing Land Use Exhibit
February 2017

N

0 1,750 3,500 Feet

Prepared by: E.E.S. 08/10/16



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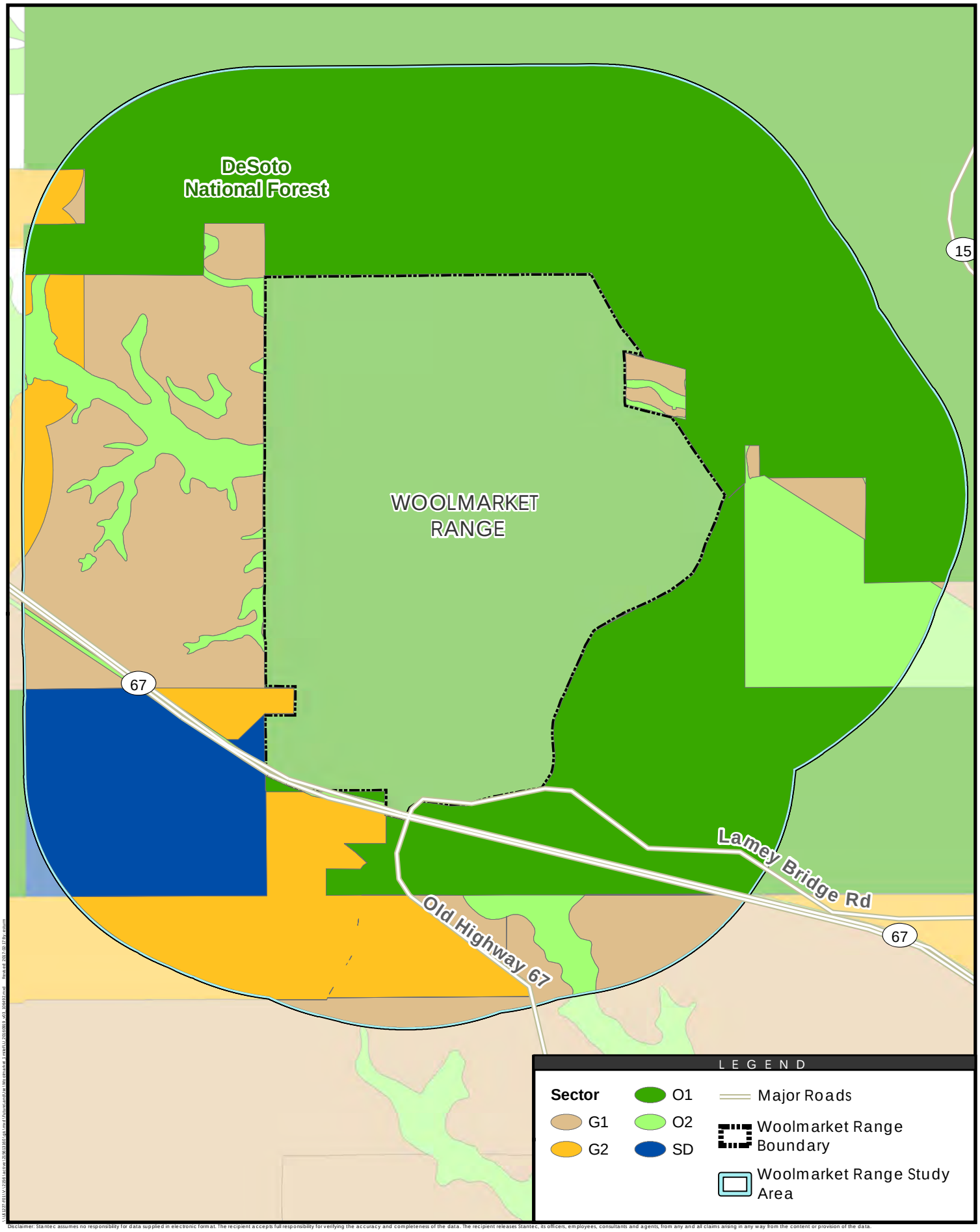
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

Woolmarket Range
Zoning Exhibit
February 2017

N

0 1,500 3,000
Feet

Prepared by: E.E.S. 09/29/16



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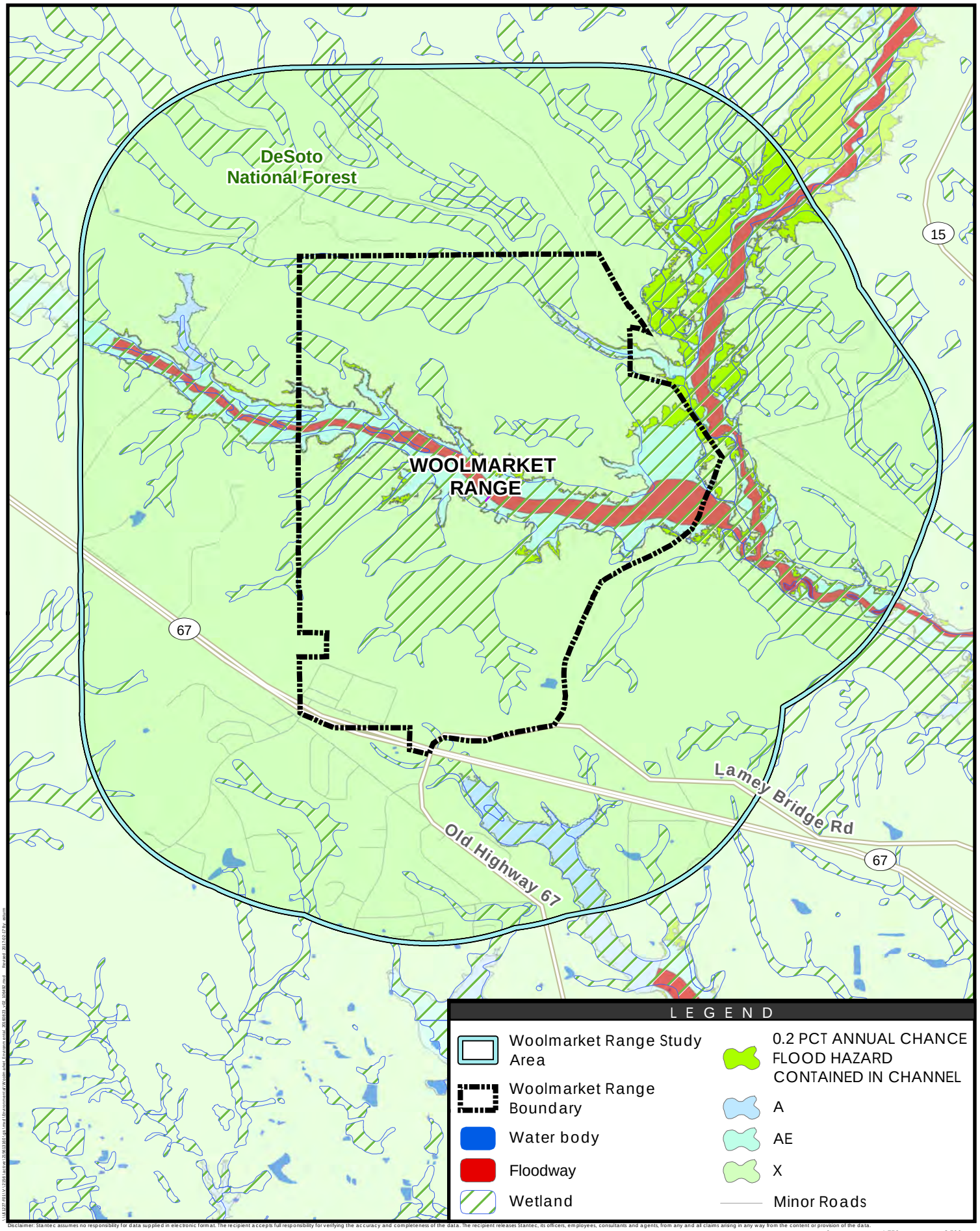
fax 941.907.6911

Woolmarket Range
Future Land Use Exhibit
February 2017

0 1,600 3,200 Feet

N

Prepared by: E.E.S. 05/26/16



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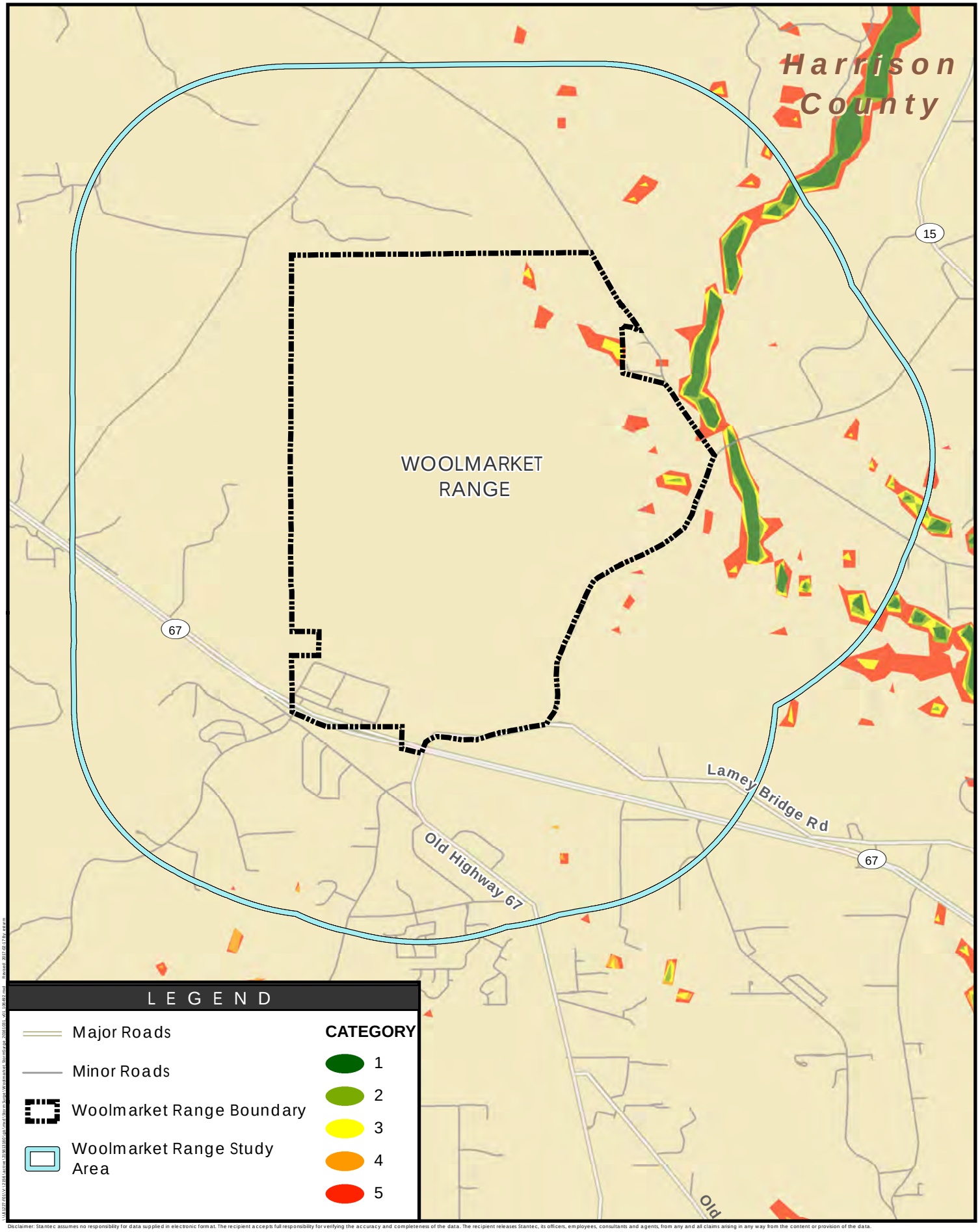
fax 941.907.6911

Woolmarket Range
Environmental Factors Exhibit
February 2017

0 1,750 3,500 Feet

N

Prepared by: E.E.S. 05/26/16



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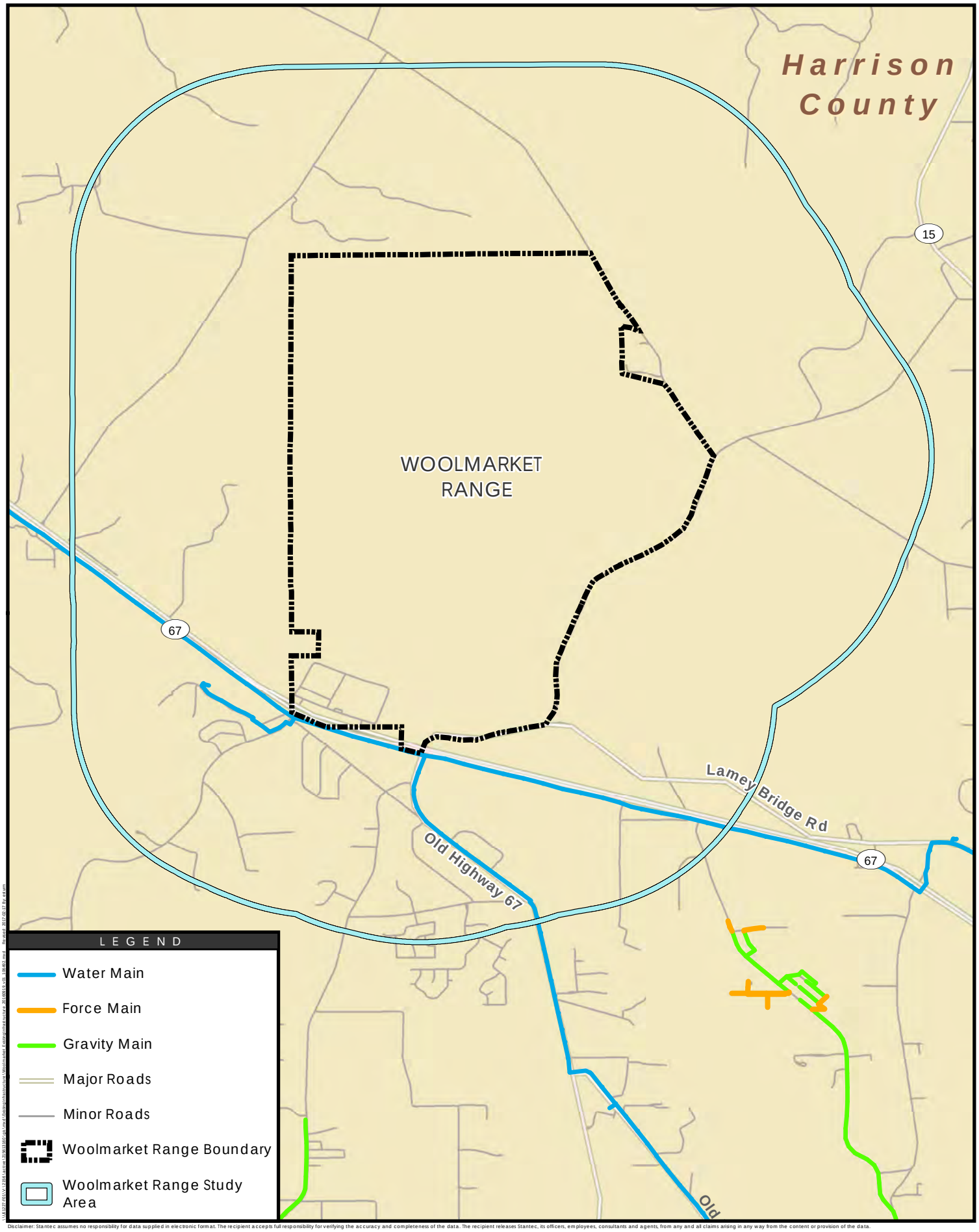
tel 941.907.6900
fax 941.907.6911

Woolmarket Range
Storm Surge Exhibit
February 2017

0 1,750 3,500 Feet

N

Prepared by: E.E.S. 10/31/16



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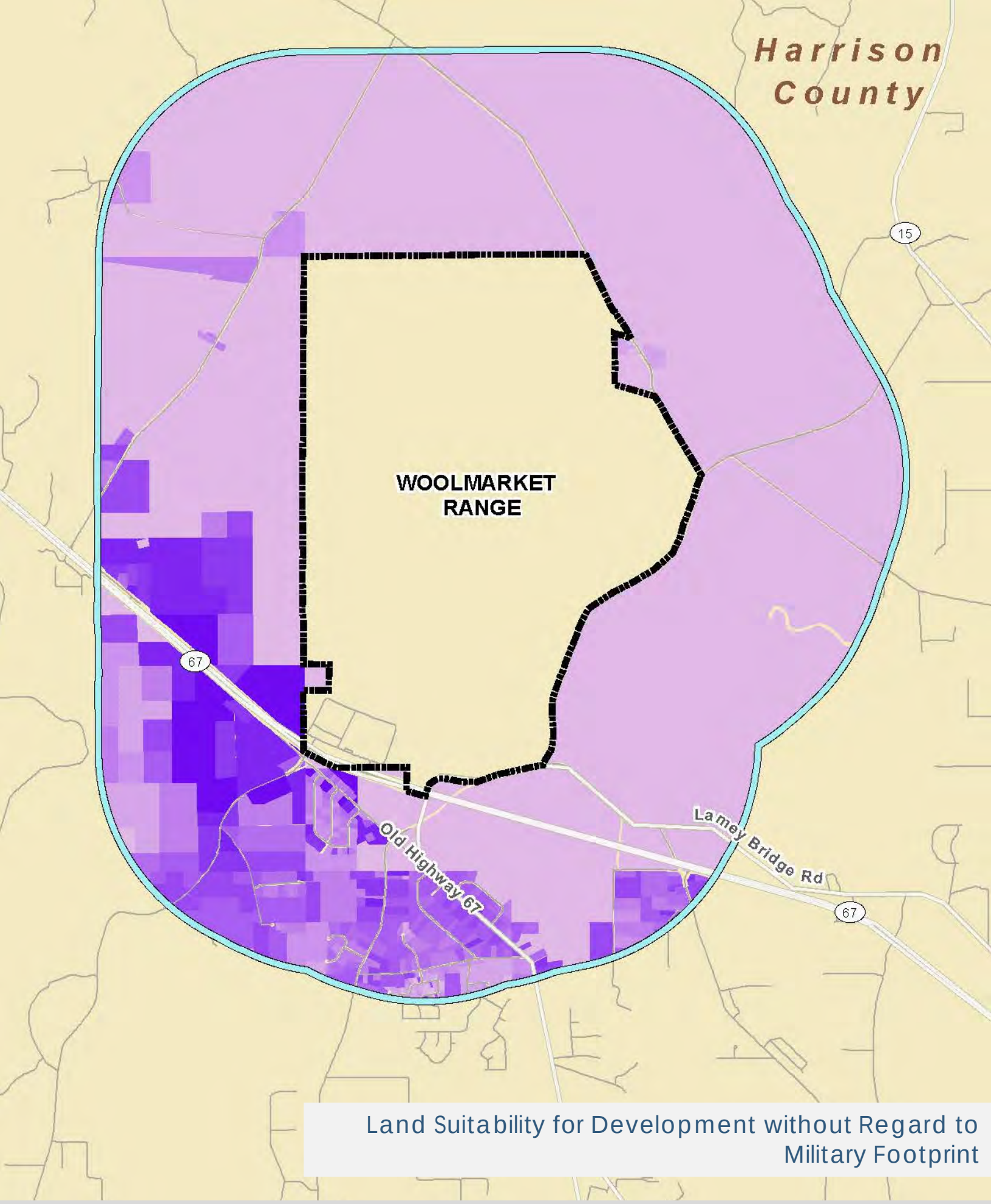
Woolmarket Range
Existing Infrastructure Exhibit
February 2017

N

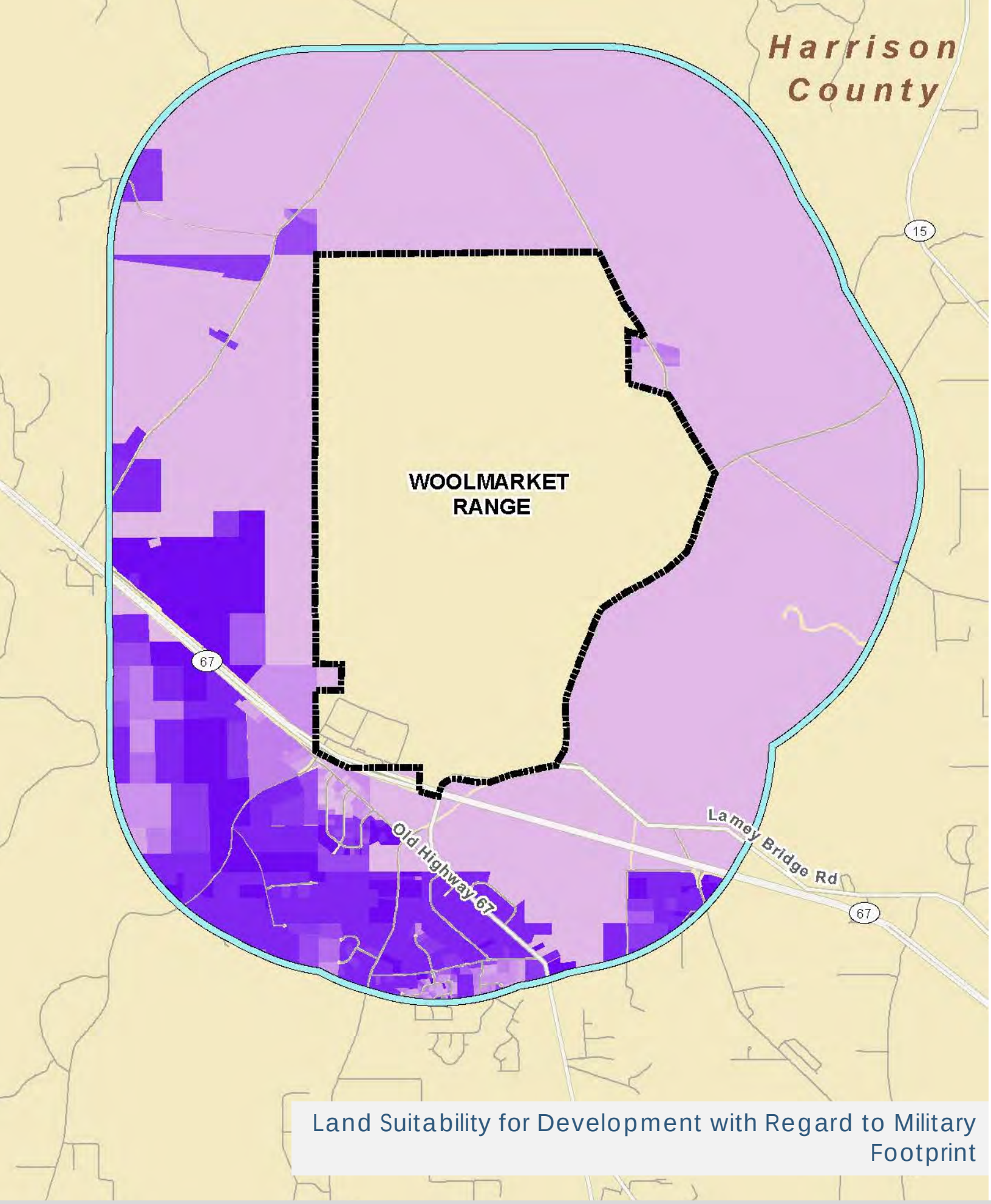
0 1,750 3,500 Feet

Prepared by: E.E.S. 08/10/16



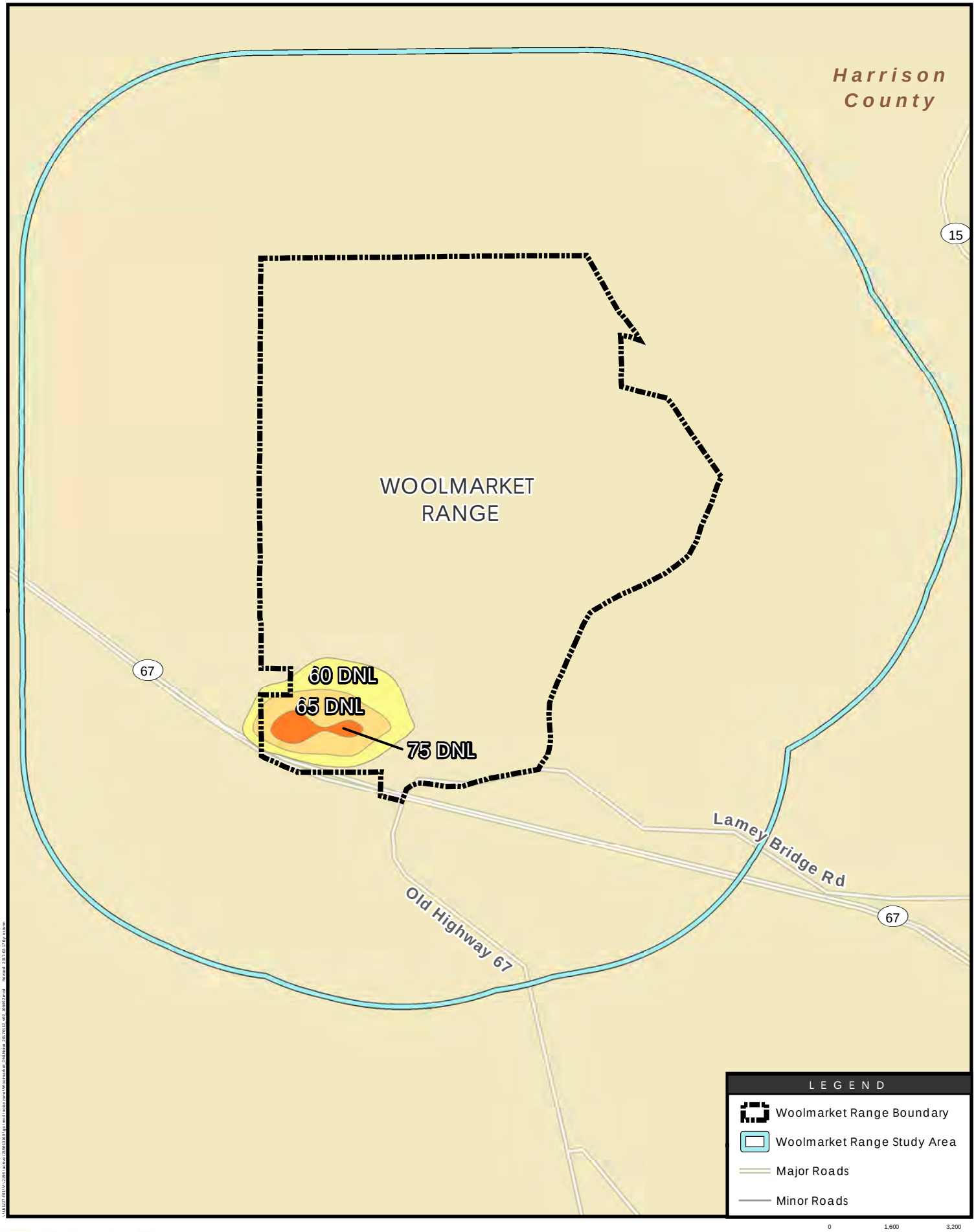
Land Suitability for Development without Regard to Military Footprint

Less Factors Attractive to Development *More Factors Attractive to Development*



Land Suitability for Development with Regard to Military Footprint

Less Factors Attractive to Development — *More Factors Attractive to Development*



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Woolmarket Range

DNL Noise Contours
February 2017

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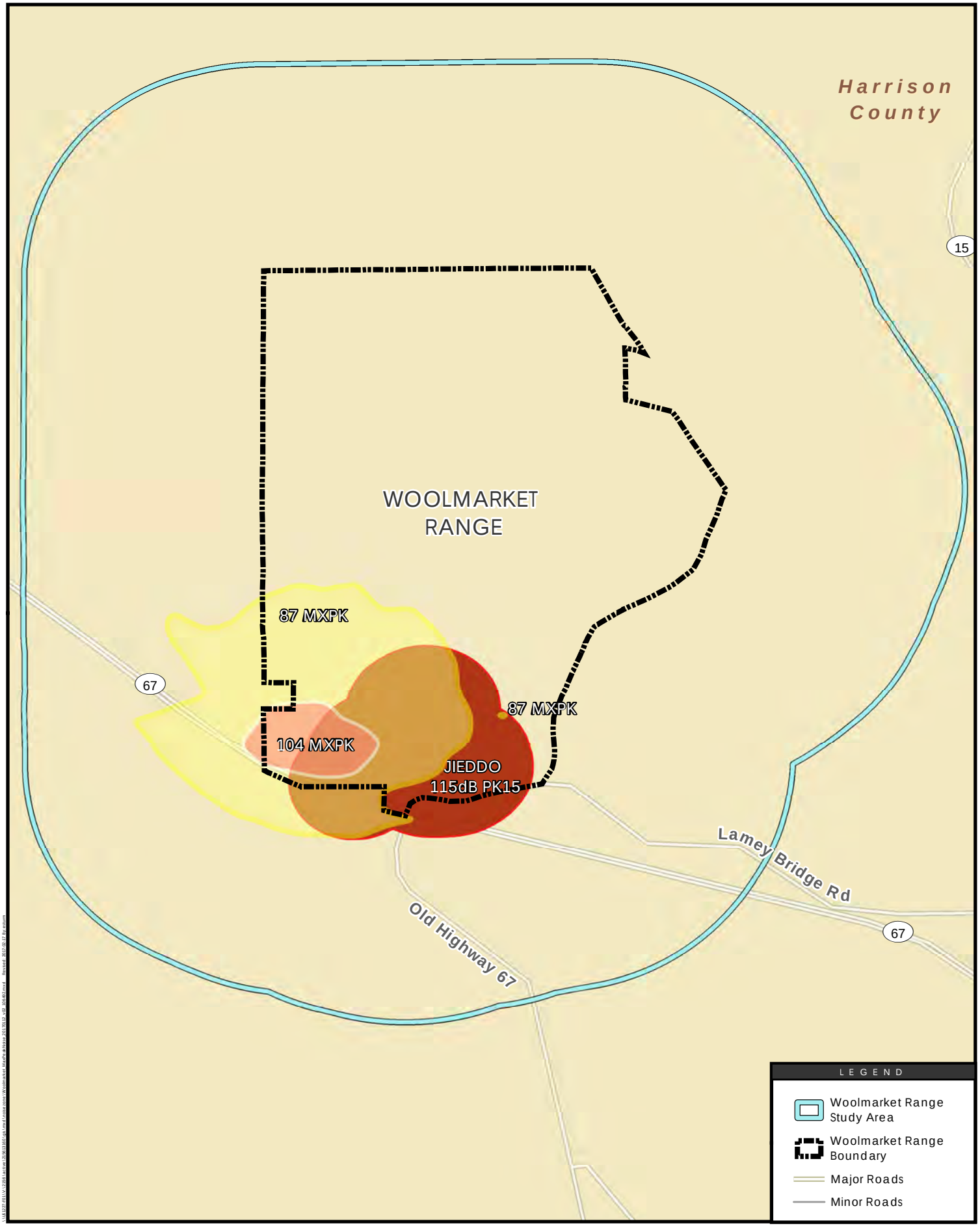
tel 941.907.6900
fax 941.907.6911

0 1,600 3,200 Feet

N

Prepared by: E.E.S. 01/12/17



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Woolmarket Range

Max Peak Noise Contours
February 2017

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tel 941.907.6900
fax 941.907.6911

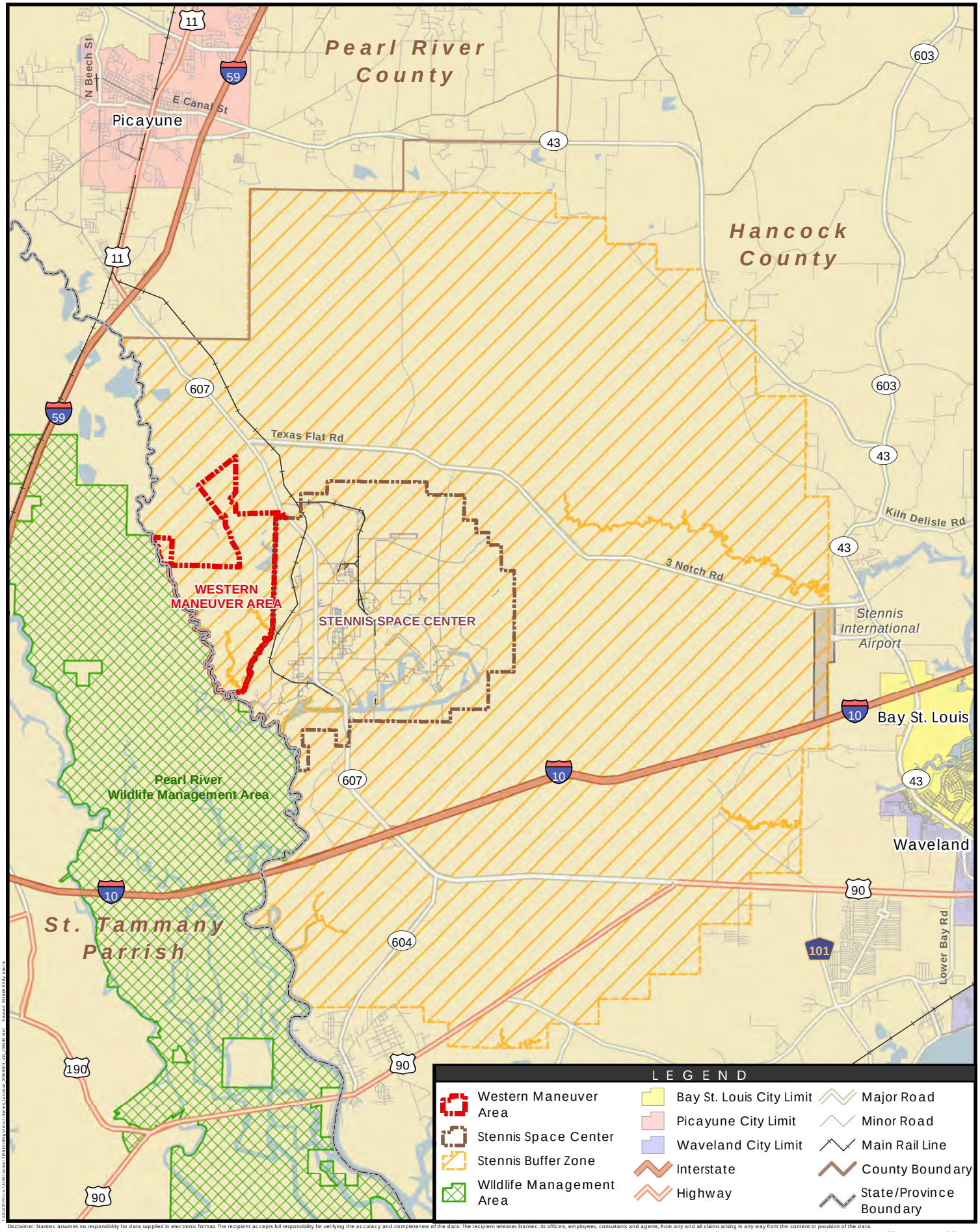
0 1,600 3,200 Feet

N

Prepared by: E.E.S. 01/12/17

Western Maneuver Area Maps

- Location
- Location (Aerial)
- Existing Land Use
- Zoning
- Future Land Use
- Environmental
- Storm Surge
- Proposed Expansions



0 1.25 2.5 Miles

N

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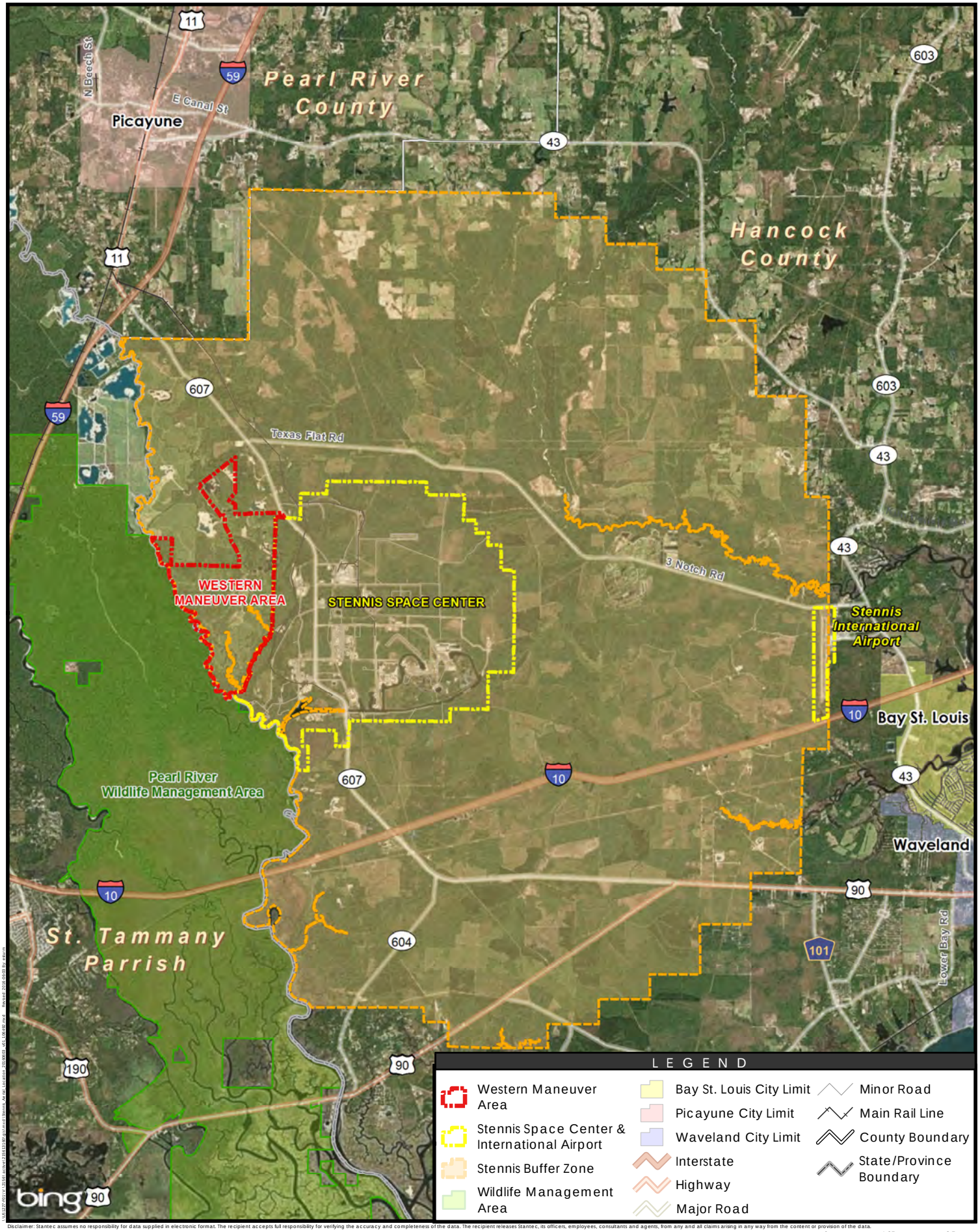
fax 941.907.6911

Western Maneuver Area Location Exhibit

June 2016

Prepared by: E.E.S. 06/03/16



0 1.25 2.5 Miles

N

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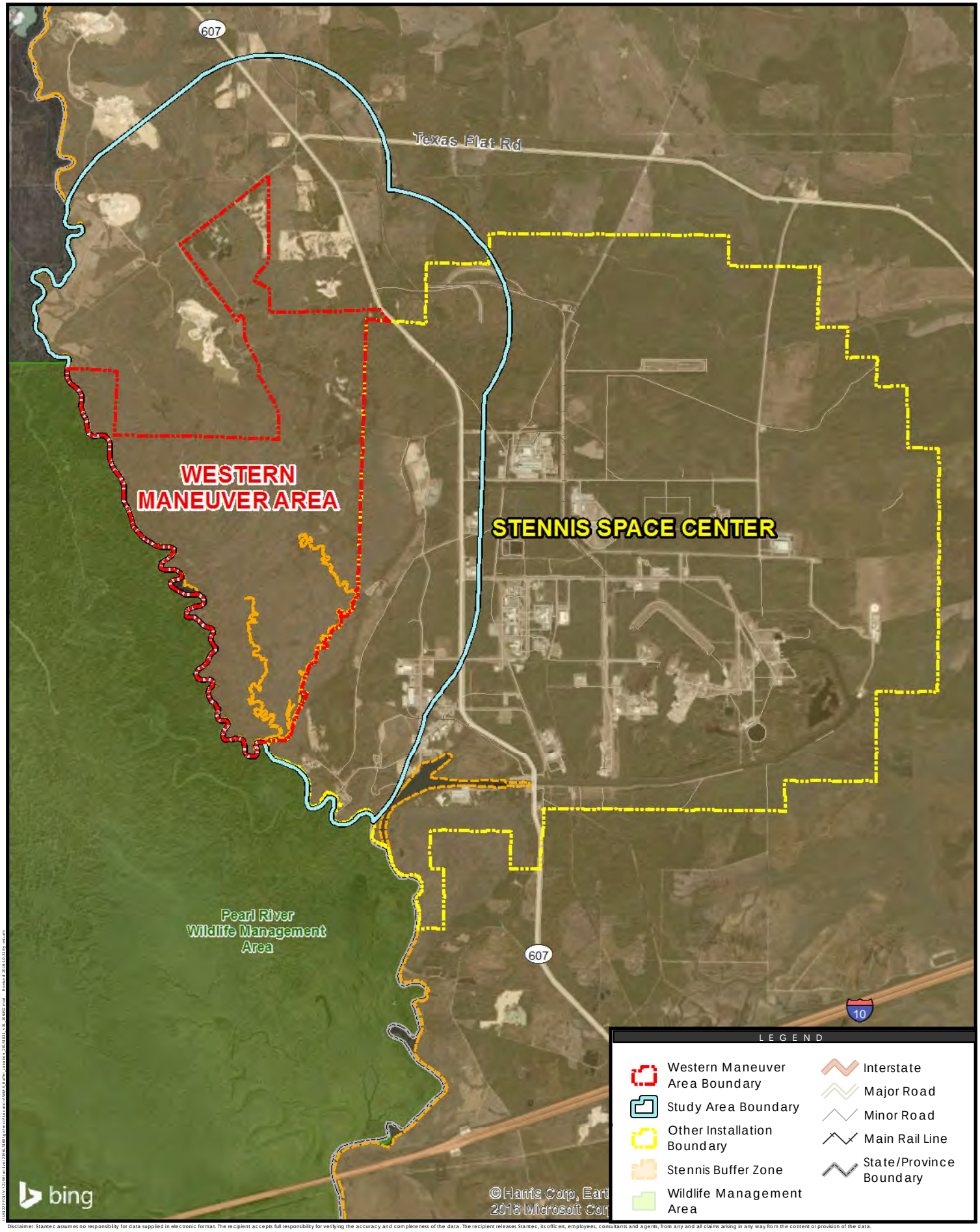
fax 941.907.6911

Western Maneuver Area Location Exhibit

June 2016

Prepared by: E.E.S. 06/03/16



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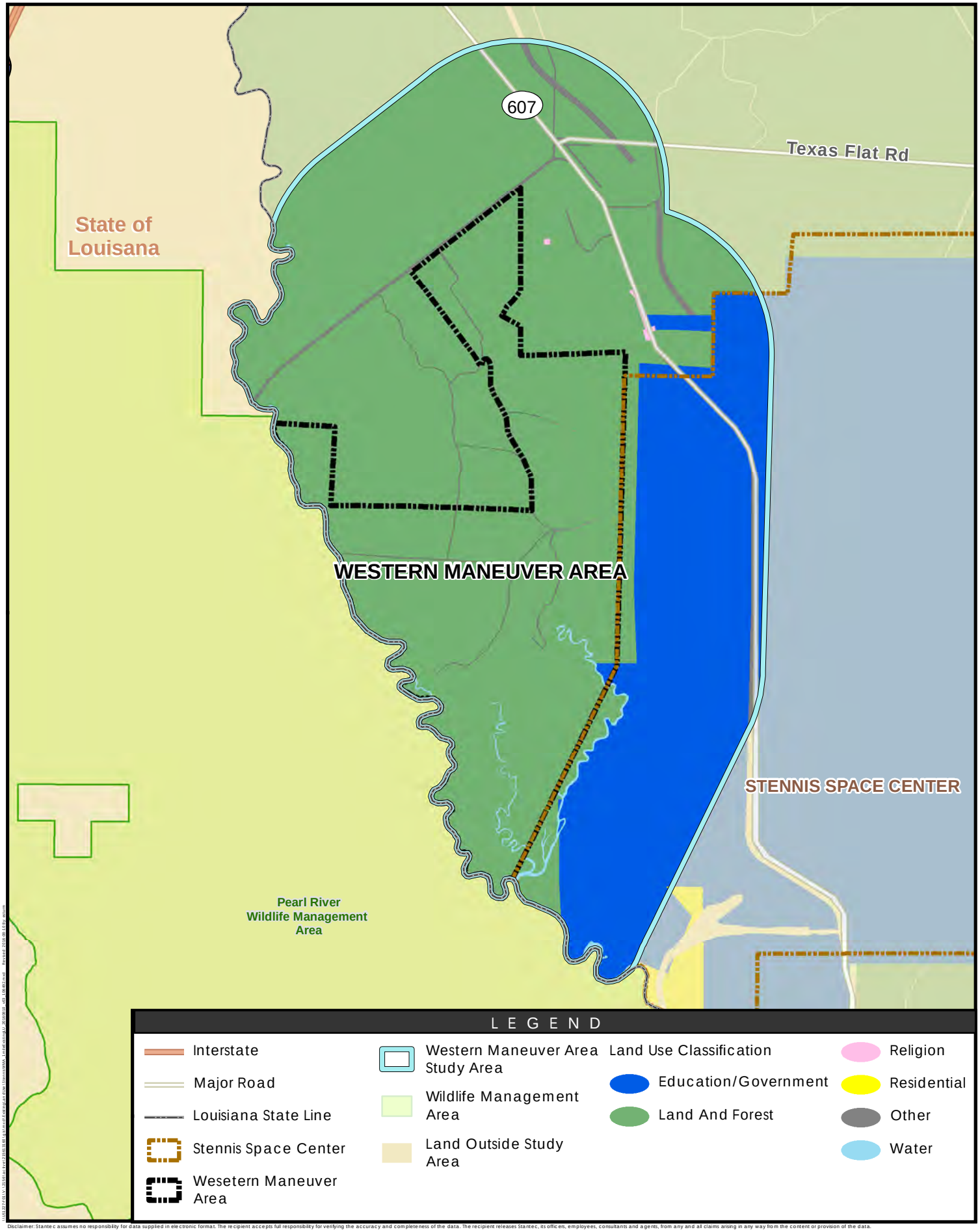
Western Maneuver Area Location Exhibit

October 2016

N

0 2,750 5,500 Feet

Prepared by: E.E.S. 10/31/16



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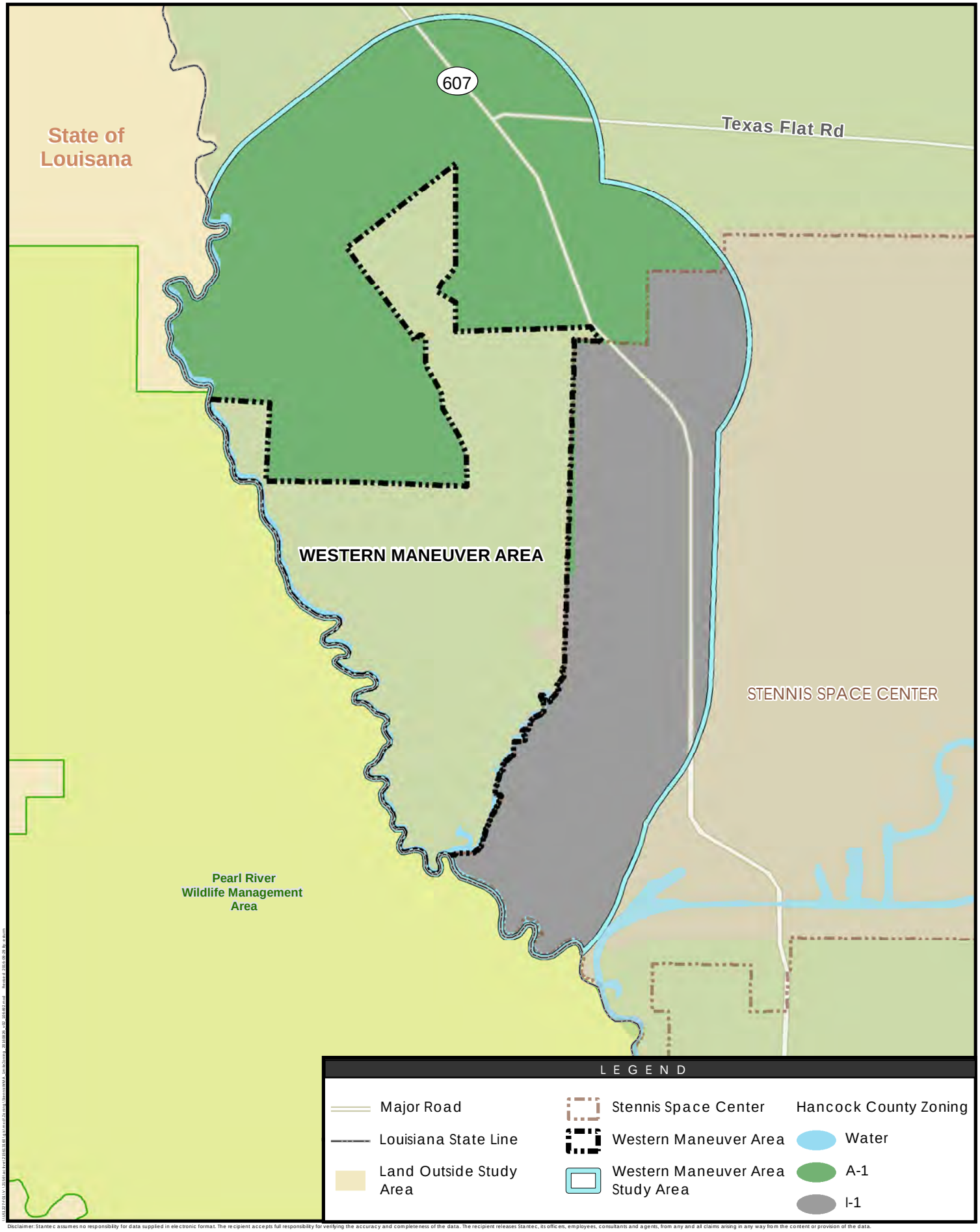
Western Maneuver Area
Existing Land Use Exhibit
August 2016

N

0 2,400 4,800 Feet

Prepared by: E.E.S. 06/03/16



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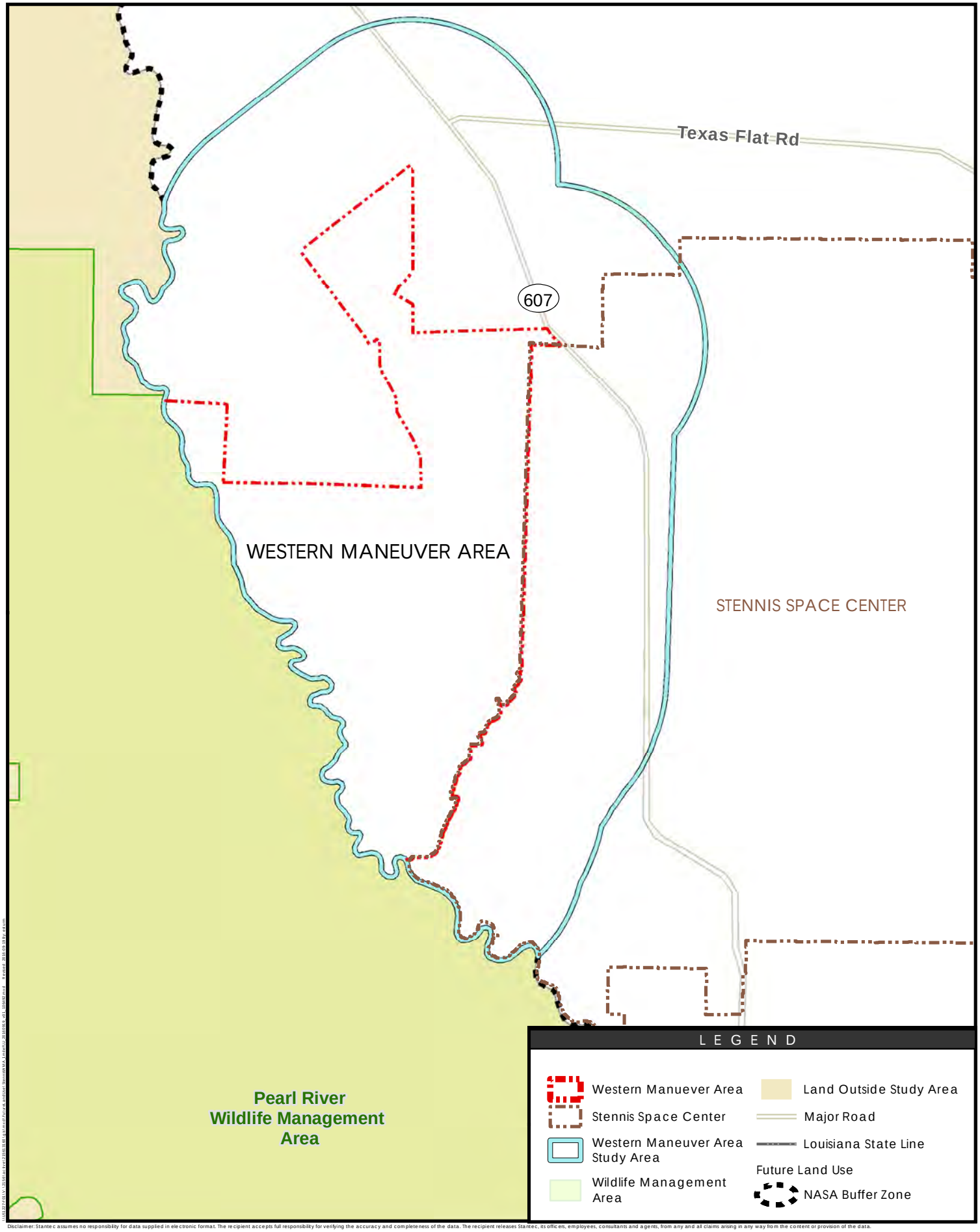
Western Maneuver Area Zoning Exhibit

September 2016

N

0 2,250 4,500 Feet

Prepared by: E.E.S. 09/29/16



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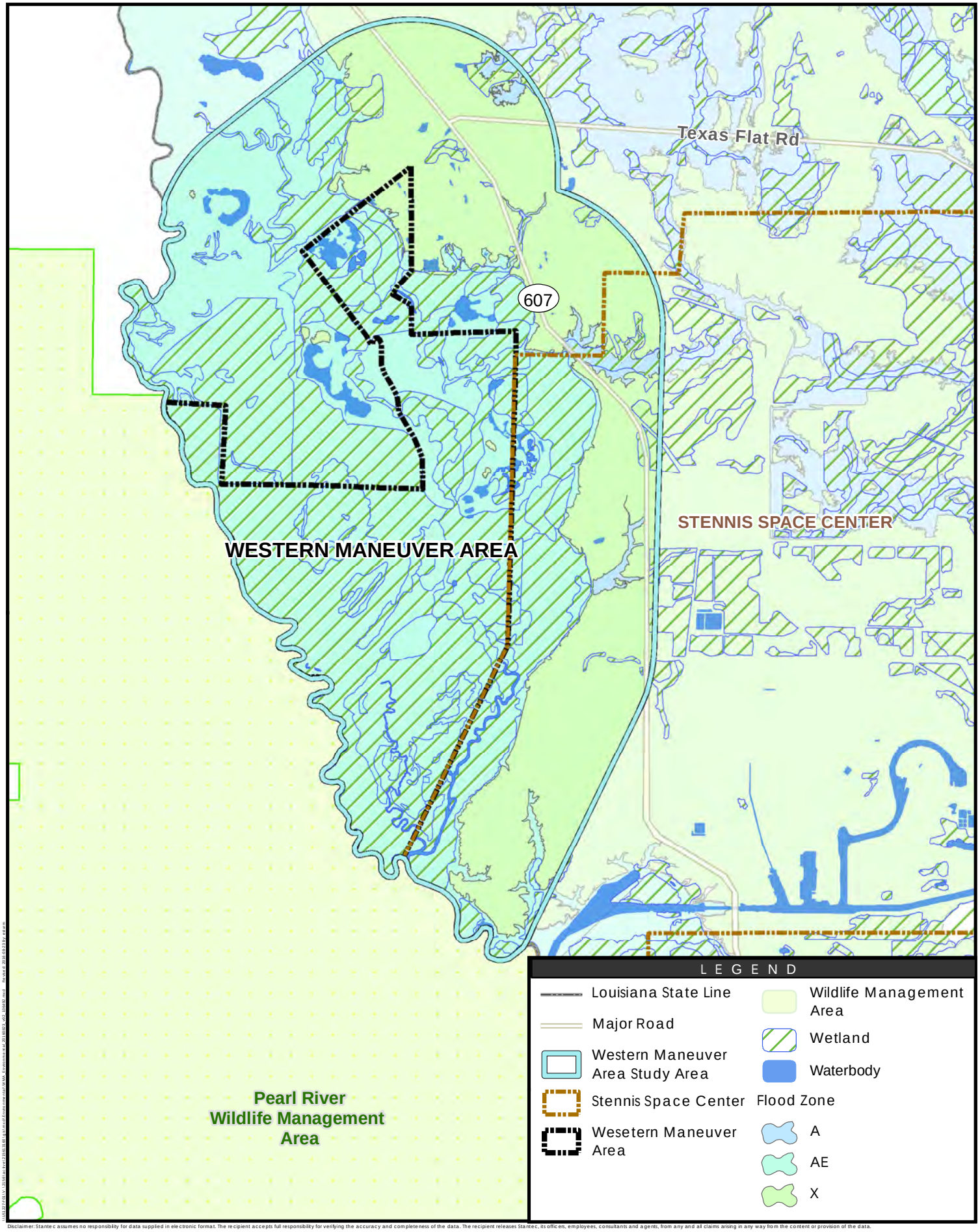
fax 941.907.6911

Western Maneuver Area
Future Land Use Exhibit
September 2016

0 2,250 4,500 Feet

N

Prepared by: E.E.S. 08/10/16



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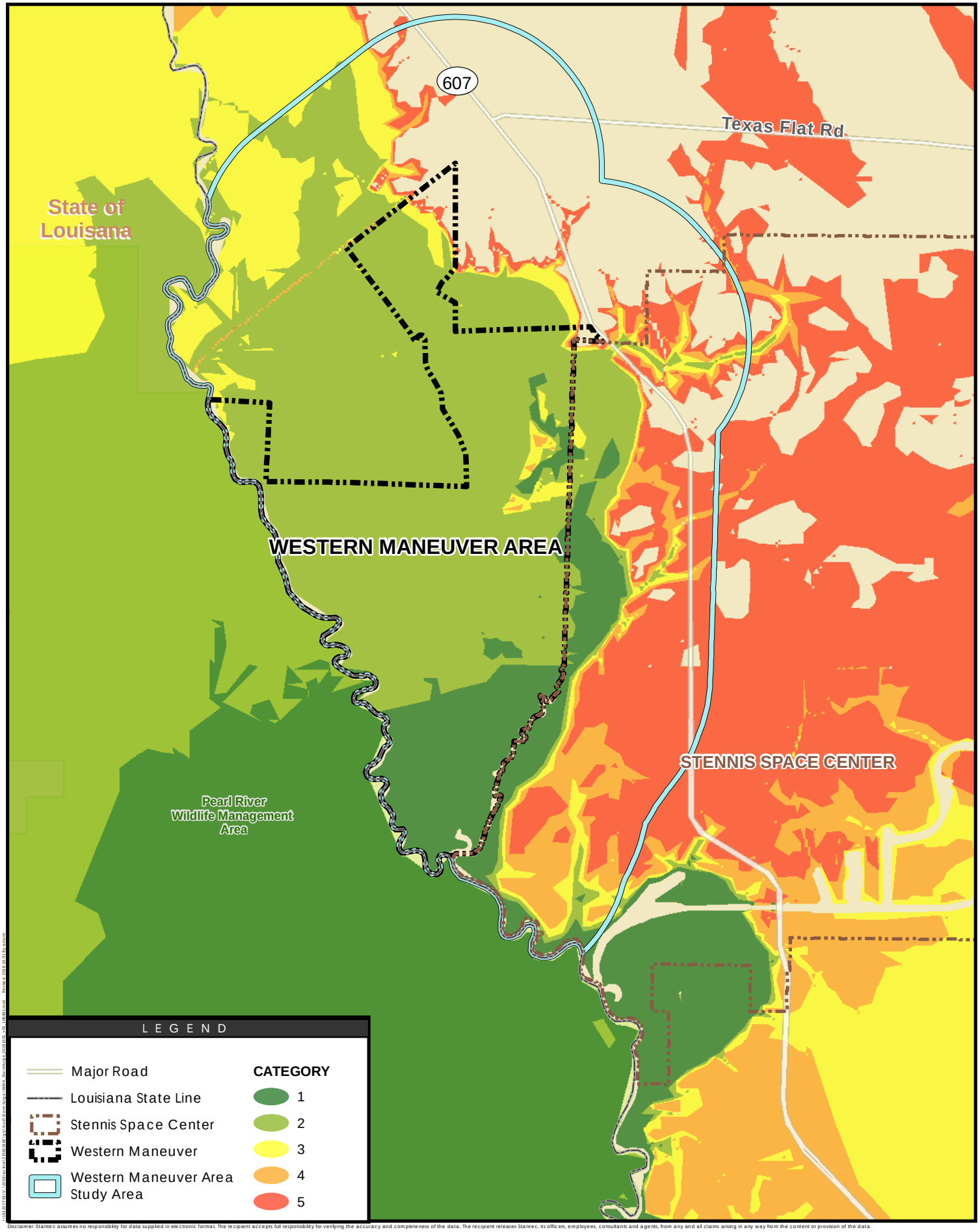
Western Maneuver Area
Environmental Factors Exhibit
August 2016

0 2,250 4,500 Feet

N

Prepared by: E.E.S. 08/10/16



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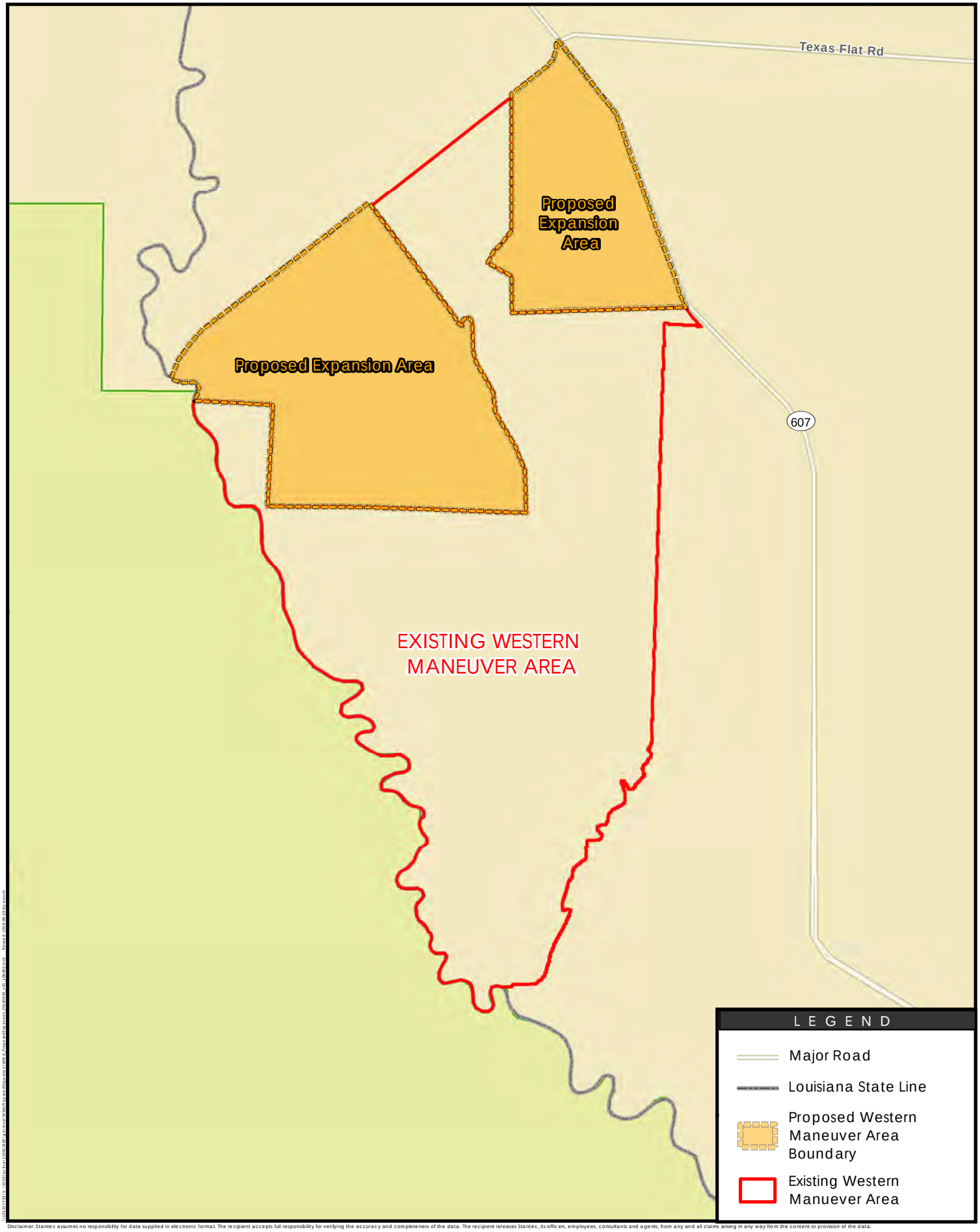
fax 941.907.6911

Western Maneuver Area
Storm Surge Exhibit
October 2016

N

0 2,250 4,500 Feet

Prepared by: E.E.S. 10/31/16



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tel 941.907.6900
fax 941.907.6911

Western Maneuver Area
Proposed Expansion Exhibit
September 2016

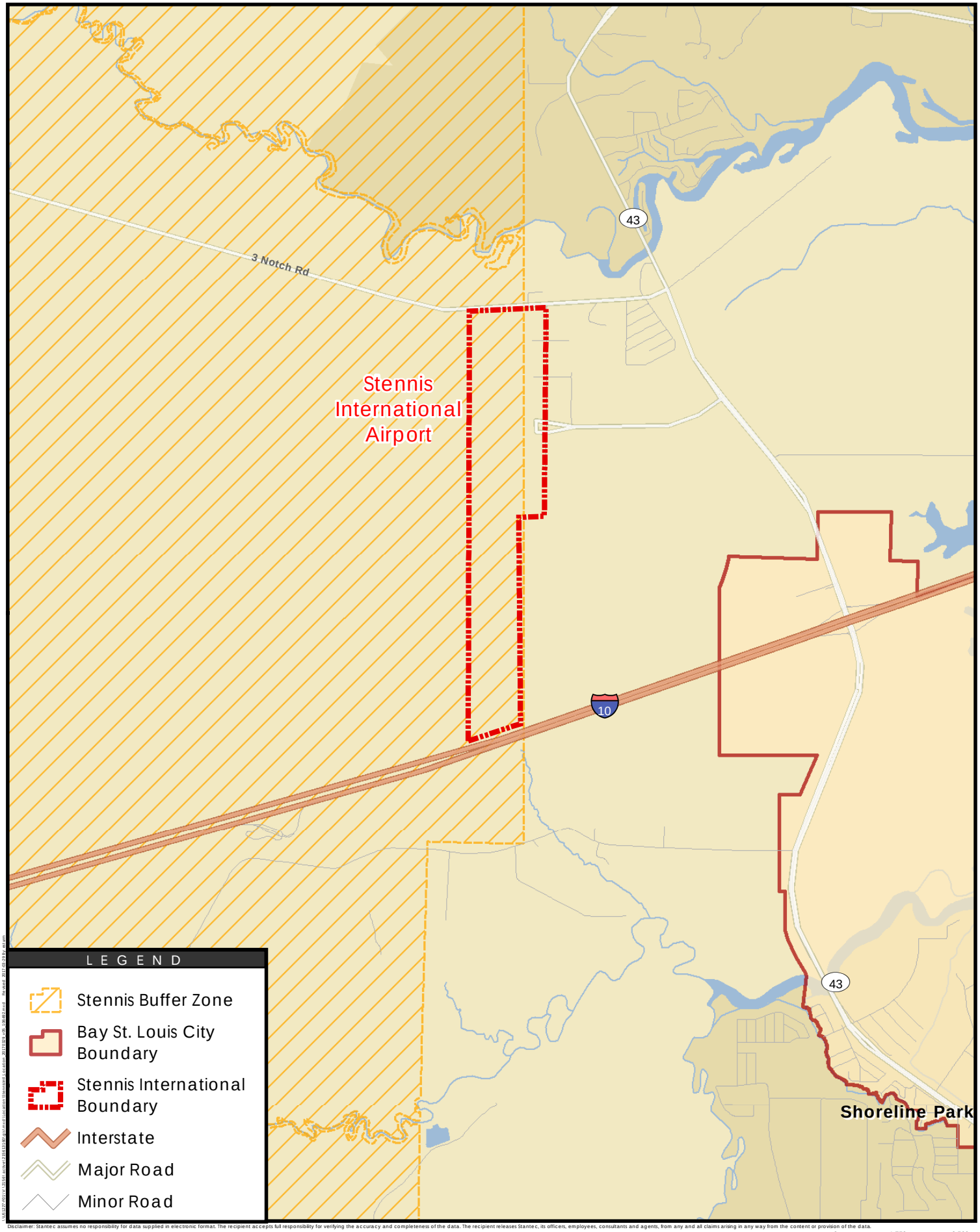
0 1,750 3,500 Feet

N

Prepared by: E.E.S. 09/28/16

Stennis International Airport Maps

- Location
- Location (Aerial)
- Existing Land Use
- Zoning
- Future Land Use
- Environmental
- Storm Surge
- Land Suitability for Development without Regard to Military Footprint
- Land Suitability for Development with Regard to Military Footprint
- Existing Land Use and Flight Paths
- Night Lighting Average Visibility (1993)
- Night Lighting Average Visibility (2003)
- Night Lighting Average Visibility (2013)
- AICUZ Existing Land Use
- AICUZ Zoning
- AICUZ Future Land Use



0 1,750 3,500 Feet

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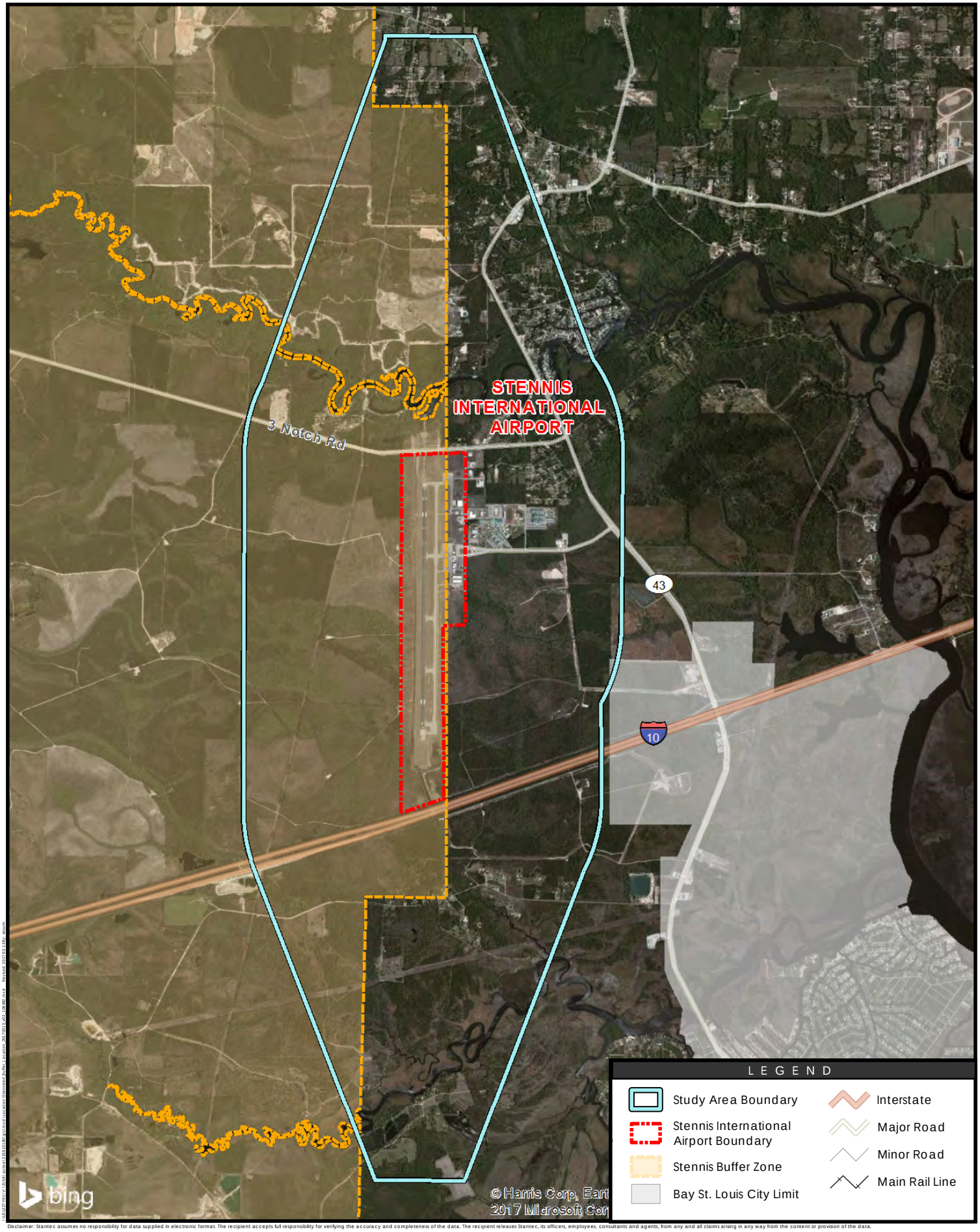
fax 941.907.6911

Stennis International Airport Location Exhibit

March 2017

N

Prepared by: E.E.S. 03/29/17



LEGEND

- Study Area Boundary
- Stennis International Airport Boundary
- Stennis Buffer Zone
- Bay St. Louis City Limit
- Interstate
- Major Road
- Minor Road
- Main Rail Line

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fax 941.907.6911

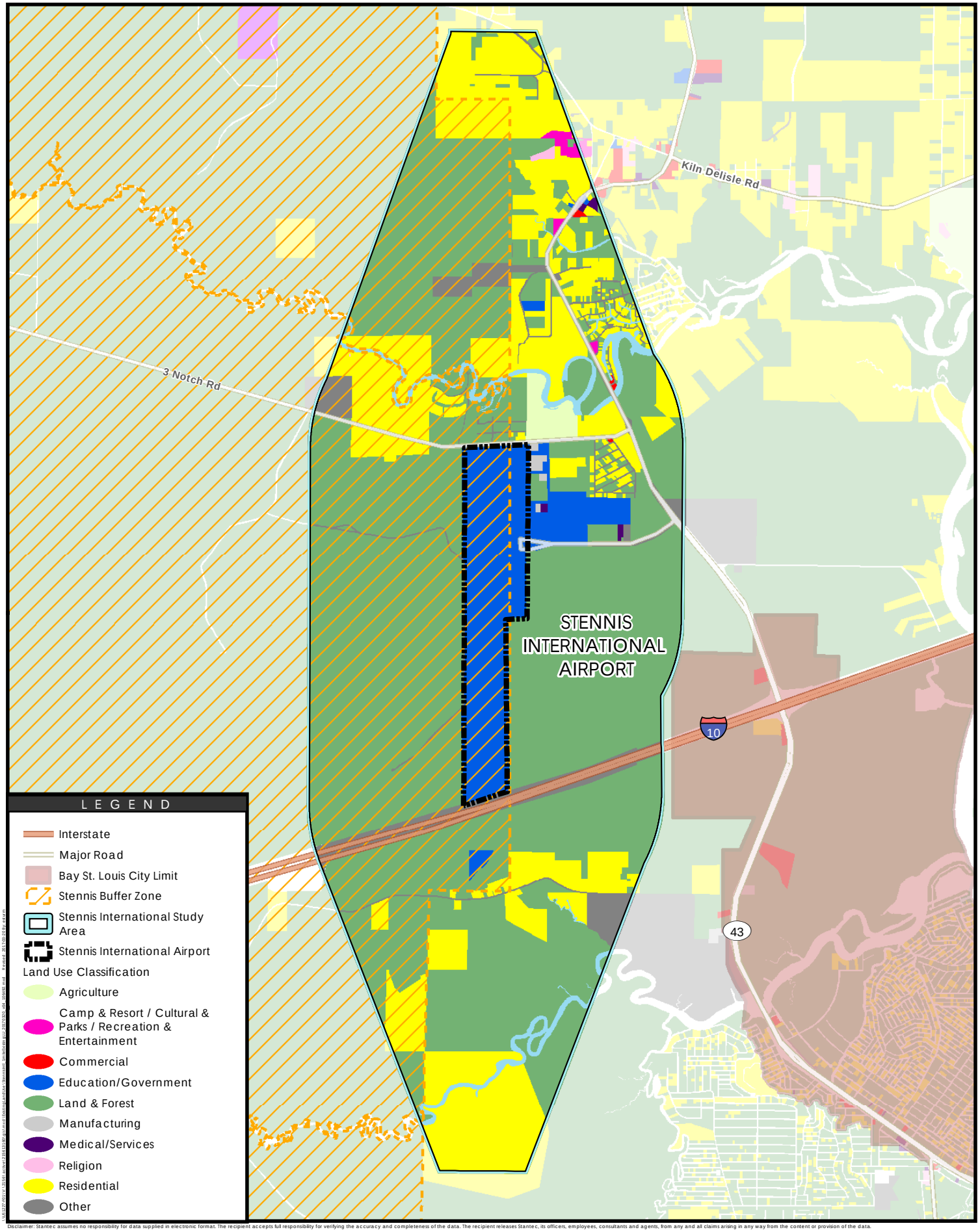
Stennis International Airport Location Exhibit

March 2017

N

0 2,100 4,200 Feet

Prepared by: E.E.S. 03/13/17



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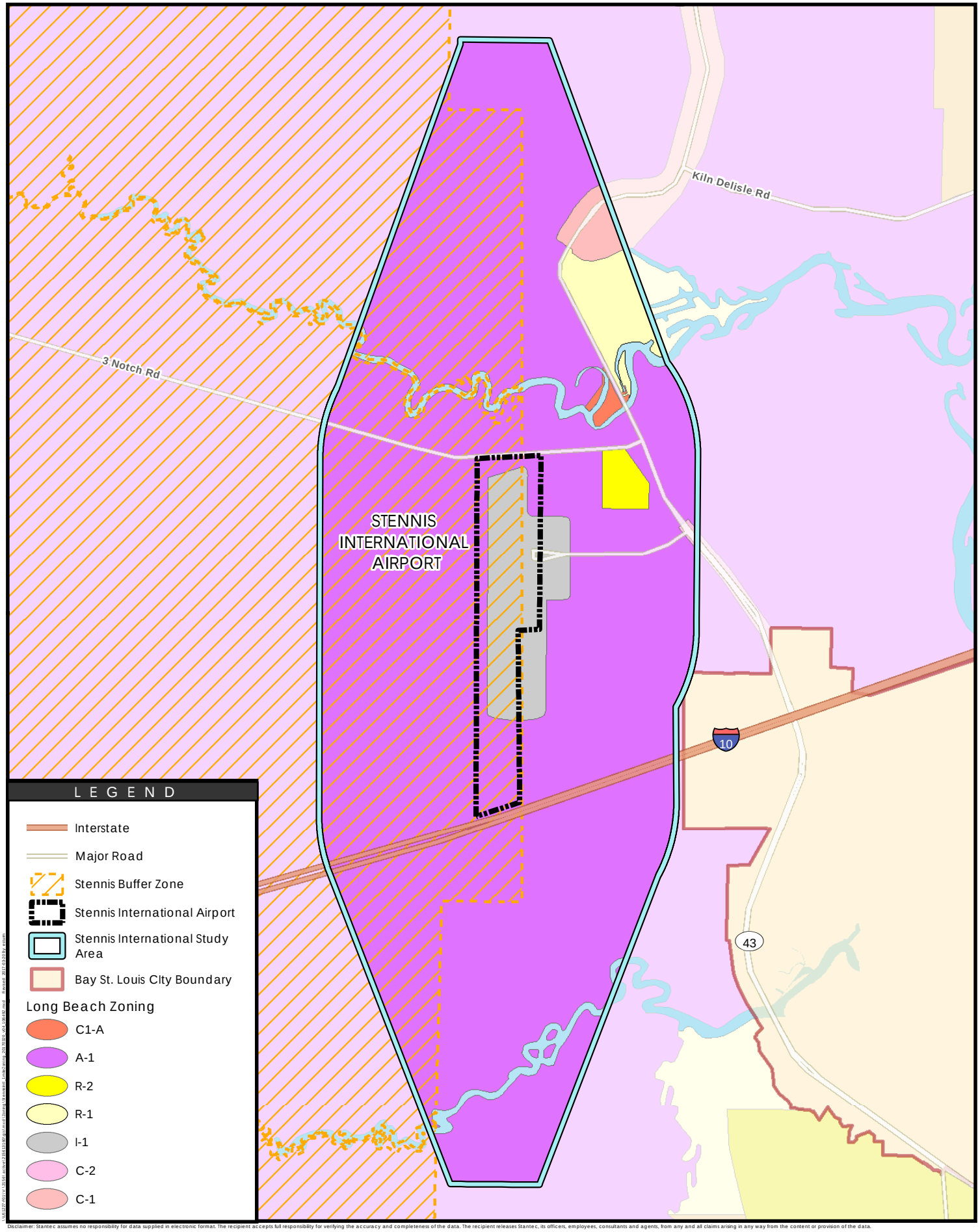
Stennis International Airport
Existing Land Use Exhibit
March 2017

N

0 2,100 4,200 Feet

Prepared by: E.E.S. 03/13/17



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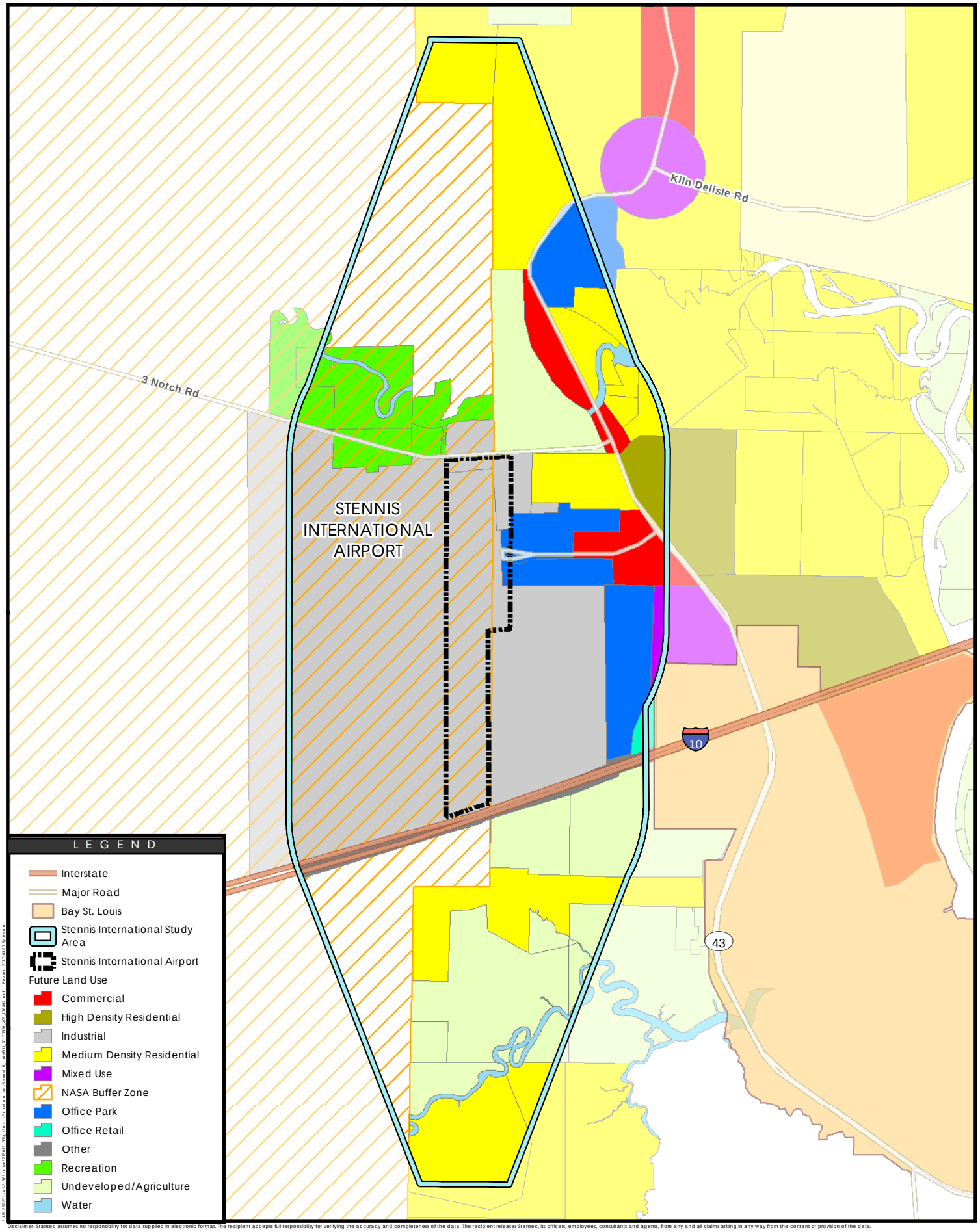
fax 941.907.6911

Stennis International Airport
Zoning Exhibit
March 2017

0 2,100 4,200 Feet

N

Prepared by: E.E.S. 03/14/17



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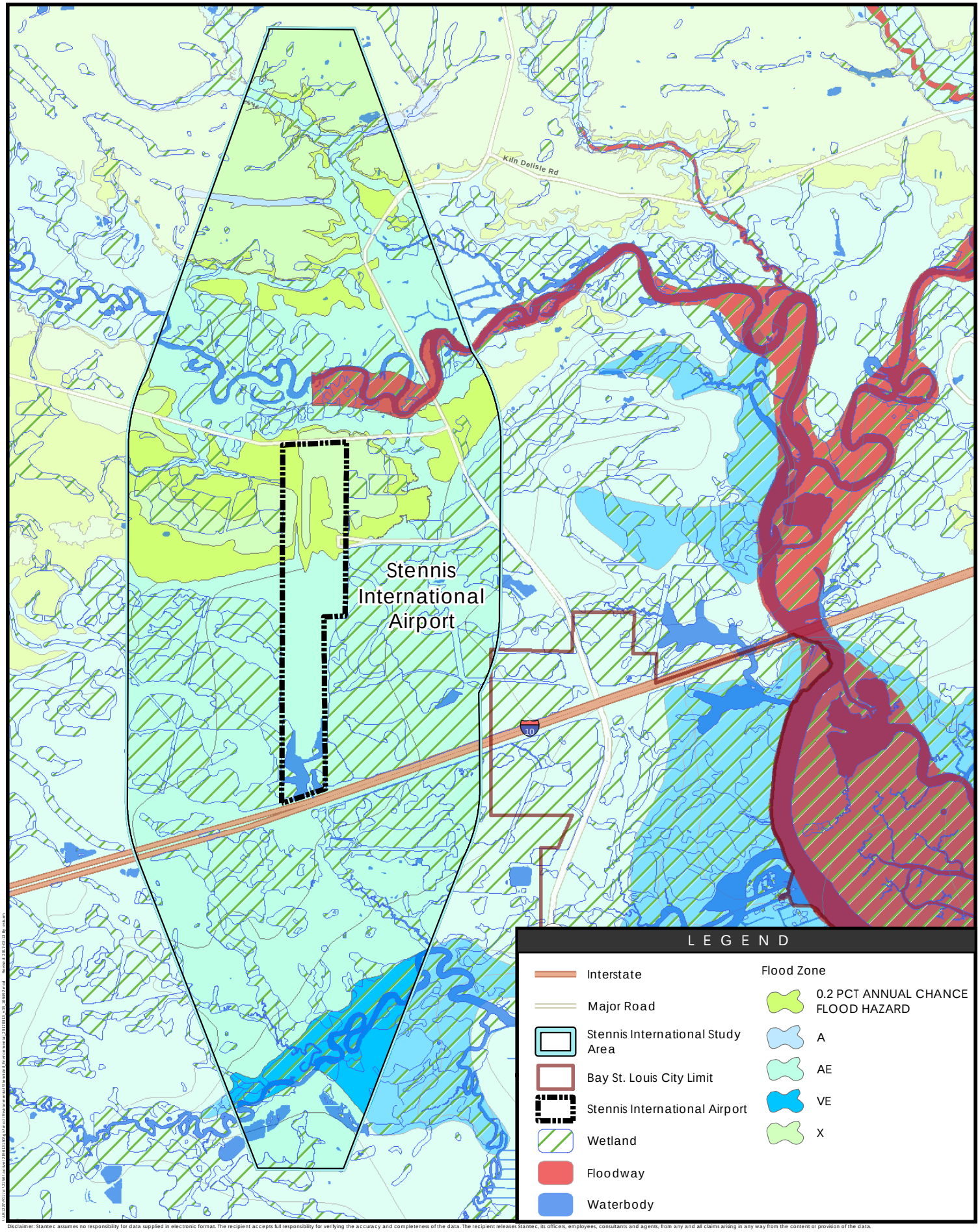
fax 941.907.6911

Stennis International Airport
Future Land Use Exhibit
March 2017

N

0 2,100 4,200 Feet

Prepared by: E.E.S. 03/14/17



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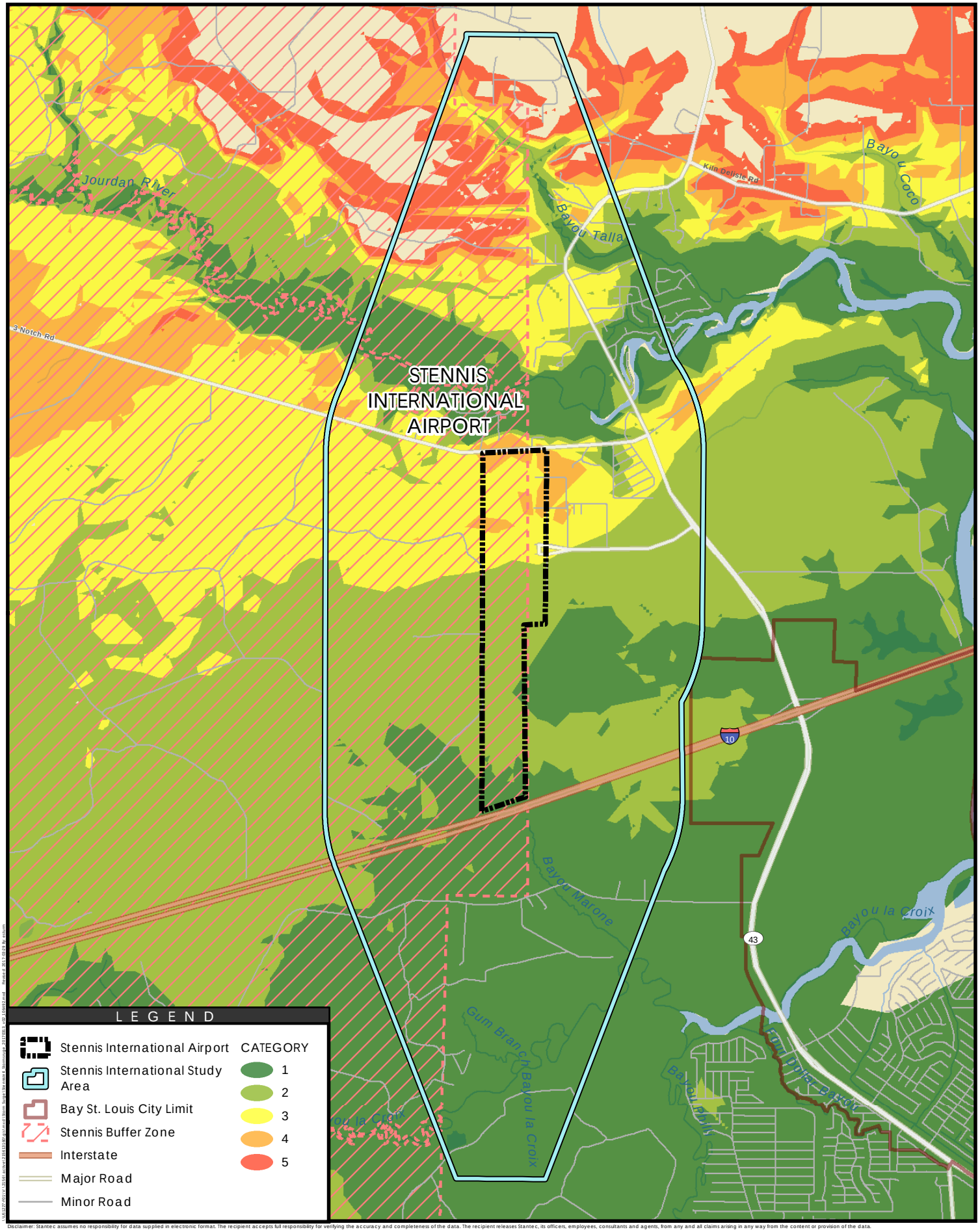
fax 941.907.6911

Stennis International Airport
Environmental Factors Exhibit
March 2017

N

0 2,100 4,200 Feet

Prepared by: E.E.S. 03/13/17



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tel 941.907.6900
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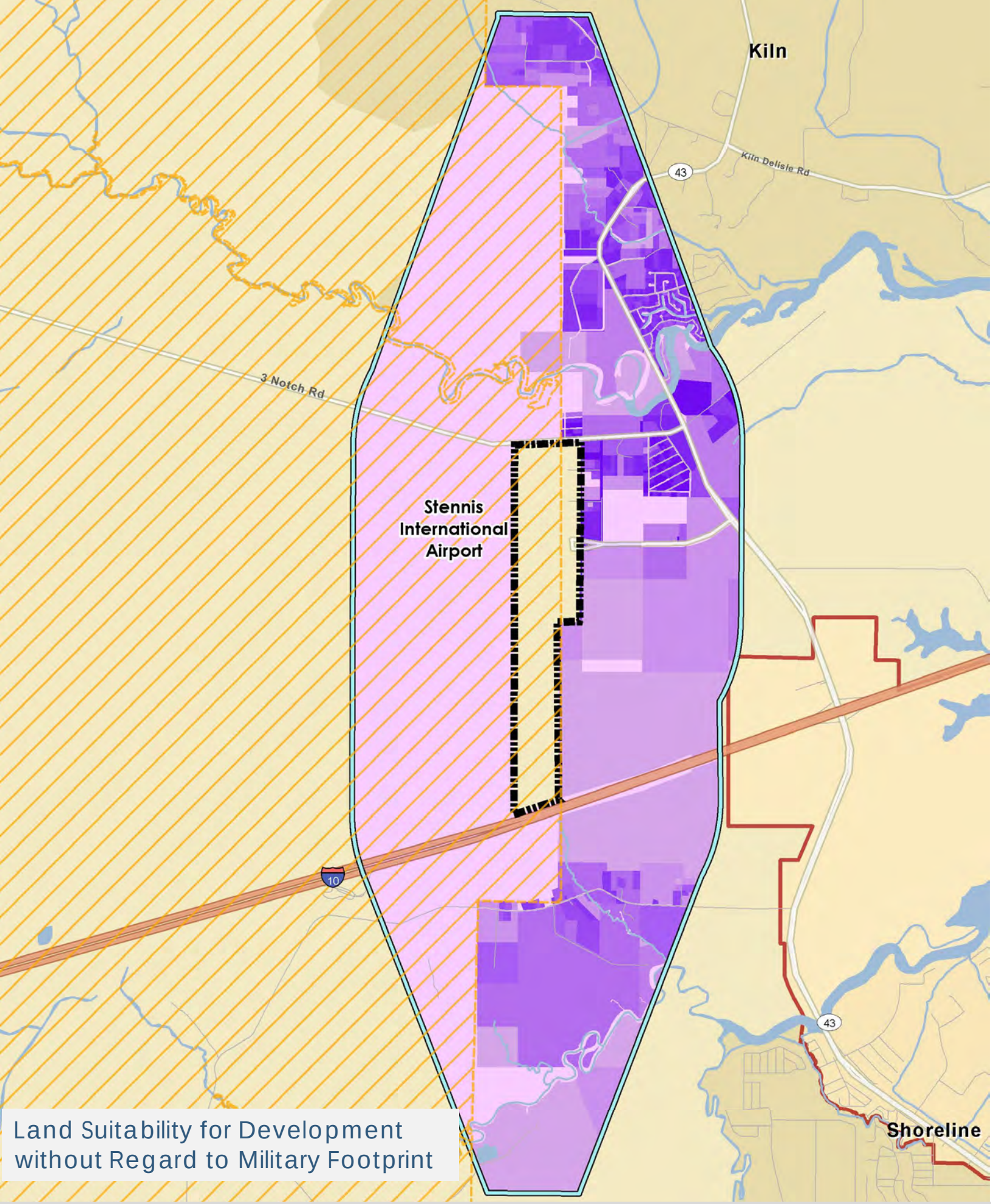
Stennis International Airport
Storm Surge Exhibit
March 2017

N

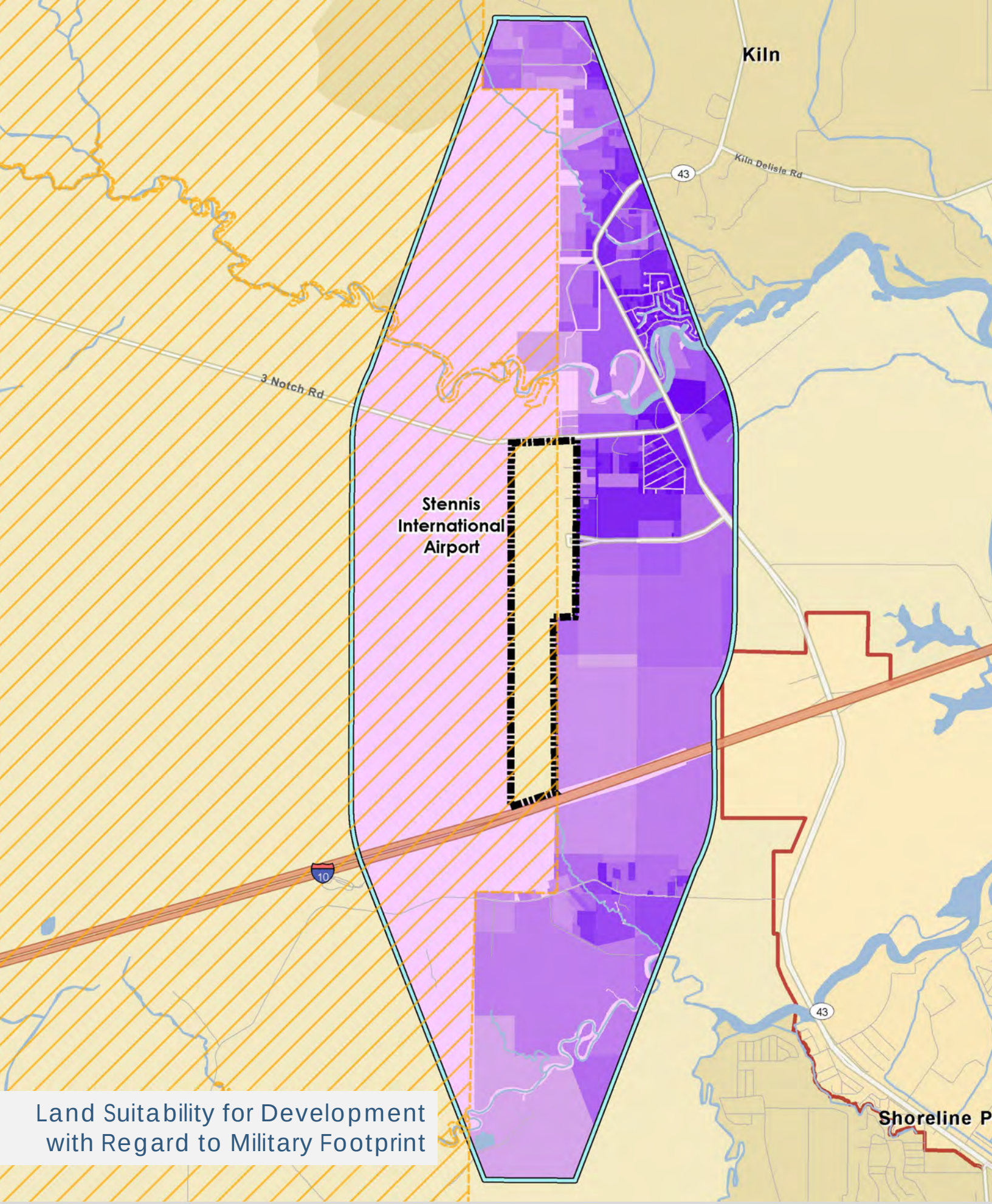
0 2,100 4,200 Feet

Prepared by: E.E.S. 03/29/17



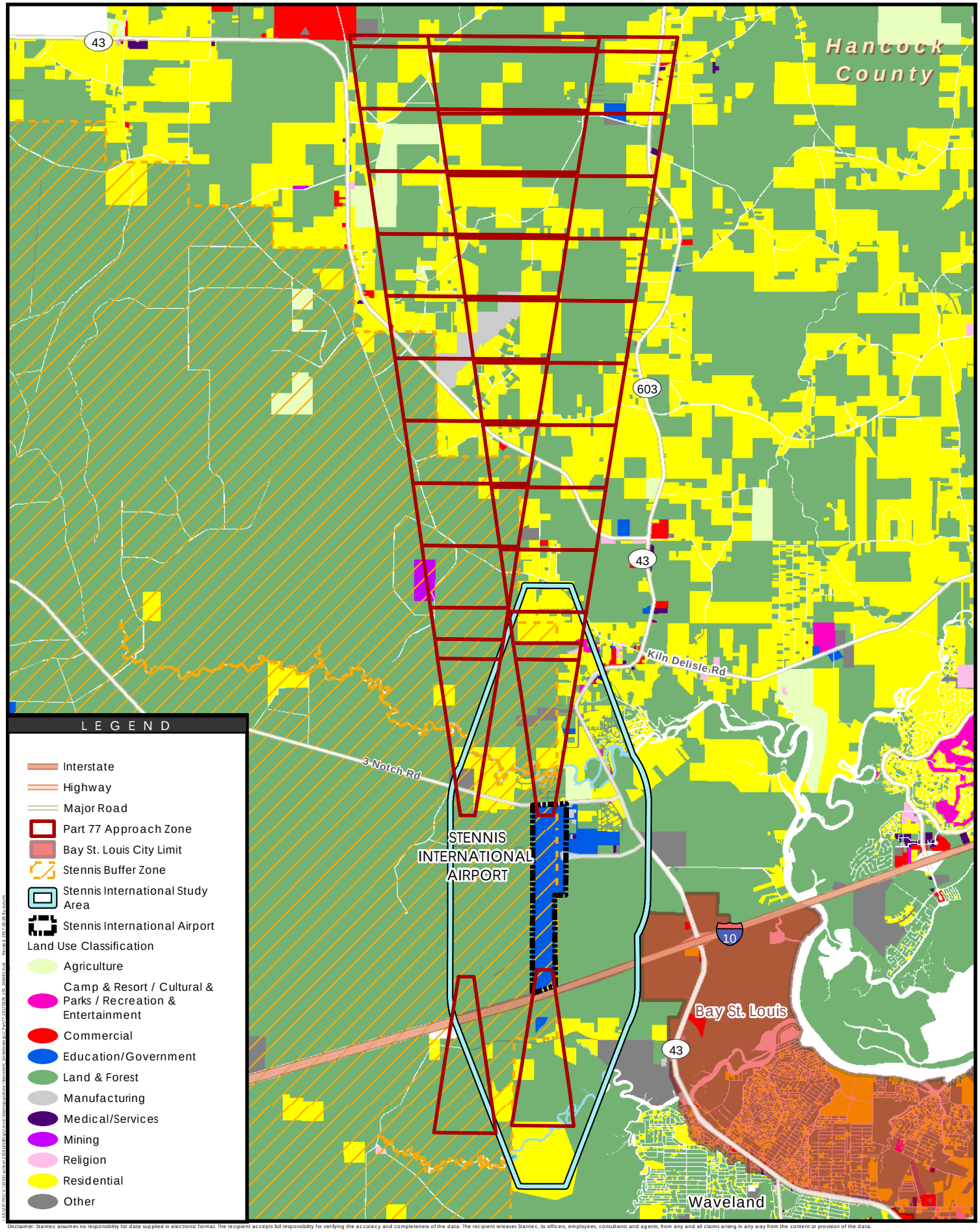
Land Suitability for Development without Regard to Military Footprint

Less Factors Attractive to Development — *More Factors Attractive to Development*



Land Suitability for Development
with Regard to Military Footprint

Less Factors Attractive to Development — *More Factors Attractive to Development*



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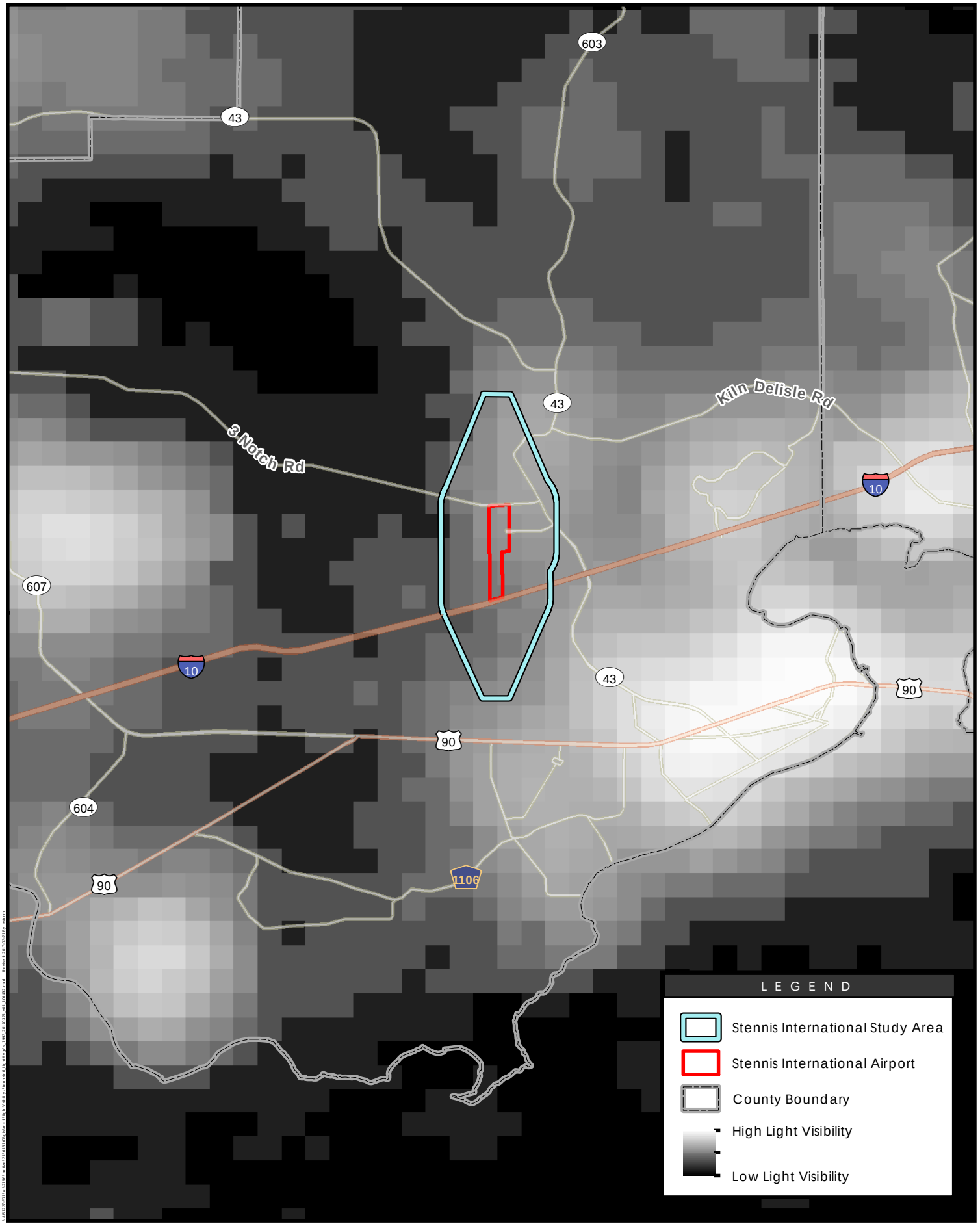
fax 941.907.6911

Stennis International Airport
Existing Land Use Exhibit
March 2017

N

0 2,100 4,200 Feet

Prepared by: E.E.S. 03/13/17



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Stennis International Airport
Night Lighting Average Visibility - 1993

March 2017

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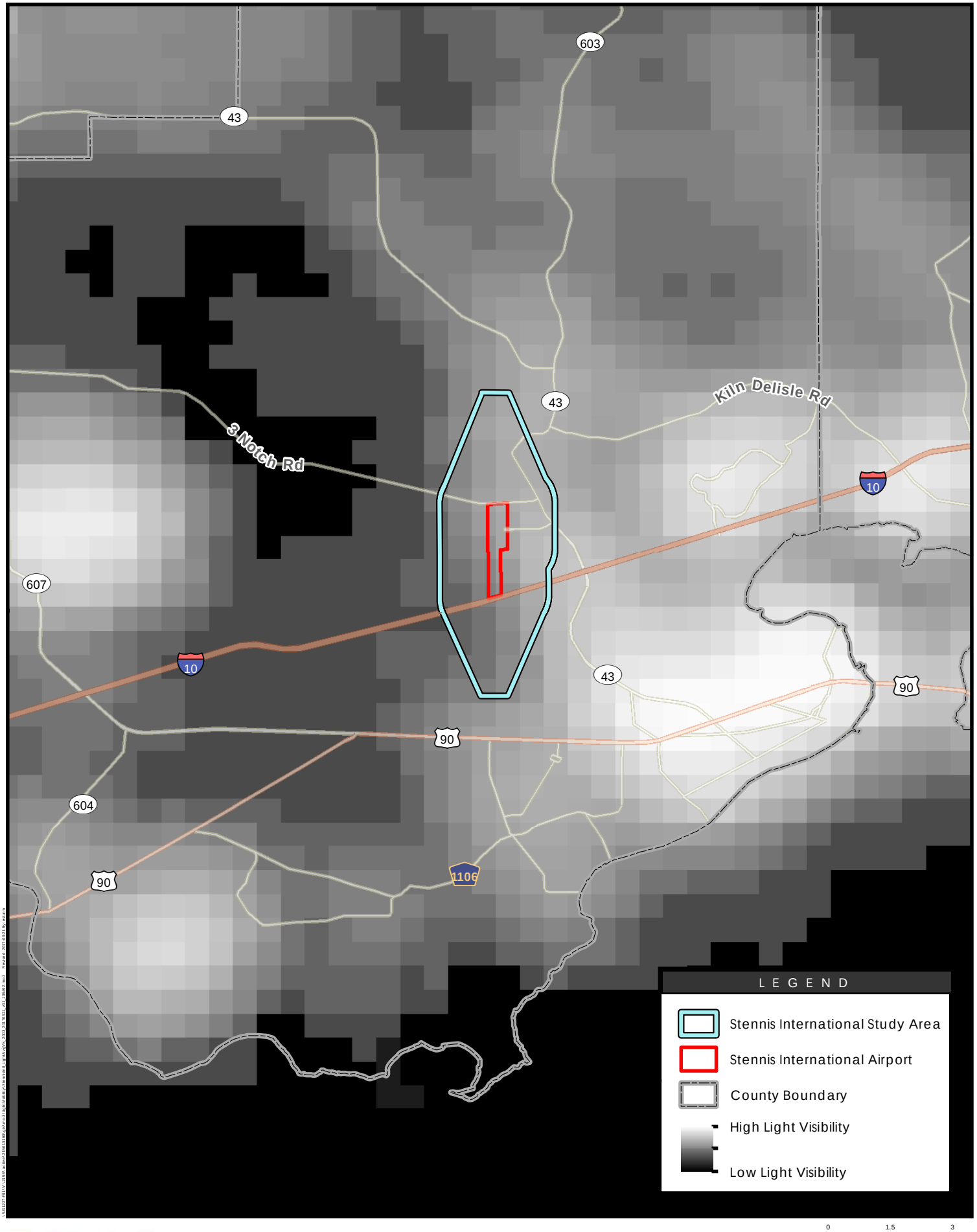
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 1.5 3 Miles

N



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Stennis International Airport
Night Lighting Average Visibility - 2003

March 2017

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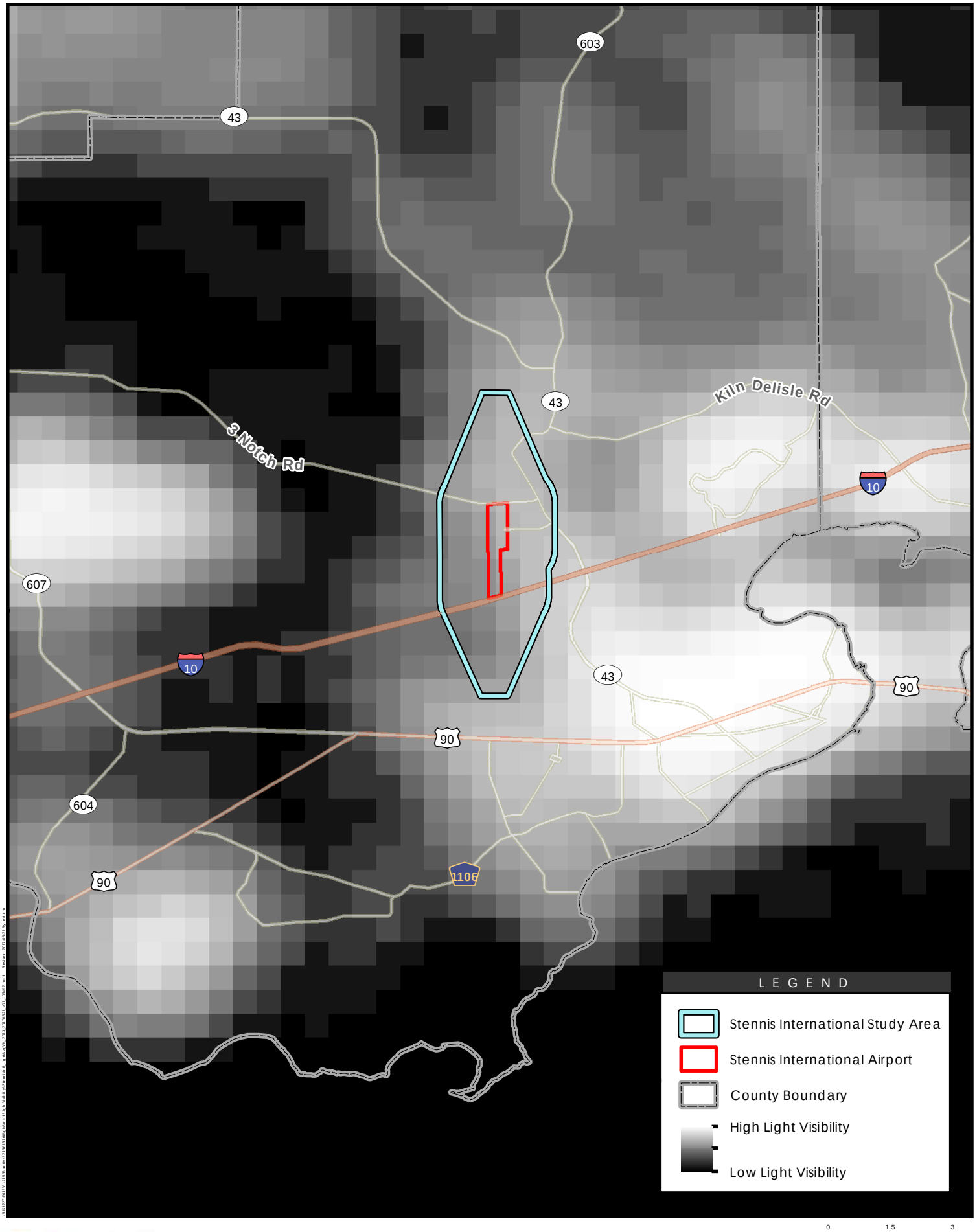
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 1.5 3 Miles

N



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Stennis International Airport
Night Lighting Average Visibility - 2013

March 2017

Stantec Consulting Services Inc.
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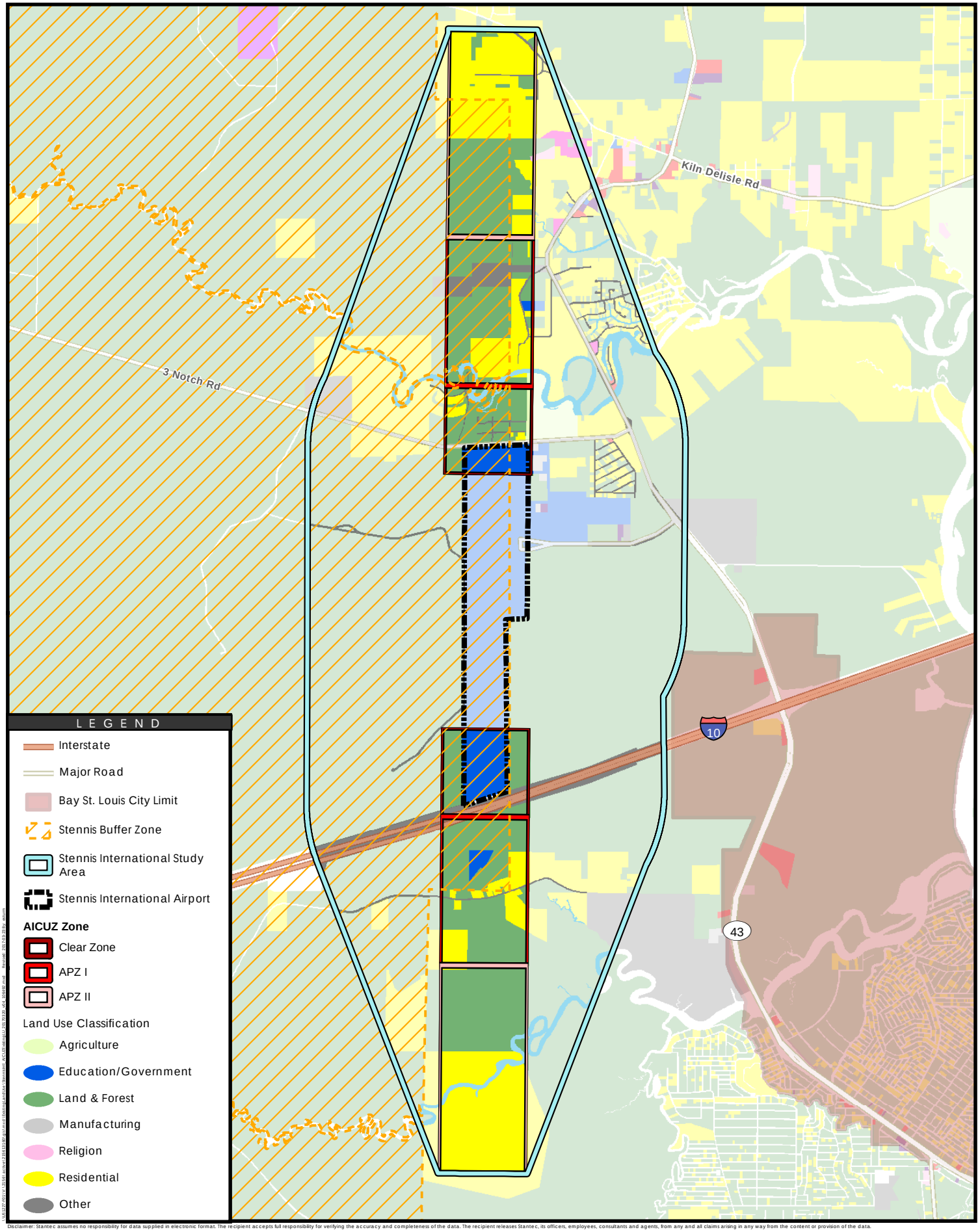
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

0 1.5 3 Miles

N



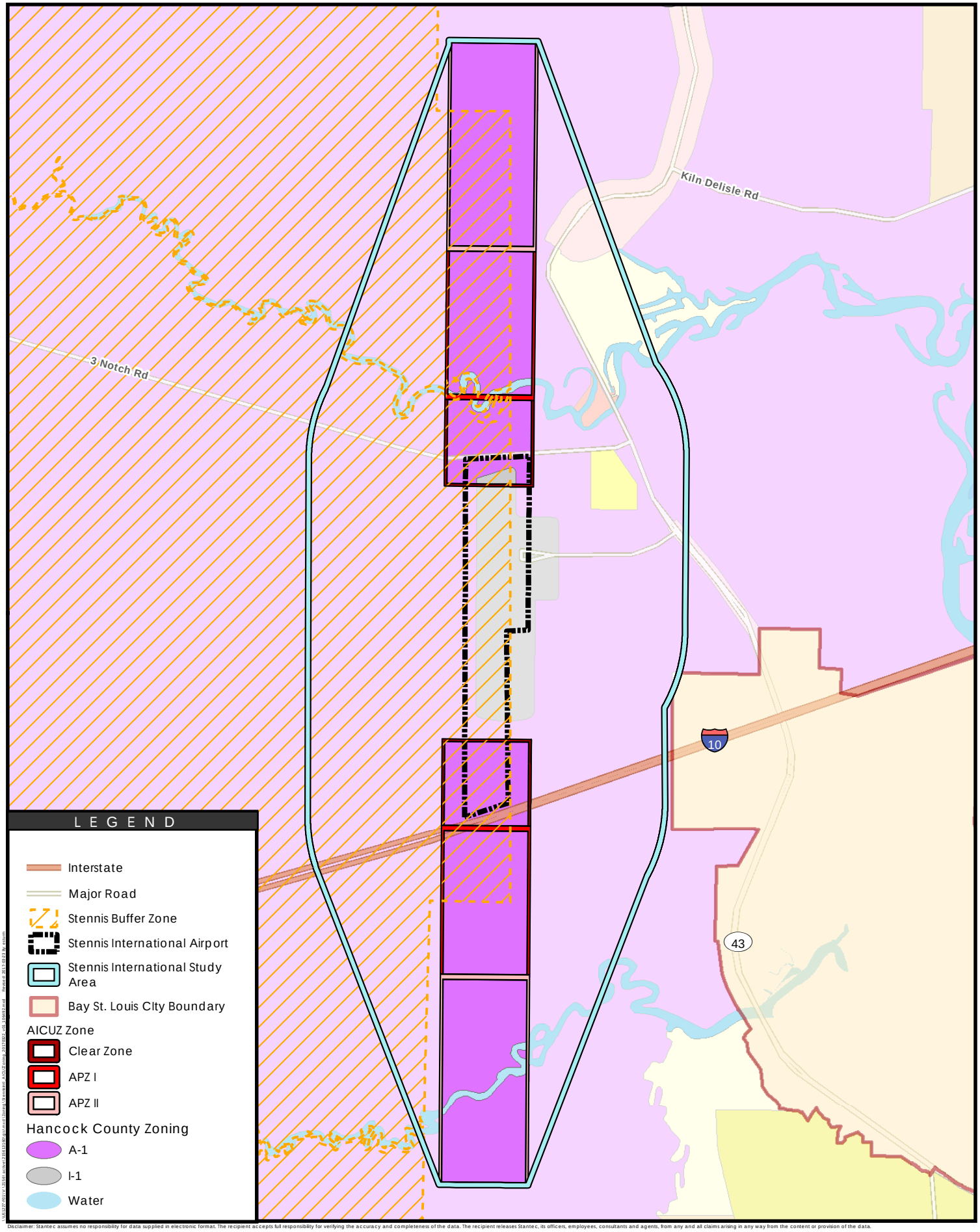
Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, FL 34240
tel 941.907.6900
fax 941.907.6911

Stennis International Airport
AICUZ Existing Land Use Exhibit
March 2017

N

0 2,100 4,200 Feet

Prepared by: E.E.S. 03/23/17



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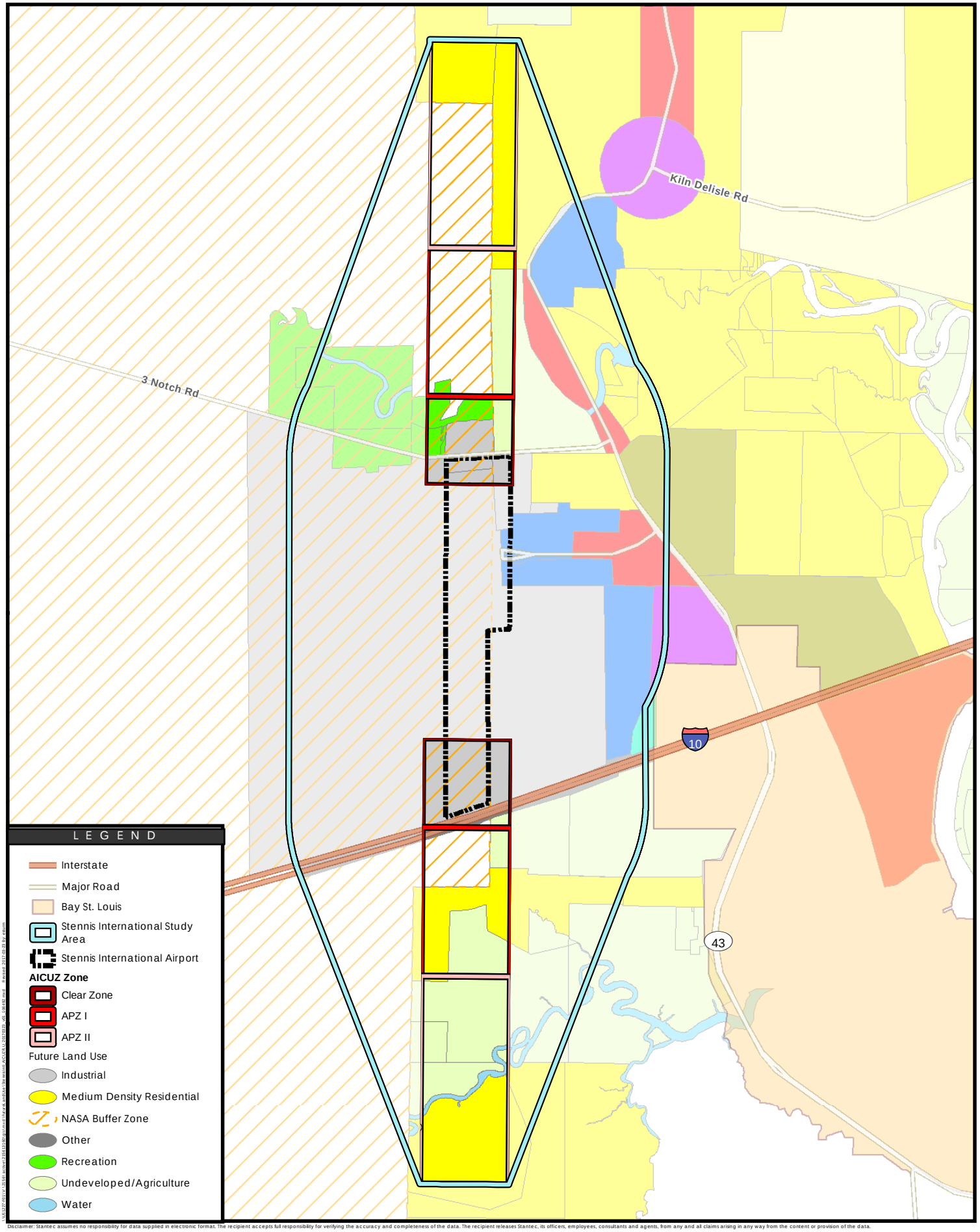
Stennis International Airport
AICUZ Zoning Exhibit
March 2017

0 2,100 4,200 Feet

N

Prepared by: E.E.S. 03/23/17



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Stennis International Airport
AICUZ Future Land Use Exhibit
March 2017

N

0 2,100 4,200 Feet

Prepared by: E.E.S. 03/14/17

APPENDIX

ACRONYMS

A

ACP	Access Control Point
ADC	Association of Defense Communities
AFN	Armed Forces Network
AICP	American Institute of Certified Planners
AICUZ	Air Installation Compatible Use Zone
ANSI	American National Standards Institute
APZ	Accident Potential Zone
ATFP	Anti-Terrorism Force Protection

B

BASH	Bird/Wildlife Aircraft Strike Hazard
BMP	Best Management Practice

C

CEPA	Coast Electric Power Association
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIAP	Coastal Impact Assistance Program
C-IED	Counter-Improvised Explosive Devices
CMREC	Central Mississippi Research and Extension Center
CO	Commanding Officer
CPLO	Community Planning Liaison Officer
CSA	Combined Statistical Area
CENSECFOR	Center for Security Forces
CZ	Clear Zone

D

DAR	Defense Access Road

dB	Decibel
DHS	Department of Homeland Security
DNL	Day-Night Average Sound Level
DOD	Department of Defense
DOT	Department of Transportation

E

EA	Environmental Assessment
EAP	Encroachment Action Plan
IS	Environmental Impact Statement
EM	Electro Magnetic
EMF	Electro Magnetic Frequency
EPA	Environmental Protection Agency
ESA	Endangered Species Act
EXWC	Engineering and Expeditionary Warfare Center

F

FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FLP	Forest Legacy Program
FTX	Field Training Exercises

G

GIS	Geographic Information System
GISP	GIS Professional
GRPC	Gulf Regional Planning Commission

H

HCDC	Harrison County Development Commission
HCPHC	Hancock County Port and Harbor Commission
HCMT	Harrison County Military Team
HUD	Housing and Urban Development, US Department of

I

ICRMP	Integrated Cultural Resource Management Plan
INRMP	Integrated Natural Resource Management Plan

J

JIEDDO	Joint Improvised Explosive Device Defeat Organization
JLUS	Joint Land Use Study

K

KHSA	Stennis International Airport Identifier

L

LBIP	Long Beach Industrial Park
LDWF	Louisiana Department of Wildlife and Fisheries
LID	Low Impact Development
LWCF	Land and Water Conservation Fund

M

MARSOC	Marine Corps Special Operations Command
MCDEMA	Mississippi Civil Defense Emergency Management Agency
MDA	Mississippi Development Authority
MDEQ	Mississippi Department of Environmental Quality
MDOT	Mississippi Department of Transportation
MGCCC	Mississippi Gulf Coast Community College

MIA	Military Influence Area
MIOD	Military Influence Overlay District
MMCC	Mississippi Military Communities Council
MNRRA	Mississippi National River and Recreation Area
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MS	Mississippi
MSA	Metropolitan Statistical Area

N

NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NAVFAC	Naval Facilities Engineering Command
NAVOCEANO	Naval Oceanographic Office
NAVSCIATTS	Naval Small Craft Instructional and Technical Training School
NAQQ	National Ambient Air Quality Standards
NCBC	Naval Construction Battalion Center
NCF	Naval Construction Forces
NCG	Naval Construction Group
NCIS	Naval Criminal Investigation Service
NCTC	Naval Construction Training Center
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGO	Non-Governmental Organization
NMCB	Naval Mobile Construction Battalion
NMCRC	Navy and Marine Corps Reserve Units
NMOC	Naval Meteorology and Oceanography Command
NMPS	Navy Mobilization Processing Site
NOAA	National Oceanic and Atmospheric Administration
NSA	Naval Support Activity
NSW	Naval Special Warfare
NSWG	Naval Special Warfare Group
NTIA	National Telecommunications and Information Administration

O

OEA	Office of Economic Adjustment

P

PC	Policy Committee
PE	Professional Engineer
PIC	Principal in Charge
PIO	Public Information Officer
PM	Project Manager
PRWMA	Pearl River Wildlife Management Area
PUD	Planned Unit Development

R

RCUZ	Range Compatible Use Zone
REPI	Readiness and Environmental Protection Integration
RRR	Rapid Runway Repair

S

SAR	Small Arms Range
SARNAM	Small Arms Range Noise Assessment Model
SBT	Special Boat Team
SDZ	Surface Danger Zone
SEABEE	Construction Battalion (CB)
SEAL	Sea Air and Land Teams, US Navy
SERPPAS	Southeast Regional Partnership for Planning and Sustainability
SIA	Stennis International Airport
SOF	Special Operations Forces
SREPA	Singing River Electric Power Association
SUP	Special Use Permit
SSC	Stennis Space Center
STRAHNET	Strategic Highway Network

T

TC	Technical Committee
T&E	Testing and Evaluation

U

UAS	Unmanned Aerial Systems
UAV	Unmanned Aerial Vehicles
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFS	United States Forestry Service
USFWS	United States Fish and Wildlife Service
USN	United States Navy
USV	Unmanned Surface Vehicles
UUV	Unmanned Underwater Vehicles

W

WMA	Western Maneuver Area

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