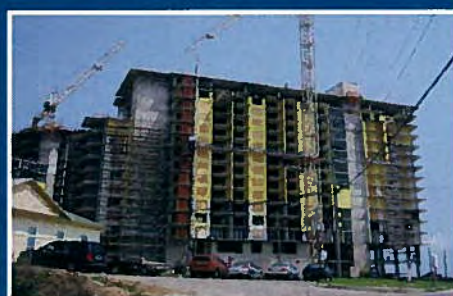


# EGLIN AIR FORCE BASE JOINT LAND USE STUDY



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**JUNE 2009**

**FINAL REPORT**



# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

## *FINAL REPORT*

### Prepared For:

**Eglin Joint Land Use Study Policy Committee  
And  
Technical Advisory Group**

**c/o Okaloosa County Growth Management Department  
1804 Lewis Turner Boulevard, Suite 200  
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### Prepared By:

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**June 2009**

This study was prepared under contract with Okaloosa County, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the project participants and does not necessarily reflect the views of the Office of Economic Adjustment.



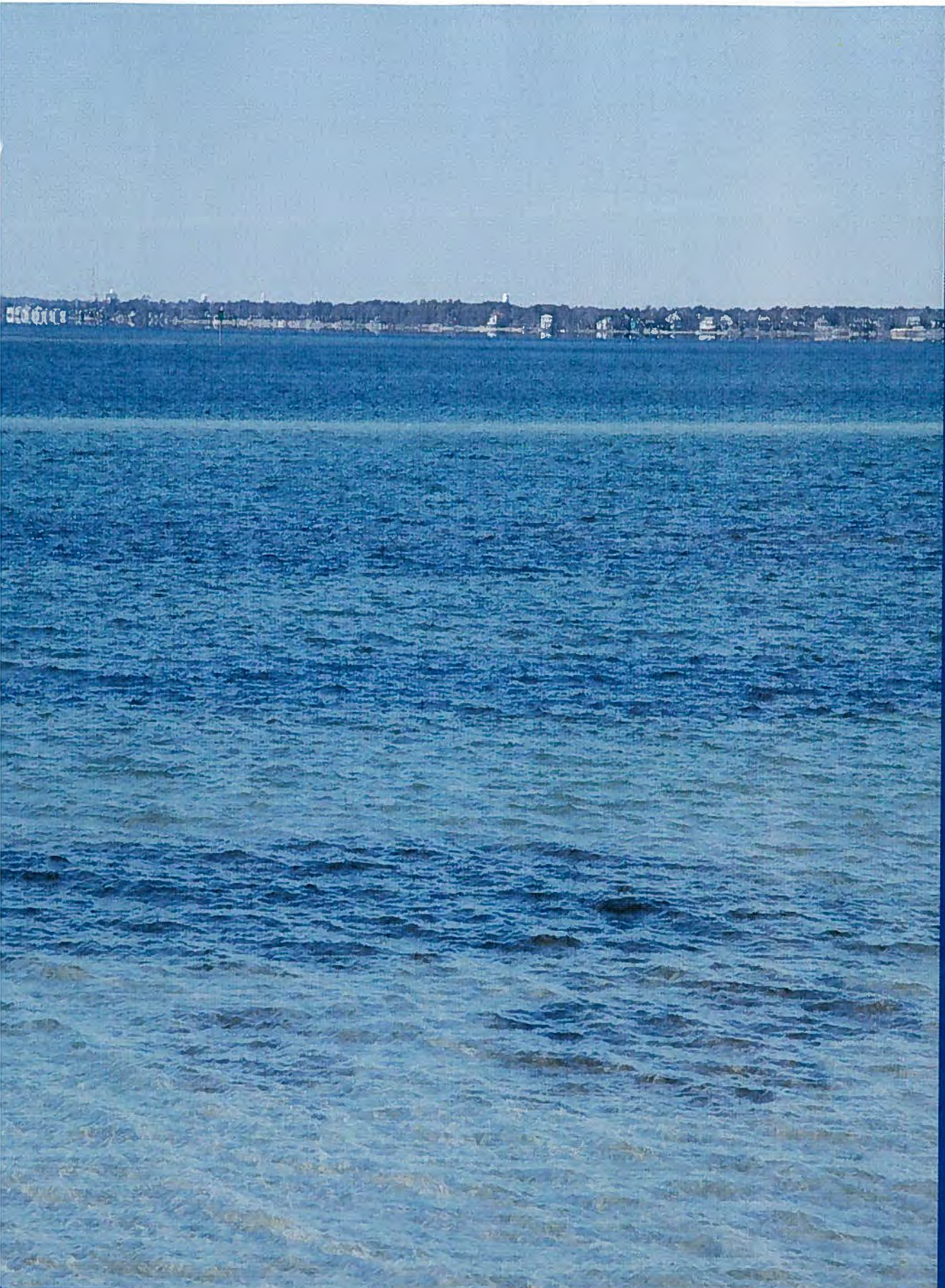
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## Executive Summary



## EXECUTIVE SUMMARY

### PURPOSE

The Joint Land Use Study (JLUS) program managed by the Office of Economic Adjustment (OEA), Office of the Secretary of Defense, is a Department of Defense initiative that provides grants to state and local governments to participate with military installations in developing land use plans compatible with their mission. The JLUS program encourages cooperative land use planning between military installations and the adjacent communities so that future community growth and development are compatible with the training and operational missions of the installation. It is more inclusive in scope than just noise and accident potential, and is more public in nature than the Air Installations Compatible Use Zones (AICUZ) program. Similar to the AICUZ program, the JLUS is a cooperative land use planning effort between the affected local government(s) and neighboring military installation(s). The difference is that a local or regional agency takes the lead in conducting the JLUS. The JLUS process typically involves various local community interests along with the military installation, and the study is a locally-produced product. Under this arrangement, there is a greater assurance that compatible land use controls will be adopted.

### PROGRAM GOALS AND ACTIONS

The Eglin AFB JLUS has the following goals:

- Involve local cities and counties within the project study area that will include portions of Okaloosa, Santa Rosa, and Walton Counties
- Protect the health, safety and welfare of the civilian and military communities
- Identify appropriate regulatory and non-regulatory measures to ensure compatibility between existing and future land uses
- Increase communication and cooperation between Eglin AFB and neighboring local governments

- Protect and promote the present and future operational capabilities of Eglin's areas

This report identifies the existing environment in the study area, any current conflicts between land uses and Base operations, and potential future impacts. The report also presents strategies to minimize current problems, encourage compatible future development and prevent incompatible future development.

### APPROACH

The approach to this report is intended to describe the issues, analyze the issues pertaining to existing and future conditions, and make recommendations for each jurisdiction independently. The organization of each section by county or city provides a user-friendly document for the public and direct access to appropriate information for each jurisdiction.

The approach for the Eglin JLUS is based on three key elements summarized below and in [Figure ES-1](#):

- Identify the Issues for Each Jurisdiction
- Develop Potential Strategies to Address the Identified Issues
- Provide Recommendations for Each Jurisdiction

**Issues.** Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Group (TAG) which includes representatives from each jurisdiction in the tri-county area (3 counties and 11 cities/towns) and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 TAG meeting and the June 18, 2008 Public Open House, the issues were identified and explained. [Table ES-1](#) provides a matrix identifying the issues with respect to each jurisdiction presented to the TAG and at public meetings. [Figure ES-2](#) includes a summary of all issues for the various jurisdictions listed together beneath the "Identify Issues for Each Jurisdiction" box. All of the issues listed do not necessarily apply to each jurisdiction.

**Potential Strategies.** A menu of potential strategies related to land use and policies and procedures was developed



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Figure ES-1: JLUS Approach Simplified



# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

MILITARY OPERATIONS POTENTIALLY IMPACTED BY CIVILIAN LAND USE/ACTIVITIES IN OKALOOSA, SANTA ROSA, AND WALTON COUNTIES (INCLUDING MUNICIPALITIES)																							
Eglin AFB Facilities and Operations Potentially Impacted by Civilian Land Use and Activities												NW FL Region's Major Natural Conservation Corridors are designated for conservation in NW FL Region's Sustainable Growth Plan adopted by the FL Legislature. These resources should also include the Shoal River Floodway located NW of Duke Field & extends due E. in front of the Field's APZ II. The JLUS participating governments support acquisition											
Check Marks (✓) Indicate that Listed Facilities or, Operations are Impacted by Land Uses or Activities within Local Governments Cited Below.	Removal or Development of NW FL Region's Major Conservation Resources	Communication Impacted by Certain Radio Frequency Spectrum Waves	Outdoor Lighting Impacts Certain Missions	Operations Impacted by Excessive Heights of Bldgs/Structures							Danger Zones for Munitions Firing/ Drop Zones		Sonic Boom	Military Aircraft: High Noise Concentrations	APZ II Incompatible Uses/Structures	APZ I Incompatible Uses/Structures	Clear Zone Incompatibilities	Perimeter Boundary Development					
	Public Safety on- and Off the Eglin Reservation is Threatened by Potential Loss of Portions of the NW FL Greenway and/or Other High Priority Conservation Areas Scheduled for Acquisition or Purchase of Development Rights	Bandwidth between 5.2 to 5.9 GHz	Night Vision Training	FAA Height Requirements	Height Restrictions by Okaloosa Co.	Other Military Training Routes	Cruise Missile Testing Corridors	Line of Sight for Reference Radars/TERPs	Low Level Helicopter Training (Whiting)	Low Level Helicopter Training (Eglin)	Firing Areas and/or Bay Area Strikes		Lower Impulse Intensity & Frequency	Moderate Impulse Intensity & Frequency	Higher Impulse Intensity & Frequency	Supersonic Flight Corridor	≥ 85 decibels	80-84 decibels	75-79 decibels	70-74 decibels	≥ 65-69 decibels		
	75-210'			125-130'	195-210'	80-120'	80-90'	100-130	135-140'	100-110													



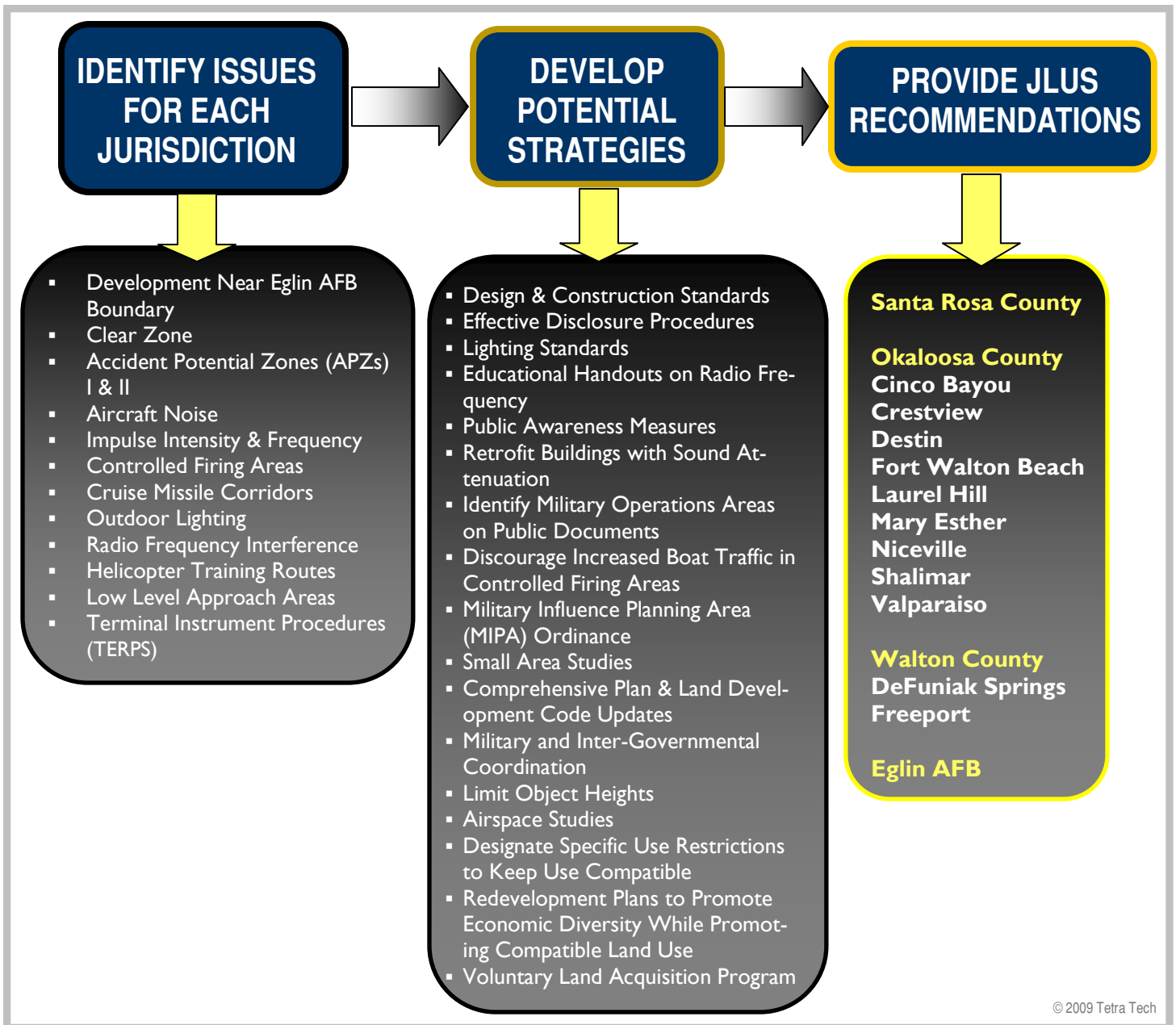
with opportunities to address the various issues. This menu was also presented to the TAG and at public meetings showing the means and methods analyzed as part of the Eglin JLUS to address the issues. [Figure ES-2](#) also includes a summary of the potential strategies developed under the “Develop Potential Strategies” box. [Table ES-2](#) shows the relationship between the issues identified and the potential strategies developed to address each issue.

[Eglin JLUS Recommendations.](#) Recommendations for each jurisdiction are provided at the end of each section of the report. The recommendations are focused on addressing the issues identified based on the analyses performed.

In addition, specific details are provided as needed to help ensure a clear vision of how the recommendations can be easily implemented is created. For many of the recommendations, examples of successful implementation are provided as guides for the jurisdictions.

[Table ES-3](#) provides a summary matrix of the recommendations by jurisdiction.

[Public and Project Meetings.](#) By the conclusion of this study, there will have been 18 different public meetings including 12 meetings specifically conducted where the Eglin JLUS was the only purpose of the meeting and 6 additional meetings where different policy groups received a



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Figure ES-2: Eglin JLUS—Issues Identified and Menu of Potential Strategies to Address the Issues

POTENTIAL STRATEGIES TO MITIGATE ADVERSE IMPACTS OF CIVILIAN LAND USES/ACTIVITIES ON MILITARY OPERATIONS																
Eglin AFB Facilities and Operations Potentially Impacted by Civilian Land Use and Activities																
Check Marks (✓) Indicate that Adoption of Respective Strategies Summarized Below May Potentially Mitigate Adverse Impacts on Military Operations and/or Adverse Impacts of Military Operations on Civilian Land Uses/Activities	APZ II I Incompatible Uses/Structures	APZ I Incompatible Uses/Structures	Clear Zone Incompatibilities	Perimeter Boundary Security	Military Aircraft: High Noise Concentrations				Sonic Boom	Danger Zones for Munitions Firing/ Drop Zones	Operations Impacted by Excessive Heights of Bldgs/Structures					
					≥ 65-69 decibels	70-74 decibels	75-79 decibels	80-84 decibels	≥ 85 decibels		Supersonic Flight Corridor	Firing Areas and/or Bay Area Strikes	Lower Impulse Intensity & Frequency	Moderate Impulse Intensity & Frequency	Higher Impulse Intensity & Frequency	Public Safety on- and Off the Eglin Reservation is Threatened by Potential Loss of Portions of the NW FL Greenway and/or Other High Priority Conservation Areas Scheduled for Acquisition or Purchase of Development Rights
Military Encroachment, Comprehensive Plan Element	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Establish MIA																
• Adopt Maps of Areas Impacted																
• Uses Permitted & Prohibited	✓	✓	✓	✓						✓	✓	✓	✓	✓	✓	
• Height Regs for Impacted Sub Areas												✓				
• Noise Insulation Standards					✓	✓	✓	✓	✓							
• Outdoor Lighting Standards																
• Radio Frequency Spectrums Regs																✓
• Revise Admin Procedures																
o Improve Notice Procedures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
o Eglin Rep as Member of Plg. Board	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Disclosure of Military Encroachments		✓	✓	✓	✓	✓	✓	✓	✓							
Public Awareness																
• MIA Website incl. maps, regs, & public Info	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Signs in Areas with CZs, APZs, Excess Noise		✓	✓	✓	✓	✓	✓	✓	✓							
• Special Forum on Encroachment Issues	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special or Small Area Studies	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Land Acquisition/Purchase of Dvlpt. Rts.	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Transfer of Development Rights	✓	✓	✓	✓	✓	✓	✓	✓	✓							
Partner to Purchase NW FL Greenway and Join Partnerships to Obtain Development Rights to Greenway Connecting Military Airways Spanning from Pensacola to Panama City																

Table ES-2: Eglin JLUS Potential Strategies to Address Issues Identified—June 2008



Recommendation Description														
Jurisdiction Name (page # where recommendations are presented in the JLUS Report)	Santa Rosa County (p. 2-33)	✓	✓											
	Okaloosa County (p. 3-40)	✓	✓		✓	✓				✓			✓	✓
	Cinco Bayou (p. 4-9)		✓											
	Crestview (p. 5-16)													
	Destin (p. 6-17)													
	Fort Walton Beach (p. 7-13)													
	Laurel Hill (p. 8-11)													
	Mary Esther (p. 9-11)													
	Niceville (p. 10-22)													
	Shalimar (p. 11-11)													
	Valparaiso (p. 12-26)													
	Walton County (p. 13-15)													
	DeFuniak Springs (p. 14-12)													
	Freeport (p. 15-10)													

briefing on the Eglin JLUS as an agenda item of a regularly scheduled public meeting. The first Eglin JLUS public meeting was held in May 2007 and there is a final public meeting scheduled for 12 August 2009 to commence the implementation efforts of the Eglin JLUS. The following provides a list of public meetings for the Eglin JLUS or as part of another regularly scheduled meeting where the Eglin JLUS was a separate agenda item. All of the meetings listed were advertised to the public in accordance with Florida Sunshine Law requirements.

<u>Date</u>	<u>Public Meeting Description</u>
22-May-07	Public Meeting #1
03-Oct-07	Public Meeting #2
01-Nov-07	Eglin Vector Check Presentation
08-May-08	Special Valparaiso City Commission
18-Jun-08	Eglin JLUS Public Forum
23-Jul-08	Eglin JLUS Policy Committee
28-Sep-09	Destin City Council Meeting
05-Feb-09	Eglin JLUS Policy Committee
30-Apr-09	Eglin JLUS Policy Committee
18-May-09	Destin City Council Meeting
26-May-09	Crestview City Council Meeting
28-May-09	Freeport City Council Meeting
01-Jun-09	Public Meeting—Walton County
02-Jun-09	Okaloosa County Comm. Meeting
02-Jun-09	Public Meeting—Okaloosa County
04-Jun-09	Public Meeting—Santa Rosa County
29-Jun-09	Eglin JLUS Policy Committee
12-Aug-09	Policy Committee Public Hearing

There have also been more than 45 one-on-one project meetings with staff from the various jurisdictions and Eglin AFB to discuss the issues, analysis, strategies, and recommendations. Additional public outreach has also included Eglin JLUS press releases to local media outlets, individual press briefings, and several local public TV and radio update interviews over the past two years.

## *EGLIN JLUS CLARIFICATION STATEMENT*

The F-35 Joint Strike Fighter (JSF) noise contours used in this study are derived from the Eglin AFB Final Environmental Impact Statement (EIS) of October 2008 and are intended to be used for initial land use planning purposes. These noise contours may change in the Supplemental EIS (SEIS), which is expected to be released in fall 2010, and could possibly change again when the AICUZ report is updated in several years based on information obtained from actual F-35 flight operations. One of the primary goals of this JLUS is to initiate compatible land use planning now in preparation for significant mission growth in the Eglin complex. While the Air Force SEIS is assessing alternatives to reduce the noise impacts on Eglin and surrounding communities, meaningful community planning can be accomplished now to avoid additional encroachment and posture the communities with knowledge and resources for rapid response to the Record of Decision.

Maximum Mission Noise Contours, which could be considered maximum planning contours, are used in this study to maximize the scope of the planning area. The JLUS Policy Committee voted to approve use of Military Influence Planning Areas (MIPA) to define the areas affected by the JLUS recommendations. MIPA-II lines are derived from the Maximum Mission Noise Contour lines. The MIPA boundaries are also useful for defining specific areas in which additional analyses such as small area studies and sound attenuation analysis are recommended.

Implementation of the JLUS recommendations should be initiated upon completion of this study with the understanding that the noise contour lines are designed for initial planning purposes. It's important to understand, this is a land use planning study conducted by the community; it is not the operational EIS conducted by the Air Force. The MIPA lines on the overlay maps contained herein are provided for compatible land use planning and are not meant to define precise noise impact areas. This JLUS report will be supplemented, if necessary, with more precise noise contour lines after the SEIS is released.

*The remainder of this page intentionally left blank.*







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## 1.0 GENERAL INFORMATION

### What Is a Joint Land Use Study?

The Joint Land Use Study (JLUS) program managed by the Office of Economic Adjustment (OEA), Office of the Secretary of Defense, is a Department of Defense initiative that provides grants to state and local governments to participate with military installations in developing land use plans compatible with their mission.

The JLUS program encourages cooperative land use planning between military installations and the adjacent communities so that future community growth and development are compatible with the training and operational missions of the installation. It is more inclusive in scope than just noise and accident potential, and is more public in nature than the Air Installations Compatible Use Zones (AICUZ) program. Similar to the AICUZ program, the JLUS is a cooperative land use planning effort between the affected local government(s) and neighboring military installation(s). The difference is that a local or regional agency takes the lead in conducting the JLUS. The JLUS process typically involves various local community interests along with the military installation, and the study is a locally-produced product. Under this arrangement, there is a greater assurance that compatible land use controls will be adopted.

### Why Do We Need a Joint Land Use Study?

The primary purpose of the JLUS is for the local governments to develop a compatible land use plan and set of land development regulations for the properties adjacent to and affected by Eglin Air Force Base and its operations.

Eglin Air Force Base (AFB) is situated among three counties – Santa Rosa, Okaloosa, and Walton. Eglin is composed of 724 square miles of land and 123,000 square miles of water space, with 36 range test areas.

As part of 2005 Base Realignment and Closures (BRAC), the Department of Defense reported to Congress a recommended personnel and mission realignment to Eglin AFB resulting in the addition of almost 5,000 military and civilian workers to the Base starting in 2009. There is a need for a systematic evaluation of a larger study area of the properties adjacent to and affected by Eglin's operations. Eglin Tri County JLUS will fulfill the need for a comprehensive study which brings both regulatory and non-regulatory minds together to protect existing and future development/operations.

### Program Goals and Actions

The Eglin AFB JLUS has the following goals:

- Involve local cities and counties within the project study area that will include portions of Okaloosa, Santa Rosa, and Walton Counties.
- Protect the health, safety and welfare of the civilian and military communities.
- Identify appropriate regulatory and non-regulatory measures to ensure compatibility between existing and future land uses.
- Increase communication and cooperation between Eglin AFB and neighboring counties.
- Protect and promote the present and future operational capabilities of Eglin's areas.



To achieve these goals, the following general steps have been identified:

- Establish a Policy Committee comprised of officials from local governments, Eglin AFB, State of Florida, and other appropriate agencies to review and approve specific planning methodologies and implementation strategies.
- Establish a Technical Advisory Group comprised of professionals and citizens from local communities. The Group provides technical expertise and advises the Policy Committee.
- Evaluate existing and future operations and requirements of Eglin's operations.
- Evaluate existing and future land uses adjacent to and affected by Eglin's operations.
- Evaluate existing and proposed land use regulations to determine how conflicts are currently addressed, and identify gaps.

Identify new land use regulations to ensure compatibility between existing and future land uses and air operations.

### Program Products and Benefits

The Eglin JLUS will result in a report identifying existing environment in the study area, any current conflicts between land uses and Base operations, and potential future impacts. The report will also present strategies to minimize current problems, encourage compatible future development and prevent incompatible future development. Anticipated benefits include:

- Improved intergovernmental relationships with respect

to land use planning and development regulations.

- Improved communications among local governments, Eglin Air Force Base, and local neighborhoods.
- Increased awareness of potential conflicts between land development and Eglin Air Force Base.
- Improved local land development regulations.
- Protection of current and future military missions at Eglin.
- Addresses community's health, safety, and welfare concerns.

## 1.1 EGLIN AIR FORCE BASE LOCATION AND MISSION

### 1.1.1 Eglin's Focus on Research, Development, Test, and Evaluation (RDT&E)

Eglin AFB, located in northwest Florida as shown in *Figure 1-1*, is one of 19 component installations that make up the Department of Defense (DoD) Major Range Test Facility Base (MRTFB). It is situated among three counties—Santa Rosa, Okaloosa, and Walton. Eglin's primary function is to support research, development, test, and evaluation (RDT&E) of conventional weapons and electronic systems. It also provides support for joint training of operational units. Eglin AFB is composed of 724 square miles (sq. mi.) of land with 36 specific test areas, and 124,642 sq. mi. of the Eglin Gulf Test and Training Range (EGTTR), which extends south to the Florida Keys. Included as part of Eglin are 19 miles of barrier island coastline on Santa Rosa Island (Okaloosa County), of which 12 miles are closed to the public.

### 1.1.2 Eglin AFB Size and Military Operations

Eglin AFB has a total of 127,868 sq. mi. of charted airspace, of which 2.5 percent (3,226 sq. mi.) is over land and 97.5 percent (124,642 sq. mi.) is over water in what is referred to as the EGTTR. Eglin exercises daily air traffic control over a total of 26,901 square nautical miles (sq. NM), of which 9 percent (2,479 sq. NM) is over land and 91 percent (24,422 sq. NM) is over water. Eglin's charted airspace is not only above the land that is Eglin AFB, but also extends to the east, south, and to the north into Alabama as shown in *Figure 1-2*.

This airspace is comprised of both restricted and warning airspace, in addition to military operating area (MOA) airspace. The airspace over the EGTTR is under the authority of the Federal Aviation Administration (FAA), but is scheduled and controlled by Eglin AFB. The EGTTR is composed

of both DoD-controlled airspace and FAA-controlled airspace available on request with an established Letter of Agreement. The EGTTR is the DoD's largest water test range in the continental United States. Eglin AFB also contains the only supersonic overland test range east of the Mississippi River.

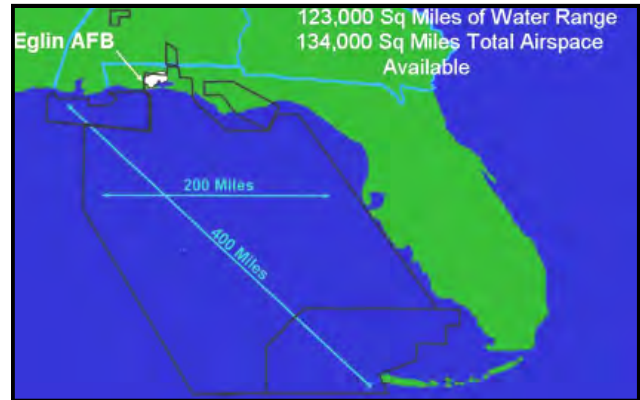


Figure 1-2: Eglin AFB Water Range and Airspace

Eglin AFB is composed of many areas:

- The Eglin Reservation/Range (test areas, interstitial areas, airspace, and the EGTTR)
- Eglin Main Base
- Hurlburt Field (U.S. Air Force Special Operations Command, AFSOC Training Center, and 1st Special Operations Wing)
- Duke Field (site of U.S. Air Force Reserve)
- Choctaw Field (supporting Naval aviator and Unmanned Aerial Vehicle [UAV] training)
- Site C-6 (site of Air Force Space Command Phased Array Space Surveillance Radar)
- Camp Rudder (one site of the U.S. Army Ranger School)
- Cape San Blas
- U.S. Coast Guard Station Destin

### 1.1.3 Air Armament Center (AAC)

Eglin AFB is home to the Air Armament Center (AAC), a unit of the Air Force Materiel Command. It supports the following units:

- 33rd Fighter Wing
- 46th Test Wing
- 96th Air Base Wing
- 53rd Wing
- U.S. Air Force Reserve (Duke Field)



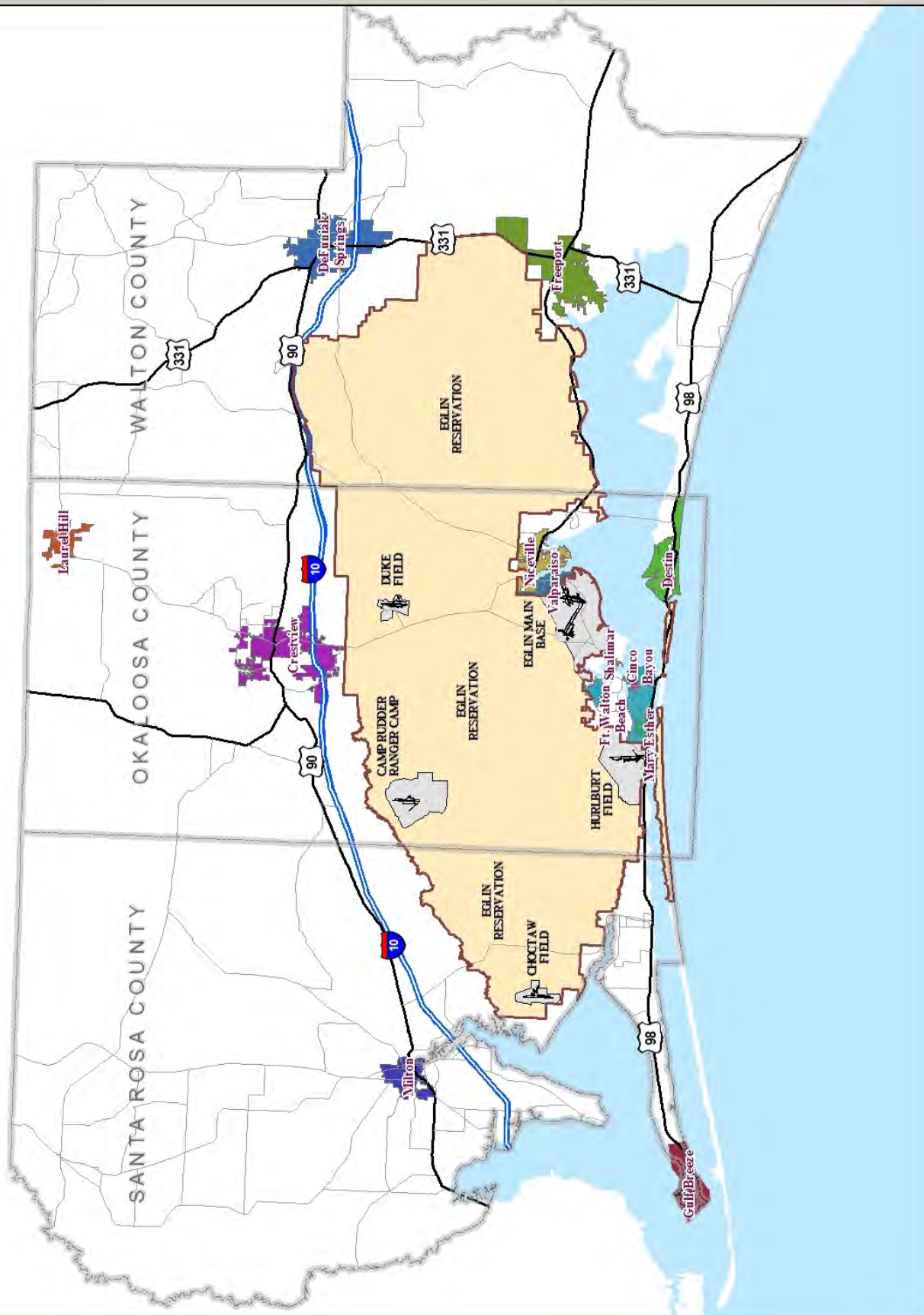


Figure 1-1: Eglin AFB Location

- U.S. Air Force Special Operations Command (Hurlburt Field)
- 1st Special Operations Wing
- 720th Special Tactics Group
- Air Force Special Operations Training Center
- Joint Special Operations University
- U.S. Air Force Space Command (Space Surveillance)
- U.S. Air Force, Air Integrated Weapons and Armaments Research, Development and Acquisition, Test and Evaluation Center
- U.S. Army (Ranger School and 7th Special Forces Group [Airborne])
- U.S. Navy (Naval Explosive Ordnance Disposal School and Choctaw Field)
- Joint Strike Fighter Initial Joint Training Site
- Alabama Army National Guard
- Florida Army National Guard
- Federal Bureau of Investigation

## 1.1.4 Responsibilities of Eglin Air Armament Center (AAC)

Air Armament Center (AAC) headquartered at Eglin AFB, is one of four product centers in the Air Force Materiel Command. Serving as the focal point for all Air Force armaments, AAC is responsible for the development, acquisition, testing, deployment, and sustainment of all air-delivered conventional weapons. AAC applies advanced technology,

engineering, and programming efficiencies across the entire product life cycle to provide superior weapons and combat capability to the war fighter. It also plans, directs, and conducts RDT&E of United States and allied air armament, navigation/guidance systems, and Command and Control (C2) systems. In addition, the Center manages an extensive training program to include unconventional warfare and explosive ordnance disposal. The combined RDT&E and training activities fully utilize the physical resources located on Eglin AFB.

## 1.1.5 Eglin's Three New BRAC Missions

In response to the Base Realignment and Closure (BRAC) recommendations in 2005, three new missions will be located at Eglin AFB. The Joint Strike Fighter (JSF) Initial Joint Training Site (IJTS) will be located at Eglin AFB; this action will consolidate JSF instructor pilots, operational support personnel, and gradually student pilots from the Air Force, Navy, Marine Corps, and allied nations' forces. The three variants of the F-35 JSF are described below:

- **Conventional Take-Off and Landing (CTOL) F-35A** for the Air Force will replace the F-16s and A10s and will complement the F/A-22 Raptor air dominance fighter as a nine-G-rated aircraft with an internal 25 mm gun mounted on the left intake shoulder and a combat radius of more than 600 nautical miles. This model and all models will have two internal weapons

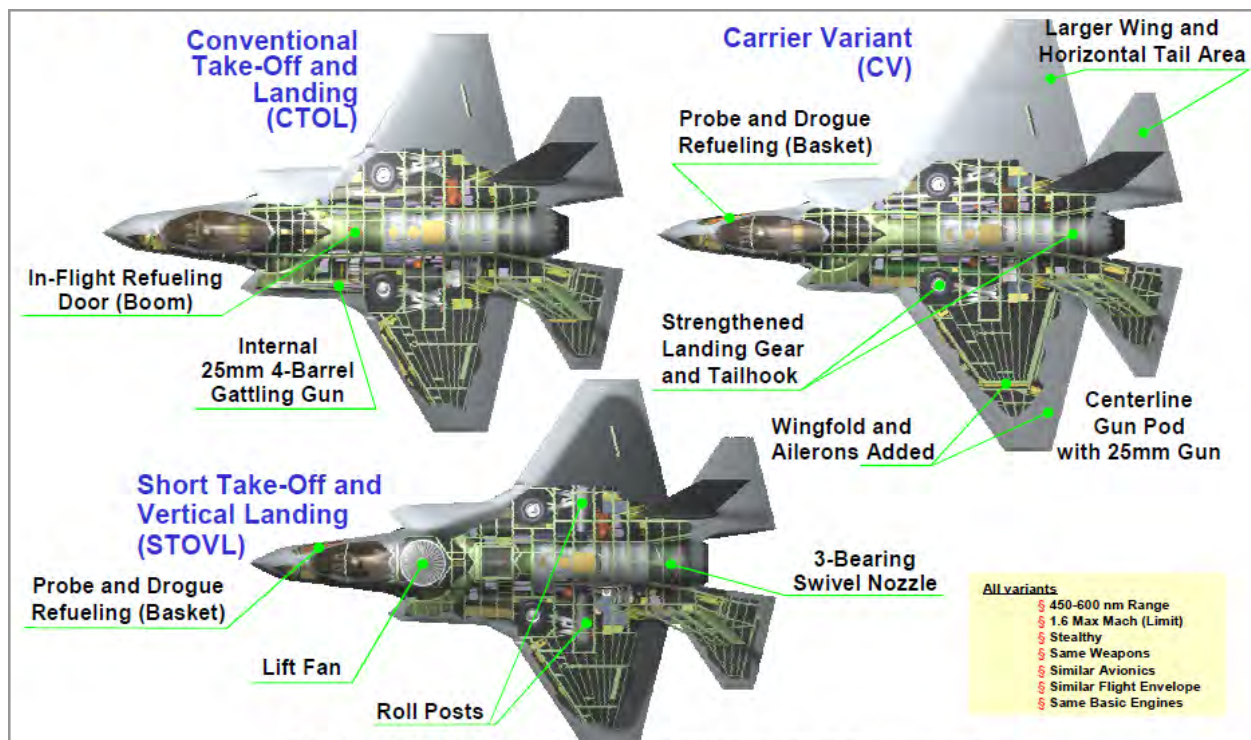


Figure 1-3: Three Variants of the F-35 Joint Strike Fighter (JSF)

Source: US Dept of Defense



bays, each capable of carrying a 2,000 pound precision guided munitions and a radar-guided AIM-120 air-to-air missile.

- **Short Take-Off and Vertical Landing (STOVL) F-35B** for the US Marine Corps and Royal Navy will replace the US Marine Corps AV-8B Harrier. The STOVL F-35B has a short take-off and vertical landing capability which succeeds through a very innovative technology known as the shaft-driven lift fan propulsion system.
- **Carrier Variant (CV) F-35C** for the US Navy's F/A-18E/Fs will complement the F/A-18E/Fs and replace the F-14s and earlier model F/A-18s. The F-35C has an increased capacity structure for absorbing catapult launches and arrest landings. The F-35C is the Navy's first stealth aircraft.

In addition, the Army 7th Special Forces Group Airborne (7SFG[A]) will be relocated from Fort Bragg in North Carolina to Eglin AFB. The last new mission to be located at Eglin AFB is the Defense Threat Reduction Agency's (DTRA) Conventional Armament Research Organization. This organization is responsible for developing, testing, and fielding conventional weapons technologies for our warfighters to counter weapons of mass destruction (WMD). DTRA's move from Fort Belvoir, Virginia to Eglin creates an Air Integrated Weapons and Armaments Research, Development, and Acquisition Test and Evaluation Center. The new missions will gradually transition to Eglin AFB and will change the use of both the cantonment areas and the Eglin Range.

Eglin AFB is a national DoD asset because it provides a unique environment for RDT&E of conventional munitions and electronic systems. Additionally, Eglin provides a myriad of training opportunities for the DoD with its unsurpassed arrangement of over 36 specific test areas embedded in a single contiguous land area adjacent to the eastern Gulf of Mexico with numerous water-to-land transitions. The Eglin Range and the training environment it provides was one of the primary reasons stated for the BRAC decision to locate the JSF IJTS and the relocation of the 7SFG(A).

The Eglin test areas are located beneath Special Use Airspace (SUA) that permits relatively unconstrained operations and makes all of Eglin an ideal setting in which to operate. In accordance with AFI 13-201, "Special Use Airspace (SUA) is a designation for airspace that is of a defined vertical and lateral dimension that alerts users to areas of unusual flight hazards and separates those activities from other airspace users to enhance safety. Certain limitations or restrictions may be placed on non-participating aircraft."



*The Relocation of the Army's 7th Special Forces Group Airborne to Eglin AFB is One of Three New BRAC 05 Missions for Eglin*

AFI 13-201 also states, "Restricted Areas are designated areas established by appropriate authority where aircraft flight, while not wholly prohibited, is subject to restriction. They are shown on aeronautical charts and published in Notices to Airmen (NOTAM). Restricted Areas are designated rulemaking airspace under 14 CFR Part 73, where restrictions are placed on all non-participating aircraft. This airspace is used to contain military activities that are hazardous to non-participating aircraft, and lies within the territorial airspace of the United States. The term "hazardous" implies, but is not limited to, live firing of weapons and/or aircraft testing."

The restricted airspace over the Eglin complex is a national asset and represents 66% of all useable restricted airspace surface to unlimited east of the Mississippi River. It provides the ability to contain activities that could be hazardous to aircraft not involved in those missions and excluded them from entry into the restricted areas. The restricted airspace provides protection for the safety footprint areas required for release and impact of airborne release of weapons.

The restricted airspace over the Eglin complex is a national asset and represents 66% of all useable restricted airspace east of the Mississippi River.

## 1.2 FLORIDA STATUTE 163.3175 - FOCUS ON COMPATIBLE LAND USE PLANNING

In order to protect important military and state assets such as Eglin AFB, the Florida Legislature enacted a law in 2004 that acknowledged the potential for negative impacts to occur when incompatible land development occurs close to military installations (Florida Statute 163.3175). The legislation found it “desirable for the local governments in the state to cooperate with military installations to encourage compatible land use, help prevent incompatible encroachment, and facilitate the continued presence of major military installations in this state.”

### 1.2.1 Eglin Efforts to Forge Compatible Land Use Planning

In support of this effort, Eglin AFB began preparation of *Eglin's Range and Air Installation Compatible Use Zone Study (RAICUZ)*. Similar to an AICUZ, a RAICUZ expands consideration beyond airfields (which is the primary focus in an AICUZ) to include ranges and airspace in which aerial testing and training takes place. The airspace utilized for testing and training is not only above the Eglin reservation, but also extends beyond Eglin's land boundary to the north, east, and south.

Included in the RAICUZ are all of the Eglin AFB lands and airspace. This includes all of the airfields (Eglin's main airfield, Hurlburt Field, Duke Field, and Choctaw Field) and specific drop zones (Sontay, Pino, and Field 6). Also included in the RAICUZ are the components of airspace controlled by Eglin: Military Training Routes, Low Level Training Areas, Cruise Missile Corridors, and Military Operating Areas. The one exception is the airspace above the EGTR, which is not included in the RAICUZ. The results of the Eglin RAICUZ assessment identify areas in which mission activities and adjacent land use may currently be incompatible or may become incompatible in the future based on land use decisions made by local governments. Providing this information to local city and county governments will aid in the collaboration and cooperation encouraged by the state legislature in Florida Statute 163.3175 (2004).

### 1.2.2 Growth of Local Communities Surrounding Eglin

The population surrounding Eglin AFB has grown exponentially in the last decade. In an attempt to guide this growth wisely, each of the three counties in which Eglin occurs—Santa Rosa, Okaloosa, and Walton—developed future land

use scenarios. These scenarios (some pending approval) provide approved uses for parcels of land by assigning a land use code, such as residential or agricultural. The future land use assigned to a parcel can greatly influence the level of compatibility between it and nearby military installations.

### 1.2.3 Joint Land Use Study (JLUS) Program

The DoD Office of Economic Adjustment (OEA) recognizes the importance of local land use decisions to military installations. To foster cooperation and understanding OEA administers the JLUS program. “A JLUS is produced by and for the local jurisdiction(s). It is intended to benefit both the local community and the military installation by combining the work of the AICUZ program with the JLUS program. The JLUS program is a basic planning process designed to identify encroachment issues confronting both the civilian community and the military installation and to recommend strategies to address the issues in the context of local comprehensive/general planning programs” (OEA, 2006). Santa Rosa County completed their JLUS in 2003 for Naval Air Station Whiting Field and now Okaloosa County has embarked on the Eglin JLUS.

To help provide a unified voice in addressing growth issues in the surrounding area, Eglin formed the Encroachment Committee in 1990, which became the Mission Enhancement Committee (MEC) in 2005. This committee has coordinated with local governments on proposals that could impact the ability to conduct the military mission at Eglin. This RAICUZ assessment supplements the MEC's efforts and provides an immediate snapshot of the situation to which local governments may refer. The Eglin JLUS is being guided by the Eglin JLUS Technical Committee and the Eglin JLUS Policy. The organization and members of the committees are shown in *Figure 1-4*.

### 1.2.4 Local Community Support of Eglin JLUS Organization and Structure

During May and June of 2006 the local jurisdictions (cities and counties) between Santa Rosa County and Walton County passed resolutions in support for Okaloosa County's Eglin JLUS application for funds. The Resolutions passed by the Jurisdictions recognized the following:

- Growth management and land use encroachment issues are of mutual concern and interest to the military and the jurisdiction (city or county)
- Support for Okaloosa County's application for funds from OEA to be used to prepare the Eglin JLUS
- Desire to collaborate with Okaloosa County on a JLUS



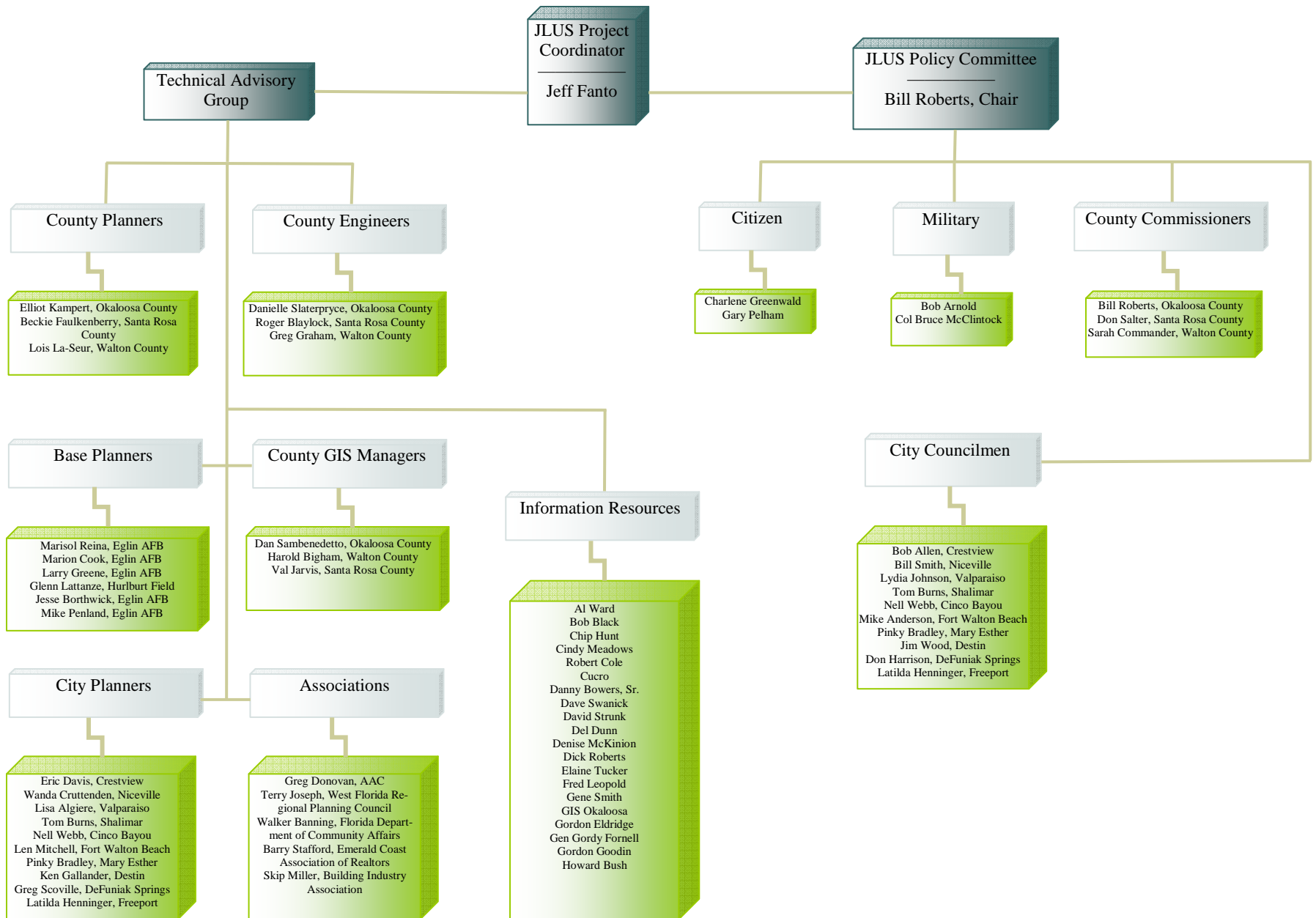


Figure 1-4: Eglin AFB Joint Land Use Study (JLUS) Committees

- for the environs surrounding Eglin AFB
- Recognized their responsibility to protect the public health, safety and welfare as the basis for participating in the JLUS and follow-up implementation to assure compatible development adequately responding to BRAC 05 growth

Each jurisdiction in their Resolutions agreed to each of the following:

- Collaborate on the development of the JLUS with Okaloosa County
- Appoint an elected official to serve on the Eglin JLUS Policy Committee and a representative to serve on the Eglin JLUS Technical Advisory Group

An example of one of the jurisdictions Resolution Supporting Okaloosa County's JLUS Grant Application and Agreeing to Collaborate on the Study is provided in [Figure 1-5](#).

## 1.3 LAND USE COMPATIBILITY ISSUES

The Eglin AFB RAICUZ assessment focuses on five land use compatibility issues—noise, population density, height of objects, lighting, and the radio frequency (RF) spectrum.

### 1.3.1 Noise

Noise is a by-product of military testing and training. The noise produced by activities on Eglin AFB can affect the population surrounding the base. As new development occurs and population densities increase, noise effects may be experienced by more people. This is an issue of future land use planning, of noise attenuation devices being used in existing and new structures, and of ensuring that citizens are informed of possible noise impacts. Assessing noise levels can assist in determining where such actions may be beneficial and necessary.

### 1.3.2 Impact of Changes in Population Density on Land Use Compatibility Issues

As the population increases, supporting development becomes increasingly dense and begins to spread into previously rural and undeveloped lands. This introduces additional people into areas that were originally suitable for high speed, low altitude flight operations and testing and training missions. Additional people also bring requirements for infrastructure, including outdoor lighting and communication towers, both of which impact the flight operations that take place within Eglin AFB controlled airspace and the use of the RF spectrum in support of the test mission. Specifically, increases in population density become a safety issue in

the vicinity of airfields and underneath airspace designated as military training routes and military operating areas.

Studies of aircraft accidents have shown that the majority of aircraft accidents occur either on or adjacent to airfields (U.S. Air Force, 1999). A similar situation exists underneath airspace designated for low altitude military flight operations, especially where aircraft transition into airfields for approach and departure patterns. Assessing existing conditions in the vicinity of airfields and underneath airspace designated for low altitude military flight operations begins the process of establishing land use designations that protect and promote public health and safety while maintaining the ability to conduct the military mission.

### 1.3.3 Height of Objects

The height of objects, such as trees, communication towers, or buildings, can cause impacts to low altitude flight operations and can affect the line-of-sight requirements for range instrumentation. Objects that obstruct air navigation can cause a limited resource—airspace—to become even more limited, and can cause operations at airfields to be disrupted. Tall objects can also reduce the amount of clear and adequate line-of-sight necessary for reference radars located at both fixed and temporary locations across Eglin AFB. Assessing areas where the height of objects can cause impacts helps local governments determine where height restrictions may be necessary to protect flight operations and range instrumentation operability.

### 1.3.4 Outdoor Lighting

Stationary or mobile outdoor lighting can cause difficult and unsafe night flying conditions when located near airfields or underneath airspace designated as low altitude Military Training Routes. Night training operations are frequently conducted at the airfields on Eglin AFB and within the military training routes that transition into airfields. These training operations are conducted using night vision equipment that is degraded when exposed to bright light. If pilots are unable to train with night vision goggles because of lights in the area that are too bright, the pilots do not maintain the qualifications necessary to continue flying. Assessing areas where bright ground lights could interfere with night operations provides information for making decisions on locations of new light sources.

### 1.3.5 Radio Frequency Spectrums

The RF spectrum is integral to the communication infrastructure supporting the mission at Eglin AFB. The RF spectrum is a finite resource that is in high demand to support technological advances in the civilian world (e.g., wireless devices, cellular telephones). As the spectrum be-



## RESOLUTION NO. 17-06-12-06

### RESOLUTION SUPPORTING OKALOOSA COUNTY'S GROWTH MANAGEMENT PLAN AND JOINT LAND USE STUDY GRANT APPLICATION AND AGREEING TO COLLABORATE ON THE PLAN AND STUDY

**WHEREAS**, growth management and land use issues are of mutual concern and interest to the military and to the City of Valparaiso; and,

**WHEREAS**, the City of Valparaiso supports Okaloosa County's application for Community Planning Grant funds through the Office of Economic Adjustment in the United States, Department of Defense. Funds will be used to coordinate a Growth Management Plan (Plan) and Joint Land Use Study (Study) with the surrounding municipalities; and,

**WHEREAS**, the City of Valparaiso is desirous of collaborating with Okaloosa County on a Plan and Study for the environs surrounding Eglin Air Force Base; and,

**WHEREAS**, it is recognized as the local government's responsibility to protect the public health, safety and welfare and is the basis for participation in the Plan and Study, and follow-up implementation of appropriate measures to assure compatible development that adequately responds to the proposed growth anticipated to occur as a result of the 2005 Base Realignment and Closure recommended personnel and mission realignments in Okaloosa County.

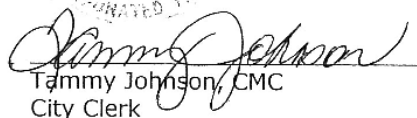
**NOW THEREFORE BE IT RESOLVED, by the City Commission of the City of Valparaiso, Florida that:**

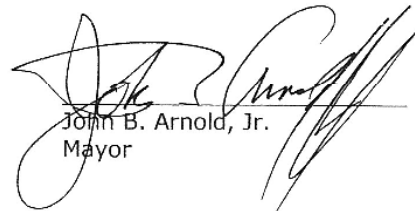
1. The City agrees to collaborate on the development of a Plan and Study with Okaloosa County.
2. The City agrees to appoint an elected official to serve on the Policy Committee for the Study, a representative to serve on the Technical Advisory Group and representatives to serve one or more of the Eglin Installation Growth Subcommittees for the Plan

**This resolution shall become effective immediately upon passage.**

**PASSED AND ADOPTED THIS 12<sup>th</sup> DAY OF JUNE, 2006.**

ATTEST:

  
Tammy Johnson, CMC  
City Clerk

  
John B. Arnold, Jr.  
Mayor

Resolution No. 17-06-12-06

Figure 1-5: Example Local Jurisdiction (City of Valparaiso) Resolution Supporting Okaloosa County's JLUS Grant Application and Agreeing to Collaborate on the Study

comes overused, certain devices using the same frequencies begin to interfere with one another. This type of encroachment is happening with several of the frequencies used by Eglin in support of the military mission. Certain frequencies within the spectrum are used for communicating between experimental test items and safety managers on the ground. If the fidelity of these frequencies is compromised, safety standards cannot be met and the test mission must be cancelled. Identifying the particular frequencies within the RF spectrum that are of most concern can help identify devices that are interfering with those frequencies and determine a way to lessen the interference.

## 1.4 NOISE

### 1.4.1 Physical Characteristics and Measures

Noise is considered to be unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. Noise may be intermittent or continuous, steady or impulsive. The source of the noise may be stationary or transient. There is wide diversity in responses to noise that varies not only according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source and the receptor.

The physical characteristics of noise or sound include its intensity, frequency, and duration. Sound is created by acoustic energy, which produces minute pressure waves that travel through a medium such as air and are sensed by the eardrum. The waves may be likened to the ripples in water that would be produced when a stone is dropped into it. As the acoustic energy increases, the intensity or amplitude of the pressure waves increases, and the ear senses louder noise.

### 1.4.2 Most Common Measure

Based on numerous sociological surveys and recommendations of federal interagency councils, the most common benchmarks for assessing environmental noise impacts to people are a Day-Night Average Sound Level (DNL) of 65 dBA for A-weighted noise, and 62 dBC for C-weighted noise. When measuring single event impulse noise, the benchmark for assessing noise impacts to people is 115 dBP (unweighted scale). These noise level thresholds are often used to determine residential land use compatibility and the risk of human annoyance. In general, when exposed to less than the noise levels identified above, land uses are unrestricted. As noise levels increase above these levels, some land uses become incompatible.

### 1.4.3 Two Noise Alternatives for F-35

Two predictions of potential noise resulting from the F-35 (Joint Strike Fighter) aircraft training which is being located at Eglin AFB as a result of the 2005 BRAC decisions were provided by the Air Force for use in the Eglin JLUS. It is noted that the final configuration of the F-35 range and airspace is not known. However, two scenarios are being considered; these are referred to as Alternative 1 and Alternative 2.

Based on the direction from the Eglin JLUS Policy Committee received February 5, 2009, the basis of this study (Eglin JLUS) shall be the Maximum Mission Noise Contours from the BRAC 05 Environmental Impact Statement. At this time, this equates to Alternate 1 for Eglin Main and Duke Field and for Alternate 2 at Choctaw Field.

### 1.4.4 Existing Aircraft Noise at Eglin AFB

Aircraft operations generate noise. Whether the noise is created during operation or maintenance activities, take-offs or landings, aircraft produce noise. The following describe the existing aircraft operations at the various airfields of Eglin:

**Eglin Main Base.** The current existing condition at Eglin Main Base airfield includes use by military aircraft (F-15C, F-15E, UH-1, F-16, A-10, C-130, C-32), common commercial aircraft utilizing Okaloosa International Airport (located on Eglin Main Base airfield), general aviation associated with the Eglin Aeroclub, and transient aircraft including other military aircraft based at other installations in the area.

**Duke Field.** The current existing condition at Duke Field includes use by C-130 aircraft associated with the 919th Special Operations Wing (919 SOW). In addition, Duke Field is regularly used by Air Force Special Operations Command (AFSOC) and other transient aircraft in conjunction with tests and training in nearby ranges.

**Choctaw Field.** The current existing condition at Choctaw Field supports touch-and-go and primary flight training in the T-34 and T-6 aircraft as well as AFSOC UAVs. In addition, transient military aircraft utilize Choctaw Field and the F/A-18C/D Navy Blue Angels practice at Choctaw Field.

**Hurlburt Field.** The existing and future condition at Hurlburt Field supports both combined and joint special operations air and land operations. Flights of AC-130s, MC-130 variants, non-standard aircraft (PC-12), CV-22 tiltrotors, UAVs, and specialized helicopters (UH-1, Mi-17) operate



on a near 24-hour cycle outside and within the Eglin Range Complex.

## 1.5 Impact of Tall Objects on Military Flight Operations

Tall objects, such as trees, communication towers, or buildings, can cause impacts to low altitude air operations, as well as the line-of-sight requirements for instrumentation. Low altitude air operations take place within military training routes, designated low-level helicopter training areas, cruise missile corridors, and airfield approach and departure routes. Objects that obstruct air navigation can cause a limited resource—airspace—to become even more limited and can cause operations at airfields to be disrupted. Tall objects can also reduce the amount of clear and adequate line-of-sight for reference radars located at both fixed and temporary locations across Eglin AFB.

### 1.5.1 Military Airfield Imaginary Surfaces

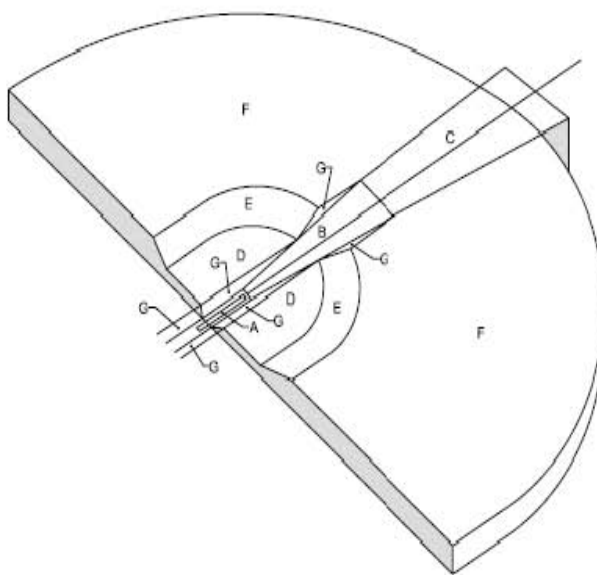
Airfield design involves the creation of imaginary surfaces, which must have no obstructions, to ensure that aircraft can safely arrive and depart the airfield. Imaginary surfaces are three-dimensional areas described as distances from runways and as heights above elevation. Areas are more restrictive close to the runway and become less restrictive depending on distance and direction from the runway.

The following elevation, runway length, and dimensional criteria apply:

- Controlling Elevation—whenever surfaces or planes within the obstruction criteria overlap, the controlling (or governing) elevation becomes that of the lowest surface or plane.
- Runway Length—Eglin AFB has two runways. Runway 01/19 is 10,012 feet long and Runway 12/30 is 12,005 feet long. Both runways are Class B runways that are designed and built for sustained aircraft landings and take-offs:
- Established Airfield Elevation—The established elevation for the Eglin AFB airfield is 85 feet above mean sea level.
- Dimensions—All dimensions are measured horizontally unless otherwise noted.

### 1.5.2 Runway Airspace Imaginary Surfaces

Runway airspace imaginary surfaces, in graphical form, are the result of the application of obstruction height criteria to Eglin AFB. Imaginary surfaces are surfaces in space around airfields in relation to runways. The surfaces are designed to define the obstacle-free airspace at and around the airfield. Refer to Unified Facilities Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design*, for a more complete description of runway airspace imaginary surfaces for Class B runways. *Figure 1-6* depicts the runway airspace imaginary surfaces for the Eglin AFB Class B runways. Air Force obstruction criteria in UFC 3-260-01 are based on those contained in Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, Subpart C. The following paragraphs contain definitions of the runway airspace imaginary surfaces for Air Force class B



#### Legend

- A=Primary Surface**
- B=Approach-Departure Clearance Surface (50:1 Slope Ratio)**
- C=Approach-Departure Clearance Surface (Horizontal)**
- D=Inner Horizontal Surface (45.72m [150 ft.] Elevation)**
- E=Conical Surface (20:1 Slope Ratio)**
- F=Outer Horizontal Surface (152.40 m [500 ft.] Elevation)**
- G=Transitional Surface (7:1 Slope Ratio)**

Figure 1-6: Class B Air Force Runway Airspace Imaginary Surfaces

runways:

- **Primary Surface (A).** An imaginary surface symmetrically centered on the runway, extending 200 feet beyond each runway end that defines the limits of the obstruction clearance requirements in the vicinity of the landing area. The width of the primary surface is 2,000 feet, or 1,000 feet on each side of the runway centerline.
- **Clear Zone Surface (B).** An obstruction-free surface (except for features essential for aircraft operations) on the ground symmetrically centered on the extended runway centerline beginning at the end of the runway and extending outward 3,000 feet. The CZ width is 3,000 feet (1,500 feet to either side of runway centerline).
- **Accident Potential Zone Surfaces (APZ).** APZ I begins at the outer end of the CZ and is 5,000 feet long and 3,000 feet wide. APZ II begins at the outer end of APZ I and is 7,000 feet long and 3,000 feet wide.
- **Approach-Departure Clearance Surface (C).** This imaginary surface is symmetrically centered on the extended runway centerline, beginning as an inclined plane (glide angle) 200 feet beyond each end of the primary surface, and extending for 50,000 feet. The slope of the approach-departure clearance surface is 50:1 until it reaches an elevation of 500 feet above the established airfield elevation. It then continues horizontally at this elevation to a point 50,000 feet from the starting point. The width of this surface at the runway end is 2,000 feet, flaring uniformly to a width of 16,000 feet at the end point.
- **Inner Horizontal Surface (D).** This imaginary surface is an oval plane at a height of 150 feet above the established airfield elevation. The inner boundary intersects with the approach-departure clearance surface and the transitional surface. The outer boundary is formed by scribing arcs with a radius 7,500 feet from the centerline of each runway end and interconnecting these arcs with tangents.
- **Conical Surface (E).** This is an inclined imaginary surface extending outward and upward from the outer periphery of the inner horizontal surface for a horizontal distance of 7,000 feet to a height of 500 feet above the established airfield elevation. The slope of the conical surface is 20:1. The conical surface connects the inner and outer horizontal surfaces.
- **Outer Horizontal Surface (F).** This imaginary surface is located 500 feet above the established airfield elevation and extends outward from the outer periphery of the conical surface for a horizontal distance of 30,000 feet.

- **Transitional Surface (G).** This imaginary surface extends outward and upward at right angles to the runway centerline and extended runway centerline at a slope of 7:1. The transitional surface connects the primary and the approach-departure clearance surfaces to the inner horizontal, the conical, and the outer horizontal surfaces.

## 1.5.3 Restricted and/or Prohibited Land Uses

The land areas outlined by these criteria should be regulated to prevent uses that might otherwise be hazardous to aircraft operations. The following uses should be restricted and/or prohibited:

- Releases into the air of any substance that would impair visibility or otherwise interfere with the operation of aircraft (e.g., steam, dust, or smoke);
- Light emissions, either direct or indirect (reflective), that would interfere with pilot vision;
- Electrical emissions that would interfere with aircraft communications systems or navigational equipment;
- Uses that would attract birds or waterfowl, including but not limited to, operation of sanitary landfills, waste transfer facilities, maintenance of feeding stations, sand and gravel dredging operations, storm water retention ponds, created wetland areas, or the growing of certain vegetation; and
- Structures within 10 feet of aircraft approach-departure and/or transitional surfaces.

## 1.5.4 Minimum Vertical Clearance from Imaginary Surfaces

In addition to the requirement that no structure penetrate an airfield's imaginary surfaces, there are vertical clearance minimums between imaginary surfaces and traverse ways/objects. There must be 17 feet of clearance between an interstate highway and an airport imaginary surface, 15 feet for a highway, 10 feet or height of tallest vehicle to traverse, whichever is highest, for a private or military road, 23 feet for a railroad, the height of the tallest mobile object for a waterway or other traverse way not covered above, and 10 feet for trees (U.S. Army Corps of Engineers, 2006).

## 1.5.5 Obstructions to Navigable Airspace Governed by Federal Aviation Administration (FAA)

The FAA requires that anyone proposing to construct or alter a structure that will be greater than 200 feet above the ground is required to file notice with the FAA. Close to airports, the proposed structure height requiring official notice is less than 200 feet and descends to zero at the runway.



Once notified, the FAA contacts Eglin's Airspace Manager to determine if the proposed structure will create a hazard to aviation, or a detriment to military operations.

## 1.5.6 Safety Hazards within Military Training Routes and Low Level Training Areas

Currently flight operations within the helicopter low level training area and MTRs avoid areas with potential flight safety hazards such as tall objects. This reduces the overall space available for training and increases the risk factor of mid-air collisions between objects and aircraft. As tall objects increase within the military training routes, training airspace, which is already limited, will diminish. The areas in which tall objects interfere with flight are "Military Training Routes," "Low Level Training Areas," and the "Height Restrictions Due to Air Traffic".

Portions of the low level MTRs are more sensitive to the height of tall objects because flight operations are intended to be low and slow as the aircraft prepares to land or drop people and/or cargo. The low level routes of particular interest are those that provide access to airfields and drop zones located along the northern boundary of the Eglin Range. These include Field 6 (Camp Rudder), Field 1, Duke Field, Pino Drop Zone, and Sontay Drop Zone. Total exclusion of tall objects within the entire low level route is not required to continue safe training operations. Specific zones within the route can accommodate taller or shorter objects. The first zone extends approximately 6 NM from the center point of the airfield or drop zone. Within this zone, it is recommended that no objects taller than 50 feet be constructed. Ideally, the central corridor of this zone would have no obstructions. The final zone extends approximately 15 NM from the airfield or drop zone. Within this zone, it is recommended that no objects taller than 150 feet be constructed (Gunter, 2007).

## 1.5.7 Impacts of Tall Objects within Cruise Missile Corridors

The Tomahawk® cruise missile flies much like an aircraft and requires similar obstruction-free flight paths. Since the cruise missile flies between 500 feet AGL to 4,000 feet above MSL, objects or structures taller than 450 feet can cause problems and should be minimized as much as possible. The areas in which cruise missiles are flown are depicted as "Cruise Missile Corridor" in portions of Walton County.

## 1.5.8 Obstructions by Tall Structures on Operations Using Terminal Instrument Procedures (TERPS)

Airfields at which instrumented approach and departures

are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993). TERPs have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, and Hurlburt's Main Airfield.

**Altitude Restrictions.** Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

**Implication of Tall Structures and Weather Conditions on Flight Altitude .** An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

## 1.5.9 Obstructions by Tall Structures on Line of Sight for Eglin Range Instrumentation

**Fixed reference radars (Doppler radars) at Test Sites C-10 and A-20.** Fixed reference radars (Doppler radars) at Test Sites C-10 and A-20 control test support aircraft over the prescribed flight path and collect and deliver time-space-positioning information with data handling instrumentation. These radars allow airborne objects to be tracked throughout the entire range. The tracking radar generates range, azimuth, and elevation data for the object being tracked. It sends this information to the Centralized Control Facility for scope display and control.

**Temporary Radar Sites at D-84, White Point, Alaqua Point, and Hammer Point.** Temporary reference radars perform similar tasks, but their locations are adjusted based on testing needs. The combination of fixed sites C-10 and A-20, and temporary sites (D-84, White Point, Alaqua Point, and Hammer Point), require that a broad area be maintained south of Eglin AFB, along the Gulf of Mexico, with low object heights to provide adequate line of sight. Adequate line of sight into the Gulf of Mexico must be maintained for the radars to track airborne objects and generate the required data for successful testing. This area is described as the "Line of Sight Area of Concern."

In 2006, Eglin conducted a study for Okaloosa County identifying specific height limits to be compatible with line-of-sight requirements for range instrumentation.

## 1.6 Population Density as a Safety Issue

Population density is a safety issue in the vicinity of airfields and underneath airspace designated as low altitude military training routes. Several studies of aircraft accidents discovered that the majority of accidents occur either on or adjacent to airfields (USAF, 1999). In response to these and other studies, the Department of Defense developed the Air Installation Compatible Use Zone (AICUZ) program to specifically address compatible use of public and private lands in the vicinity of military airfields (DODI 4165.57 and AFI 32-7063) (DoD, 1997; U.S. Air Force, 2003a). The program applies to all installations with active runways located within the United States and its territories. The types of activities that take place on and around military airfields require that safe operating conditions be maintained for aircraft, military and civilian personnel, and the general public in the surrounding area.

### 1.6.1 Clear Zones (CZ) and Accident Potential Zones

#### (APZ)

Due to the increased occurrence of aircraft accidents on or adjacent to airfields, areas of high accident potential are established at the ends of runways. These areas are referred to as Clear Zones. Extending outward from Clear Zones (CZs) are Accident Potential Zones (APZs) I and II. The potential for aircraft accidents drops seven-fold from the CZ to APZ I, and then slightly from APZ I to APZ II. However, enough potential exists for aircraft accidents within APZs that they remain a significant risk factor. Since accident potential is so high within the CZ, these areas are most often owned by the Air Force, which results in control of land use within the CZ. This ensures that no people-intensive facilities are located within a CZ. Air Force Handbook 32-7084 Section 2.6.3.1.2 (1999) specifies five prohibited land uses within a CZ:

- A use releasing any substance into the air, such as steam, dust, and smoke.
- A use producing electrical emissions that interferes with aircraft operations, communications, or navigational aid systems or equipment.
- A use that produces light emissions directly or indirectly.
- A use unnecessarily attracting birds or waterfowl.
- A use involving explosives.

While the percentages of aircraft accidents within the APZs are much lower than within the CZ, some type of land use control is recommended to reduce the density of people living, gathering, or working within an APZ. Compatible land uses within APZ I and II include industrial/manufacturing, transportation, communication/utilities, wholesale trade, open space, recreation, and agriculture. Residential development is not recommended under APZ I. However, under APZ II, low-density residential (one dwelling/acre) and low intensity personal/business services and commercial/retail trade uses are acceptable. High-density functions such as multi-story buildings, places of assembly, and high-density office uses are not considered appropriate even for APZ II (U.S. Air Force, 1999). The main airfields located on Eglin AFB (Eglin Main Airfield, Duke Field, Hurlburt Field, and Choctaw Field) have CZs and APZs identified for their runways.

### 1.6.2 Safety Precautions for Military Training Routes (MTRs) at Eglin Airfields

A situation similar to APZs exists underneath airspace designated for low altitude, high-speed military flight operations, especially where these routes transition into airfields and drop zones such as Duke Field, Field 6 (Camp Rud-



der), Field 1, Pino and Sontay Drop Zones. Specific military training routes are also used as corridors for cruise missile training. Land use designations that maintain a low population density or reduce the density of people living, gathering, or working underneath low altitude MTRs and the cruise missile MTR ensures the health and safety of the general public. Lands owned and managed by state and federal agencies or land conservation organizations, such as The Nature Conservancy, provide low to no population densities, which supports safe operations within these types of MTRs. Additionally, the Northwest Florida Greenway Corridor Study Area delineates an area of federally and state owned lands, conservation organization lands, and privately owned lands to form a connected corridor in which low density population would be maintained.

## 1.6.3 Flight Operations within Military Training Routes (MTRs)

MTRs are corridors of a defined width that have been established and designated by the Federal Aviation Administration (FAA) specifically for military training. Within these corridors, military aircraft are permitted to conduct military training/RDT&E below 10,000 feet above mean sea level (MSL) in excess of 250 knots indicated airspeed (KIAS) and most extend down to 500 feet MSL. Military Training Routes are subdivided into two types—Instrument Flight Rule Route (IR) and Visual Flight Rule Route (VR). Within an IR route, flight can occur under both instrument meteorological conditions and visual meteorological conditions. Within a VR route, flight can only occur under visual meteorological conditions (FAA, 2004). The meteorological condition indicates if weather is conducive for flying using only visual navigation cues, or if weather conditions prevent using visual cues and require using instruments for navigation.

## 1.6.4 Slow Speed Low Altitude Training Route (SR) and the Low Level Training Area (LLTA)

Two additional military training areas are the Slow Speed Low Altitude Training Route (SR) and the Low Level Training Area (LLTA). Flight within the SR must be below 1,500 feet above ground level (AGL) and at or below 250 KIAS. Typically SRs are flown with C-130 aircraft and helicopters as well as some slow speed training aircraft. LLTAs are large geographic areas where random low altitude operations are conducted at airspeeds below 250 KIAS. Typically A-10 aircraft and helicopters frequent LLTAs.

Within all of the MTRs, SRs, and LLTAs, low altitude navigation tactical training is currently conducted by C-130 cargo transport aircraft, helicopters, fighter and attack aircraft, and training aircraft. The CV-22 Osprey and the CA-

212 light transport aircraft are proposed to fly in these areas in the future (U.S. Air Force, 2004a). Training helicopters (TH-57) from NAS Whiting Field and MH-53 helicopters from Hurlburt Field conduct training operations within the low altitude tactical navigation area. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

## 1.6.5 Implications of Population Density for MTRs and LLTAs

As population density increases underneath the MTRs and low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1 SOW and NAS Whiting Field. Maintaining lower population densities underneath the low level MTRs along the northern boundary of Eglin, which are used by the 1 SOW, is important for safety reasons. As these routes transition into Field 6 (Camp Rudder), Duke Field, Field 1, Pino Drop Zone, and Sontay Drop Zone, the aircraft is not able to deviate from its selected approach path in an attempt to avoid more densely populated areas or noise sensitive features (e.g., hospital, school, or church). The approach path generally begins approximately 10 NM from the center point of the airfield or drop zone.

Areas along the northern boundary of Eglin AFB currently low in population density provide ideal conditions for low level flight and low altitude night vision goggle training, a vital skill for new pilots to learn and veteran pilots to maintain. An increase in population density and development along the northern Eglin boundary would force increases in altitude and/or changes in flight paths, both critically impairing the ability to conduct training at Field 6 (Camp Rudder), Field 1, Pino Drop Zone, Sontay Drop Zone, and Duke Field. The assault landing strip at Duke Field is used for assault landing training and is the only location in the United States that offers this type of training, which is an essential part of special operations capability (U.S. Air Force, 2003b).

## 1.6.6 Safety Precautions for Cruise Missile Corridors

Tomahawk® cruise missile testing and training is conducted at Eglin AFB within existing designated IR Military Training Routes (MTRs). The Tomahawk® missile is a long-range subsonic cruise missile used for striking high value or heavily defended land targets. It is launched from U.S. Navy surface ships and submarines (U.S. Navy, 2004).

Cruise missiles are self-propelled and guided through on-board global positioning systems. During test and training activities at Eglin AFB, the Tomahawk® cruise missile flies between the altitudes 500 feet above ground level (AGL) to 4,000 feet above MSL.

To provide safe operating conditions for missions involving the cruise missile, the Commander of AAC at Eglin AFB follows criteria established to minimize risk. The Range Commanders Council, Risk and Lethality Commonality Team of the Range Safety Group (2000), developed common risk criteria (Standard 321-000, 2000) for national test ranges and Major Range and Test Facility Bases, of which Eglin AFB is one. The criteria apply to debris generated from numerous missions including those involving cruise missiles. The criteria define the acceptable risk to the general public as a result of flying cruise missiles within the designated IR route. To effectively minimize risk to the general public, population density underneath the cruise missile corridor would remain low. This ensures that if a missile were to malfunction or break apart, the likelihood of debris coming into contact with a person on the ground would be lessened. The need to maintain low population density within the cruise missile corridor is fundamental to continuing this part of the Eglin AFB mission.

## 1.6.7 Safety Precautions Impacting Marine Activities Adjacent to Santa Rosa Island

Santa Rosa Island (SRI), located in the southern section of Eglin AFB in Okaloosa and Santa Rosa Counties, is a narrow barrier island approximately 50 miles long and less than 0.5 mile wide. The island includes the adjacent near-shore waters (out to 3 miles) of the Gulf of Mexico. Eglin controls 4,760 acres of SRI, which includes a 4-mile strip east of Fort Walton Beach that is open for public recreation and a restricted-access 13-mile section extending west to Navarre Beach. Approximately 2.5 miles of Okaloosa County property lies between the two island parcels of Eglin property.

SRI has 20 test sites, all are actively used in support of the test and training mission at Eglin. The missions at the test sites range from Command Centers that control the activation of flight termination systems for items being tested (Test Site A-3) to the launching of surface-to-air missiles such as the Air Intercept Missile and the Patriot missile (Test Site A-15). In the airspace above the island and seaward for three nautical miles is a Controlled Firing Area (CFA). These areas are defined airspace blocks that contain activities that would be potentially hazardous to non-participating aircraft.

Successful and safe completion of the mission on SRI and the adjacent waters requires the control of the airspace, water, and land that are part of the mission scenario. Access restriction ensures the safety of people not participating in the mission as well as maintains mission integrity. Restricting access becomes increasingly problematic as the number of residents and civilian boat traffic increase. Potential changes to the island and surrounding area could potentially lead to more increases in civilian and commercial boat traffic. These possible changes, such as construction of a pass through the non-federally owned portions of the island or establishment of artificial reefs, would attract marinas and additional boats to the area. The associated increase in boat traffic would complicate access restriction measures and potentially cause safety concerns, mission delay, or cancellation of the mission.

## 1.6.8 Land-Use Compatibility Guidelines Near Runways

*Table 1-1* at the end of this section identifies land uses and possible noise exposure and accident potential combinations for Eglin AFB based on information in the Air Installations Compatible Use Zones (AICUZ) Suggested Land Use Compatibility Guidelines for Clear Zones and Accident Potential Zones (APZs). The noise guidelines are essentially the same as those published by the Federal Interagency Committee on Urban Noise in the June 1980 publication, *Guidelines for Considering Noise in Land-Use Planning and Control*. The U.S. Department of Transportation publication, *Standard Land Use Coding Manual (SLUCM)*, has been used to identify and organize land-use activities.

## 1.6.9 Obstructions by Tall Structures on Line of Sight for Eglin Range Instrumentation

**Fixed reference radars (Doppler radars) at Test Sites C-10 and A-20.** Fixed reference radars (Doppler radars) at Test Sites C-10 and A-20 control test support aircraft over the prescribed flight path and collect and deliver time-space positioning information with data handling instrumentation. These radars allow airborne objects to be tracked throughout the entire range. The tracking radar generates range, azimuth, and elevation data for the object being tracked. It sends this information to the Centralized Control Facility for scope display and control.

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tained south of Eglin AFB, along the Gulf of Mexico, with low object heights to provide adequate line of sight. Adequate line of sight into the Gulf of Mexico must be maintained for the radars to track airborne objects and generate the required data for successful testing. This area is described as the "Line of Sight Area of Concern."

In 2006, Eglin conducted a study for Okaloosa County identifying specific height limits to be compatible with line-of-sight requirements for range instrumentation.

## 1.7 OUTDOOR LIGHTING, FLIGHT SAFETY, AND IMPACT ON NIGHT VISION OPERATIONS

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes that are used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1st Special Operations Wing. Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7SFG(A). Training for night operations is mission-essential to these units.

### 1.7.1 Light Encroachment

Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. In 1994, over 30 percent of Fort Benning, GA was affected by city lights, and it is projected that over 50 percent will be affected by 2015. In 2005 over 50 percent of Marine Corps Base Camp Lejeune was light-encroached, with that number predicted to be 83 percent by 2015 (U.S. Army Corps of Engineers, 2005). It is imperative that Eglin is able to provide adequate night training environments for both air and ground operations. This requires proactive measures to prevent light encroachment.

### 1.7.2 Outdoor Lighting Encroachment on Military Training Routes and Low Level Training Areas at Eglin Airfields

Aircraft within MTRs and low level training areas fly at low altitudes and often train at night using night vision equipment. The routes lead into airfields in which night training scenarios are used.

**Flights Using Night Vision at Hurlburt Field.** Hurlburt's main airfield is used for night training with night vision equipment. Mobile lights from vehicles on adjacent roadways interfere with this type of training.

**Flights Using Night Vision at Duke Field.** Duke Field is the site of the *only* qualified assault landing strip for night training in the entire United States. The qualified assault landing strip provides a unique training scenario unavailable elsewhere. The assault landing strip allows for low-level night vision goggle training that is an essential part of special operations capability. This assault landing strip is vital to training new pilots and maintaining the proficiency of veteran pilots. An MTR leads from the north into Duke Field, providing the transition from low altitude navigation to assault landing strip night approaches. Development along the northern boundary of Eglin AFB would increase outdoor lighting and impact the low light conditions required for this type of training.

**Flights Using Night Vision at Field 6, Field 1, Pino And Sontay Drop/Landing Zones.** These areas are utilized for training by the Special Operation Forces including night flying with night vision equipment.

**Flights Using Night Vision at Choctaw Field.** Field carrier landing practice takes place at Choctaw Field. This provides aircraft the environment to simulate night landings on the deck of an aircraft carrier at sea. Low light conditions are vital to the training to successfully simulate conditions at sea and provide opportunity to use night vision goggles during take-offs and landings.

## 1.8 RADIO FREQUENCY SPECTRUM

The RF spectrum is an additional resource related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the RF spectrum are of more concern than others, since the frequencies can interfere

with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. This section focuses on the specific frequencies and the devices that emit the frequencies that are causing the most serious encroachment.

acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

## **1.8.1 Wireless Local Area Networks (LAN) DEVICES, Cordless Devices, and Microwaves (5.4- TO 5.9-GHZ Bandwidth)**

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur. Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices. An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

## **1.8.2 Industrial, Scientific, and Medical Devices (Various Bandwidths)**

The use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is




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[illegible]

**Legend:**

- |                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  | Land use and related structures are not normally compatible and should be prohibited |
|  | Land use and related structures are generally compatible with noted restrictions     |
|  | Land uses and related structures are normally compatible without restrictions        |

(#.#) Indicates maximum Floor Area Ratio (FAR) for the land use identified

**Notes:**

- 1 Maximum Density: 1-2 du/acre
- 2 "Other Uses" includes apartments, group quarters, residential hotels, and transient lodging
- 3 Maximum of 25 occupants per acre and approval is subject to review.
- 4 Maximum of 50 occupants per acre and approval is subject to review.
- 5 No clubhouse
- 6 No accessory units - e.g., no passenger terminals and major above ground electrical transmission lines in APZ I
- 7 No chapels
- 8 No activity which produces smoke, glare, bird attractants, or involves explosives.
- 9 Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 10 Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 11 Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 12 If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
- 13 No buildings.
- 14 Land use compatible provided special sound reinforcement systems are installed.
- 15 Residential buildings require a NLR of 25.
- 16 Residential buildings require a NLR of 30.
- 17 Residential buildings not permitted.
- 18 Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn by personnel



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## SECTION 2 - SANTA ROSA COUNTY



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## 2.1 INTRODUCTION

Santa Rosa County was created in 1842 and is bordered by Okaloosa County to the east and Escambia County to its west. Its county seat is Milton. The County is divided into three distinct sections—South, Central, and North. The incorporated cities include Jay, Milton and Gulf Breeze. Some of the unincorporated areas of the County are Bagdad, Navarre, Navarre Beach, and Pace.

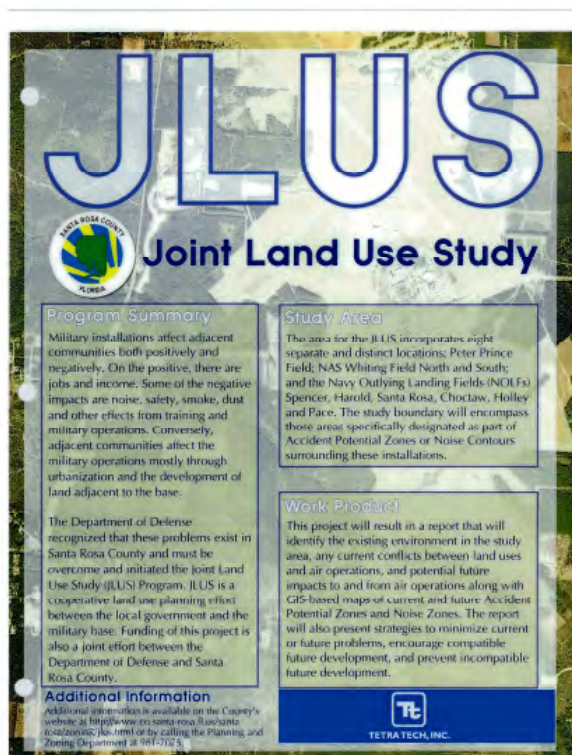
As of the 2000 census, there were 117,743 people, 43,793 households, and 33,326 families residing in the County. However, a July 1, 2005 estimate placed the population at 143,105, an 18% increase making it the 84th fastest growing county in the United States between 2000 and 2005. The population density was 116 people per square mile. There were 49,119 housing units at an average density of 48 per square mile.

There were 43,793 households out of which 37% had children under the age of 18 living with them, 62% were married couples living together, 10% had a female householder with no husband present, and 24% were non-families. 19% of all households were made up of individuals and 7% had someone living alone who was 65 years of age or older. The average household size was 2.63 and the average family size was 3.00.

In the County the population was spread out with 27% under the age of 18, 7% from 18 to 24, 31% from 25 to 44, 24% from 45 to 64, and 11.00% who were 65 years of age or older. The median age was 37 years old. *Figure 2-1* shows Santa Rosa's county limits.

**Santa Rosa JLUS.** In 2003, Santa Rosa County prepared one of the first adopted JLUS's in the state of Florida providing growth management recommendations through a joint effort between Santa Rosa County officials and residents with NAS Whiting Field and US Department of Defense (DoD) representatives. The Tetra Tech/Solin study provided highly detailed GIS maps showing Navy flight patterns, clear zones, Accident Potential Zones (APZs), aircraft noise contours, existing and future land use, conservation lands, and proposed strategies.

The Study's recommendations included special overlay zoning districts (Military Air Zones – MAZs), subdivision regulations, structural height restrictions, clustering development, increasing sound attenuation in existing and new buildings, land exchanges, land acquisitions, real estate disclosure near airfields, and improved communications.



The area for the JLUS incorporated eight separated and distinct locations: Peter Prince Field; NAS Whiting Field North and South; and the Navy Outlying Landing Fields (NOLFs) at Spencer, Harold, Santa Rosa, Choctaw, Holley and Pace. The study boundary encompassed areas specifically designated as part of APZs or Noise Contours surrounding these installations.

Since adoption of the Santa Rosa JLUS, the County has received more than \$5 million for the purchase of 12,500+ acres for buffers from military operations areas.

Since the JLUS report's adoption, the County has successfully incorporated a variety of the recommendations focused on their Comprehensive Plan, Future Land Use Map, and Land Development Code revisions including the County's Article 11 – Airport Environs Ordinance. The County has also successfully acquired areas recommended in the report for conservation lands and subsequent buffers between military operations and civilian lands. Around Whiting Field, the County has purchased close to \$5 million in land and/or development easements with the Navy agreeing to fund approximately half of that amount. The source of funding used by the County has been State Defense Infrastructure Grant funds and re-investment of Navy



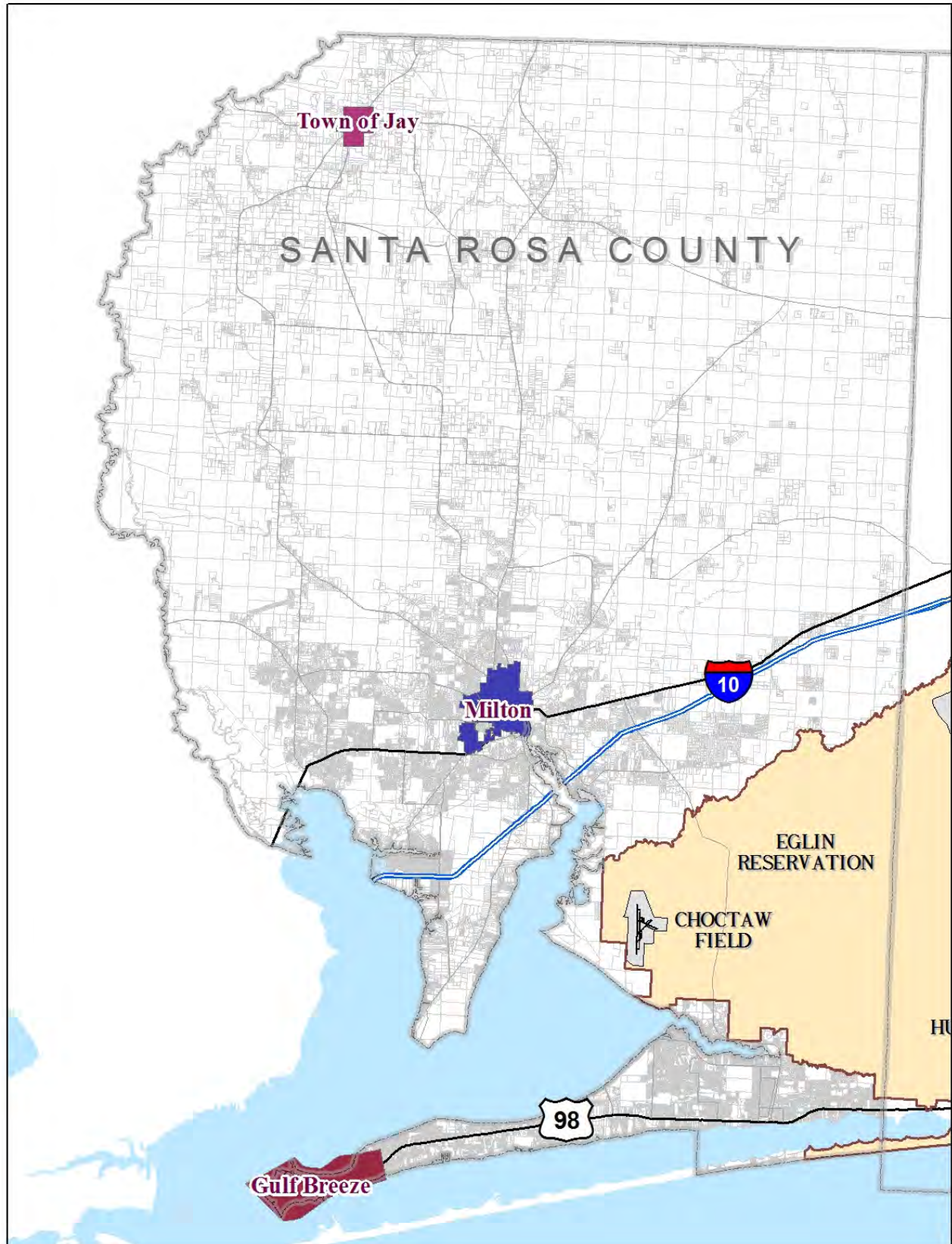


Figure 2-1: Santa Rosa County Limits



money received for development easements. Additionally, around Whiting Field, OLF Harold, and the Yellow River area (between Eglin and the Blackwater Forest), the Nature Conservancy has purchased over 12,500 acres from International Paper with more than 10,550 acres of that area subsequently purchased by the State.

## 2.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from Santa Rosa County and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 TAC meeting and the June 18, 2008 Public Open House, the issues for the County were identified and explained. *Appendix D—Eglin JLUS Public Presentations* provides copies of this information. The following issues were identified for the County with respect to land use encroachments:

- Development at Eglin AFB Boundary
- Runway Clear Zone and Accident Potential Zones (APZ I and II)
- Impulse Noise
- Low Level Helicopter and Tiltrotor Training Areas
- Airfield Noise
- Height of Objects and Low Level Approach Zones
- Lighting
- Radio Frequency Interference
- Supersonic Noise
- Controlled Firing Areas

Each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

Encroachment issues can be managed easiest by recognizing and implementing necessary land use controls.

### 2.2.1 Development at Eglin Perimeter Boundary

As the County continues to grow, specifically in the south-east section of the County near the boundary of Eglin AFB, development near the boundary can create security concerns, promote excessive light during nighttime hours, encroach on air and/or ground training, and encourage other encroachments onto the Eglin AFB. When private encroachments occur near an installation, the military begins

modifying operations in reaction to the encroachment which may influence the ability to successfully complete mission goals and objectives for the installation. Encroachment issues can be managed easiest by recognizing and implementing necessary land use controls. *Figure 2-2* shows the portion of the County adjacent to Eglin's boundary.

### 2.2.2 Runway Clear Zone and Accident Potential Zones Near Choctaw Field

Aviation history has shown that property along primary flight paths and immediately beyond the end of runways have a higher potential exposure to aircraft accidents than areas further out from an airfield or flight path. Several studies of aircraft accidents discovered that the majority of accidents occur either on or adjacent to airfields (USAF, 1999). In response to these and other studies, the Department of Defense developed the Air Installation Compatible Use Zone (AICUZ) program to specifically address compatible use of public and private lands in the vicinity of military airfields (DODI 4165.57 and AFI 32-7063) (DoD, 1997; U.S. Air Force, 2003a).

Created as part of the AICUZ program, Clear Zones are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, Clear Zones function to heighten the general public's awareness to areas where higher risks occur. The Clear Zone is an area that possesses a high potential for accidents and is located just past the end of a runway. It has been labeled "A" in this study to enable easier depiction on maps.

Beyond the Clear Zone is an area along the flight path that possesses a significant potential for accidents. Created as part of the AICUZ program, Accident Potential Zones (APZ) are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, APZs function to heighten the general public's awareness to areas where higher risks occur. They also help local governments to identify where to direct zoning regulations and land use standards designed to reduce potential conflicts between airfield operations and civilian populations.

APZs are divided into two (2) designations based on accident potential. The zone closest to the Clear Zone is referred to as APZ-I. It has been labeled "B" for easier depiction throughout this study. APZ-II (labeled "C") is typically furthest from the runway in terms of the flight path and it has a measurable potential for accidents. Approach or departure flight paths will turn into or away from a runway. Therefore, APZ I and II may curve away from the end of a clear zone as well as leading straight out. Based on des-



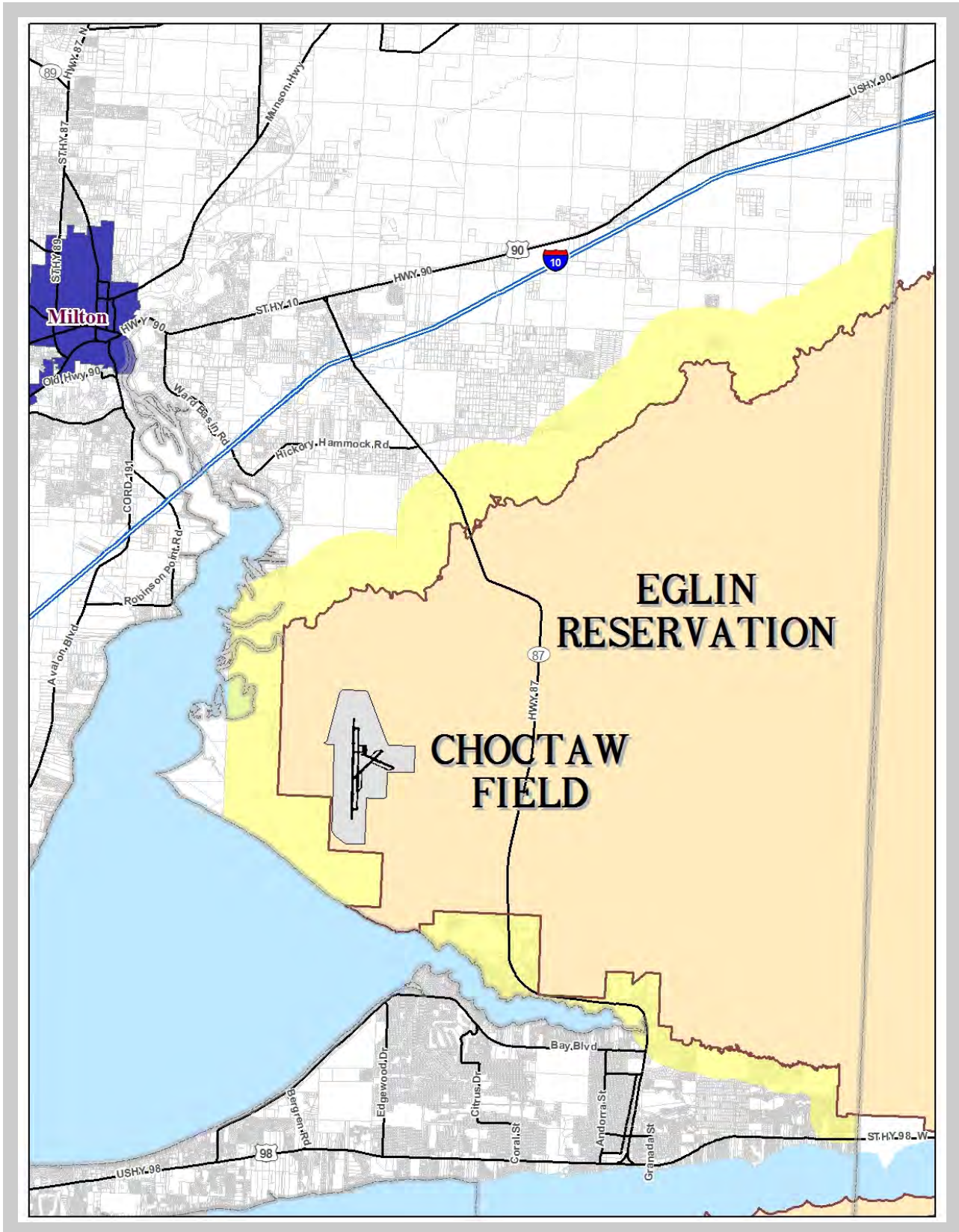


Figure 2-2: Portions of Santa Rosa County Adjacent to Eglin Boundary



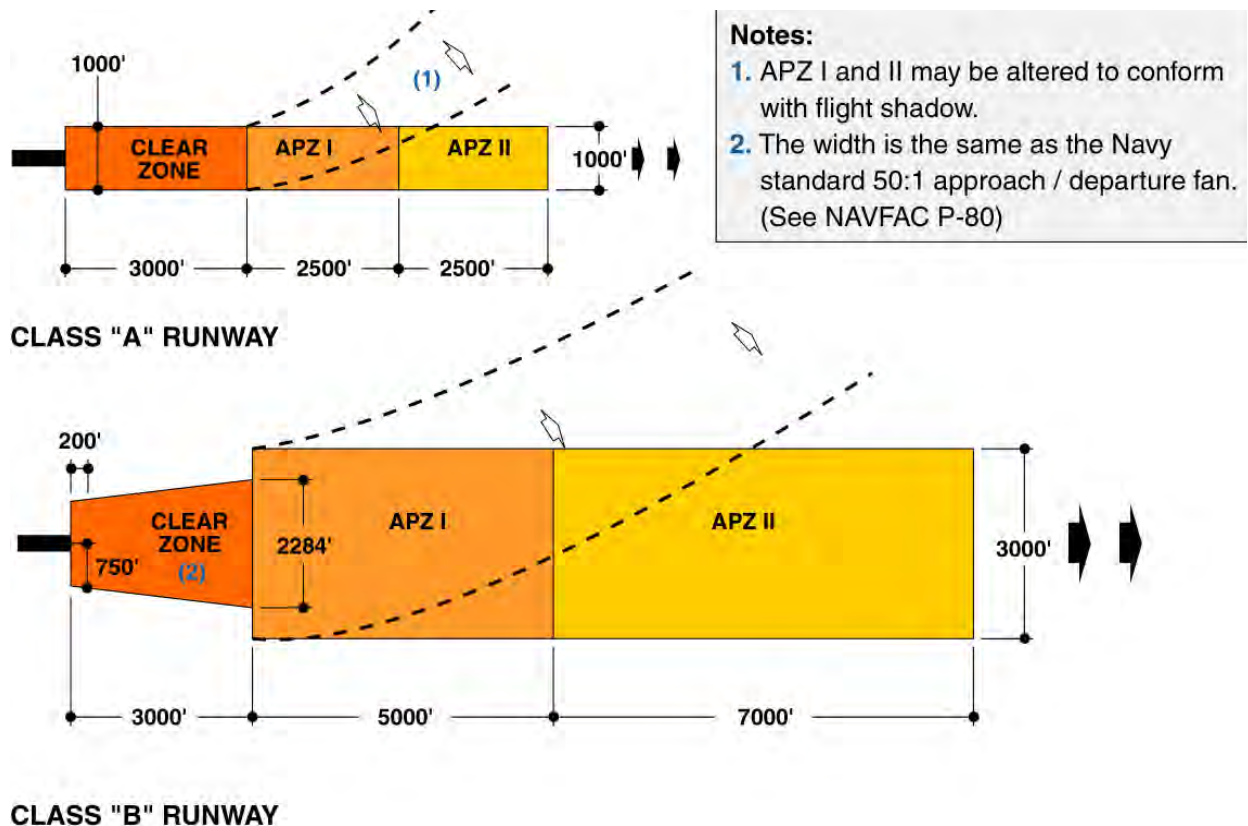


Figure 2-3: Locations of Clear Zones and Accident Potential Zones (APZs I and II).

ignated airport flight paths for approach and departure, some areas in a APZ-II zone may actually be closer to a runway than portion of the APZ-I. Figure 2-3 shows a diagram with typical locations of Clear Zones “A”, APZ-I “B”, and APZ-II “C” with respect to the end of the runway. Figure 2-4 provides the Clear Zone and APZs I and II for Santa Rosa County in the Choctaw Field vicinity.

Fixed-wing aircraft and helicopters takeoff or land into the wind. Landing or takeoff against the wind provides optimal aerodynamic conditions to lift aircraft and gain altitude. Flight paths leading toward an airfield, called an entry pattern, frequently enter from a course not aligned with the upwind runway or landing approach. In such situations, aircraft must fly an established local pattern until aligned with the upwind direction or the runway best aligned with the upwind direction. Likewise, takeoff direction does not always align with the intended departure direction, resulting in left or right turns shortly after takeoff in order to enter the departure pattern. APZ boundaries will bend to acknowledge left and right turning movements used to align with departure or landing patterns. Most APZ-I “B” and APZ-II “C” boundaries curve for this reason.

Landing and takeoff patterns differ between helicopters and fixed-wing aircraft because of their separate aerodynamic

requirements. Having a greater dependence on wind direction, helicopters takeoff and land facing oncoming wind. Flight paths for helicopters will vary with changes in the direction of the wind. APZ boundaries for helicopters may be aligned with prevailing or normal wind conditions. Fixed-wing aircraft are limited to a runways course, making flight path more predicate. Boundaries and size of APZ vary from airport to airport to address field conditions as well as unique and separate needs differentiating helicopters and fixed-wing aircraft.

## 2.2.3 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the Eglin boundary are subject to increased levels of impulse, or explosive noise. There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

Santa Rosa County includes areas in each of the three categories for impulse noise as shown in Figure 2-5.

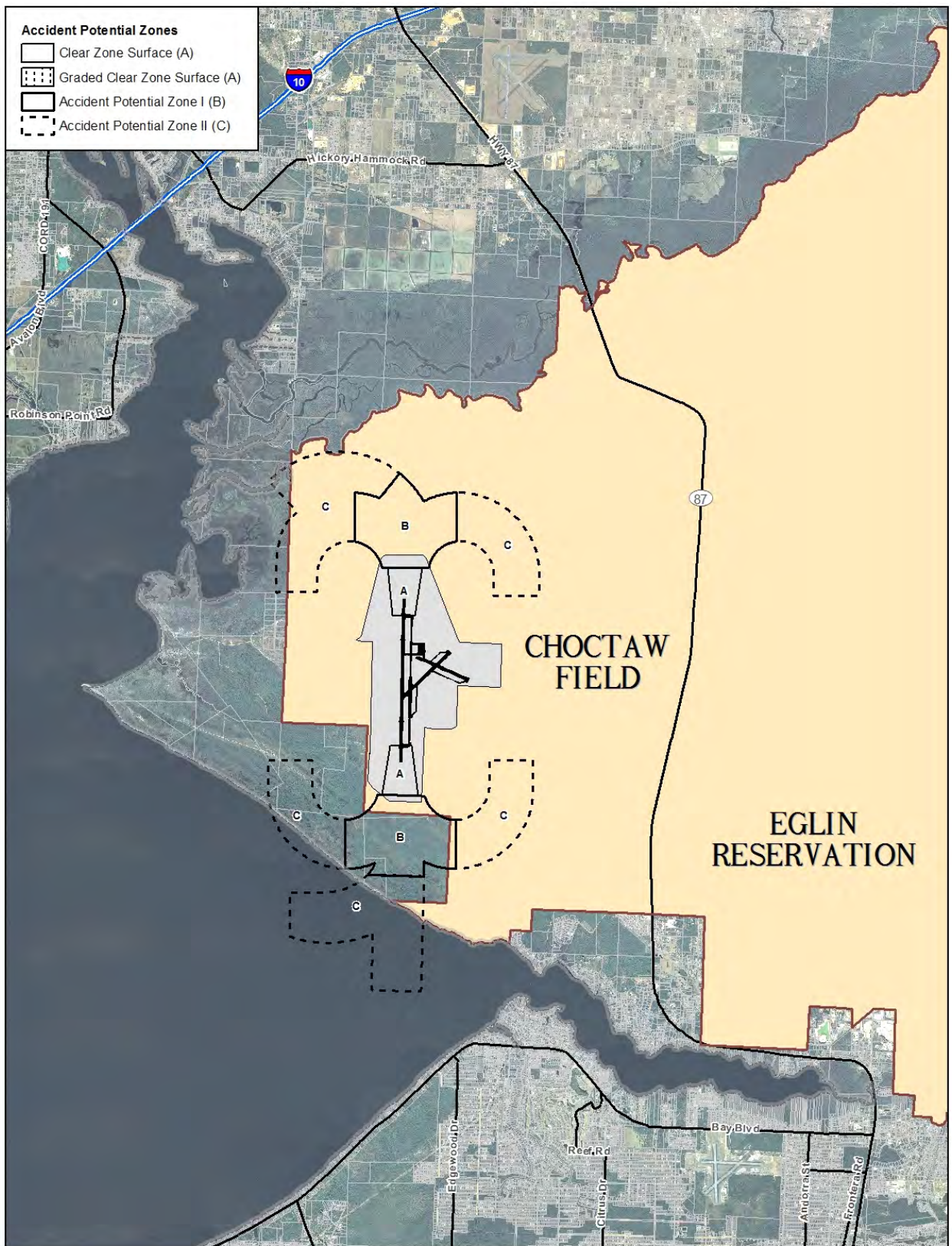


Figure 2-4: Santa Rosa County/Choctaw Field Clear Zone (Area A) and Accident Potential Zones 1 and II (Areas B and C) (Area B and C, Respectively)





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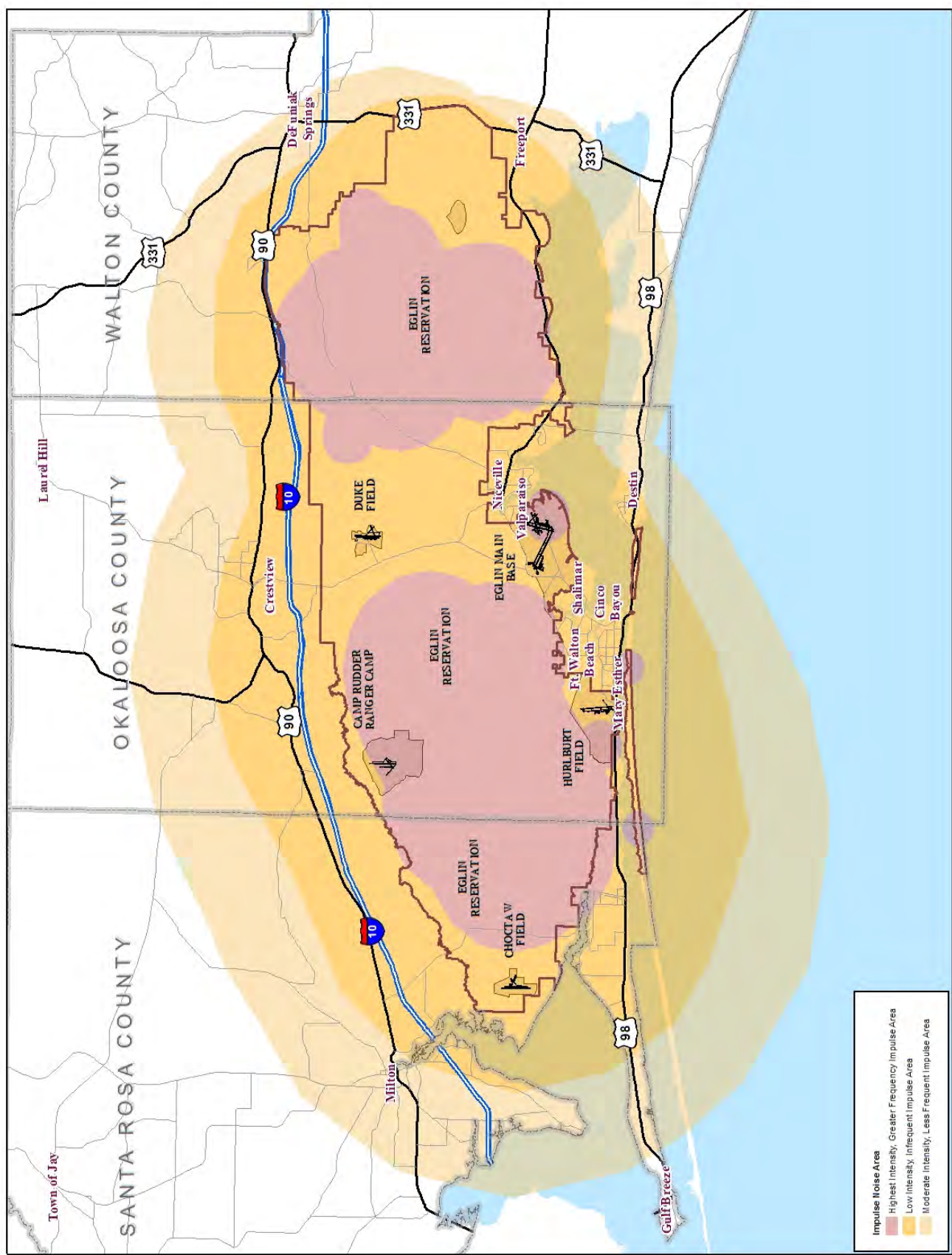


Figure 2-5: Impulse Noise Areas



## 2.2.4 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter Low Level Training Area*) as shown in *Figure 2-7*. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and NAS Whiting Field.

## 2.2.5 Airfield Noise

At the time of this report, the Air Force is in the process of developing the curriculum and finalizing the process for the F-35. *Figure 2-6* provides ranges of Typical A-weighted levels compared with common sounds. Two different noise alternatives (Alternate 1 and Alternate 2) were developed as part of the *Base Realignment And Closure (BRAC) 2005 Environmental Impact Statement (EIS)* and this information is being utilized as part of this JLUS. Noise contours for Alternate 1 will provide the maximum mission contours in the unincorporated parts of the County and, therefore, are

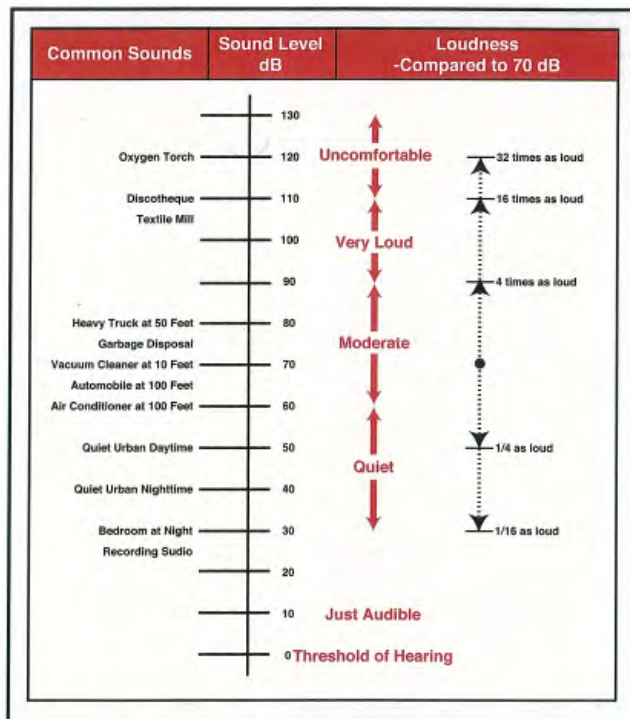
the noise contours used for analysis and form the basis for the recommendations contained herein. The analysis and recommendations associated with aircraft noise shall be reevaluated based on information forthcoming from the AF in the Supplemental BRAC EIS.

At a typical installation, the AICUZ addresses noise exposure to non-military lands near military installations with safety concerns. Noise exposure can create conflicts with public welfare and quality of life for those living or working near airfields. Noise level contours extending from the airfield are incrementally measured from the highest typical decibel (dB) generated within a military installation to 65 dB within non-military property. For the Eglin AFB JLUS, the future aircraft (F-35) is not located at Eglin at this time so the AICUZ does not include noise levels associated with the F-35. In order for this study to be based on useful and applicable information, it was determined this study would utilize noise levels available from the Air Force for the proposed F-35 in lieu of using F-15 noise levels which will be obsolete in the coming years.

Based on numerous sociological surveys and recommendations of federal interagency councils, the most common benchmarks for assessing environmental noise impacts to people are a Day-Night Average Sound Level (DNL) of 65 dBA for A-weighted noise, and 62 dBC for C-weighted noise. When measuring single event impulse noise, the benchmark for assessing noise impacts to people is 115 dBP (unweighted scale). These noise level thresholds are often used to determine residential land use compatibility and the risk of human annoyance. In general, when exposed to less than the noise levels identified above, land uses are unrestricted. As noise levels increase above these levels, some land uses become incompatible.

Noise contours are delineated by computerized simulation of aircraft activity at each installation and integrate operational data specific to the types of aircraft using a particular airfield. The methodology used to identify noise counters takes into consideration flight paths, frequency and time of operation, as well as the type and mix of aircraft. The noise contours utilized in this study were provided by the Air Force. The scope of this study does not include manipulating the computer simulation to adjust noise contours.

*Figure 2-8* shows the Choctaw Field airfield noise associated with the two F-35 alternatives with a one-half mile buffer from each of the respective 65 dB contours for each alternative. *Figure 2-9* specifically shows the F-35 Alternate 1 noise contours from operations currently proposed at Choctaw Field.



Source: Handbook of Noise Control, C.M. Harris, McGraw-Hill Book Co., 1979, and Ref. E5.

Figure 2-6: Typical A-weighted Levels of Common Sounds

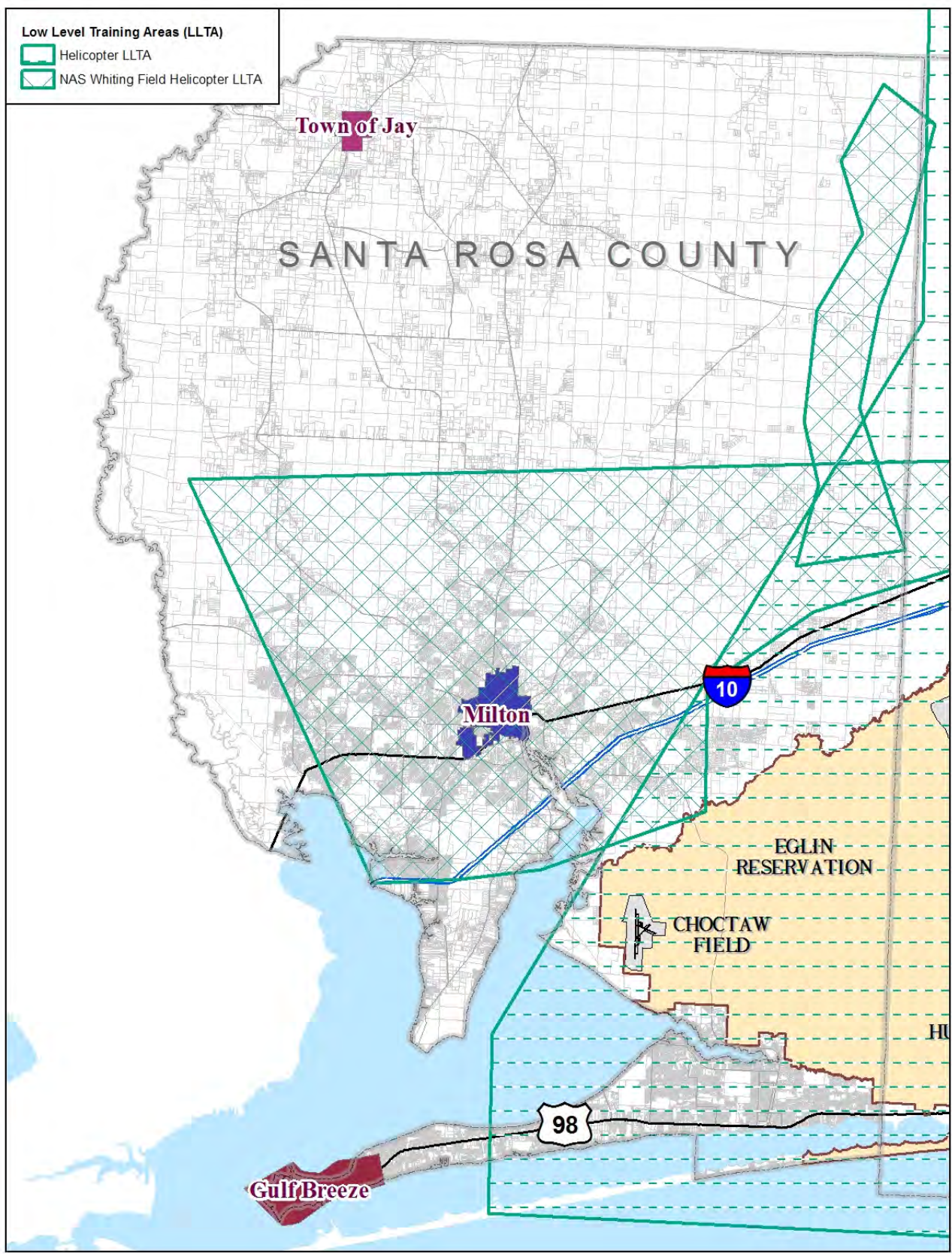


Figure 2-7: Low Level Helicopter and Tiltrotor Training Areas Across Santa Rosa County





## 2.2.6 Low Level Training and Approach Zones

According to the RAICUZ, Military Training Routes (MTR) are corridors of a defined width established and designated by the Federal Aviation Administration (FAA) specifically for military training according to the RAICUZ. Within these corridors, military aircraft are permitted to conduct military training/RDT&E below 10,000 feet above mean sea level (MSL) in excess of 250 knots indicated airspeed (KIAS).

Two additional military training areas are the Slow Speed Low Altitude Training Route (SR) and the LLTA area. Flight within the SR must be below 1,500 feet above ground level (AGL) and at or below 250 KIAS. Typically SRs are flown with C-130 aircraft and helicopters as well as some slow speed training aircraft. LLTAs are large geographic areas where random low altitude operations are conducted at airspeeds below 250 KIAS. Typically A-10 aircraft and helicopters frequent LLTAs.

Within all of the MTRs, SRs, and LLTAs, low altitude navigation tactical training is currently conducted by C-130 cargo transport aircraft, helicopters, fighter and attack aircraft, and training aircraft. The CV-22 Osprey and the CA-212 light transport aircraft are proposed to fly in these areas in the future (U.S. Air Force, 2004a).

Maintaining lower population densities in low level approach areas is important for safety reasons.

As population density increases underneath the MTRs and LLTAs, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1 SOW and Naval Air Station Whiting Field. Maintaining lower population densities underneath the low level MTRs along the northern boundary of Eglin, which are used by the 1 SOW, is important for safety reasons. As these routes transition into Field 6 (Camp Rudder), Duke Field, Field 1, Pino Drop Zone, and Sontay Drop Zone, the aircraft is not able to deviate from its selected approach path in an attempt to avoid more densely populated areas or noise sensitive features (e.g., hospital, school, or church). The approach path generally begins approximately 10 nautical miles (NM) from the center point of the airfield or drop zone. *Figure 2-10* includes low level training and approach zones height limitations.

## 2.2.7 Terminal Instrument Procedures (TERPS)

Airfields at which instrumented approach and departures are conducted use TERPS for prescribing flight path area and vertical clearances from terrain and manmade obstructions based on information provided in the RAICUZ. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPS have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs





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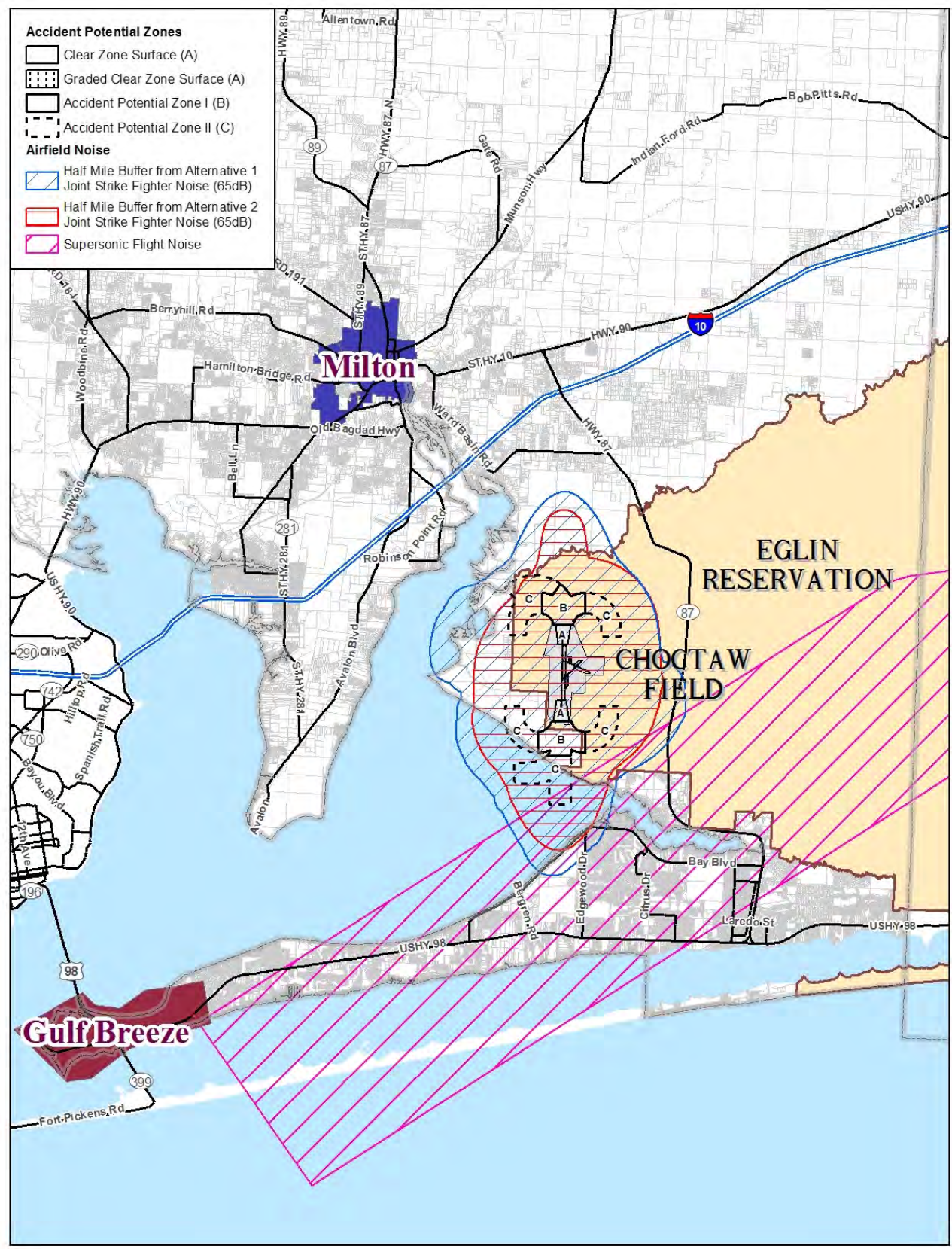


Figure 2-8: F-35 Alternates 1 and 2 Noise Areas With One-Half Mile Buffer  
Shown From Each Alternative's Respective, 65 dB Contour



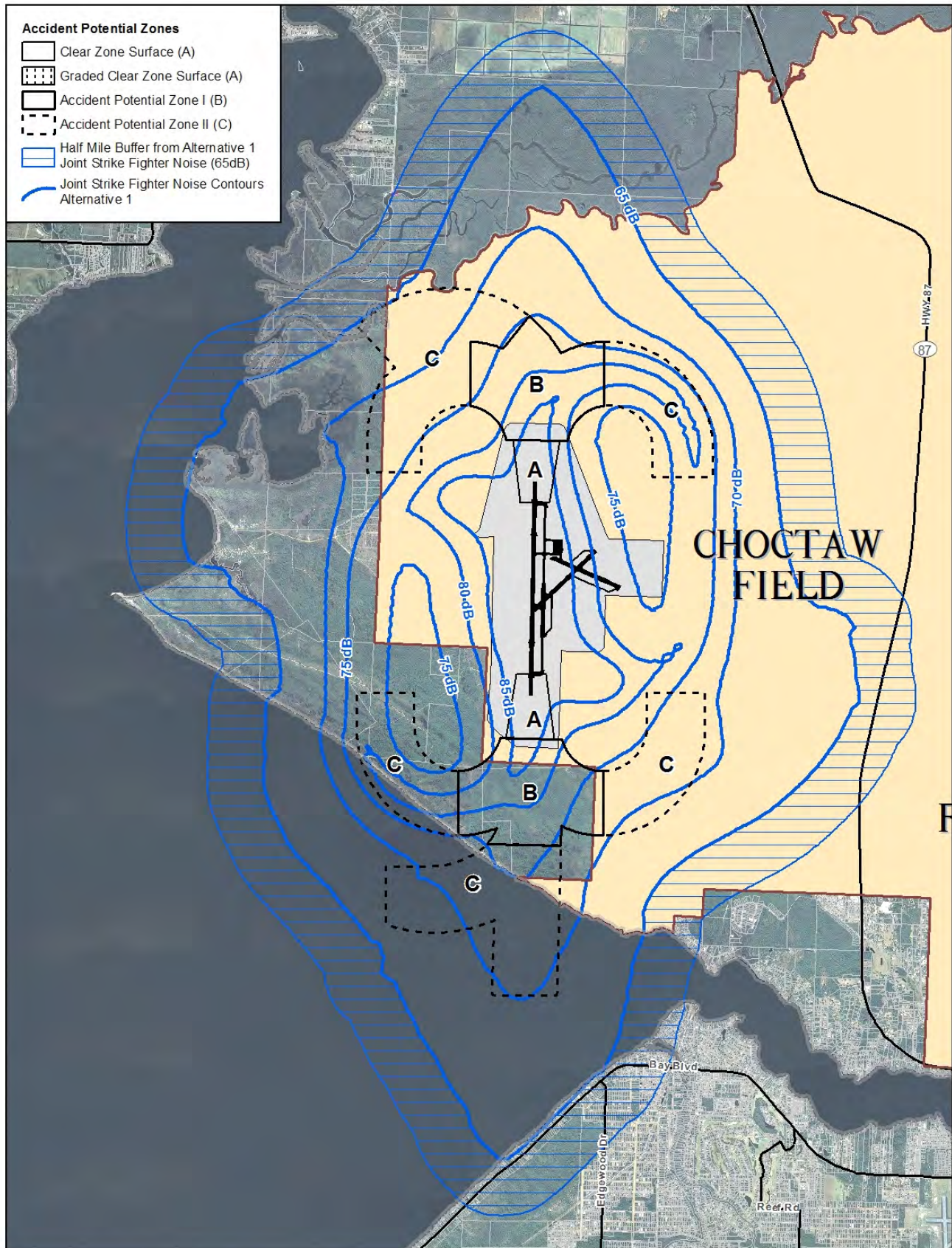


Figure 2-9: Santa Rosa County/Choctaw Field F-35 (Alt 1) Proposed Noise Contours



to be. This increase in required weather minimums reduces the availability of the airfield.

*Figure 2-10* includes height limits based on military training routes and TERPS.

## 2.2.8 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns. Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. *Figure 2-11* shows the increase in artificial lighting that is visible from satellites for a portion of Santa Rosa County. Field carrier landing practice takes place at Choctaw Field. This provides aircraft the environment to simulate night landings on the deck of an aircraft carrier at sea. Low light conditions are vital to the training to successfully simulate conditions at sea and provide opportunity to use night vision goggles during take-offs and landings.

The ability for the Army 6th Rangers Battalion (Airborne) and 7th Special Forces Group to train for night operations is mission-essential

## 2.2.9 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

Recent encroachment within the 5.4- to 5.9-GHz bandwidth includes a developer installing wireless LAN in a high-rise condominium.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006). Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.





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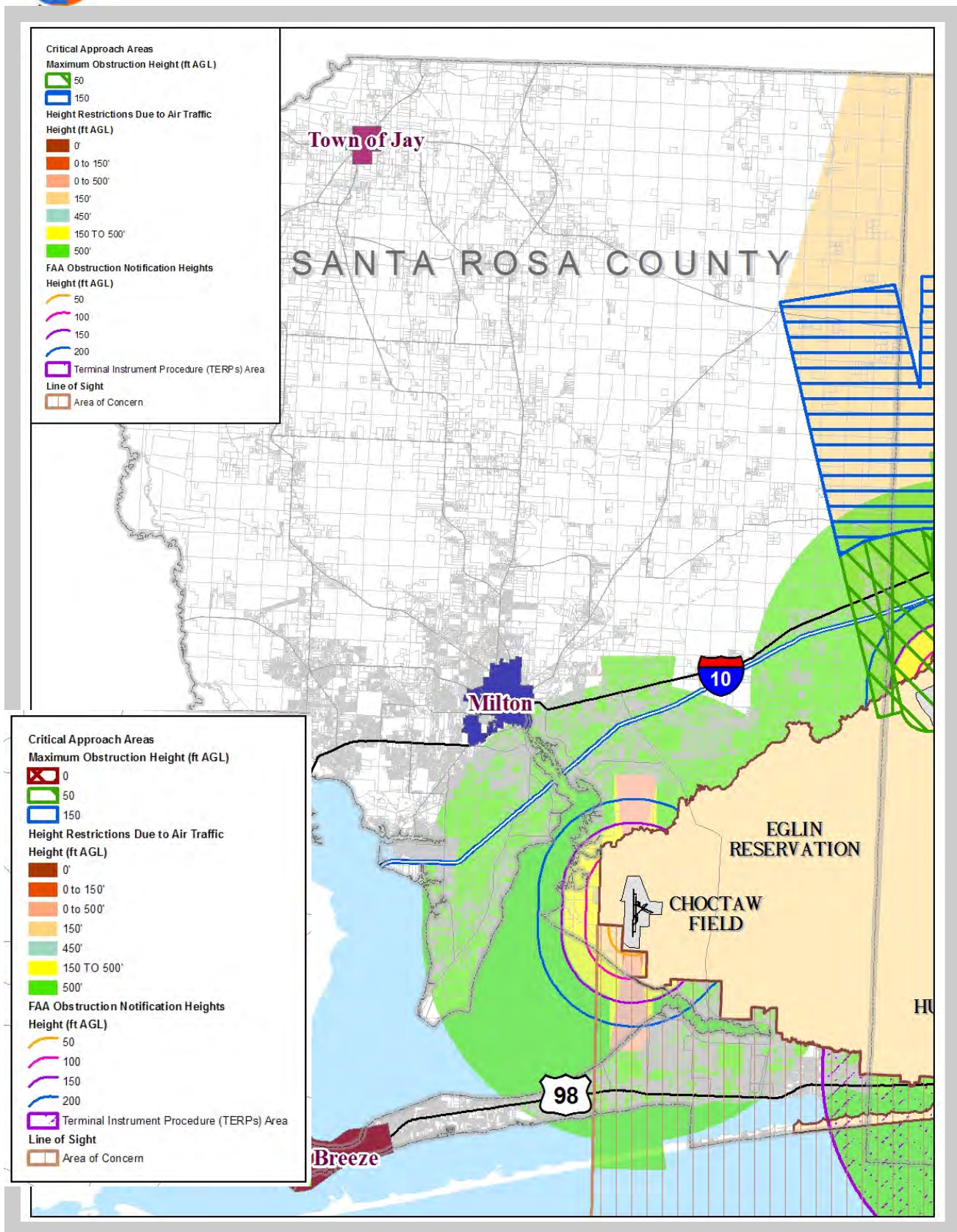


Figure 2-10: Maximum Obstruction Heights For Other Military Training Routes and Terminal Instrument Procedures (TERPs).  
Note that the lowest height shown should be the governing elevation to minimize encroachment.

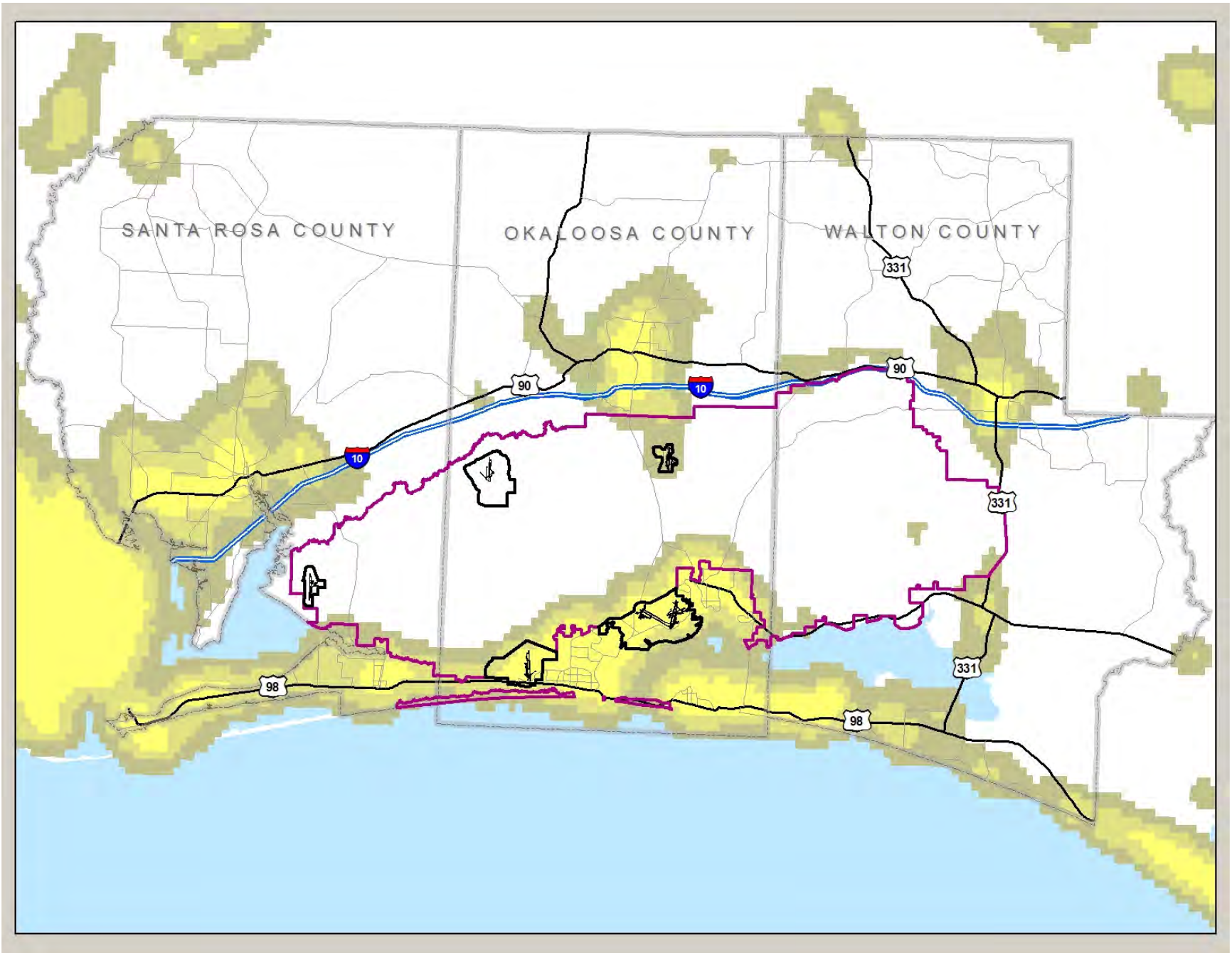


Figure 2-11: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)







## 2.2.10 Supersonic Noise

The RAICUZ states that when an aircraft moves through the air, it pushes the air out of its way. At subsonic speeds, the displaced air forms a pressure wave that disperses rapidly. At supersonic speeds, the aircraft is moving too quickly for the wave to disperse, so it remains as a coherent wave. This wave is a sonic boom. When heard at the ground, a sonic boom consists of two shock waves (one associated with the forward part of the aircraft, the other with the rear part) of approximately equal strength and (for fighter aircraft) separated by 100 to 200 milliseconds. Sonic booms usually occur in the range of low to very low frequencies. Sounds in the low frequency ranges, such as those associated with sonic booms, experience very little attenuation as they pass through the atmosphere. Therefore, distance is the prime attenuating mechanism acting on the boom.

At Eglin, these missions are flown over Test Area B-70, which is Eglin AFB's sole land test area currently capable of supporting supersonic flight operations. These missions are typically flown on a northeast-to-southwest trajectory. Most supersonic testing is normally only allowed over the Gulf of Mexico, well offshore from populated areas.

The supersonic noise created by test missions at Eglin AFB at Test Area B-70 on the western side of the reservation is primarily confined to the Eglin reservation. *Figure 2-12, Noise Associated with Supersonic Flight Corridor*, also shows the area for possible noise overruns caused by supersonic flights at B-70 and the potential influence on southern Santa Rosa County and portions of Pensacola Beach (Escambia County).

## 2.2.11 Controlled Firing Areas

According to the RAICUZ, there are 20 test sites associated with Santa Rosa Island, 11 of which are actively used in support of the test and training mission at Eglin. The missions at the test sites range from Command Centers that control the activation of flight termination systems for items being tested (Test Site A-3) to the launching of surface-to-air missiles such as the Air Intercept Missile and the Patriot missile (Test Site A-15). In the airspace above the island and seaward for three nautical miles is a Controlled Firing Area. *Figure 2-13* shows the Controlled Firing Areas in the Fort Walton Beach Vicinity. These areas are defined air space blocks that contain activities that would be potentially hazardous to nonparticipating aircraft.

Successful and safe completion of the mission on land and the adjacent waters requires the control of the airspace, water, and land that are part of the mission scenario. Access restriction ensures the safety of people not participating in the mission as well as maintains mission integrity.

Restricting access becomes increasingly problematic as the number of residents and civilian boat traffic increase. Potential changes to the island or shoreline and surrounding area could potentially lead to more increases in civilian and commercial boat traffic. As stated in the RAICUZ, these possible changes, such as construction of a land cut through the non-federally owned portions of Santa Rosa Island or establishment of artificial reefs, would attract marinas and additional boats to the area. The associated increase in boat traffic would complicate access restriction measures and potentially cause safety concerns, mission delay, or cancellation of the mission.

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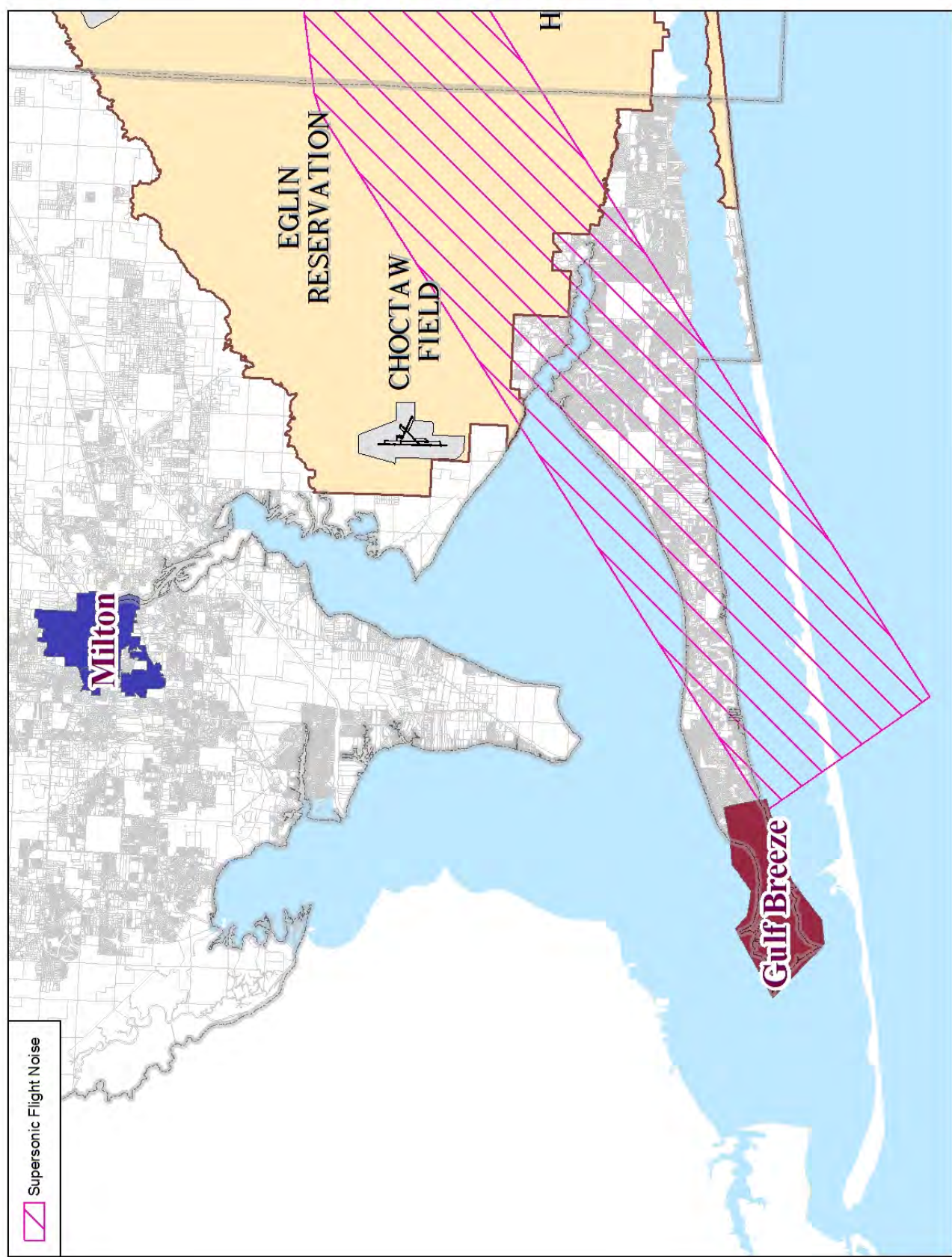


Figure 2-12: Supersonic Flight Noise Over South Santa Rosa County





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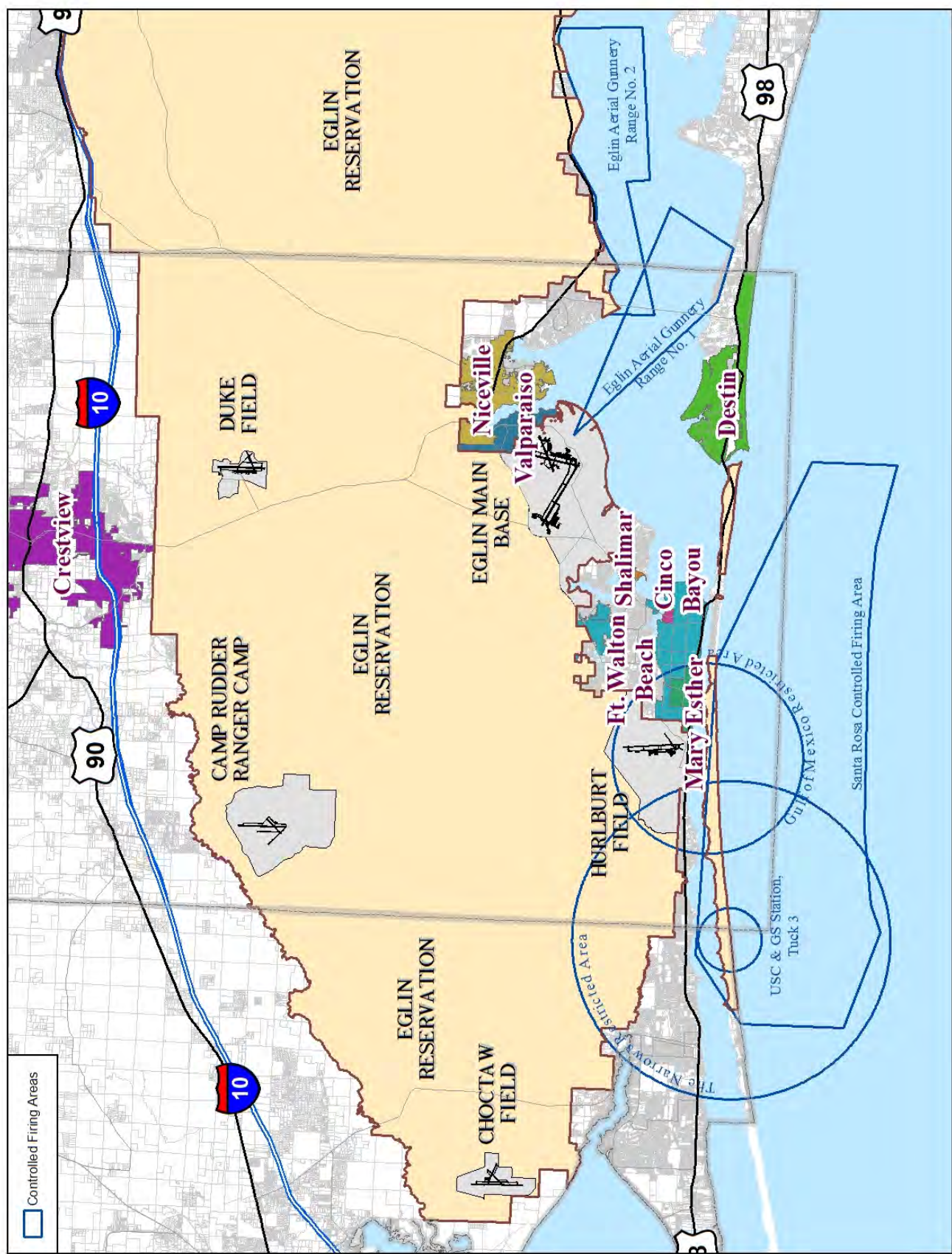


Figure 2-13: Controlled Firing Areas



## 2.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the County's Zoning Map and Future Land Use Map are provided in *Figures 2-14 and 2-15*, respectively.

People living or working near a military installation can expect impacts such as noise, smoke, and dust generated from ground and air operations. Quality of life for those living or working near an installation can be negatively affected when these impacts reach levels creating a nuisance. A potential risk to public safety also exists from the possibility of aircraft crashing at or near an airfield. The extent and frequency of negative impacts affecting people living near airfields will vary based on the type of aircraft, airfield operating hours, airfield ground activities, frequency of flight and ground training activities, and proximity to the airfield. Future residents choosing to live near Choctaw Field and the boundary to Eglin AFB will be impacted by flight and ground activities.

### 2.3.1 Eglin Perimeter Boundary Development

The areas of the County within one mile of Eglin's boundary include the central and southern portions of the County. The zoning for the central area is predominately Agricultural/Rural Residential and the southern areas of the boundary is predominantly Residential. The predominate Future Land Use Map designations for the central area is Agricultural and Conservation Recreation. The southern area designations include Single Family Residential, Agriculture, Conservation/Recreation, Industrial, and Mixed Use. *Figures 2-16 and 2-17* show the County's existing zoning and future land use designations within one mile of Eglin's northern boundary, respectively.

The lands within the buffer on the north are predominately undeveloped and provide an opportunity to preserve security and encroachment concerns over the long term. The lands within the southern buffer are predominately built-out and do not allow significant opportunities to manage encroachment. The land use in the areas buffering the installation to the south are likely best managed through addressing the other encroachment issues identified.

Part of the land use analysis for this study included examination of the actual parcels within a one mile area along the northern boundary to Eglin AFB. A large majority of these parcels are currently undeveloped and over 8,300 acres is currently held in conservation in perpetuity by the Northwest Florida Water Management District, Nature Conser-

vancy, and/or the State of Florida Improvement Trust Fund. Over 200 acres is currently held by the Division of Forestry. There are two parcels currently held in private hands exceeding 1,000 acres; one is 1,418 acres and the other is 1,014 acres. There are currently three privately held parcels, each more than 200 acres and five privately held parcels greater than 100 acres each. The existence of large scale vacant tracts combined with the existing Yellow River flood plain and the need to protect this area from encroaching into operations at Eglin AFB provides an excellent opportunity for voluntary land acquisition. At the same time, the vacant land poses another opportunity for development.

### 2.3.2 Land Uses/Structures in Accident Potential Zones I and II (Areas "B" and "C") Near Choctaw Field

All land within non-military lands inside the APZ are vacant and ownership is divided amongst three parties—the Northwest Florida Water Management District (NFWFMD), the State of Florida, and a private entity.

Land ownership within the APZ is presently established in large tracts typically hundreds of acres in size. Currently, no dwelling units are located within or extending into the APZ and current population in the APZs is estimated at zero persons. Based on existing zoning, there is great potential for single family residential development in the southwest APZs. These areas were identified in the 2003 Santa Rosa JLUS and the Future Land Use Map identifies these areas as R-1 within an Accident Potential Zone (R1-APZ). *Figure 2-18* shows the Existing Zoning in the APZs and *Figure 2-19* shows Future Land Use Designations in the APZs.

Based on vacant lands that could potentially accommodate new development, but considering the County's existing MAZ for Choctaw Field, population in the APZs has a potential to an estimated 1,100 or more. The number of homes could rise to as many as 470 or more dwelling units. Development within the Clear Zone is severely restricted by the County's Airport Environs ordinance.

Residential development in APZ I would be an incompatible use. Development of residential uses in APZ II is considered a compatible use with densities between 1-2 dwelling units per acre. There are maximum mission noise level contours in APZ I and II that influence compatibilities - see Section 2.3.3.



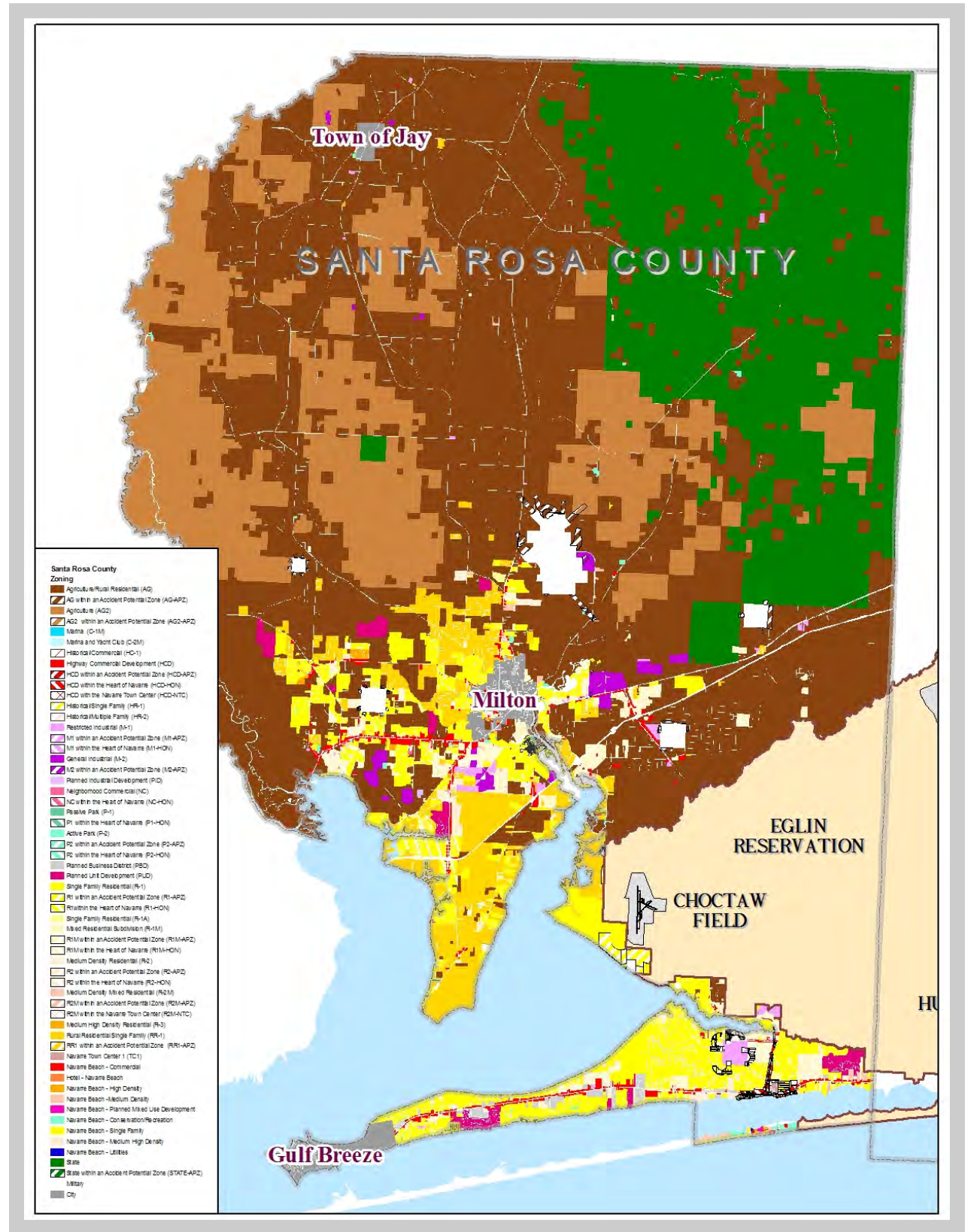


Figure 2-14: Santa Rosa County Zoning Map

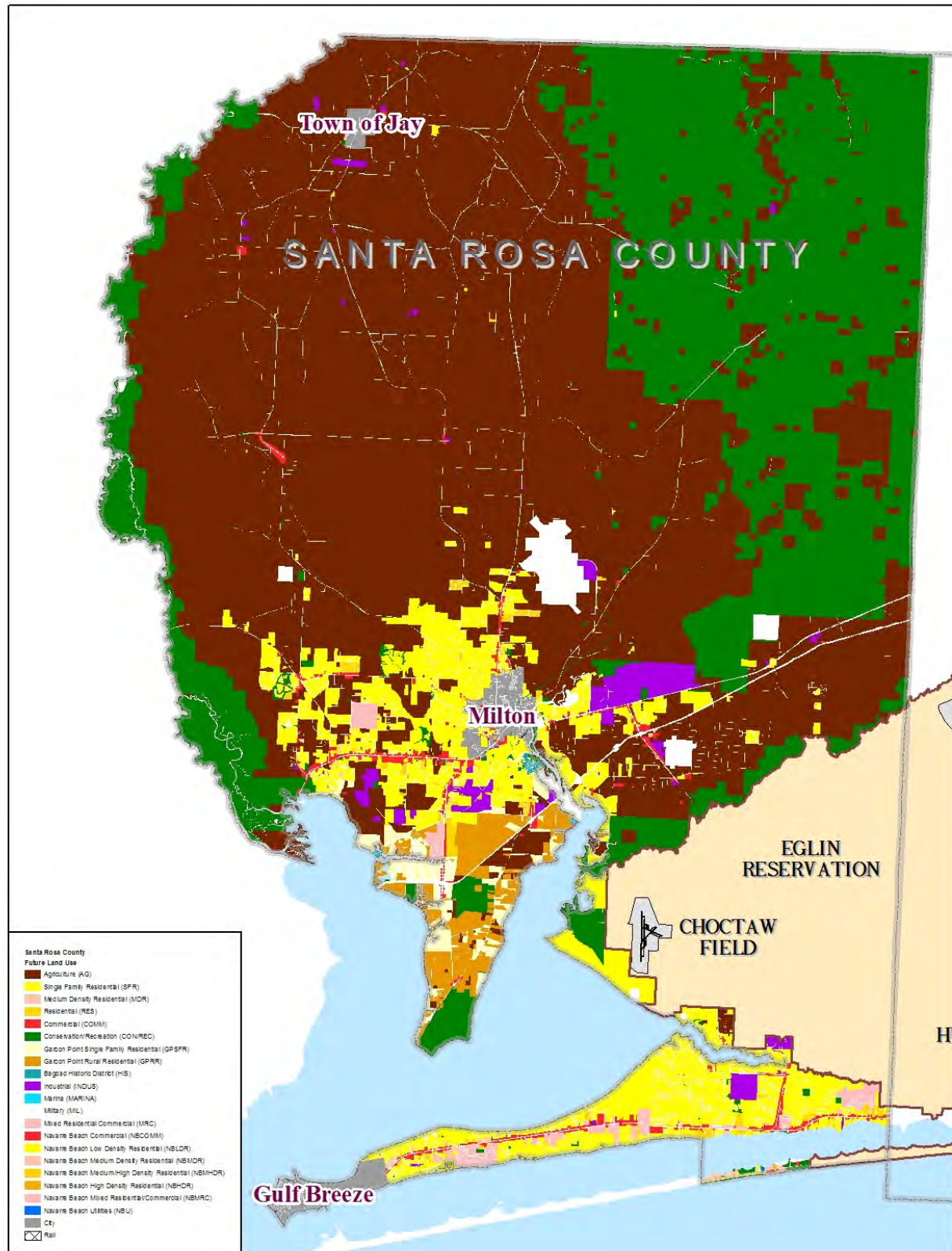


Figure 2-15: Santa Rosa County Future Land Use Map





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

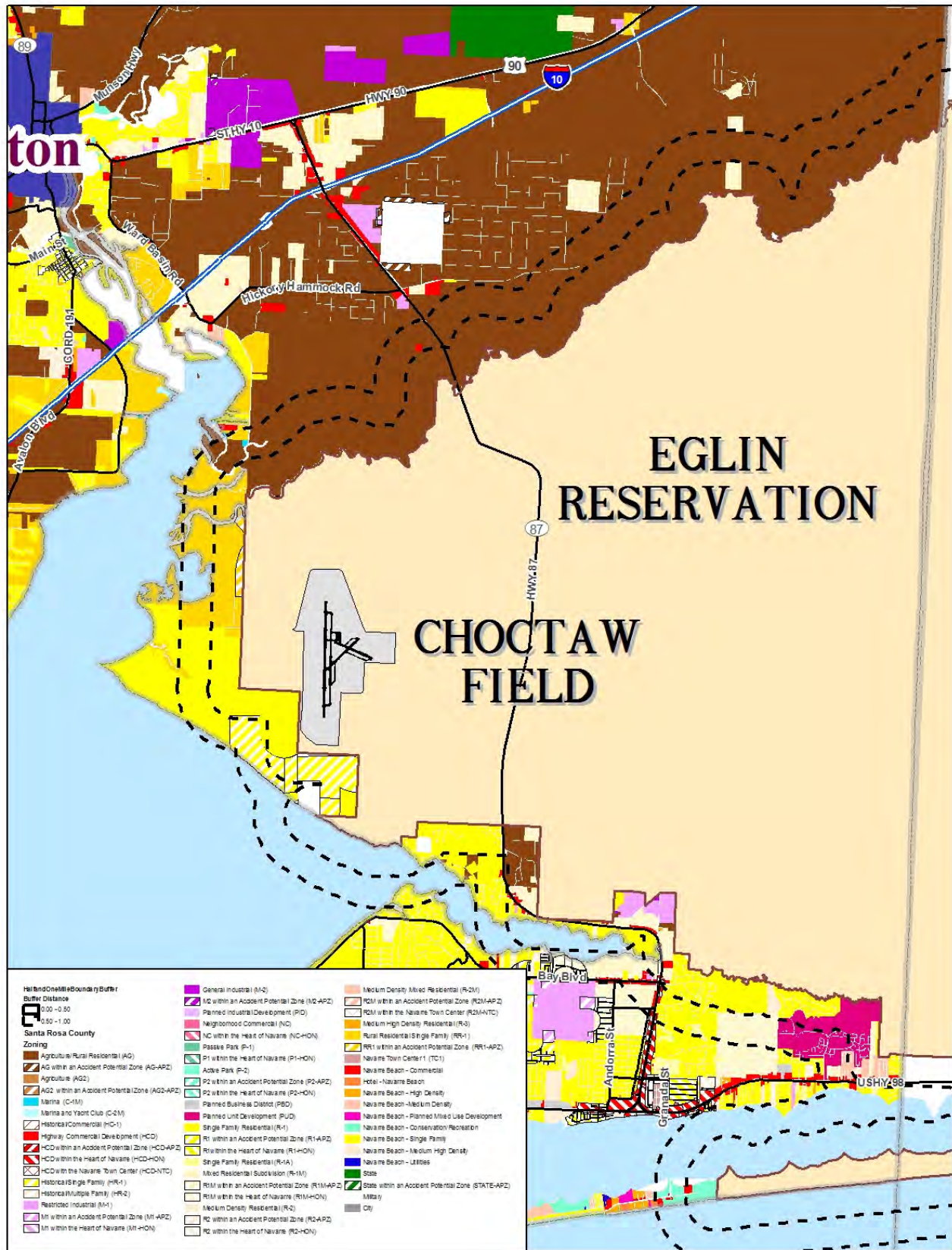


Figure 2-16: One-Half and One Mile Buffer Area Around Eglin AFB with Santa Rosa County Zoning Map



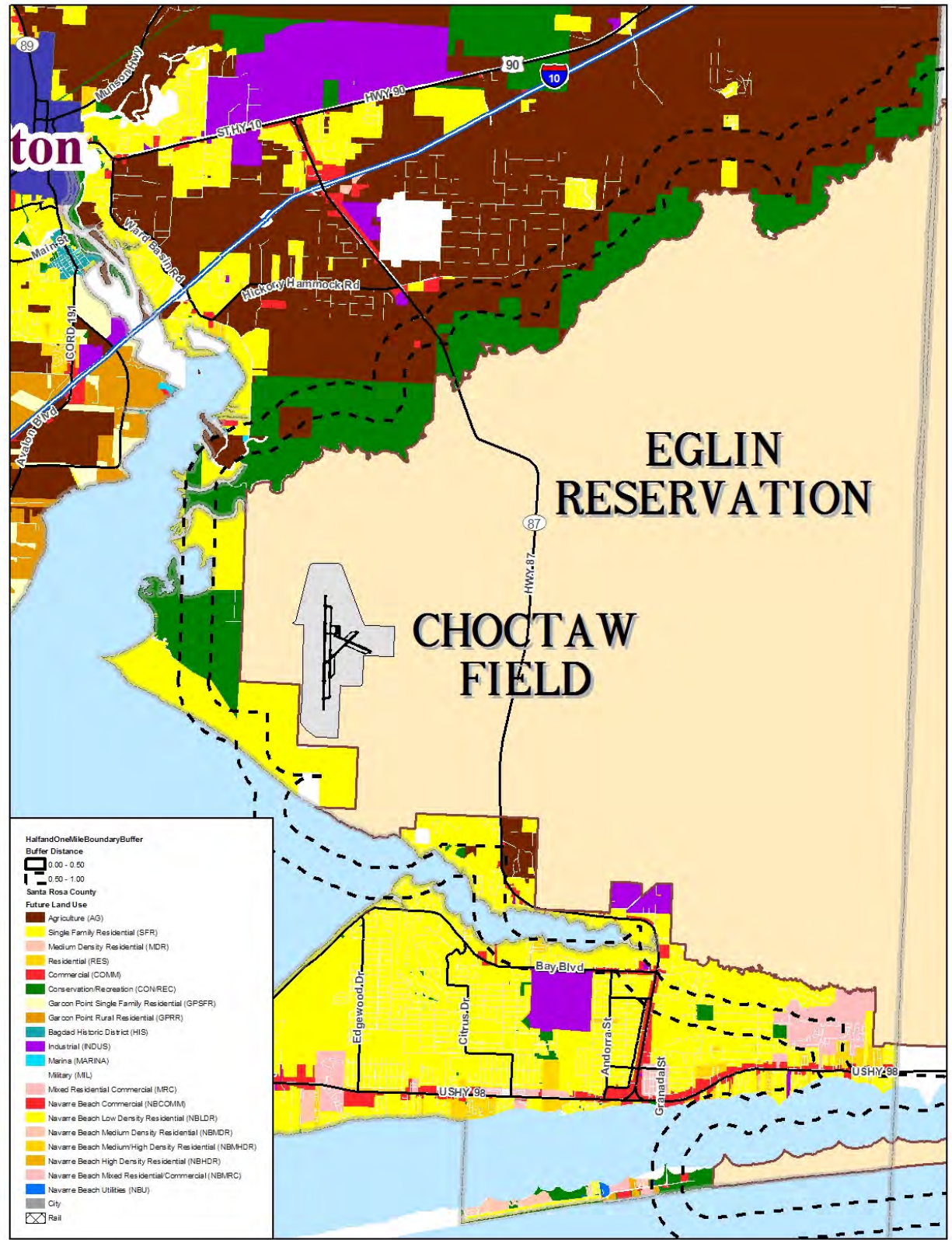


Figure 2-17: One-Half and One Mile Buffer Area Around Eglin AFB with Santa Rosa County Future Land Use Map



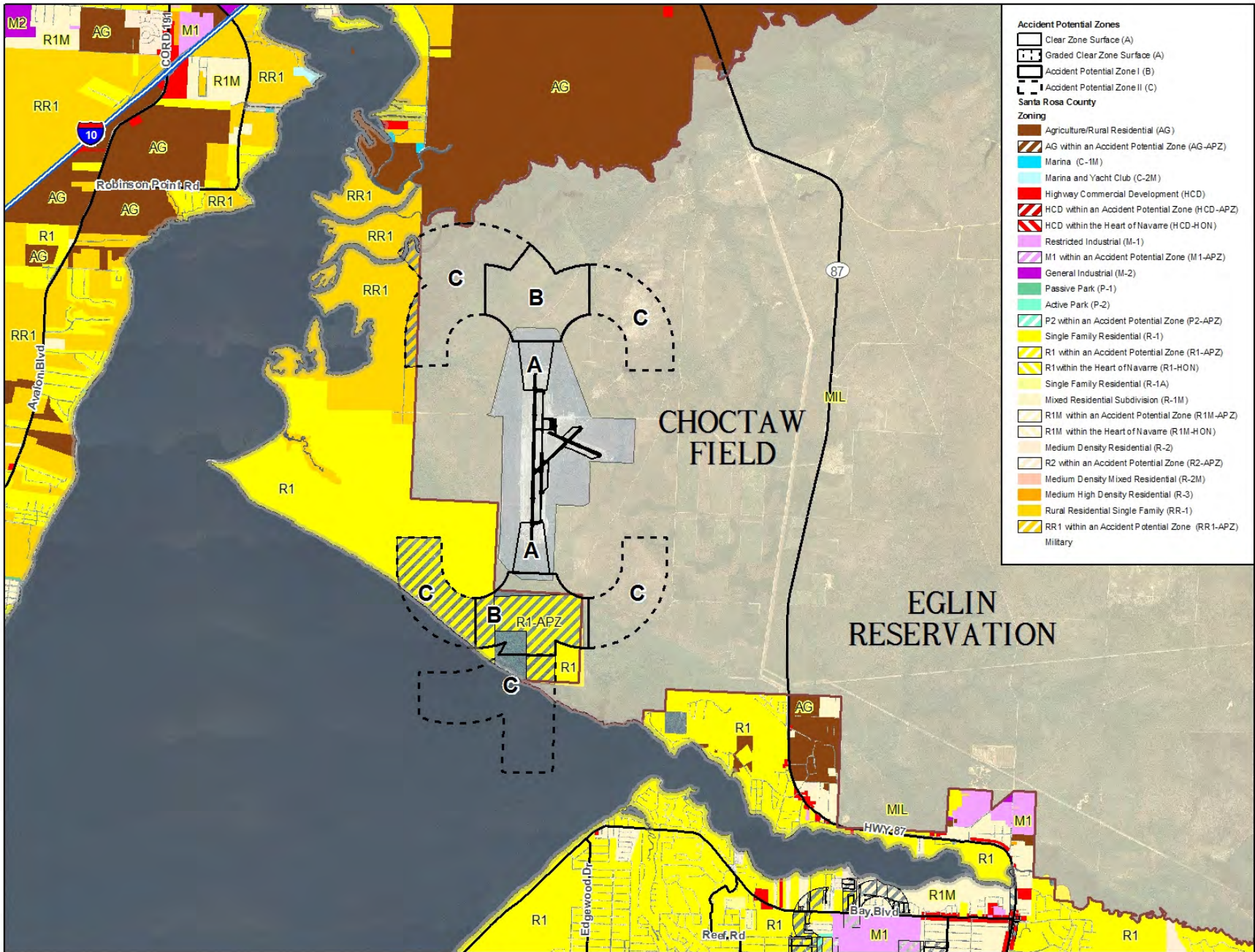


Figure 2-18: Choctaw Field Accident Potential Zones (APZs) I and II With Santa Rosa County Zoning Map





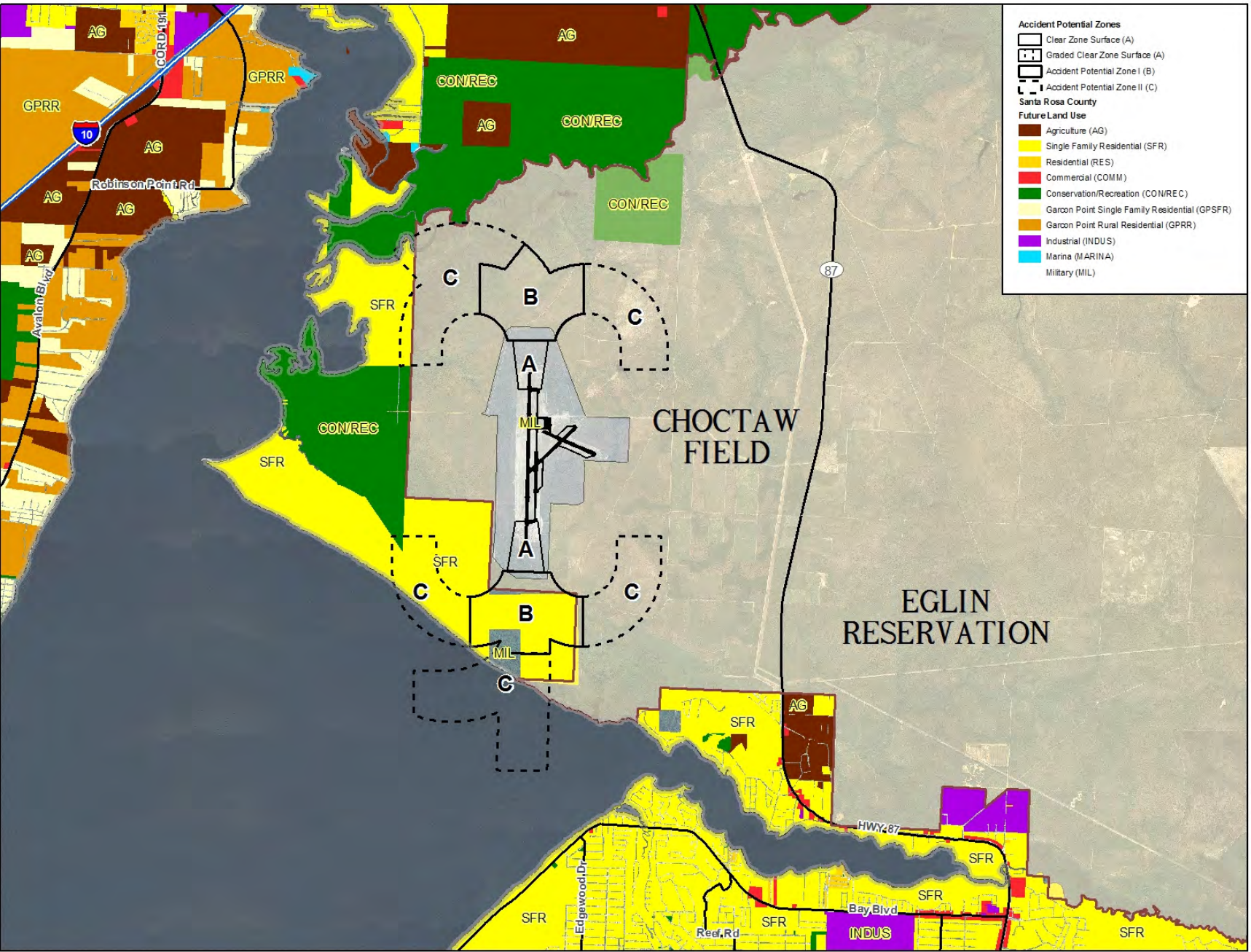


Figure 2-19: Choctaw Field and Accident Potential Zones (APZs) I and II With Santa Rosa County Future Land Use Map Designations





### 2.3.3 Land Uses in High Noise Areas

There are approximately 4,018 acres inside the maximum mission noise areas (greater than 65dB) and all are currently undeveloped. Existing land use within the high noise areas includes Agriculture, Military, and Residential (R1, RR1, and R1-APZ).

Land ownership within the maximum mission noise areas is presently established in large tracts typically hundreds of acres in size. Current population in the high noise areas is estimated at zero persons with no existing dwelling units.

Future land use designations include Agriculture (1 parcel, 176 acres), Conservation/Recreation (27 parcels, 1,724 acres), and Single Family Residential (10 parcels, 2,118 acres).

Population and housing estimates were determined by comparing land use records from Santa Rosa County with statistical data from the 2000 US Census. Statistical data pertaining to the average number of persons per household for Santa Rosa County were applied to the number of estimated occupied housing units.

Based on this analysis, there are no existing incompatible uses/structures in the high noise areas. For this study, the determination of an incompatible land use was defined as an existing use conflicting with the Federal Aviation Administration's Land Use Sensitivity Matrix. Based on zoning and future land use designations, there is great potential for residential development in the Choctaw Field High Noise Level Areas (>65 dB). Some of these areas are constrained by environmental conditions such as jurisdictional wetlands. *Figures 2-20 and 2-21* provide the existing zoning and future land use designations with respect to the F-35 Alternate 1 noise contours, respectively.

The Future Land Use Map designations for residential areas within the 75dB and greater noise contours are considered incompatible. For the residential areas within the 65-75 dB ranges, residential use is discouraged. If local conditions dictate the need for residential in the 65-75 dB area, single-family residential units should be constructed with noise level reduction materials and methodologies. Since the areas within the maximum mission noise contours are currently undeveloped, there is an opportunity to designate these areas as a compatible use other than residential such as, but not limited to, recreation, certain services, or conservation.

### 2.3.4 Supersonic Noise

The area included in the supersonic noise area is located in southern Santa Rosa County as previously shown in *Figure 2-10*. Development in this area can be expected to experience occasional sonic booms as a result of aircraft's supersonic speed in this area.

The predominant type of zoning in the Supersonic Flight Noise Zone includes Single Family Residential with some Highway Commercial, Planning Unit Development, and Planned Business District. The Future Land Use Map designations in this area include predominantly Single Family Residential with some Mixed-Residential Commercial, Industrial, and Commercial. The western portion of this area stretches beyond Santa Rosa County into Escambia County.

### 2.3.5 Controlled Firing Areas

The controlled firing areas in Santa Rosa County include the waterfront areas near Navarre as shown in *Figure 2-13*. The current zoning for parcels in the controlled firing areas include a broad range:

- Medium Density Mixed Residential
- Conservation
- Single Family
- Medium High Density
- High Density
- Commercial
- Industrial
- Planned Mixed Use
- Military-Eglin

### 2.3.6 Impulse Noise

The nature of the impulse noise in the County is in the low, moderate, and high ranges as previously shown in *Figure 2-5*. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis. Notification of the high intensity areas that experience explosive impulse noise would help property owners understand the reason for the "booms" they hear and feel.

### 2.3.7 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers a large portion of the County and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a temporary nuisance resulting from low level helicopters and tiltrotors flying overhead and the temporary sound and vibration increases associated with low flying helicopters and tiltrotors.

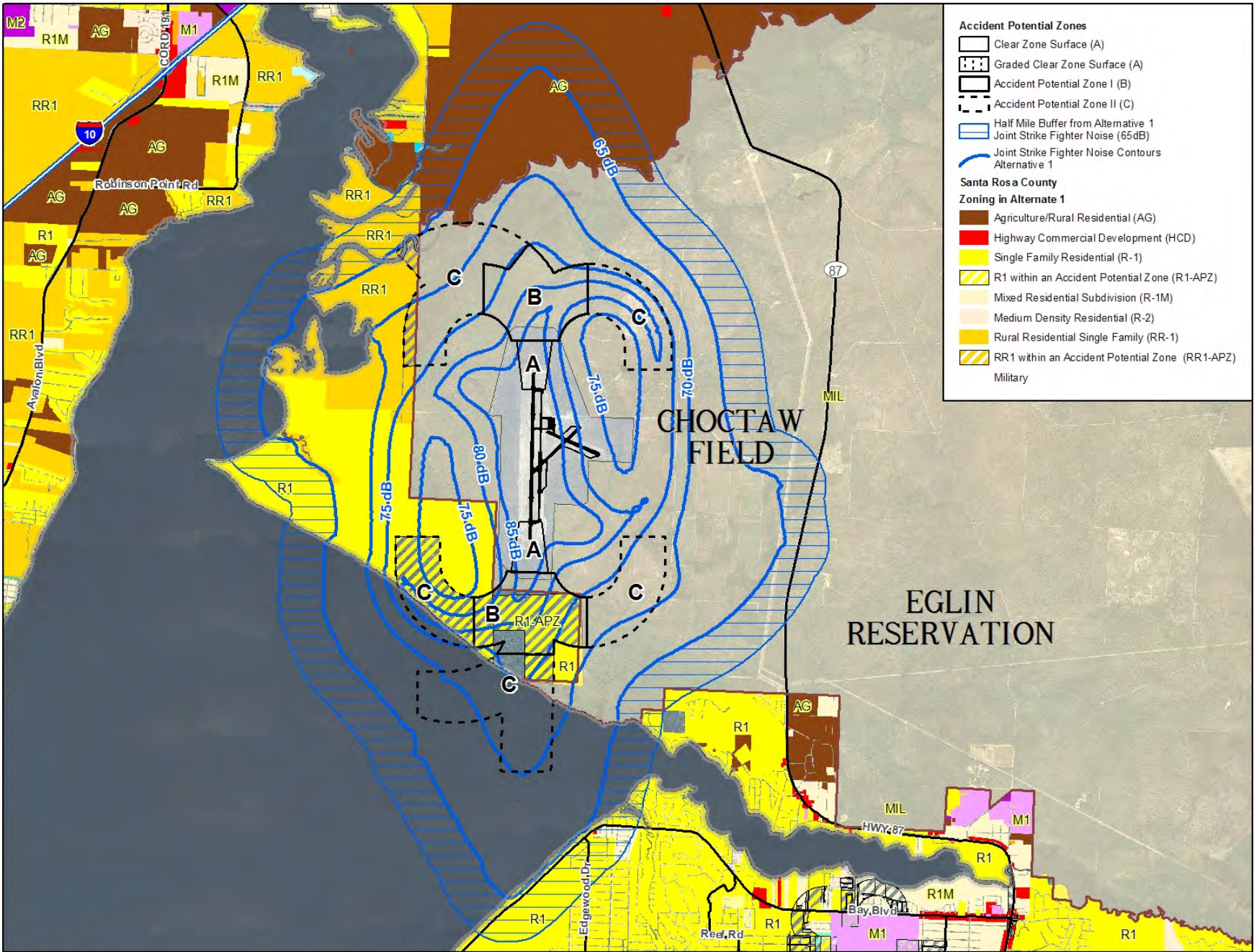


Figure 2-20: Choctaw Field F-35 Alternate 1 Noise Contours With Santa Rosa County Zoning Map





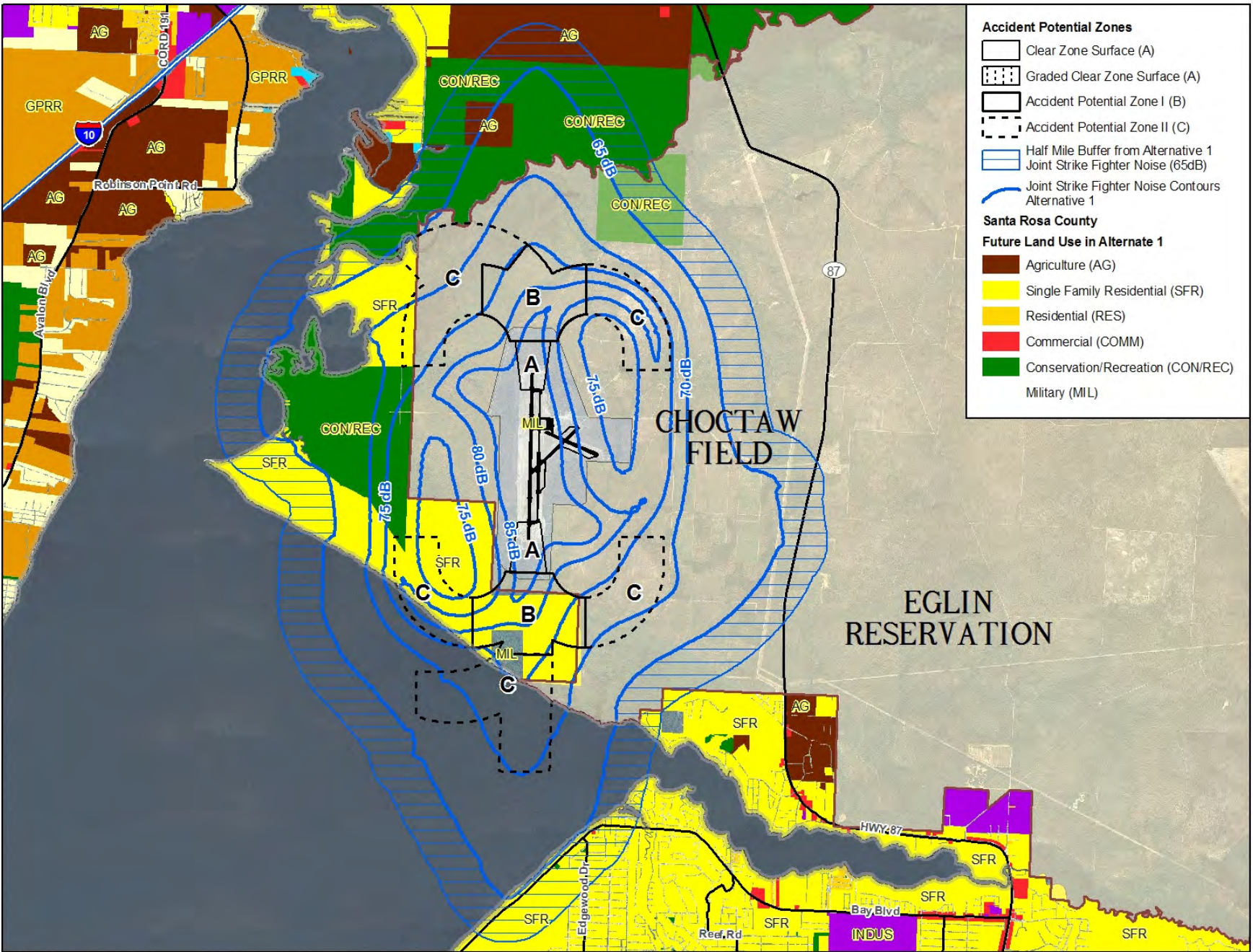


Figure 2-21: Choctaw Field F-35 Alternate 1 Noise Contours With Santa Rosa County Future Land Use Map Designations





### 2.3.8 Radio Frequency Interference

The analysis for radio frequency interference in the County is based on the part of the County within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

### 2.3.9 Low Level Training and Approach Zones

Areas along the northern boundary of Eglin AFB currently low in population density provide ideal conditions for low level flight and low altitude night vision goggle training, a vital skill for new pilots to learn and veteran pilots to maintain. An increase in population density and development along the northern Eglin boundary would force increases in altitude and/or changes in flight paths, both critically impairing the ability to conduct training at Field 6 (Camp Rudder), Field 1, Pino Drop Zone, Sontay Drop Zone, and Duke Field. The assault landing strip at Duke Field is used for assault landing training and is the only location in the United States that offers this type of training, which is an essential part of special operations capability (U.S. Air Force, 2003b). [Figure 2-22](#) shows the low level approach zones for Eglin AFB.

To identify the area in which low population densities would be ideal and where incompatible development would cause the most impact, the Northwest Florida Greenway Corridor Study Area was delineated and provided in [Figure 2-23](#). The goals of the corridor study area are to promote the sustainability of the military mission, to preserve the high biodiversity of the area, to enhance outdoor recreation, and to support the economic health of the area. It consists of federally and state managed lands, conservation organization lands, and private lands. By delineating the corridor and agreeing to work together, the federal agencies, state agencies, and conservation organizations committed to furthering the goals of the Northwest Florida Greenway Corridor Study Area. the northeast portion of Santa Rosa County has been identified as part of this corridor for the low level aircraft approved in this area.

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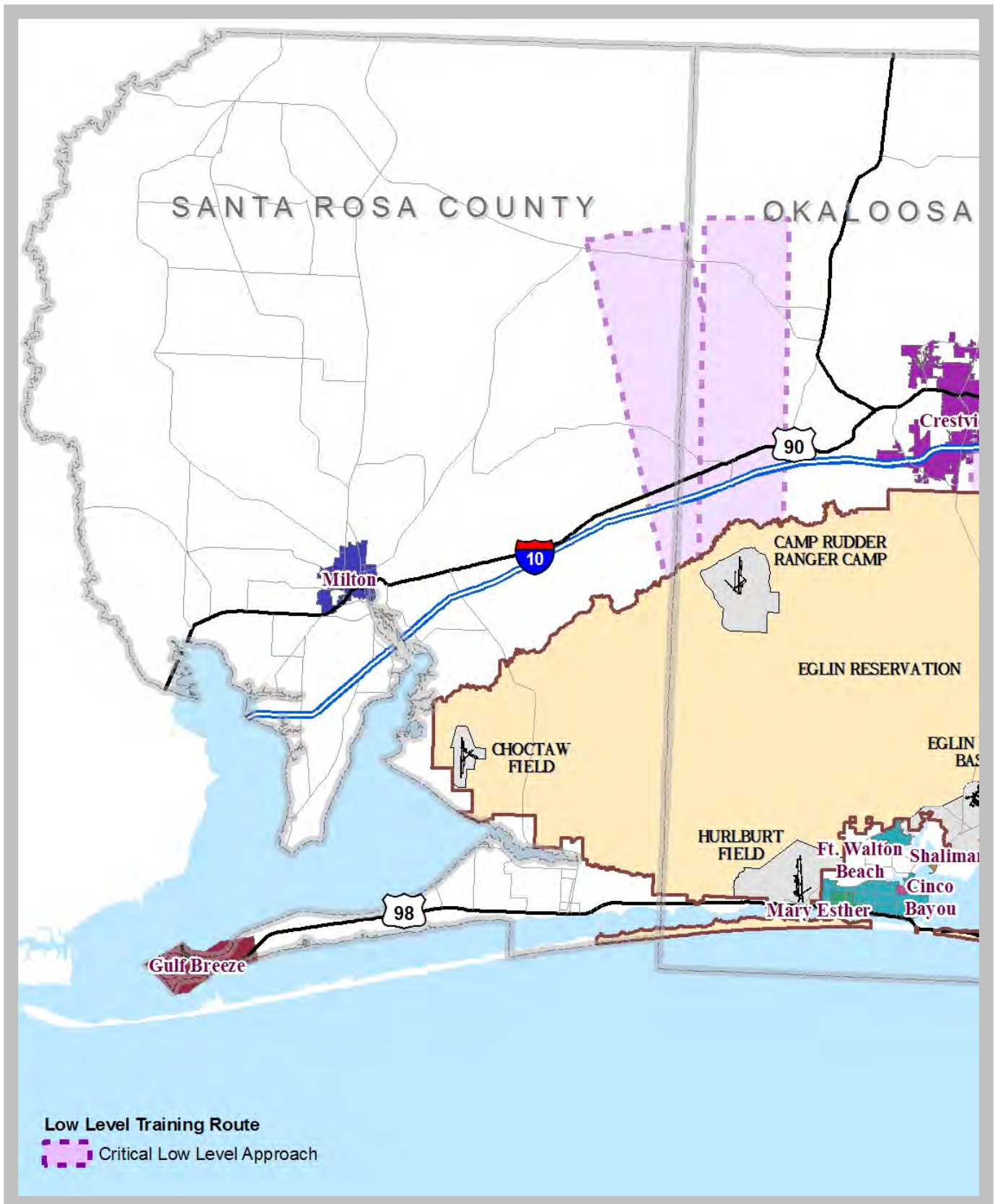


Figure 2-22: Low Level Approaches Across Santa Rosa County



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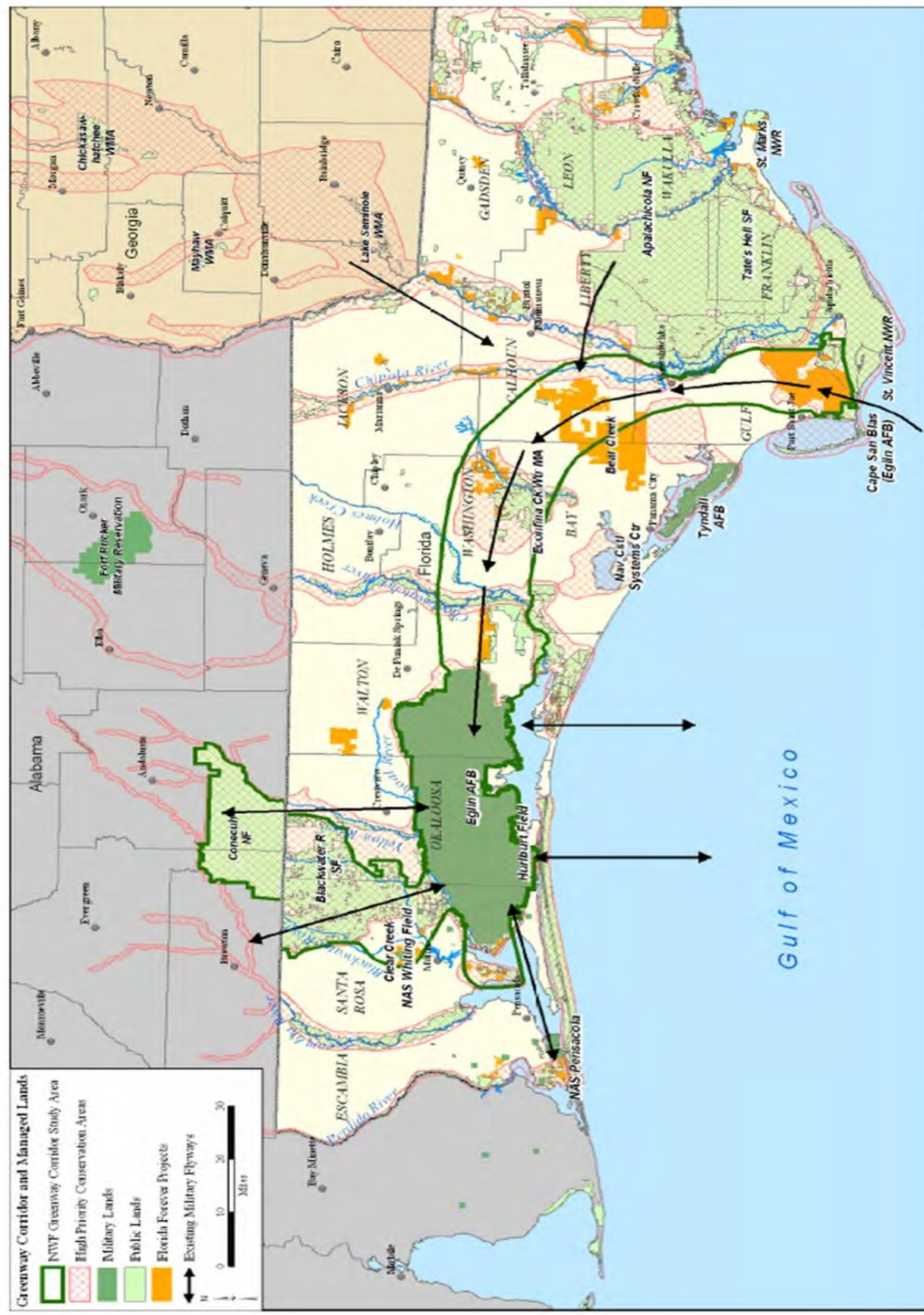


Figure 2-23: Northwest Florida Greenway Corridor





## 2.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations included in this report to provide guidance to the County on land use and land activities associated with encroachment items with definitive direction and in some cases, applicable examples from across the US that have been successfully implemented. This study with the identified issues, analysis, and recommendations is a stepping off point for the County to see the recommendations through to reality.

The following summarizes the recommendations for the County. Some of the recommendations require further information beyond the following summary bullets and this type of detail is provided at the end of this section:

- **SRC 1:** Implement Construction Standards for New Construction to provide Noise Level Reduction Inside Structures Proposed Within Maximum Mission Noise Areas (>65 dB)
- **SRC 2:** Utilize More Effective Disclosure Procedures Notifying Buyers and Leasers that Property is Near a Military Installation subject to Low Level Aircraft, Impulse Noises, and/or Other Military-Related Issues Identified
- **SRC 3:** Expand Choctaw Field MAZ to Include Maximum Mission High Level Noise Areas (>65 dB) identified in the BRAC EIS
- **SRC 4:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **SRC 5:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **SRC 6:** Identify Low Level Approach Zones on Preliminary Plats and Public Reports and Require Developers To Identify the Approach Zones on All Proposed Projects
- **SRC 7:** Implement Comprehensive Plan Amendments Discouraging Additional Marine Navigation Channels or Land Cuts, Artificial Reefs, or Other Proposed Activities Increasing Marine Traffic in Controlled Firing Areas Santa Rosa, Gulf of Mexico, and USC & GS Stations
- **SRC 8:** Do not allow increases in Density and Intensity in Low Level Approach Zones and Eglin AFB Boundary Buffer Identified in SRC 13 as MAZ III Until Results of SRC 11 are Known
- **SRC 9:** Develop and Implement Voluntary Land Acquisition Program
- **SRC 10:** Access Management Interlocal Agreement In Accordance With Santa Rosa County JLUS for Choctaw Field
- **SRC 11:** Conduct Small Area Studies For The Low Level Approach Zones and Eglin Buffer
- **SRC 12:** Amend Comprehensive Plan and Land Development Code (Article 11—Airport Environs: Table 11-3) to Limit Object Heights According to Information Provided by Eglin AFB (*Figure 2-8*)
- **SRC 13:** Revise County's Article 11—Airport Environs to create different MAZ designations. The County's existing Airport Environs requirements refer to a single MAZ. It is recommended to create levels of MAZs corresponding with the recommended MAZ's (I, II, or III). Maintaining nomenclature related to MAZs in Santa Rosa County will provide continuity with respect to existing code for private property owners, County staff, policy makers, Whiting Field, and Eglin AFB. This will also allow referencing the County's code as a uniform document regardless if the property is within a MAZ associated with Eglin AFB or a MAZ related to Whiting Field's previously established MAZs.

Santa Rosa County currently has the MAZ codified in Article 11. The creation of MAZs with different designations based on the compatibility issues being addressed is recommended. The different MAZ designa-

MAZ Planning Area	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach Area	Eglin Boundary Buffer
I	■	■	■			
II				■		
III					■	■

Table 2-1: Proposed MAZ Designations for Santa Rosa County



tions proposed are shown in [Table 2-1](#) and are summarized as follows:

- ◊ **MAZ-I:** Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MAZ-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.
- ◊ **MAZ-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MAZ-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF.
- ◊ **MAZ-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation and strategic buffer areas along the northern boundary of the Eglin Reservation. MAZ-III's are focused on limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach MAZ-III's vary but the MAZ-III areas for the buffers are approximately one mile from the Eglin boundary.

[Figure 2-24](#) shows the locations of the MAZ designations across Santa Rosa County. [Figure 2-25](#) represents the MAZ III area in northern Santa Rosa County for the Low Level Approach Areas. [Figure 2-26](#) provides the MAZ III buffer area along the Eglin AFB boundary. [Figure 2-27](#) shows the MAZ I and II areas around Choctaw Field for the AICUZ (Clear Zone and APZs) and high aircraft noise areas and [Figure 2-28](#) shows the Choctaw Field MAZs with the AICUZ items and maximum mission noise contours. [Figure 2-29](#) provides the geographic location of the southern MAZ-II area for the high intensity impulse noise areas.

- **SRC 14:** Update County's Airport Environs Ordinance to Include Specific Language Designed to Strengthen the County's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests
- **SRC 15:** Update Comprehensive Plan as Necessary to Include New MAZs
- **SRC 16:** Study Required for Implementation Steps to Develop Retrofit Program for Sound Attenuation for Habitable Buildings in Maximum Mission High Noise Level Areas (>65 dB)
- **SRC 17:** Formalize Policy to Include Military Participation (Eglin and Whiting) and Cross-Jurisdiction Inter-governmental Coordination in Development Review and Planning Process

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the County's use:

**SRC 1: Noise Reducing Construction Standards.** The County's building construction standards or requirements for development order approval through ordinance adoption or revisions should incorporate construction techniques improving noise insulation for residential and certain non-residential structures within the high noise level areas (>65dB). New construction for residential properties, public or quasi-public service buildings, or public assembly facilities proposed within the MAZ-II should be required to include sound insulation to reduce noise levels by at least 25 dB between 65 – 70 dB DNL contours and by at least 30 dB between 70 – 75 dB DNL contours. *Appendix A – New Construction Acoustical Design Guide* includes examples of adopted guidelines for new construction to follow in an effort to insulate residences and other uses from aircraft noise. No residential development should be allowed (even with noise reduction) in areas with noise contours exceeding 75 dB DNL.

**SRC 2: Implement More Effective Disclosure Procedures.** The disclosure of aircraft Clear Zone and APZs and aircraft and high intensity impulse noise is a preventive strategy and important tool informing and forewarning prospective buyers or tenants about the expected impacts of an installations interaction with neighboring communities. Mandatory disclosure ensures prospective homebuyers and leasers are knowledgeable about military operations and its potential impact on the community, subsequently reducing frustration and anti-military sentiment by those not adequately informed prior to entering into their purchase or rental agreement. This recommendation includes developing more effective disclosure procedures and broadens the geographical area where disclosure will be required as part of property transactions. Disclosure requirements should include all properties (residential and non-residential) within the Clear Zone, APZ I and II, and maximum mission and higher intensity impulse noise areas. *Appendix C – Example Noise Disclosure Statement* provides an example disclosure statement for consideration and use in implementing this recommendation.

Property owner disclosure regarding the potential for safety and noise hazards near airfields requires development and adoption of an ordinance establishing requirements for the disclosure to foster more practical implementation and enforcement. More important is establishing the effective use of the disclosure in real world situations. The following recommendations are included as part of delivering a dis-



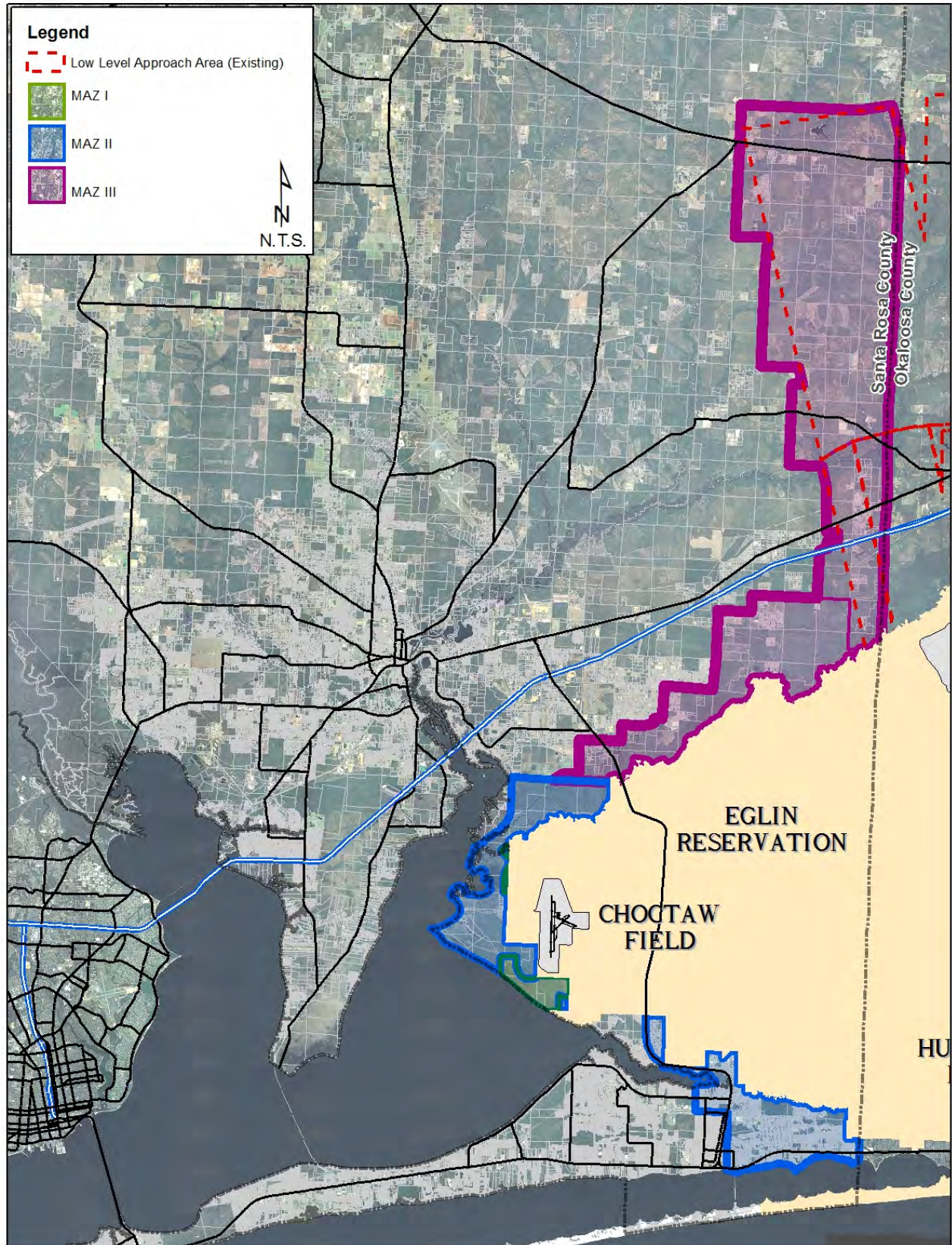


Figure 2-24: Proposed MAZ Locations Across Santa Rosa County



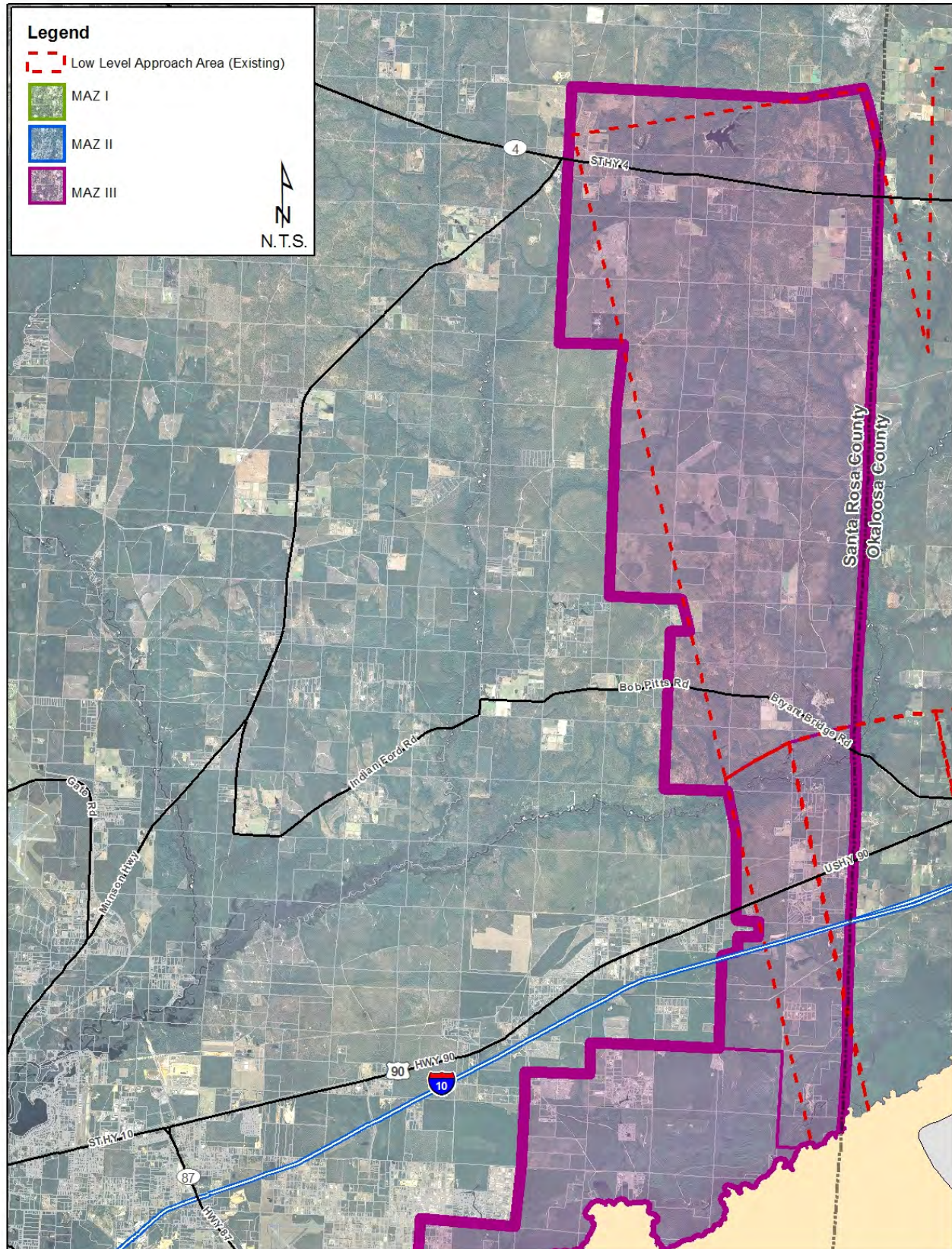


Figure 2-25: Proposed Northern MAZ III Area in Santa Rosa County



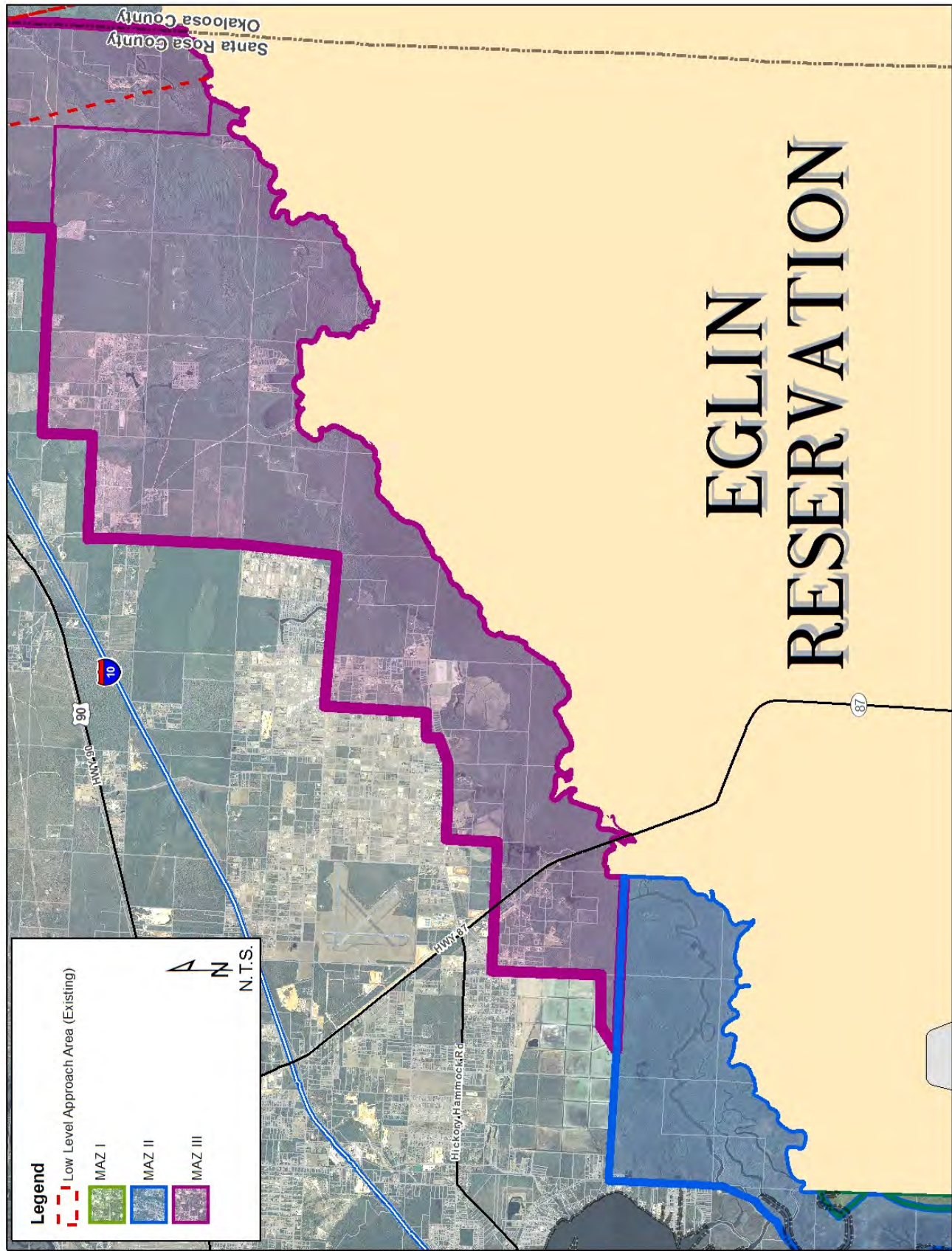


Figure 2-26: Proposed Central MAZ II and III Areas in Santa Rosa County



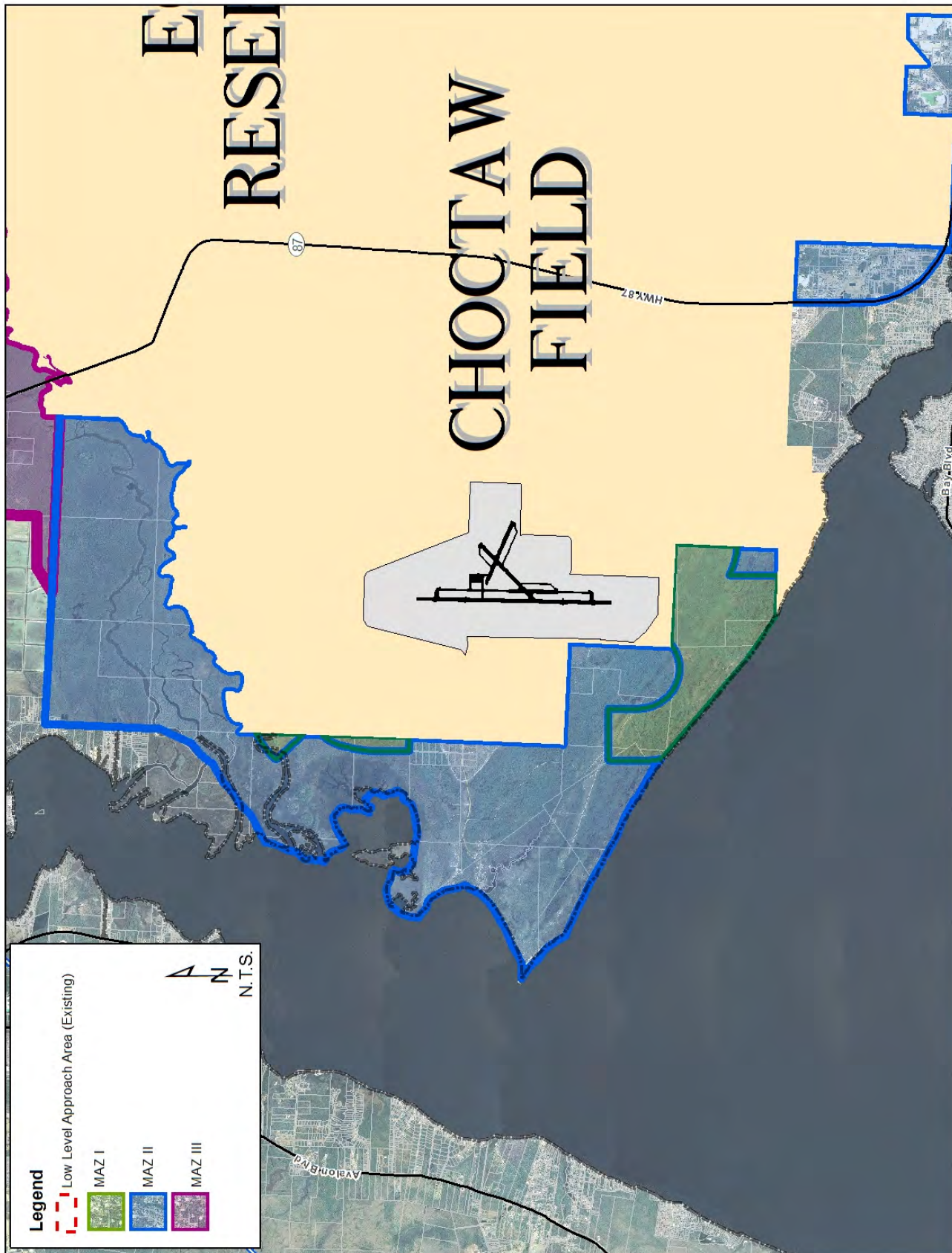


Figure 2-27: Proposed Chocotaw Field MAZ I and II Areas, Santa Rosa County



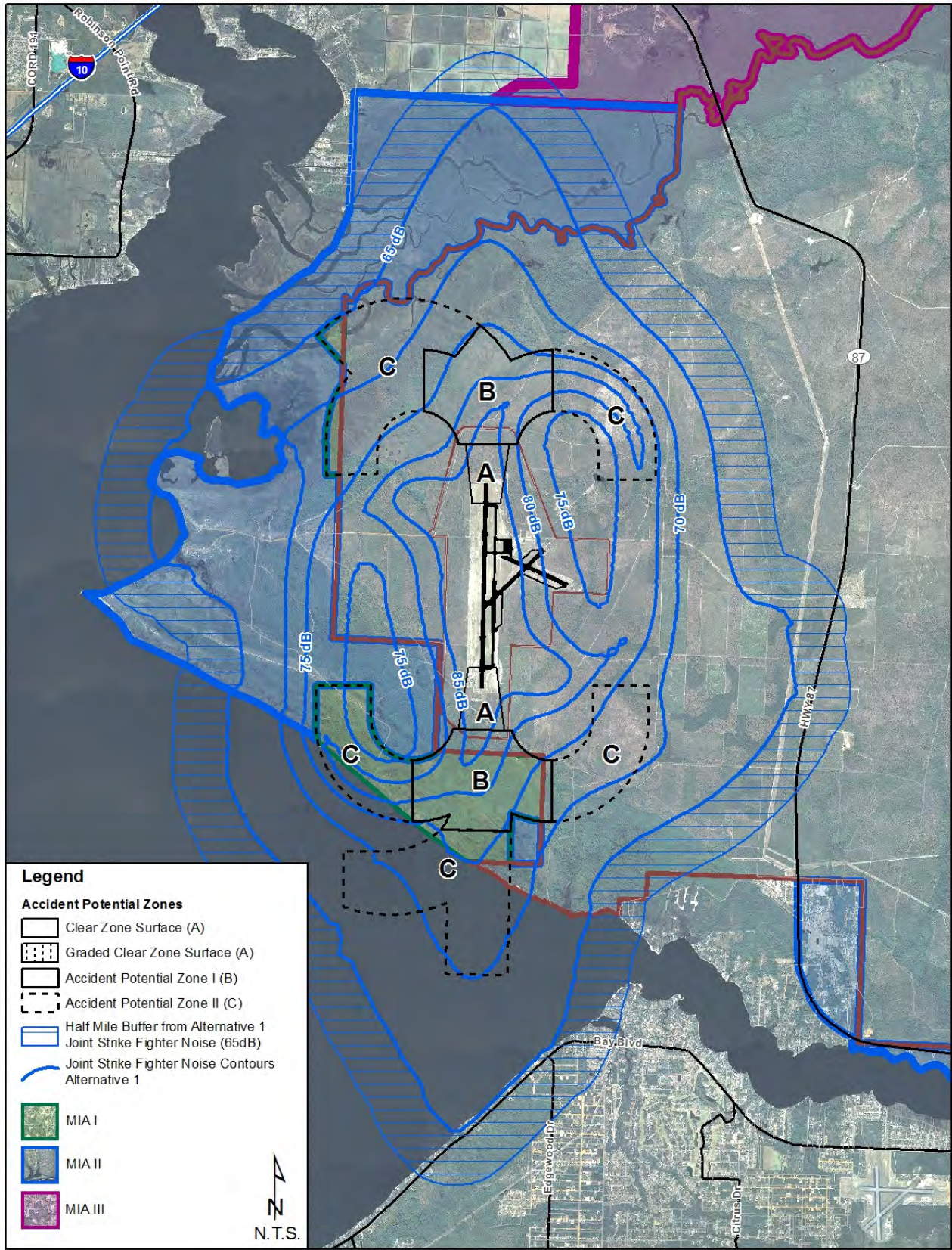


Figure 2-28: Proposed Choctaw Field MAZ I and II Areas with Clear Zone, APZs I and II, and Maximum Mission Noise Contours









- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort of the Florida Association of Realtors, Santa Rosa County Association of Realtors, Okaloosa County Association of Realtors, and Walton County Association of Realtors to include sections concerning Safety and Noise on the standard Seller's Real Property Disclosure Statement endorsed by each respective group.
- ◇ Seek assistance from the West Florida Regional Planning Council or other professionals of participating local jurisdictions to incorporate the disclosure statement requirements into a local ordinance and lobbying efforts with other participating local jurisdictions.
- ◇ Conduct public information meetings on the disclosure requirements. At a minimum, one meeting prior to the first reading of the ordinance and a second meeting following the adoption of the ordinance. The meetings would be in addition to the public meetings where the ordinances will be read and discussed with public comment periods.
- ◇ Require identification of the Clear Zone, APZ I, APZ II, and High Noise Level Areas (>65dB) on all applicable County maps and public reports and require developers to identify the areas on all proposed projects.
- ◇ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MAZs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MAZs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**SRC 8: Do not allow increases in Density and Intensity in Low Level Approach Zones and Eglin AFB Boundary Buffer.** Until SRC 11 is completed, it is recommended that no increases in density and intensity are allowed in the low level approach zones and Eglin AFB Boundary Buffer as shown in *Figures 2-25 and 2-26* as MAZ-III.

**SRC 9: Land Acquisition Program.** Through the adoption of the recommendations and proposed implementation steps contained herein, there is opportunity to continue efforts by the Northwest Florida Greenway Corridor, The Nature Conservancy, Northwest Florida Water Management District, Florida Department of Environmental Protection, and federal agencies to purchase conservation lands around Choctaw Field in the APZ I and II within the maximum mission noise contours, along the northern Yellow River floodplain, and within the Low Level Approach Zones in the northeast corner of the County. As part of this program, potential funding sources should be identified and alternative mechanisms to fee simple purchase explored such as restrictive use easements, land exchanges, and transfer of development rights. Prepare a Land Acquisition Plan organized with projected costs for acquisitions to be programmed into the five-year capital improvement fund. Once the Plan's acquisition strategies are adopted, it is important to completely document the planning efforts completed and adopted to date such as the Eglin JLUS and the recommendations implemented to date in order to maximize grant scoring opportunities.

**SRC 10: Access Management Interlocal Agreement at Choctaw Field.** The boundary configuration of Eglin AFB land locks all property designated LDR south and west of Choctaw Field. All lands designated LDR and located directly south and southwest of Choctaw Field can only be accessed by crossing through military property. Existing dirt roads connecting to State Road 87 are maintained by the County but owned by the military. The USN/USAF controls use of its property. It is recommended that construction of new roads or use of existing by private parties on military property should not be allowed by the USN/USAF

**SRC 3: Expand Choctaw Field MAZ to Include Maximum Mission High Level Noise Areas (>65 dB).** The existing MAZ for Choctaw Field should be expanded to include the maximum mission high level noise areas previously shown in *Figure 2-7*. This effort includes encompassing additional area outside of the Eglin AFB boundary north of the Yellow River comprised of Agriculture and Conservation/ Recreation Future Land Use Map designations. *Figure 2-30* shows the proposed MAZ extension area for Choctaw Field.

**SRC 5: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of the Eglin AFB and its operations and community impacts both from an economic and encroachment perspective. Examples of measures to be taken include:

- ◇ Post signage in residential areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.



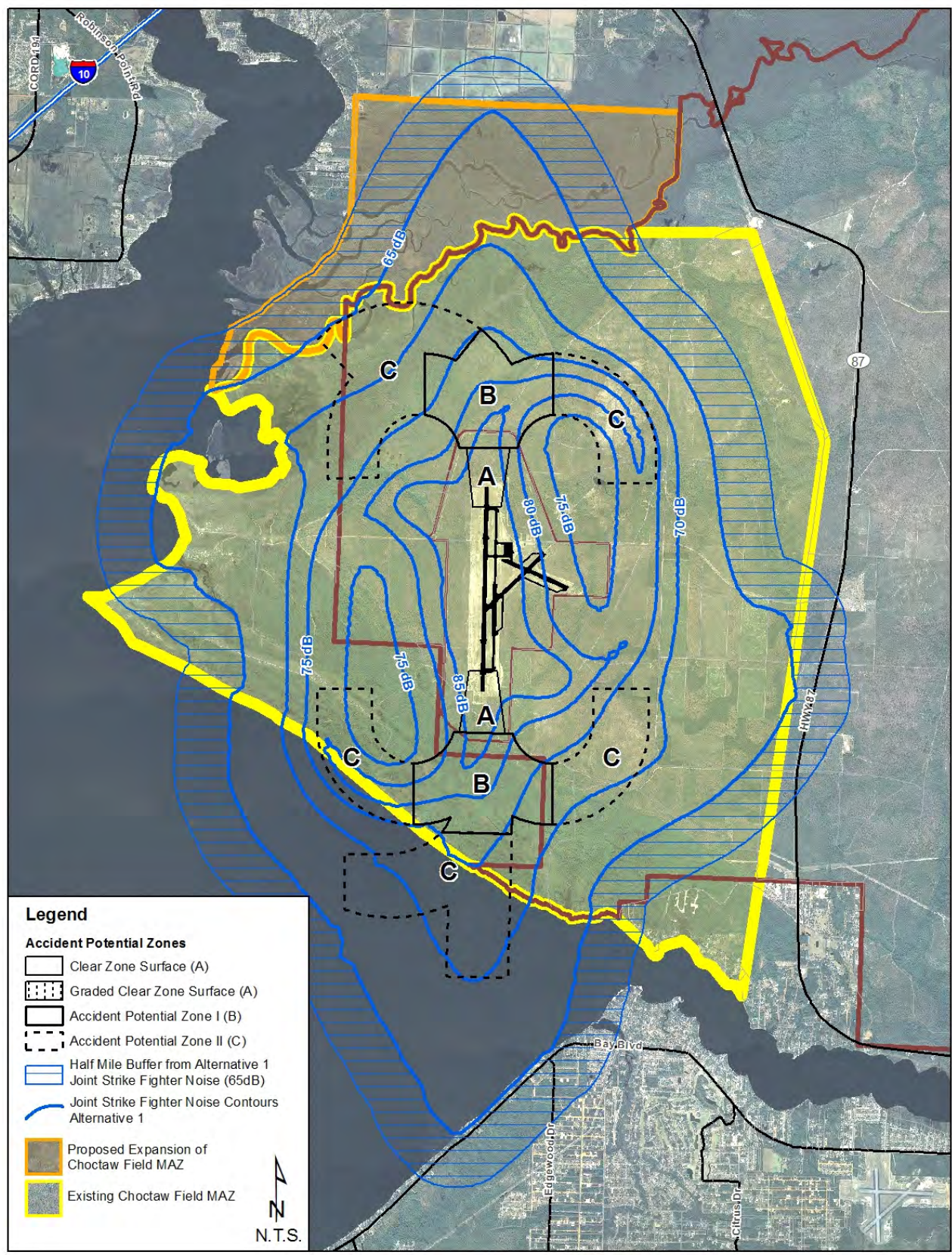


Figure 2-30: Proposed Expansion Area for the Chocataw Field MAZ





unless the proposed development complies with densities compatible with Choctaw Field activities. Access points and road layout would be decided on a case-by-case basis.

[SRC 11: Conduct Small Area Studies in Low Level Approach Zones and Eglin Buffer.](#) A variety of land uses occur or are planned to occur in areas within and/or adjacent to the Low Level Approach Zones and the Eglin Boundary, particularly where access can occur from highways or major county roads. It is recommended that small area studies be prepared for these areas to address transition of land use, plan roadway systems and access management, identify suitable locations for development, and prepare for the planned provision of public facilities. The small area studies will create strategies to transfer development rights, cluster future dwelling units, conserve environmentally sensitive areas, and/or implement tax incentive/credit policies. For a successful small area study, key stakeholders such as the County, Eglin AFB, and property owners must play an active role in the planning, analysis, and recommendations.

[SRC 13: Establish Different MAZ Designations.](#) Establishing a Military Influence Areas (MIAs) or Military Airport Zones (MAZs) as a geographic planning area(s) established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIA/MAZ recognizes the existence and mission of a military installation within a community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the public
- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses
- More accurately identify areas affected by military operations
- Create compatible mix of land uses

*Table 2-2* has been created based on the existing issues, baseline analysis, and industry standards regarding joint land use between military installations and private lands. This table and *Table 2-3 - Implementation Plan Responsibilities and Timing*, are intended to further guide the County into implementing the recommended strategies.

[SRC 14: Update County's Airport Environs Ordinance to Include Specific Language Designed to Strengthen the County's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.](#) Include the following in Article 11 - Air

port Environs:

- Describe Military Missions and Operations Impacting Local Government
- Describe Civilian Land Use and Activities Encroaching on Military Operations and Remedial Actions
- Establish Tall Structure and potential Height Thresholds in Accordance with Information Contained Herein
- Electronic Transmissions

[SRC 16: Study Required for Implementation Steps to Develop Retrofit Program for Sound Attenuation for Habitable Buildings in Maximum Mission High Noise Level Areas \(>65 dB\)](#) In an effort to alleviate high sound levels within existing structures, an acoustical study is recommended to develop and implement an Assistance Program for sound reduction for private property owners to retrofit existing structures through efforts similar to those described in the previous sub-section for retrofitting existing public buildings. The goal for this program would include achieving noise reductions within dwellings and other structures in areas where the maximum mission noise contours exceed 65 dB. Specific objectives should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. Noise areas exceeding 75 dB are not compatible for residential uses so a NLR for residential use above this noise contour is not recommended. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

The DNL noise reduction goal in habitable rooms can be supplemented by a single-event noise level criterion. This Sound Exposure Level (SEL) reflects the annoyance associated with individual flyovers because of activity interference. The SEL goal is 65 dB in general living spaces and 60 dB in bedrooms and television viewing rooms. These criteria should only be applied to homes within the maximum mission noise contours (>65 dB), not to homes outside the 65 dB DNL contour line. To use the SEL interior noise criteria, the outside noise exposure level is compared to the interior goal. For example, if a dwelling were between the SEL contour boundaries of 85 to 90 dB, then the required NLR to achieve 60 dB in a bedroom would be 30 dB with the conservative upper bound of the noise zone typically used to set NLR goals.



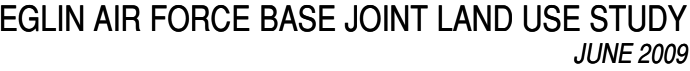
The proposed NLR Assistance Program should include the creation of a grant program designed to reimburse property owners within the high noise level areas (>65 dB) of the maximum mission noise contours up to a certain dollar amount or percentage of costs for implementing acceptable sound attenuation steps. The program should be voluntary and include the execution of a Hold Harmless Agreement by the property owner. *Appendix B – Noise Reduction Standards for Insulating Structures Exposed to Aircraft Operations* contains two examples of policies and procedures available to guide the recommended NLR Assistance Program.

[SRC 17: Formalize Policy to Include Military Participation \(Eglin and Whiting\) and Cross-Jurisdiction Intergovernmental Coordination in Development Review and Planning Process](#) Formalize a policy to include military participation in the development review and planning process. This should include a formal communication process between the City and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with City staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and City Council. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.




To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and the Army's 7th Special Forces Group.

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**Legend:**

	Land use and related structures are not normally compatible and should be prohibited
	Land use and related structures are generally compatible with noted restrictions
	Land uses and related structures are normally compatible without restrictions

(#.##) Indicates maximum Floor Area Ratio (FAR) for the land use identified

**Notes:**

- 1 Maximum Density: 1-2 du/acre
- 2 "Other Uses" includes apartments, group quarters, residential hotels, and transient lodging
- 3 Maximum of 25 occupants per acre and approval is subject to review.
- 4 Maximum of 50 occupants per acre and approval is subject to review.
- 5 No clubhouse
- 6 No accessory units - e.g., no passenger terminals and major above ground electrical transmission lines in APZ I
- 7 No chapels
- 8 No activity which produces smoke, glare, bird attractants, or involves explosives.
- 9 Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 10 Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 11 Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 12 If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
- 13 No buildings.
- 14 Land use compatible provided special sound reinforcement systems are installed.
- 15 Residential buildings require a NLR of 25.
- 16 Residential buildings require a NLR of 30.
- 17 Residential buildings not permitted.
- 18 Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn by personnel.



# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

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ID #	Recommended Strategy	Eglin JLUS Page No.	MAZ-I	MAZ-II	MAZ-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementation Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
<b>SRC 1</b>	Implement Noise Level Reduction Construction Standards	2-34	✓	✓				Santa Rosa County	Eglin JLUS Policy Committee & TAG	✓			
<b>SRC 2</b>	Establish Effective Disclosure Procedures	2-34	✓	✓	✓	✓		-	Santa Rosa, Okaloosa & Walton Counties				✓
<b>SRC 3</b>	Expand Choctaw Field MAZ	2-41		✓				Santa Rosa County	-	✓			
<b>SRC 4</b>	Distribute Educational Handouts on Radio Frequency	2-33				✓		Eglin AFB	Santa Rosa County	✓			
<b>SRC 5</b>	Implement Public Awareness Measures	2-41	✓	✓	✓			-	Santa Rosa County, Eglin AFB				✓
<b>SRC 6</b>	Identify Low Level Approach Zones on Public Documents	2-33			✓			Santa Rosa County	Private Party Submittals		✓		
<b>SRC 7</b>	Implement Comp Plan Amendments Discouraging Additional Navigational Channels or Land Cuts, Artificial Reefs, or Other Activities	2-33					✓	Santa Rosa County	Okaloosa & Walton County, Ft Walton Beach, Mary Esther, and Destin	✓			
<b>SRC 8</b>	Do Not Allow Increases in Density and Intensity in Low Level Approach Zones and Eglin AFB Boundary Buffer Until SRC 11 is Completed	2-41			✓			Santa Rosa County	-	✓			
<b>SRC 9</b>	Develop Land Acquisition Program	2-41	✓	✓	✓			Santa Rosa County	Northwest Florida Water Management District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
<b>SRC 10</b>	Access Management Interlocal Agreement for Choctaw Field	2-41	✓	✓				Santa Rosa County	Private Party				✓
<b>SRC 11</b>	Conduct Small Area Studies for Low Level Approach Zones and Eglin AFB Buffer	2-43			✓			Eglin JLUS Policy Committee & TAG	Santa Rosa & Okaloosa Counties	✓			
<b>SRC 12</b>	Amend Comprehensive Plan and Land Development Code Article 11 to Limit Object Heights	2-33					✓	Santa Rosa County	Eglin AFB	✓			
<b>SRC 13</b>	Revise LDC Article 11 to Create MAZ Designations (I, II, & III)	2-33	✓	✓	✓			Santa Rosa County	-	✓			
<b>SRC 14</b>	Update LDC Article 11 to Strengthen County's Positions on Developments, Amendments, & Other Change Requests	2-43	✓	✓	✓			Santa Rosa County	-	✓			
<b>SRC 15</b>	Update Comprehensive Plan as Necessary to Include New MAZs	2-33	✓	✓	✓			Santa Rosa County	Eglin JLUS Policy Committee & TAG	✓			
<b>SRC 16</b>	Study Required Implementation Steps to Develop Retrofit Program for Sound Attenuation for Habitable Buildings in Maximum Mission High Noise Level Areas (>65 dB)	2-43	✓	✓				Santa Rosa County	Eglin JLUS Policy Committee & TAG	✓	✓		
<b>SRC 17</b>	Formalize Policy to Include Military Participation (Eglin and Whiting) and Cross-Jurisdiction Intergovernmental Coordination in Development Review and Planning Process	2-44				✓		Santa Rosa County	Eglin JLUS Policy Committee & TAG	✓			

Table 2-3: Implementation Plan Responsibilities and Timing





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

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## SECTION 3 - OKALOOSA COUNTY (UNINCORPORATED AREAS)



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## 3.1 INTRODUCTION

Okaloosa County is a county that was formed in 1915. It is bordered by Walton County to its east and Santa Rosa County to its west. Its county seat and largest city by population is Crestview. There are nine incorporated areas—Cinco Bayou, Crestview, Destin, Fort Walton Beach, Laurel Hill, Mary Esther, Niceville, Shalimar, and Valparaiso. The unincorporated areas of Okaloosa County include Eglin AFB, Lake Lorraine, Ocean City, Wright, Baker, Holt, and Milligan.

As of the 2000 census, there were 170,498 people, 66,269 households, and 46,520 families residing in the County. The U.S. Census Bureau 2005 estimate for the County is a population of 182,172. The population density was 182 people per square mile. There were 78,593 housing units at an average density of 84 per square mile.

There were 66,269 households out of which 33% had children under the age of 18 living with them, 56% were married couples living together, 10% had a female householder with no husband present, and 30% were non-families. 24% of all households were made up of individuals and 8% had someone living alone who was 65 years of age or older. The average household size was 2.49 and the average family size was 2.94.

In the County, the population was spread out with 25% under the age of 18, 10% from 18 to 24, 31% from 25 to 44, 22% from 45 to 64, and 12% who were 65 years of age or older. The median age was 36 years.

*Figure 3-1* shows Okaloosa County's county limits.

## 3.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Group (TAG) which includes representatives from Okaloosa County and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 TAG meeting and the June 18, 2008 Public Open House, the issues for the County were identified and explained. *Appendix D—Eglin JLUS Public Presentations* provides copies of this information plus all public presentations included with this study.

The following are the issues identified for the County with respect to land use encroachments:

- Development at Eglin AFB Boundary
- Incompatibilities in Runway Accident Potential Zone

(APZ) II

- Impulse Noise
- Low Level Helicopter and Tiltrotor Training Areas
- Airfield Noise
- Height of Objects and Low Level Approach Zones
- Lighting
- Radio Frequency
- Controlled Firing Areas
- Air Traffic Control
- Cruise Missile Corridor

Each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

### 3.2.1 Eglin Perimeter Boundary Development

Development near the boundary of a military reservation can create security concerns, promote excessive light during nighttime hours, and encourage other encroachments. For Okaloosa County, development around Eglin's perimeter is an obvious concern and is managed easiest by recognizing and implementing necessary land use controls. *Figure 3-2* shows the portions of the County currently within approximately one mile of Eglin's boundary.

### 3.2.2 Runway Accident Potential Zones

Aviation history has shown that property along primary flight paths and immediately beyond the end of runways have a higher potential exposure to aircraft accidents than areas further out from an airfield or flight path. Several studies of aircraft accidents discovered that the majority of accidents occur either on or adjacent to airfields (USAF, 1999). In response to these and other studies, the Department of Defense developed the Air Installations Compatible Use Zone (AICUZ) program to specifically address compatible use of public and private lands in the vicinity of military airfields (DODI 4165.57 and AFI 32-7063) (DoD, 1997; U.S. Air Force, 2003a). *Figure 3-3* is a diagram of the typical locations of the area referred to as the Clear Zone and the Accident Potential Zone Areas I and II.

Beyond the runway Clear Zone is an area along the flight path that possesses a significant potential for accidents. Created as part of the AICUZ program, Accident Potential Zones (APZ) are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, APZs function to heighten the general public's awareness to areas where higher risks occur. They also help local govern-



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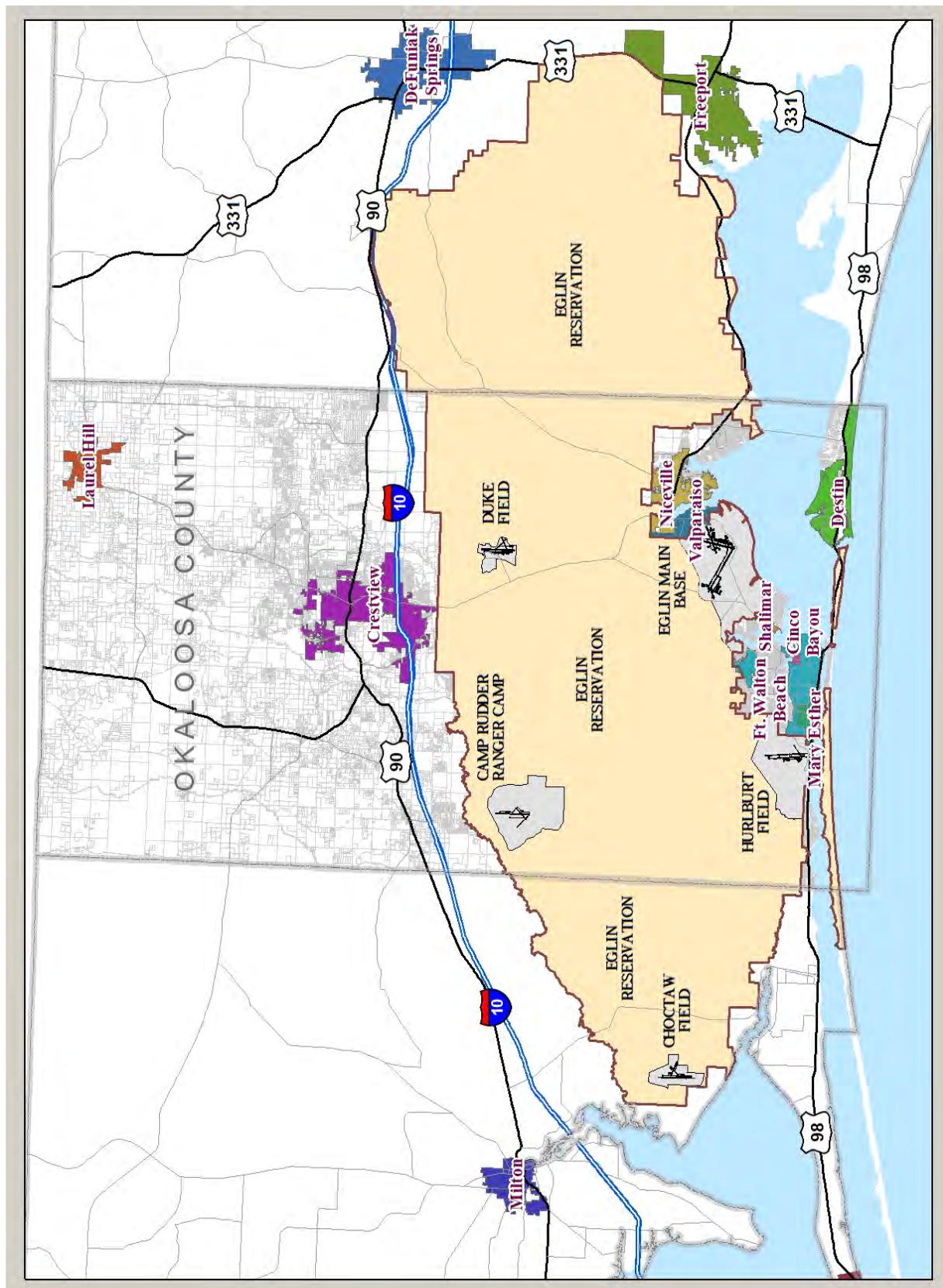


Figure 3-1: Okaloosa County Limits



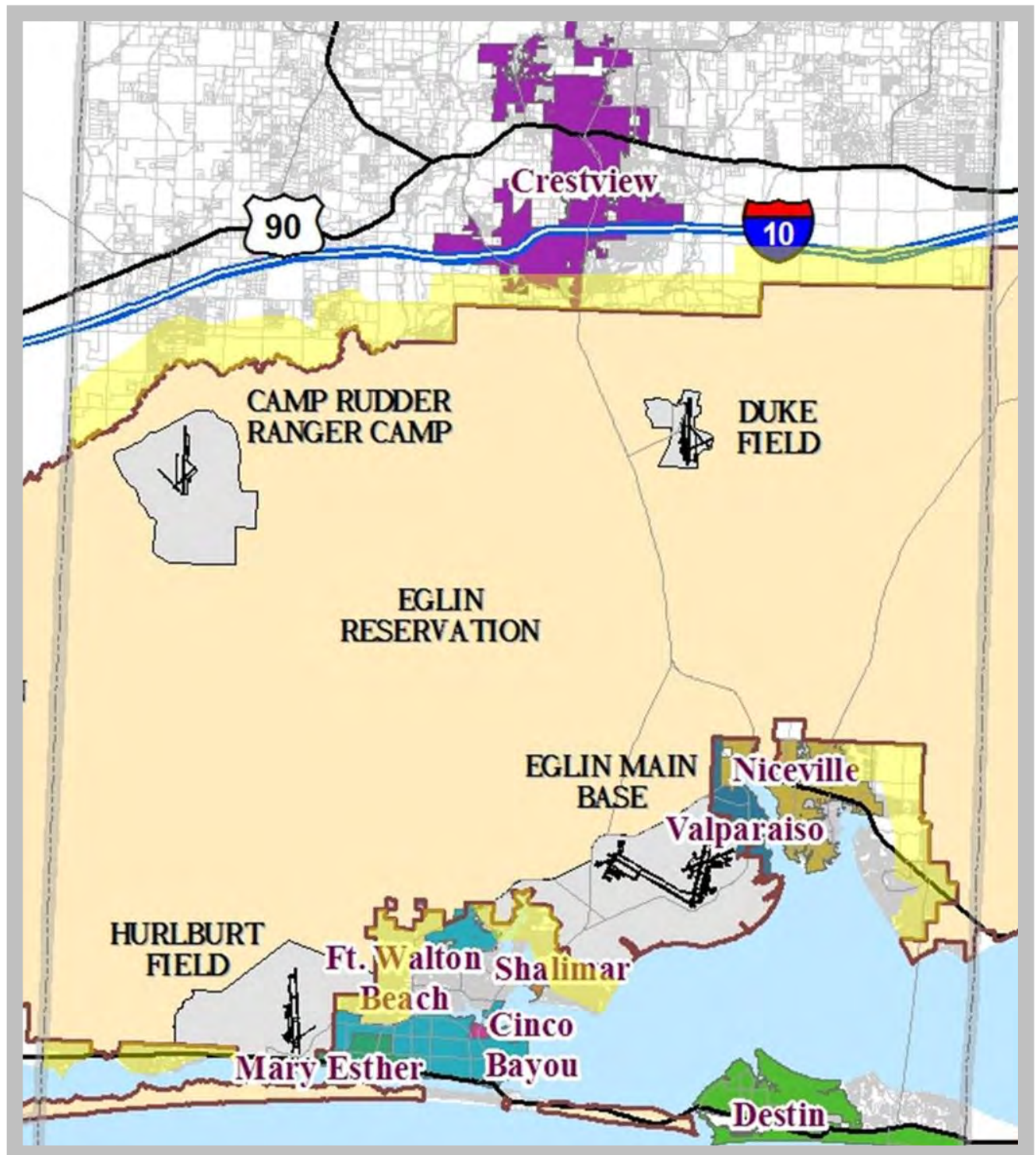


Figure 3-2: Portions of Okaloosa County Within Approximately One Mile of Eglin Boundary

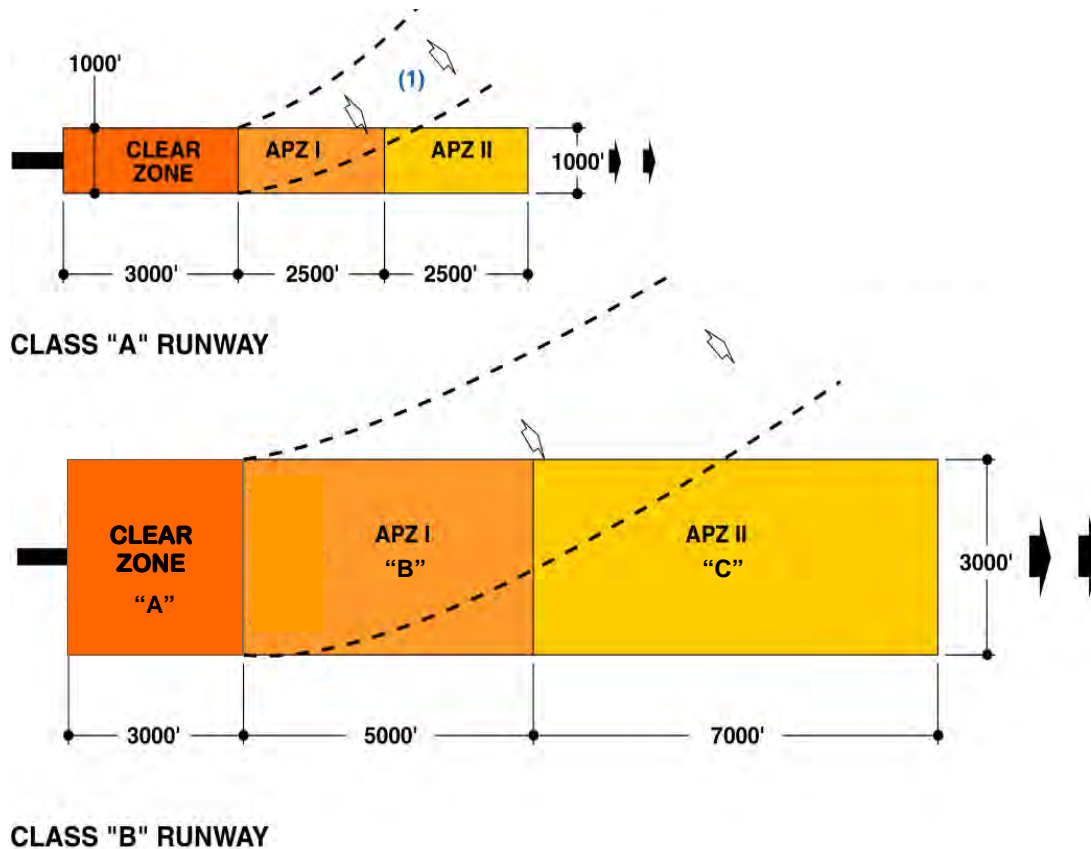


Figure 3-3: Typical Locations of Clear Zones and Accident Potential Zones (APZs I and II).

ments identify where to direct zoning regulations and land use standards designed to reduce potential conflicts between airfield operations and civilian populations.

APZs are divided into two (2) designations based on accident potential. The zone closest to the Clear Zone is referred to as APZ-I. It has been labeled “B” for easier depiction throughout this study. APZ-II (labeled “C”) is typically furthest from the runway in terms of the flight path and it has a measurable potential for accidents. Approach or departure flight paths will turn into or away from a runway. Therefore, APZ I and II may curve away from the end of a clear zone as well as leading straight out. Based on designated airport flight paths for approach and departure, some areas in a APZ-II zone may actually be closer to a runway than portion of the APZ-I. For Okaloosa County, the Duke Field APZ II leads out from the end of APZ-I north of the runway as shown in [Figure 3-4](#).

Landing and takeoff patterns differ between helicopters and fixed-wing aircraft because of their separate aerodynamic requirements. Having a greater dependence on wind direction, helicopters takeoff and land facing oncoming wind.

Flight paths for helicopters will vary with changes in the direction of the wind. APZ boundaries for helicopters may be aligned with prevailing or normal wind conditions. Fixed-wing aircraft are limited to a runway’s course, making flight path more predicate. Boundaries and size of APZ vary from airport to airport to address field conditions as well as unique and separate needs differentiating helicopters and fixed-wing aircraft. At Eglin AFB, most APZ boundaries are designations (i.e., APZ-I “B” and APZ-II “C”) established for Duke Field were specifically designed for fixed-wing military needs. APZ boundaries and designations for the airfield are attributed to flight characteristics and historical experiences for fixed-wing aircraft.

### 3.2.3 Impulse Noise

Some areas on Eglin AFB and beyond the Eglin Reservation boundary are subject to increased levels of impulse, or explosive, noise according to the Eglin Range Air Installation Compatible Use Zone (RAICUZ). There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. The coverage areas for each Im-



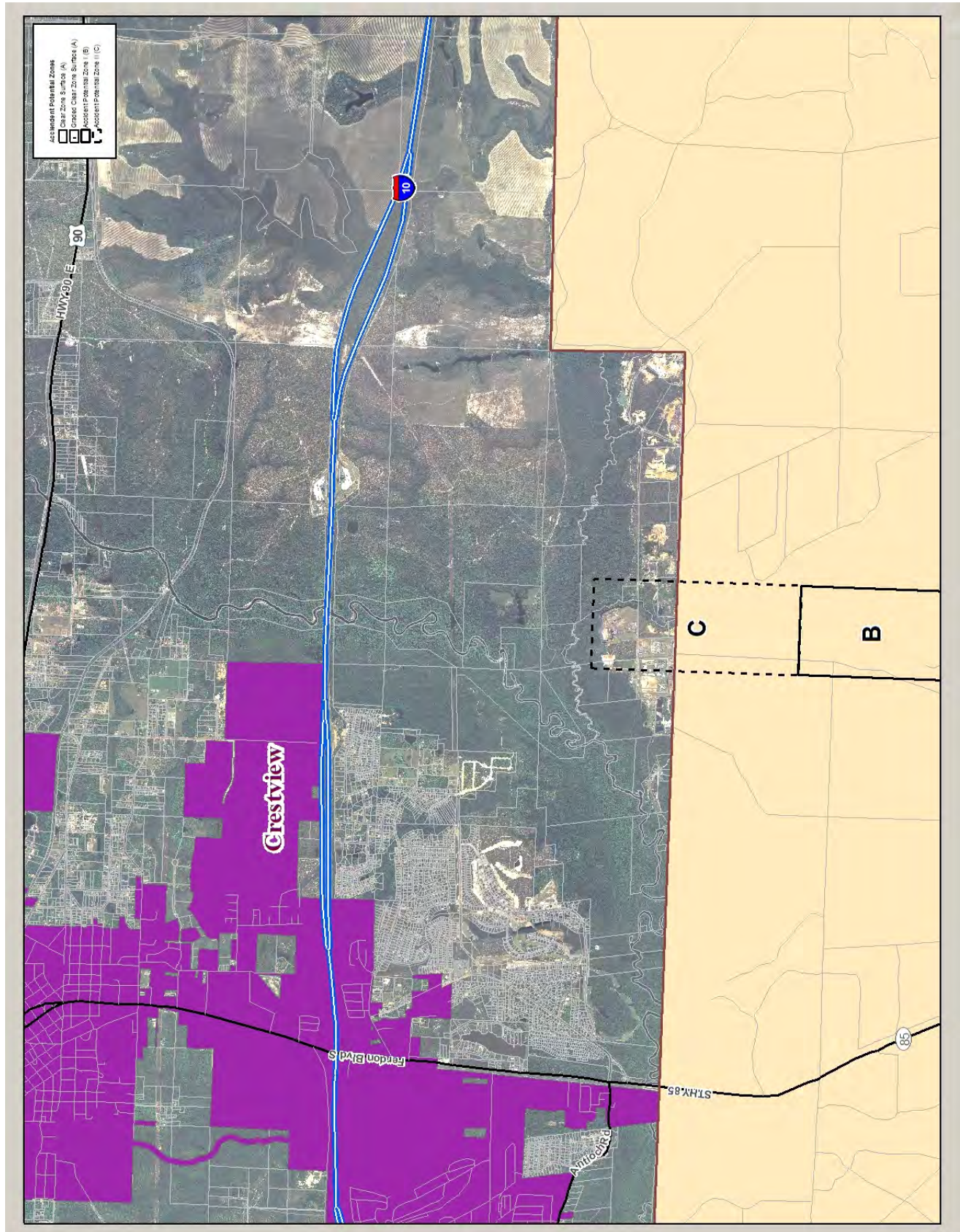


Figure 3-4: Duke Field Accident Potential Zone II in Unincorporated Okaloosa County





pulse Noise level is shown in *Figure 3-6*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

### 3.2.4 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in *Figure 3-7*. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and NAS Whiting Field.

### 3.2.5 Airfield Noise

The Air Force is currently developing the curriculum for the F-35 at Eglin AFB. Two different noise alternatives (Alternate 1 and Alternate 2) were developed as part of the *Base Realignment and Closure (BRAC) 2005, Environ-*

*mental Impact Statement (EIS)* and this information is being utilized as part of this JLUS. It appears the noise associated with Alternate 2 provides the maximum mission noise contours in Valparaiso and, therefore, will be the contours used for analysis and form the basis for recommendations. The analysis and recommendations provided herein shall be reevaluated based on information forthcoming from the Air Force in the Supplemental BRAC EIS.

At a typical installation, the AICUZ addresses noise exposure to non-military lands near military installations with safety concerns. Noise exposure can create conflicts with public welfare and quality of life for those living or working near airfields. Noise level contours extending from the airfield are incrementally measured from the highest typical decibel (dB) generated within a military installation to 65 dB within non-military property. For the Eglin AFB JLUS, the future aircraft (F-35) is not located at Eglin at this time so the AICUZ does not include noise levels associated with the F-35. In order for this study to be based on useful and applicable information, it was determined this study would utilize noise levels available from the Air Force for the proposed F-35 in lieu of using F-15 noise levels which will be obsolete in the coming years. This assumption does not invalidate the AICUZ previously prepared for Eglin AFB in 1977 and updated in 2006.

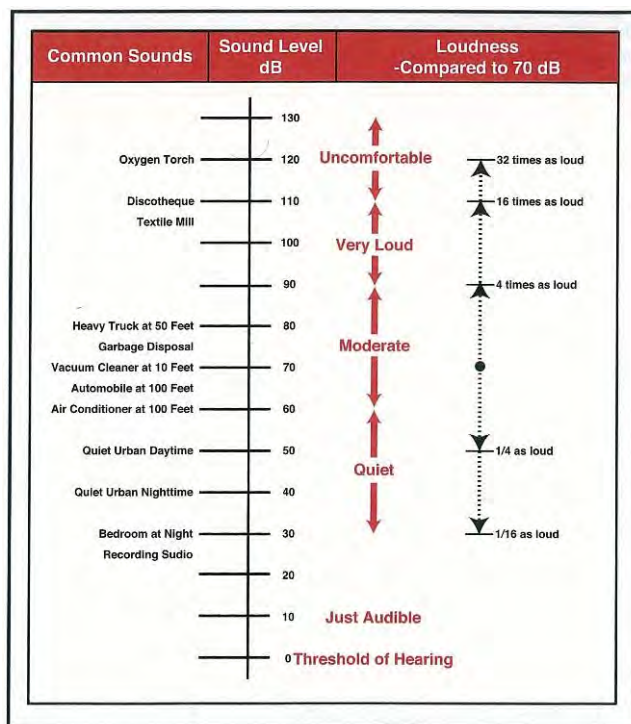


Figure 3-5: Typical A-weighted Levels of Common Sounds  
(Source: *Handbook of Noise Control*, C.M. Harris, McGraw-Hill Book Co., 1979)

Based on numerous sociological surveys and recommendations of federal interagency councils, the most common benchmarks for assessing environmental noise impacts to people are a Day-Night Average Sound Level (DNL) of 65 dBA for A-weighted noise, and 62 dBC for C-weighted noise. When measuring single event impulse noise, the benchmark for assessing noise impacts to people is 115 dBP (unweighted scale). These noise level thresholds are often used to determine residential land use compatibility and the risk of human annoyance. In general, when exposed to less than the noise levels identified above, land uses are unrestricted. As noise levels increase above these levels, some land uses become incompatible.

Noise contours are delineated by computerized simulation of aircraft activity at each installation and integrate operational data specific to the types of aircraft using a particular airfield. The methodology used to identify noise contours takes into consideration flight paths, frequency and time of operation, as well as the type and mix of aircraft. The noise contours utilized in this study were provided by the Air Force. The scope of this study does not include manipulating the computer simulation to adjust noise contours. *Figure 3-5* provides ranges of typical A-weighted levels compared with common sounds.





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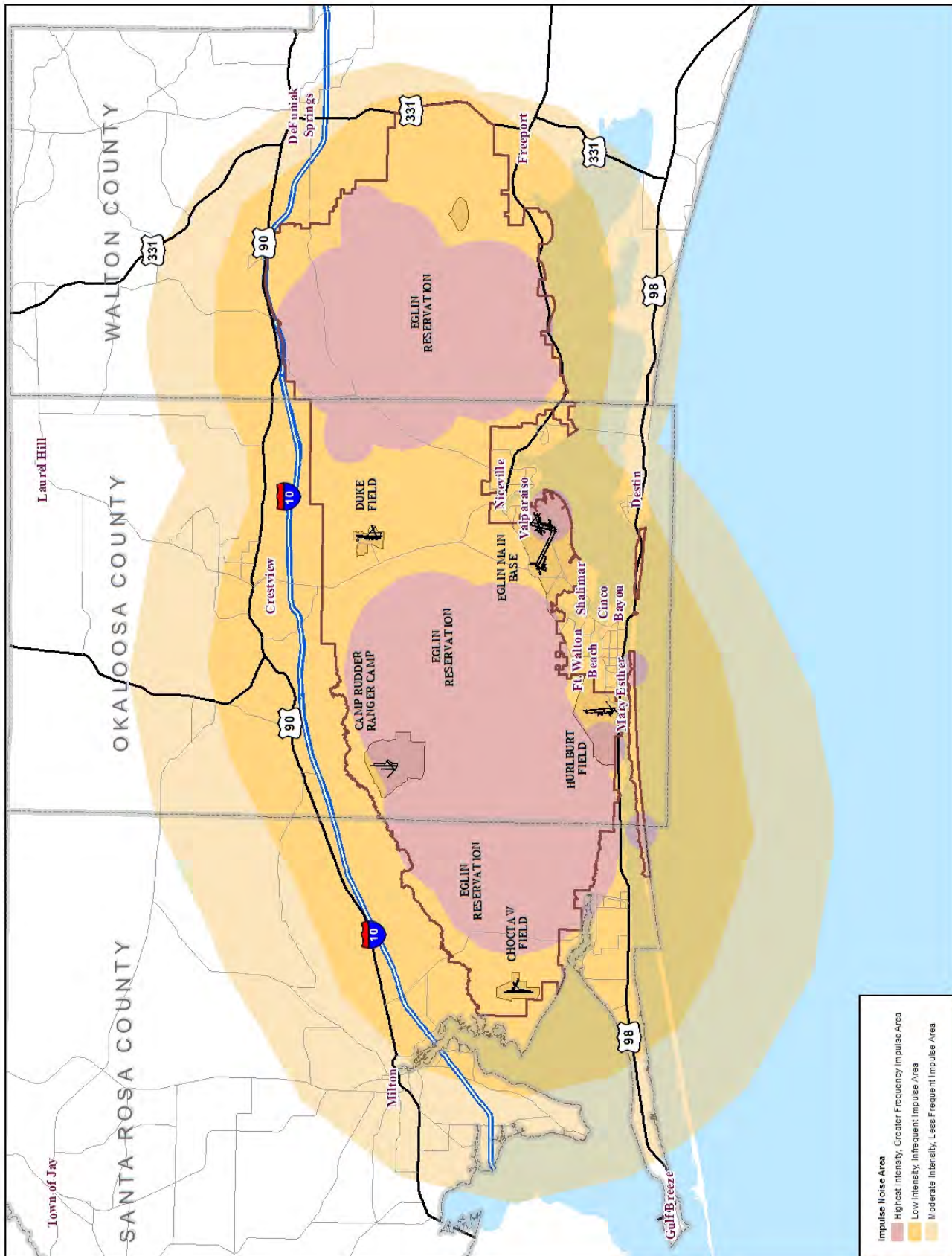


Figure 3-6: Impulse Noise Areas





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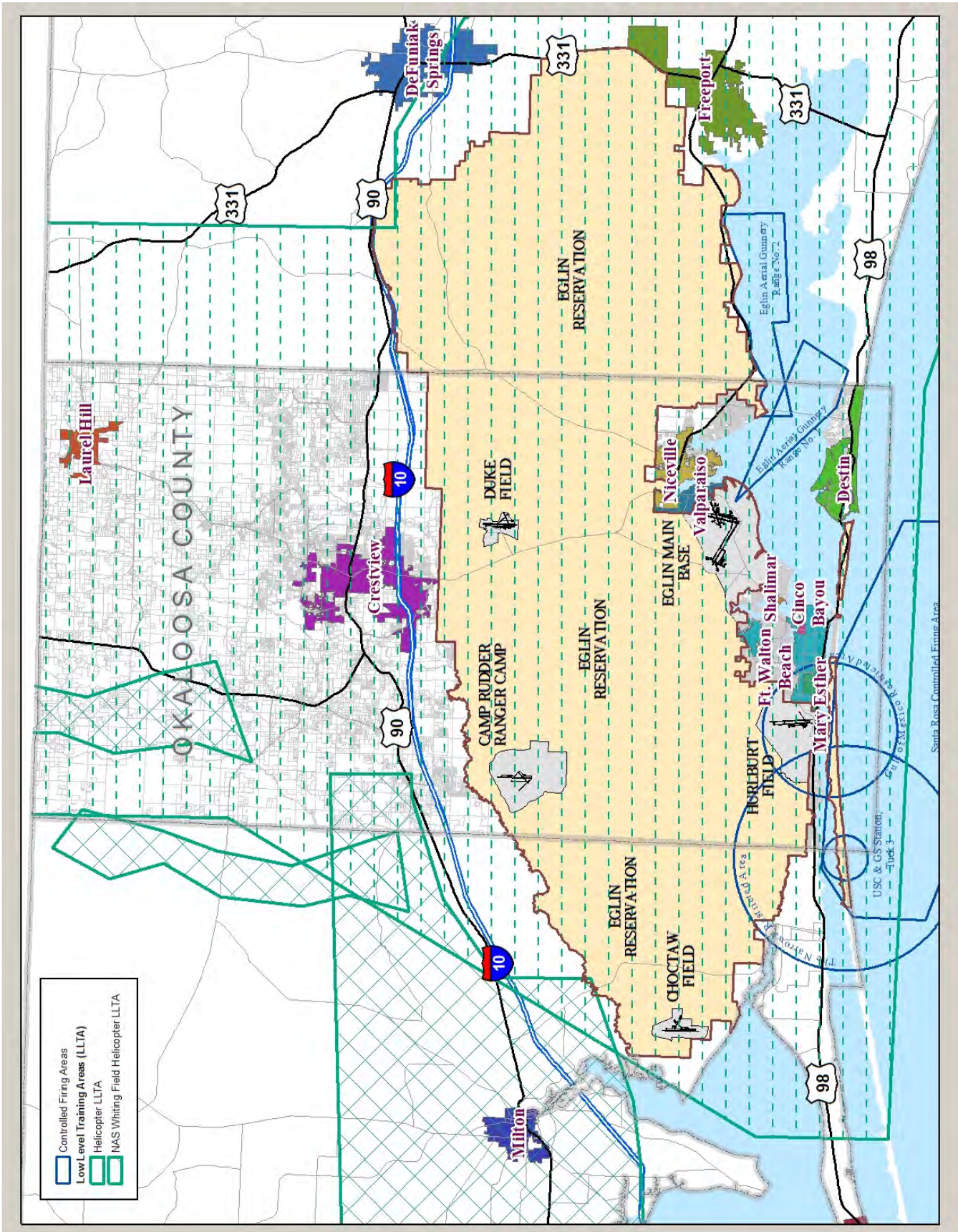


Figure 3-7: Low Level Helicopter and Tiltrotor Training Areas Across Okaloosa County





Figure 3-8 shows the Airfield Noise associated with the two F-35 alternatives with a one-half mile buffer shown. Figure 3-9 shows the specific noise contours associated with F-35 maximum mission noise contours in the Crestview area of Okaloosa County. Figure 3-10 provides the noise contours in the Fort Walton Beach area for effected parts of Okaloosa County. Figure 3-11 shows the noise contours in the Destin area for effected parts of Okaloosa County. Figure 3-12 includes high level noise contours for the unincorporated parts of the County in the Niceville area.

### 3.2.6 Height of Objects and Low Level Approach Zones

Military Training Routes (MTR) are corridors of a defined width established and designated by the Federal Aviation Administration (FAA) specifically for military training according to the RAICUZ. Within these corridors, military aircraft are permitted to conduct military training/testing below 10,000 feet above mean sea level (MSL) in excess of 250 knots indicated airspeed (KIAS).

Two additional military training areas are the Slow Speed Low Altitude Training Route (SR) and the LLTA area. Flight within the SR must be below 1,500 feet above ground level (AGL) and at or below 250 KIAS. Typically SRs are flown with C-130 aircraft and helicopters as well as some slow speed training aircraft. LLTAs are large geographic areas where random low altitude operations are conducted at airspeeds below 250 KIAS. Typically A-10 aircraft and helicopters frequent LLTAs.

Within all of the MTRs, SRs, and LLTAs, low altitude navigation tactical training is currently conducted by C-130 cargo transport aircraft, helicopters, CV-22 Osprey and the CA-212 light transport aircraft, fighter and attack aircraft, and training aircraft.

Increases in altitude would severely impact the training capability of the 1 SOW and NAS Whiting Field. Maintaining lower population densities underneath the low level MTRs along the northern boundary of Eglin, which are used by the 1 SOW, is important for safety reasons. As these routes transition into Field 6 (Camp Rudder), Duke Field, Field 1, Pino Drop Zone, and Sontay Drop Zone, the aircraft is not able to deviate from its selected approach path in an attempt to avoid more densely populated areas or noise sensitive features (e.g., hospital, school, or church). The approach path generally begins approximately 10 nautical miles (NM) from the center point of the airfield or drop zone.

As population density increases underneath Low Level Training Areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and minimize noise and risk to the population underneath.

Airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions based on information provided in the RAICUZ. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPS have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent alti-



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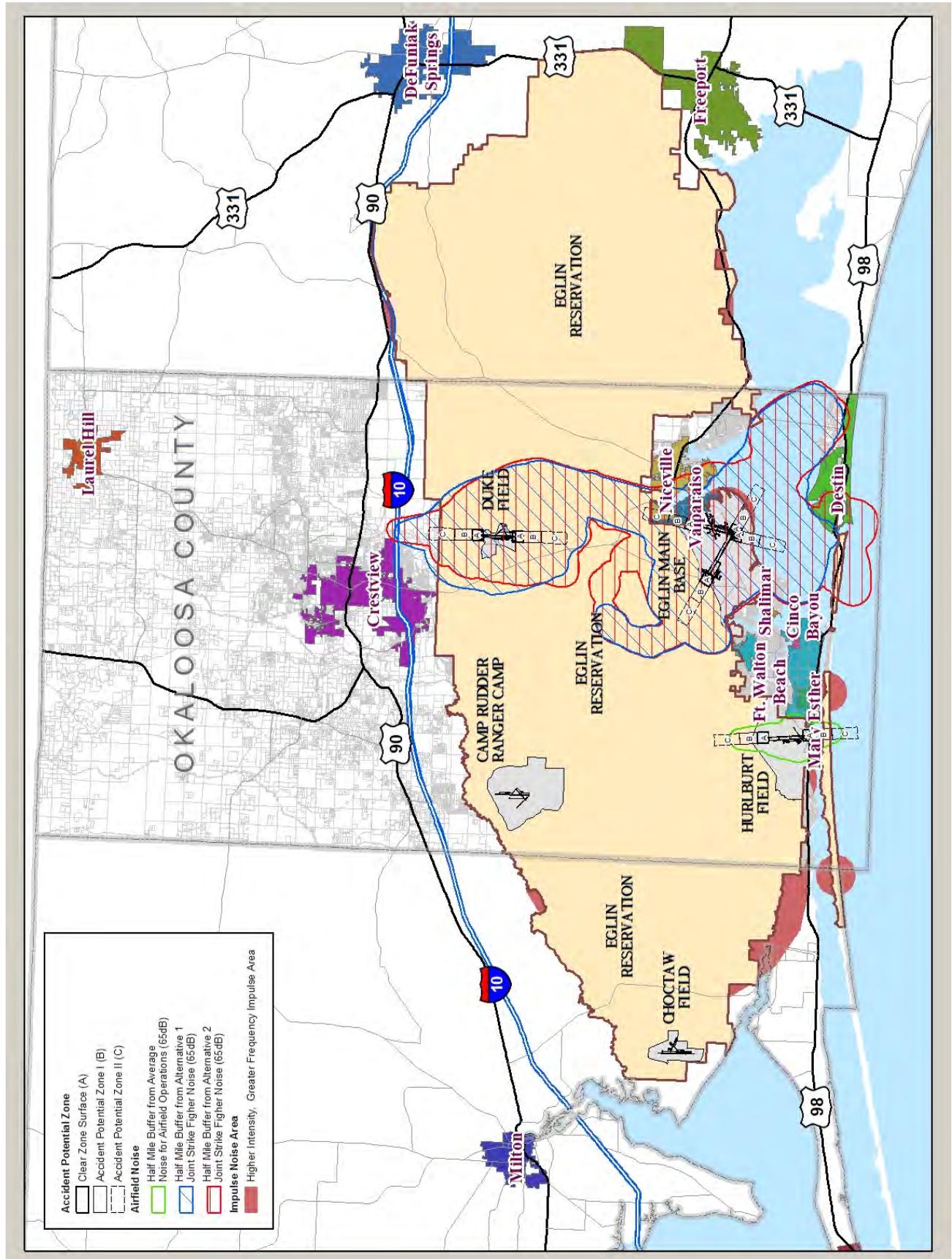


Figure 3-8: F-35 Alternatives 1 and 2 Noise Area With One-Half Mile Buffer Shown



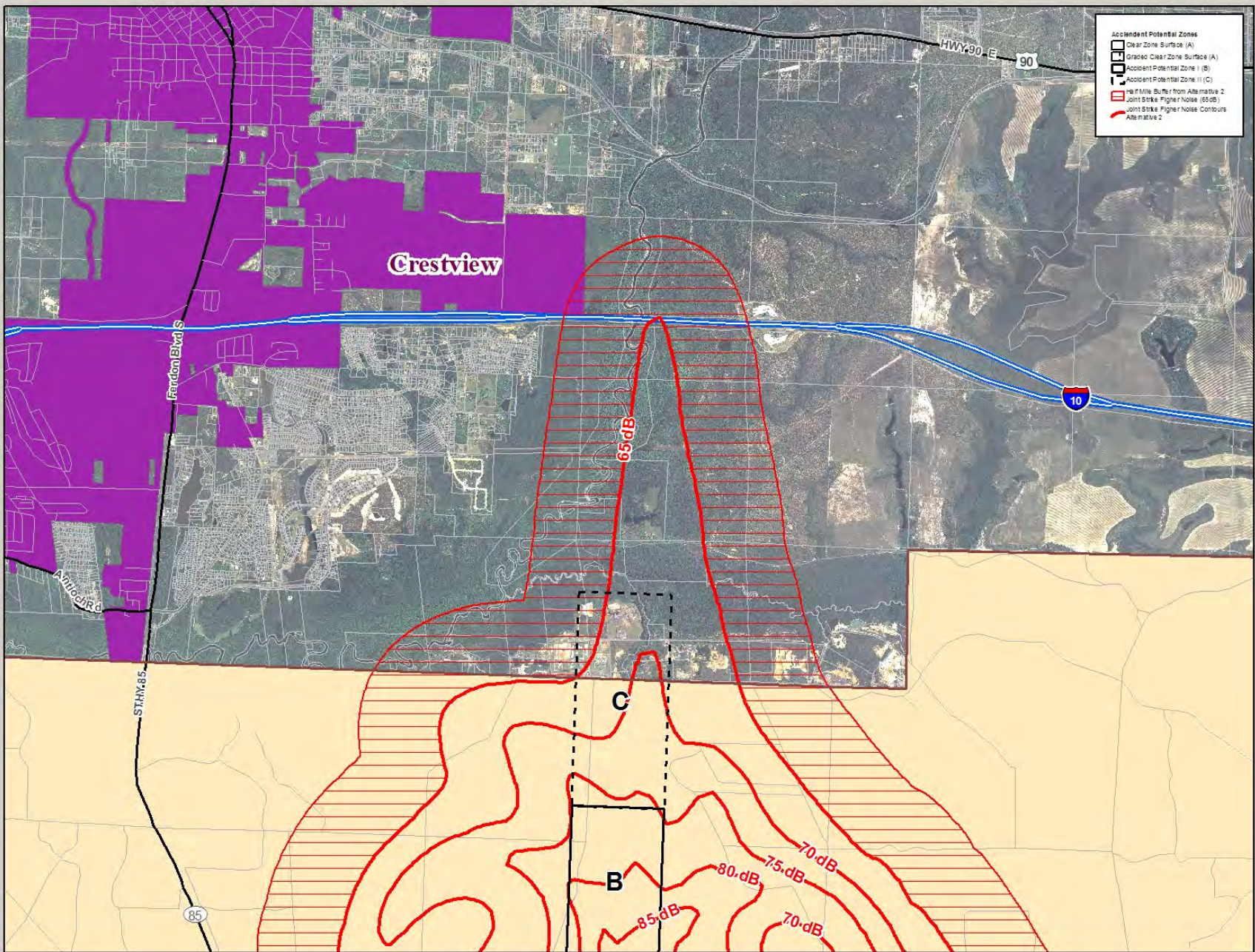


Figure 3-9: F-35 Maximum Mission Noise Contours In Crestview Area for Unincorporated Okaloosa County



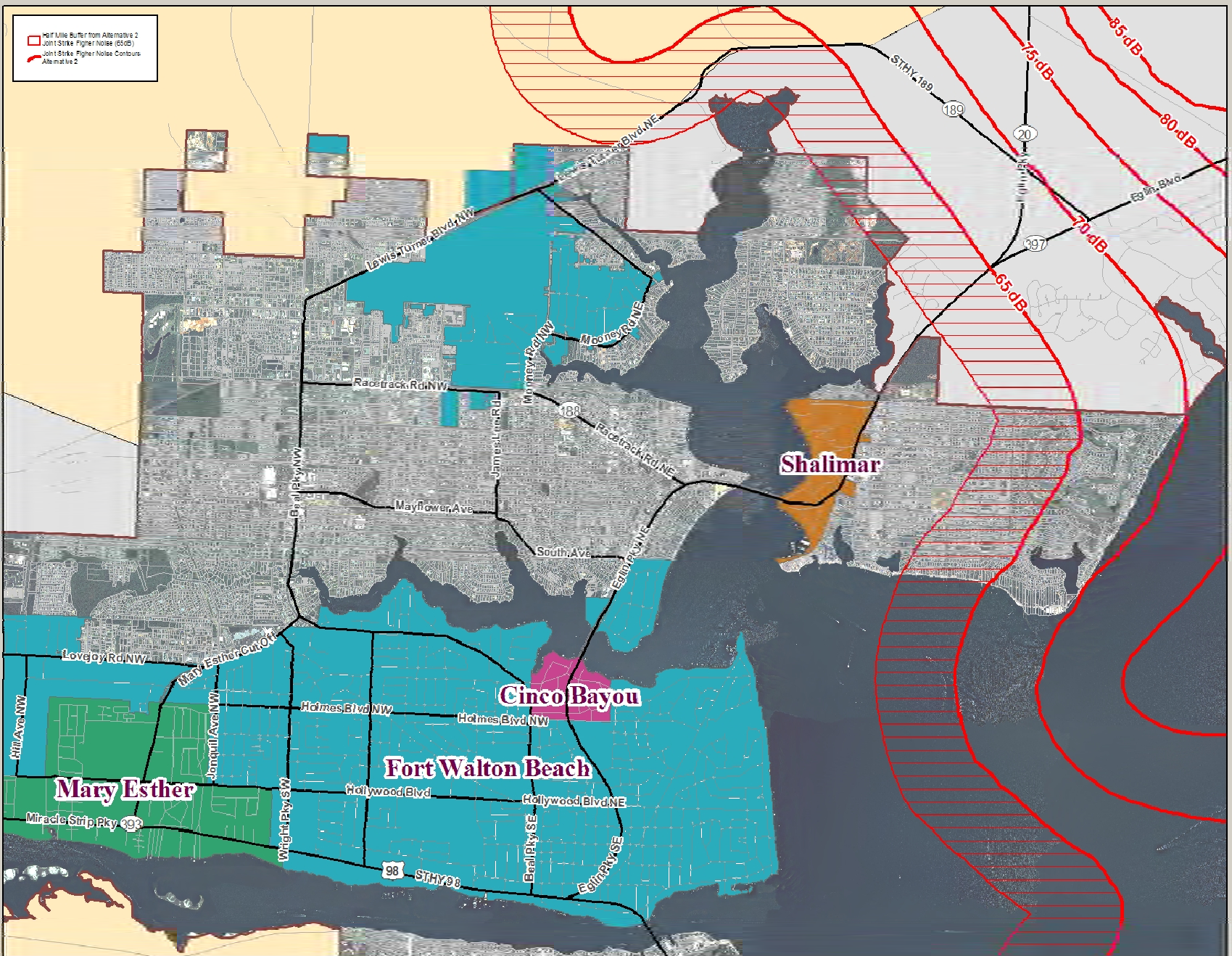


Figure 3-10: F-35 Maximum Mission Noise Contours In Fort Walton Beach Area For Unincorporated Okaloosa County





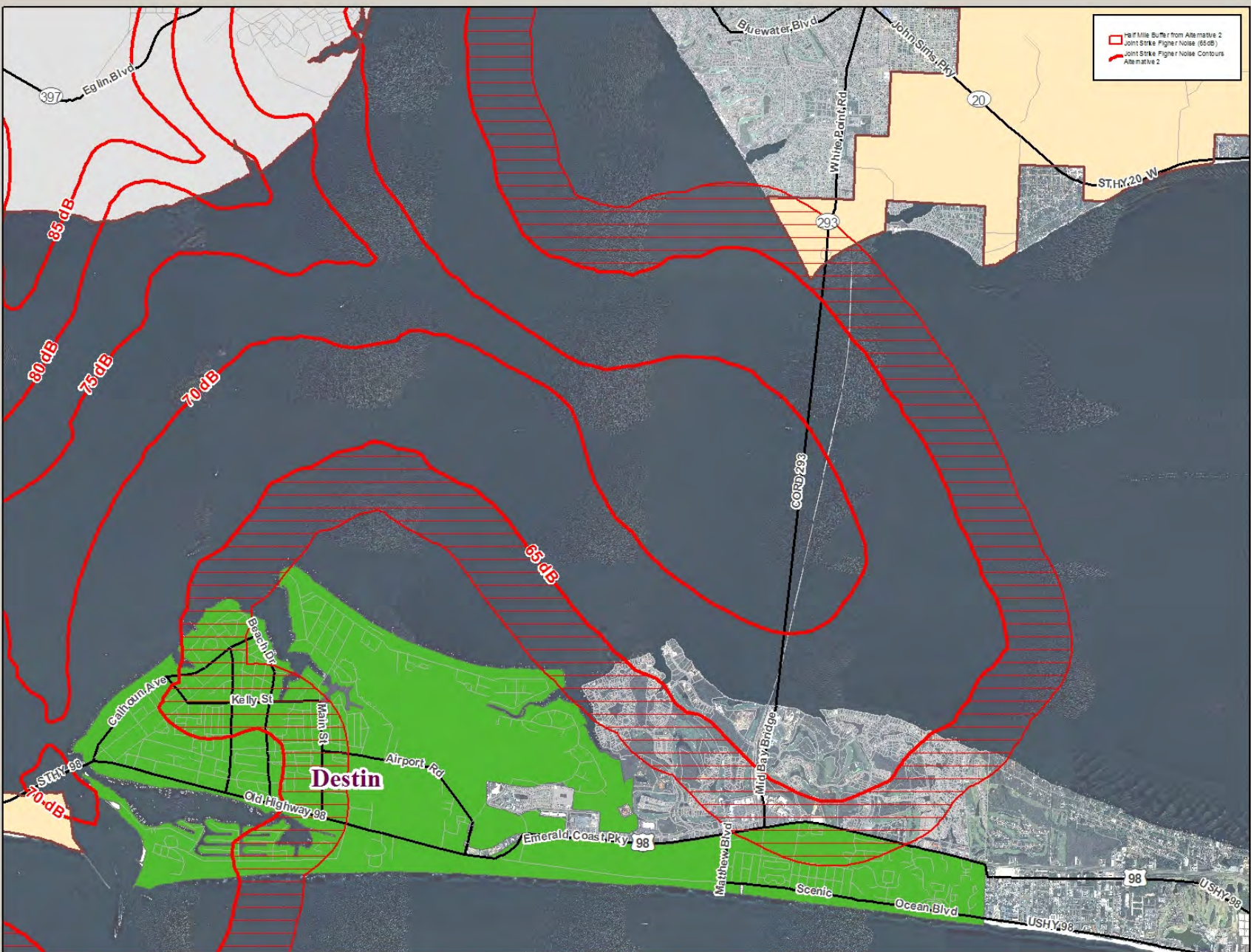


Figure 3-11: F-35 Maximum Mission Noise Contours In Destin Area For Unincorporated Okaloosa County



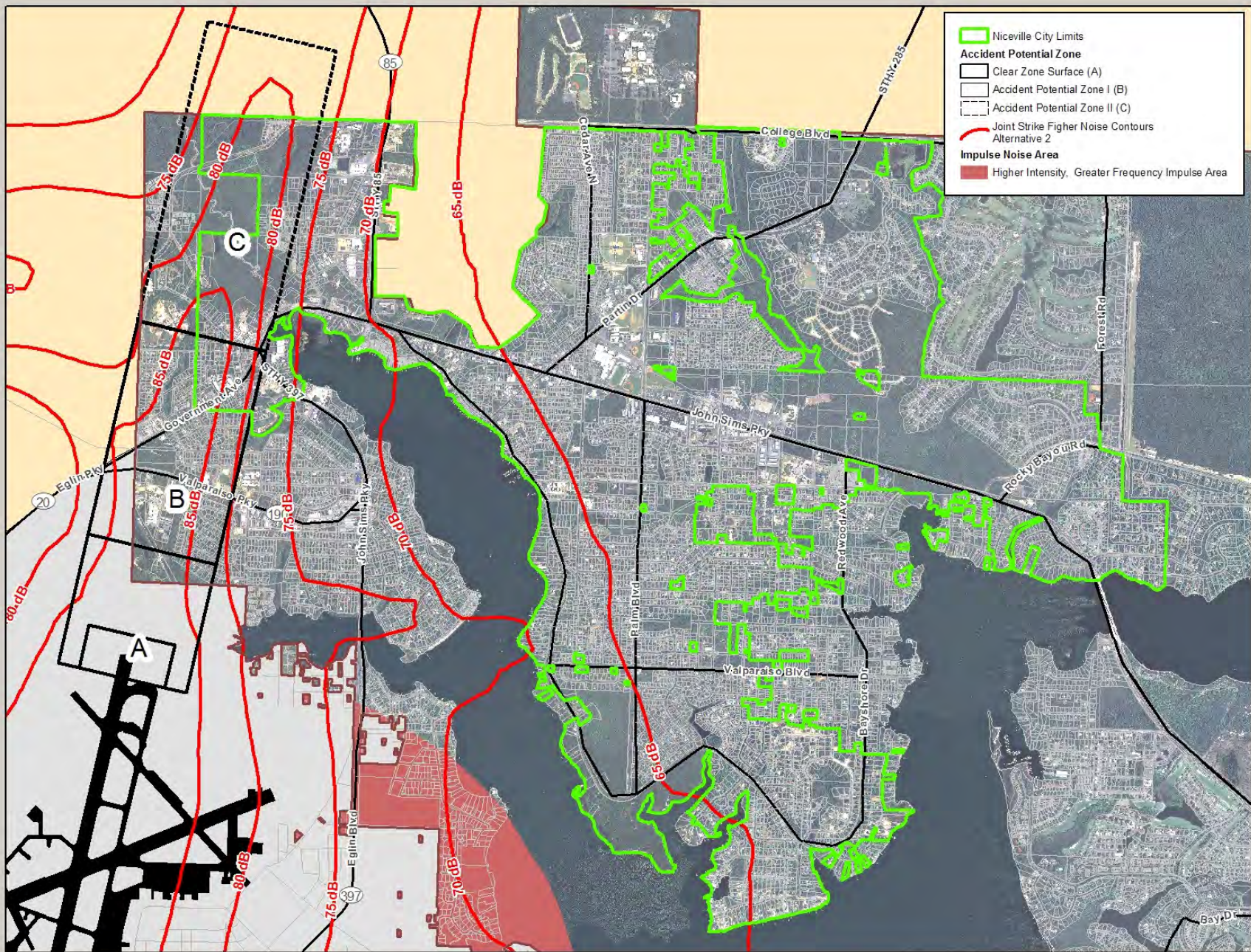


Figure 3--12: F-35 Maximum Mission Noise Contours in Niceville Area for Unincorporated Okaloosa County





tude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

*Figure 3-13* shows the low level approaches across Okaloosa County and *Figure 3-14* provides height limits based on military training routes and TERPS.

In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure that there were no aviation problems. *Figure 3-15* identifies the maximum building heights resulting from this study.

### 3.2.7 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky

from artificial sources. *Figure 3-16* shows the increase in artificial lighting that is visible from satellites for Okaloosa County. It is clearly evident that the amount of lights is increasing with population. Low light conditions are vital to the training to successfully simulate conditions and provide opportunity to use night vision goggles during take-offs and landings.

### 3.2.8 Radio Frequency Interference

Radio frequency is an additional element related to land use compatibility according to the RAICUZ. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

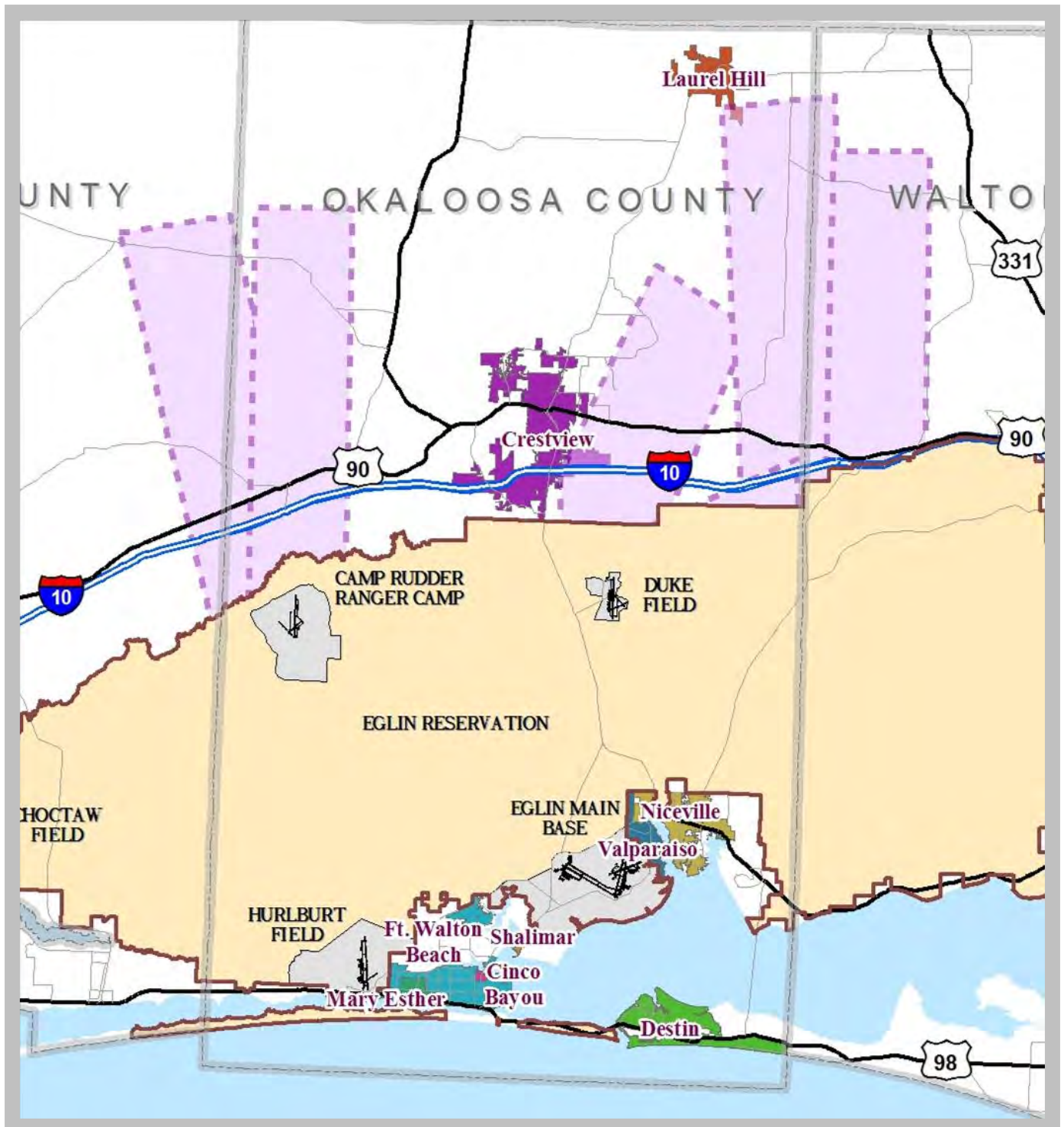


Figure 3-13: Low Level Approaches Across Okaloosa County. This area though broad is not better defined based on best available information.



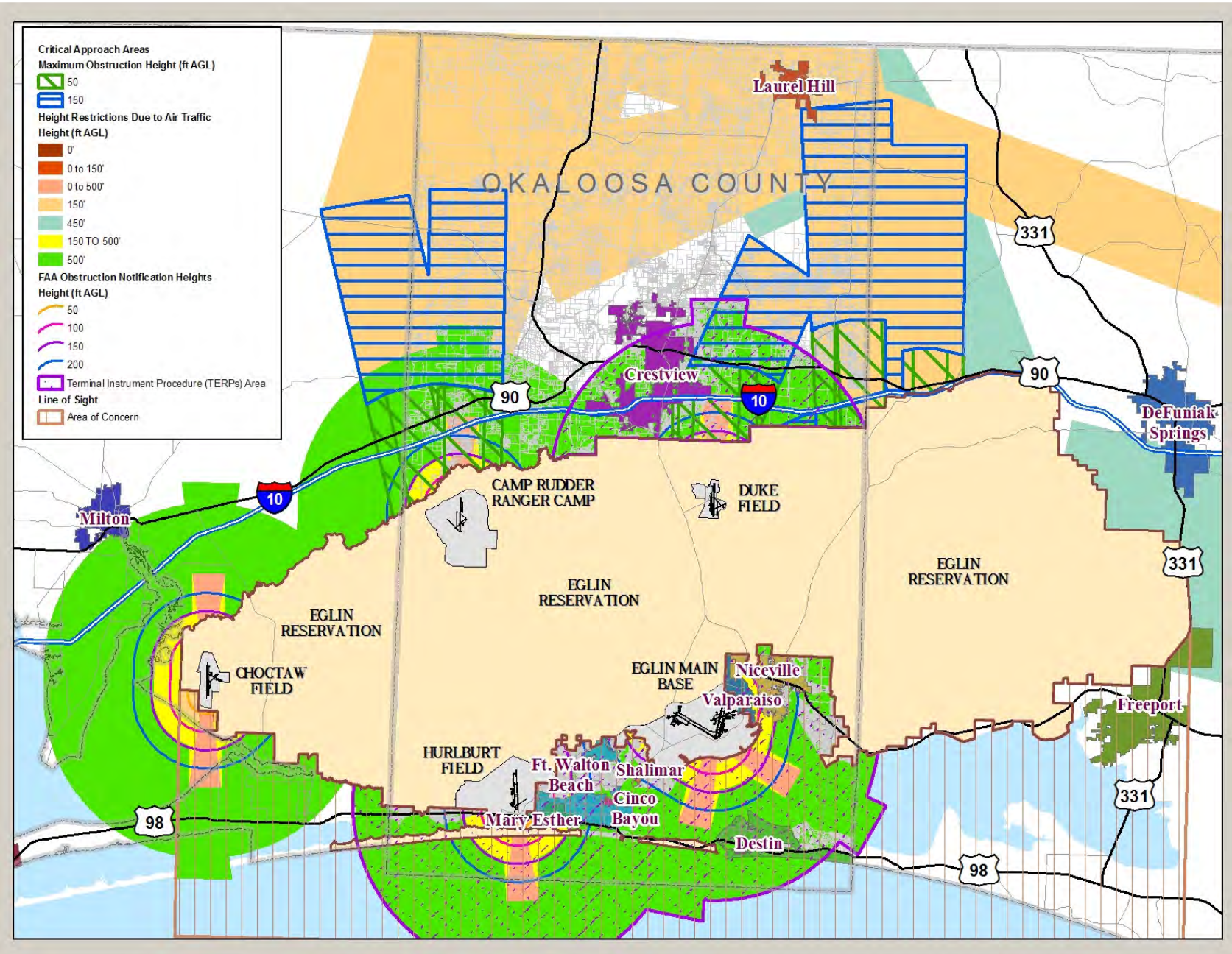


Figure 3-14: Maximum Obstruction Heights For Other Military Training Routes and Terminal Instrument Procedures (TERPs)  
Note the lowest elevation shown for an area governs.



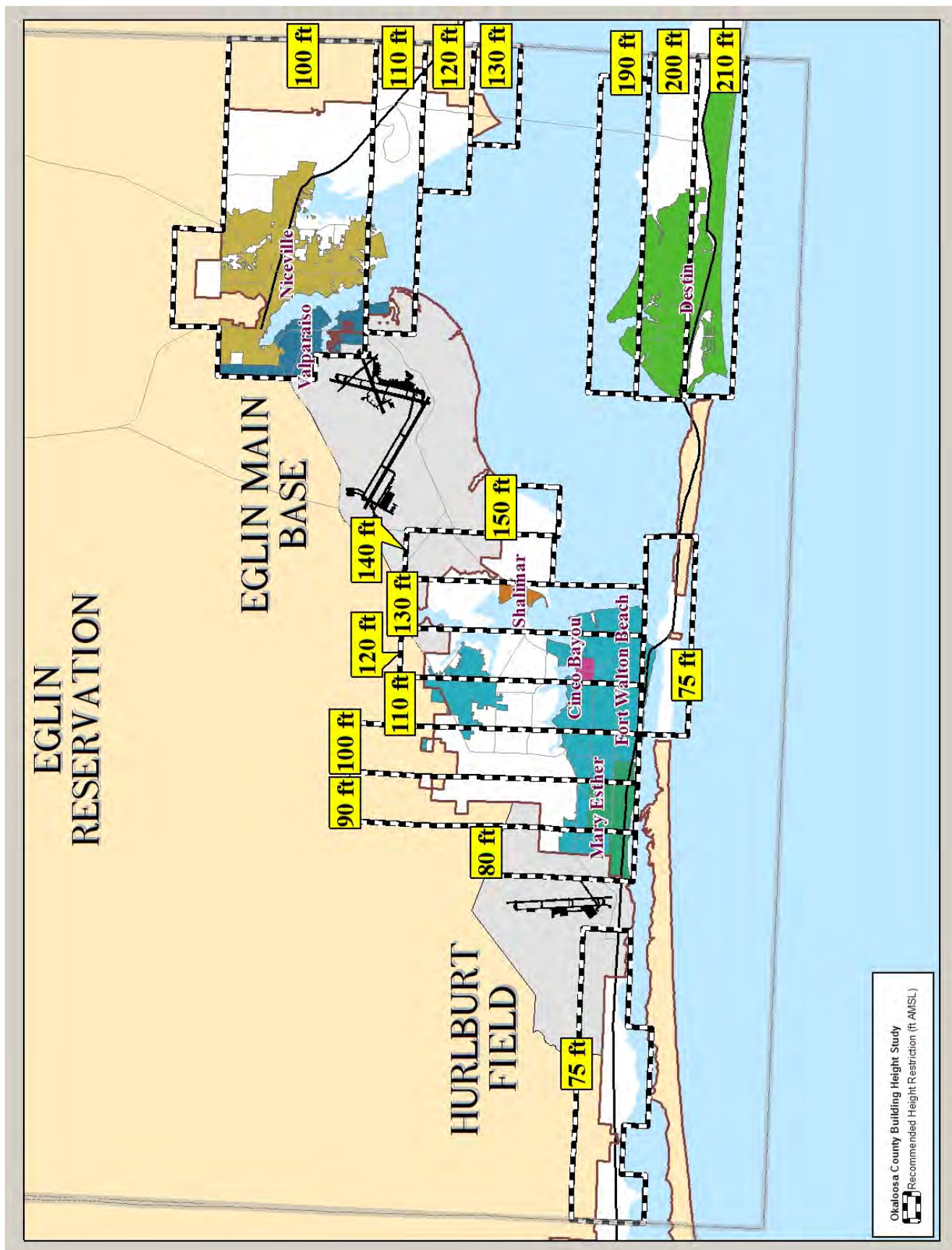


Figure 3-15: Okaloosa County Maximum Building Heights (Air Force, 2006)



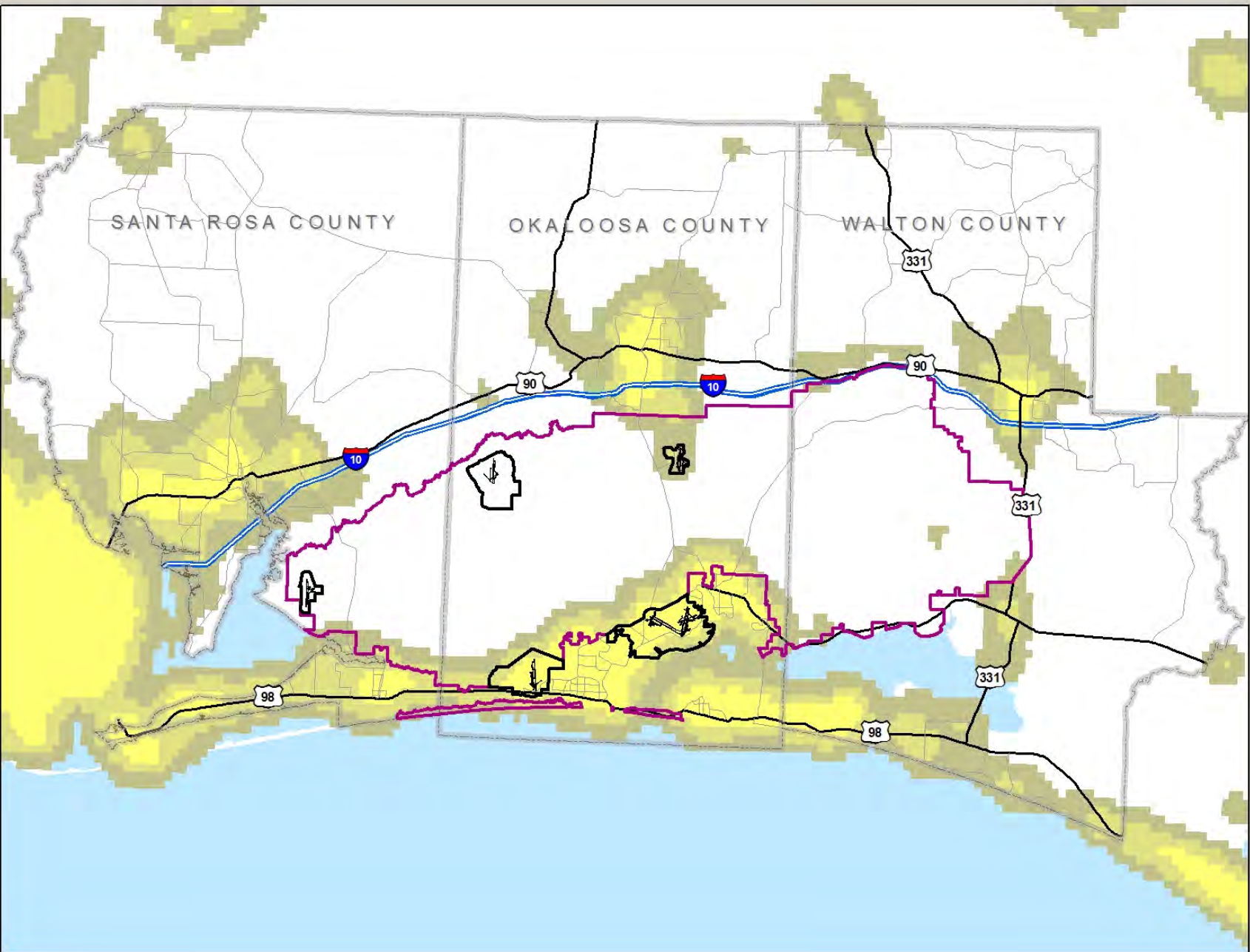


Figure 3-16: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)



### 3.2.9 Controlled Firing Areas

There are 20 test sites associated with Santa Rosa Island, 11 of which are actively used in support of the test and training mission at Eglin according to the RAICUZ. The missions at the test sites range from Command Centers that control the activation of flight termination systems for items being tested (Test Site A-3) to the launching of surface-to-air missiles such as the Air Intercept Missile and the Patriot missile (Test Site A-15). In the airspace above the island and seaward for three nautical miles is a Controlled Firing Area. [Figure 3-17](#) shows the Controlled Firing Areas in the Fort Walton Beach Vicinity. These areas are defined air space blocks that contain activities that would be potentially hazardous to nonparticipating aircraft.

Successful and safe completion of the mission on land and the adjacent waters requires the control of the airspace, water, and land that are part of the mission scenario. Access restriction ensures the safety of people not participating in the mission as well as maintains mission integrity. The non-federally owned portions of Santa Rosa Island or establishment of artificial reefs, would attract marinas and additional boats to the area. The associated increase in boat traffic would complicate access restriction measures and potentially cause safety concerns, mission delay, or cancellation of the mission.

### 3.2.10 Air Traffic Control

Air Traffic from Eglin AFB, Northwest Florida Regional Airport, Destin Airport, and Bob Sikes Airport, originates in Okaloosa County. Adjacent Counties east and west also have NAS Whiting Field and its six outlying fields, Peter Prince Airfield, and DeFuniak Springs Airport.

### 3.2.11 Cruise Missile Corridors

Tomahawk® cruise missile testing and training is conducted at Eglin AFB within existing designated IR Military Training Routes (MTRs). The Tomahawk® missile is a long-range subsonic cruise missile used for striking high value or heavily defended land targets. It is launched from U.S. Navy surface ships and submarines (U.S. Navy, 2004). Cruise missiles are self-propelled and guided through on-board global positioning systems. During test and training activities at Eglin AFB, the Tomahawk® cruise missile flies between the altitudes 500 feet above ground level (AGL) to 4,000 feet above MSL. The areas in which cruise missiles are flown are depicted as "Cruise Missile Corridor" in [Figure 3-18](#).

The Tomahawk® cruise missile flies much like an aircraft and requires similar obstruction-free flight paths. Since the cruise missile flies between 500 feet AGL to 4,000 feet above MSL, objects or structures taller than 450 feet can cause problems and should be minimized as much as possible.

To provide safe operating conditions for missions involving the cruise missile, the Commander of AAC at Eglin AFB follows criteria established to minimize risk. The Range Commanders Council, Risk and Lethality Commonality Team of the Range Safety Group (2000), developed common risk criteria (Standard 321-000, 2000) for national test ranges and Major Range and Test Facility Bases, of which Eglin AFB is one. The criteria apply to debris generated from numerous missions including those involving cruise missiles. The criteria define the acceptable risk to the general public as a result of flying cruise missiles within the designated IR route. To effectively minimize risk to the general public, population density underneath the cruise missile corridor would remain low. This ensures that if a missile were to malfunction or break apart, the likelihood of debris coming into contact with a person on the ground would be lessened. The need to maintain low population density within the cruise missile corridor is fundamental to continuing this part of the Eglin AFB mission.

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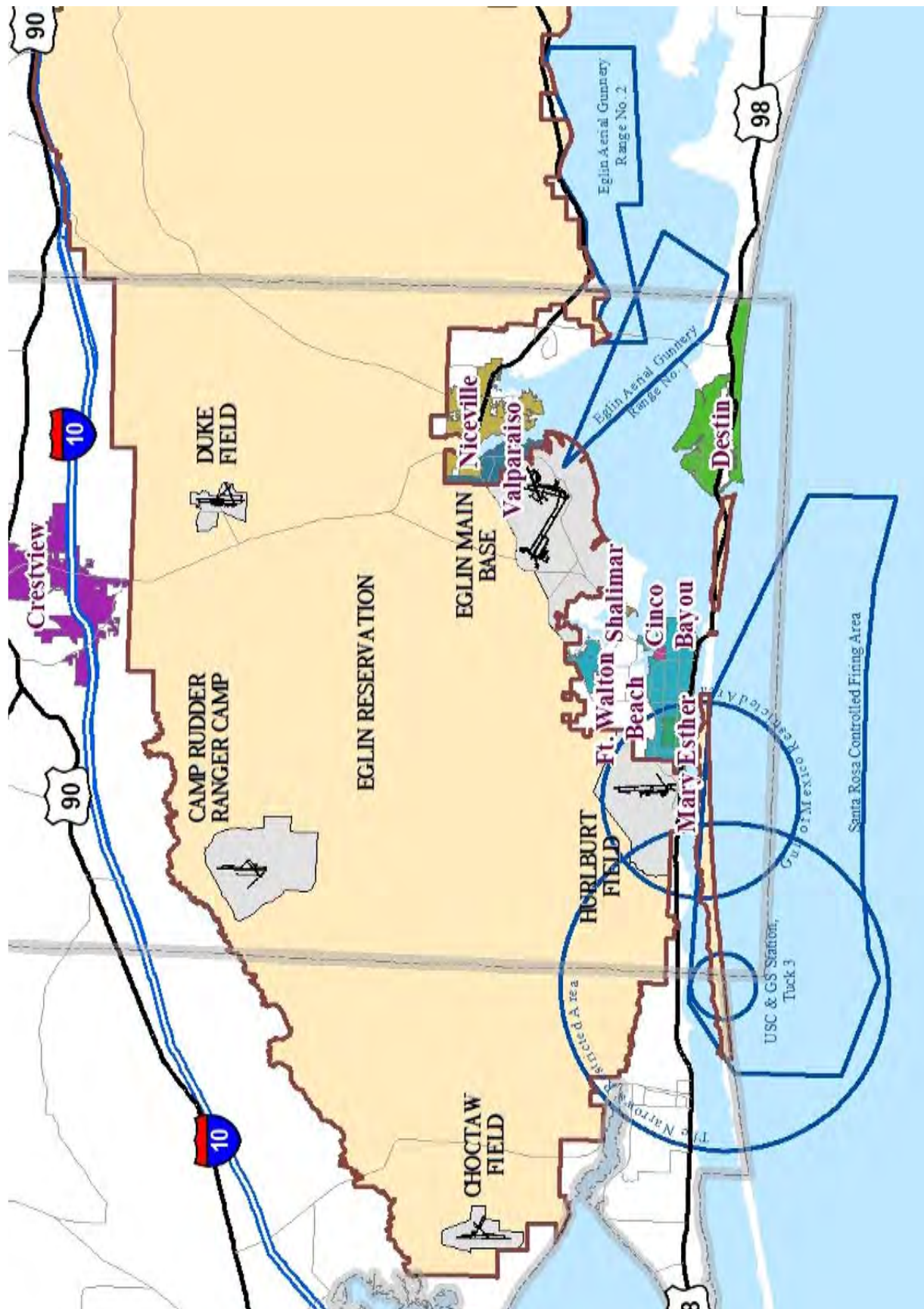


Figure 3-17: Controlled Firing Areas in Okaloosa County

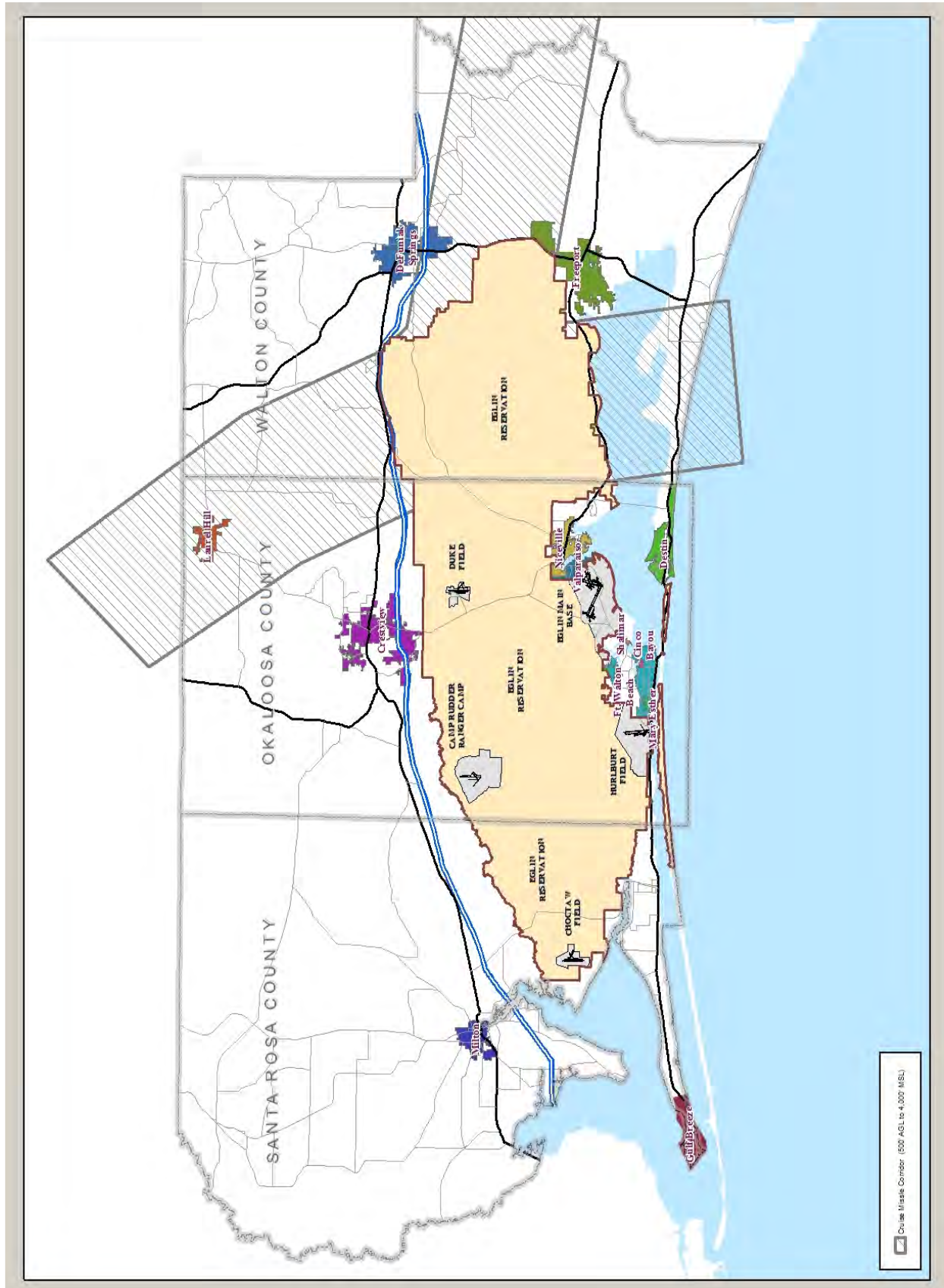


Figure 3-18: Cruise Missile Corridors





### 3.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the County's Zoning Map and Future Land Use Map are provided in *Figures 3-19 and 3-20*, respectively.

People living or working near a military installation can expect impacts such as noise, smoke, and dust generated from ground and air operations. Quality of life for those living or working near an installation can be negatively affected when these impacts reach levels creating a nuisance. A potential risk to public safety also exists from the possibility of aircraft crashing at or near an airfield. The extent and frequency of negative impacts affecting people living near airfields will vary based on the type of aircraft, airfield operating hours, airfield ground activities, frequency of flight, ground training activities, and proximity to the airfield. Future residents choosing to live near Eglin AFB and its boundary will be impacted by flight and ground activities.

#### 3.3.1 Eglin Perimeter Boundary Development

The areas of the County within one mile of Eglin's boundary include the central and southern portions of the County. The zoning for the central area is predominately Agricultural and the southern areas of the boundary is predominantly Residential. The predominate Future Land Use Map designations for the central area is Agricultural and Conservation. The southern area is comprised of mixed urban uses with substantial areas of residential. *Figures 3-21 and 3-22* show the County's existing zoning and future land use designations within 1/2 and one mile of Eglin's northern boundary, respectively.

Eglin AFB is composed of 724 square miles or 463,360 acres of land.

The lands within the buffer on the north are predominately undeveloped and provide an opportunity to preserve security and limit encroachment concerns over the long term. The lands within the southern buffer are predominately built-out and do not allow significant opportunities to manage encroachment. The land use in the areas buffering the installation to the south are likely best managed through addressing the other encroachment issues identified.

#### 3.3.2 Land Uses/Structures in Accident Potential Zone II (Duke Field)

There are 3 entire parcels and portions 2 of parcels located in the APZ II of the Duke Field runway. Approximately 20 acres (15%) of these 5 parcels of non-military lands inside the APZ II are undeveloped or included in environmentally sensitive areas. There is no residential development in the

APZ II. Uses within the APZ II include Okaloosa County Correctional Institute, Okaloosa County Youth Development Camp, borrow pit, and the vacant/environmentally sensitive areas. *Figure 3-23* includes the Duke Field APZ II with the County's Zoning Map and *Figure 3-24* shows the Duke Field APZ II with the County's Future Land Use Map.

Land ownership within the APZ II is presently established in medium sized parcels typically between 3 - 90 acres in total parcel size. Current residential population in the APZ II is estimated at zero persons and there are approximately 30 individuals at the Youth Camp and close to 900 units at the Correctional Institute. The vacant and environmental sensitive lands provide an opportunity to preserve the remaining parcels in the APZ II.

#### 3.3.3 Impulse Noise

The nature of the impulse noise in the County is in the low to moderate ranges as previously shown in *Figure 3-5*. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

#### 3.3.4 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire County and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with a low flying helicopter and tiltrotor.

#### 3.3.5 Land Uses in High Noise Areas of Unincorporated Okaloosa County

Duke Field. There are 10 parcels located fully or partially inside the high noise level (>65dB) north of Duke Field. The only significantly developed parcels in this area are the Correctional Institute and Youth Camp described in the previous sub-section on Duke Field's APZ II. *Figures 3-25 and 3-26* provide the high level contours from Duke Field on the County's Zoning and Future Land Use Map, respec-



F-35 Joint Strike Fighter (JSF)

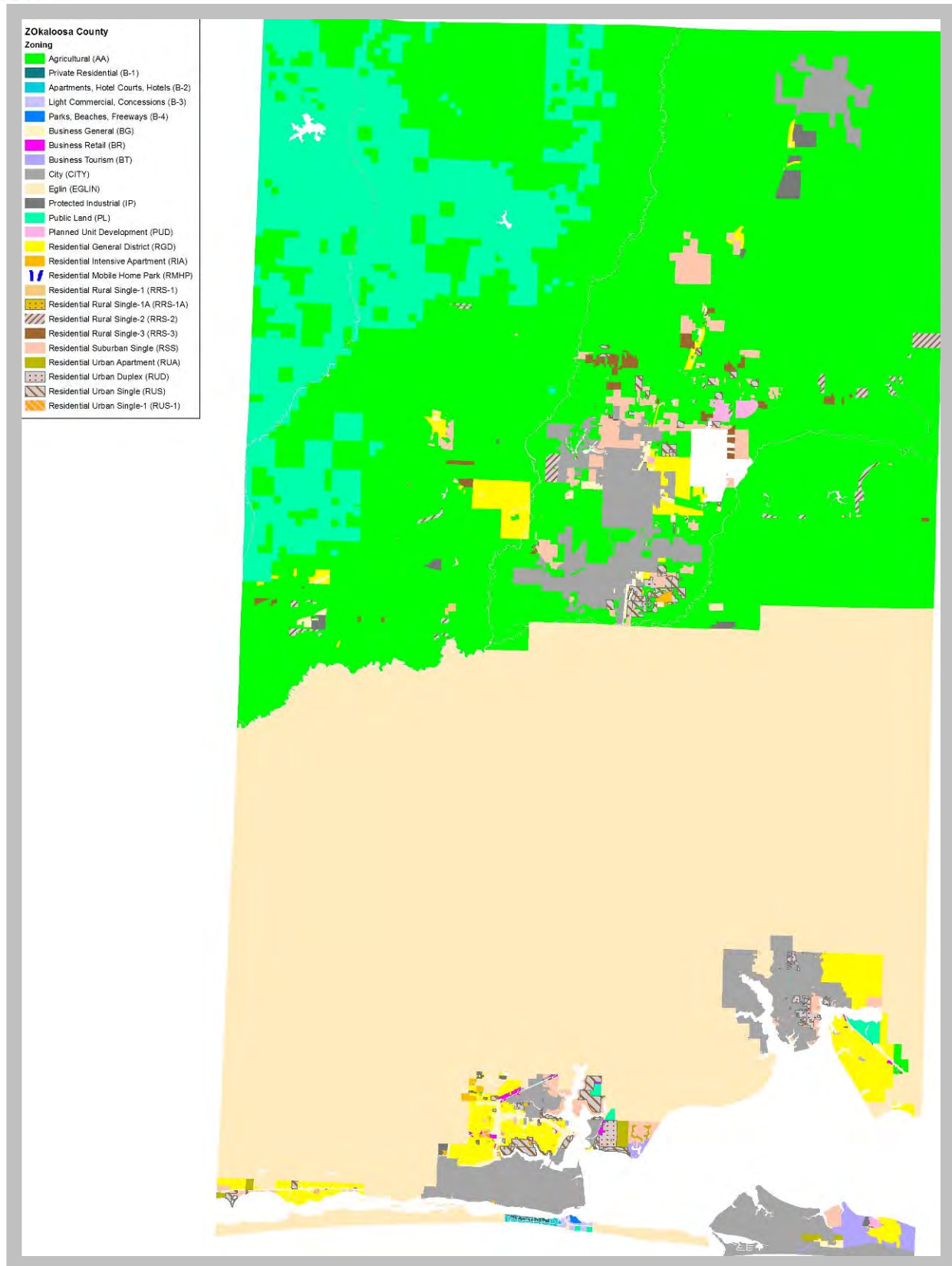


Figure 3-19: Okaloosa County Zoning Map



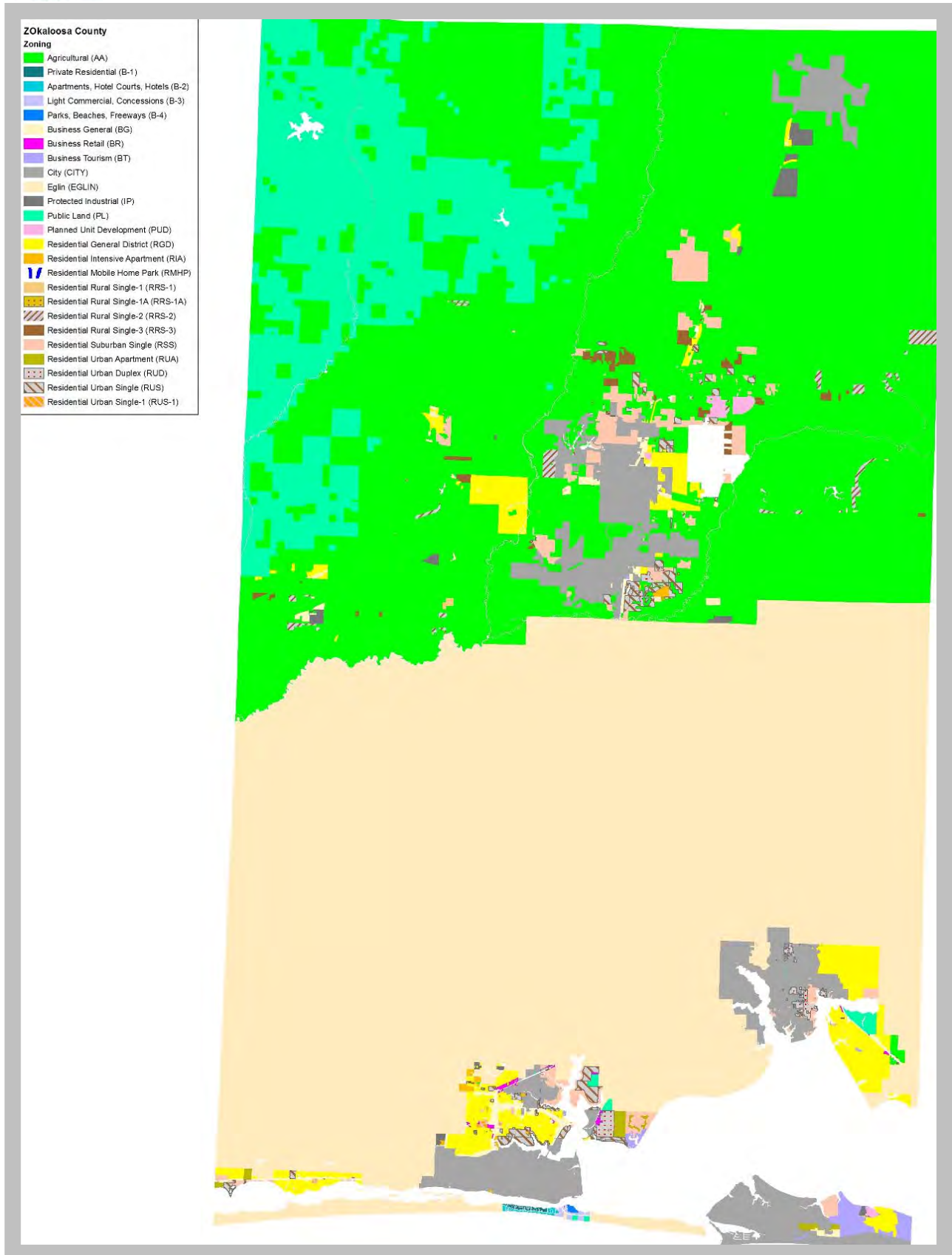


Figure 3-20: Okaloosa County Future Land Use Map

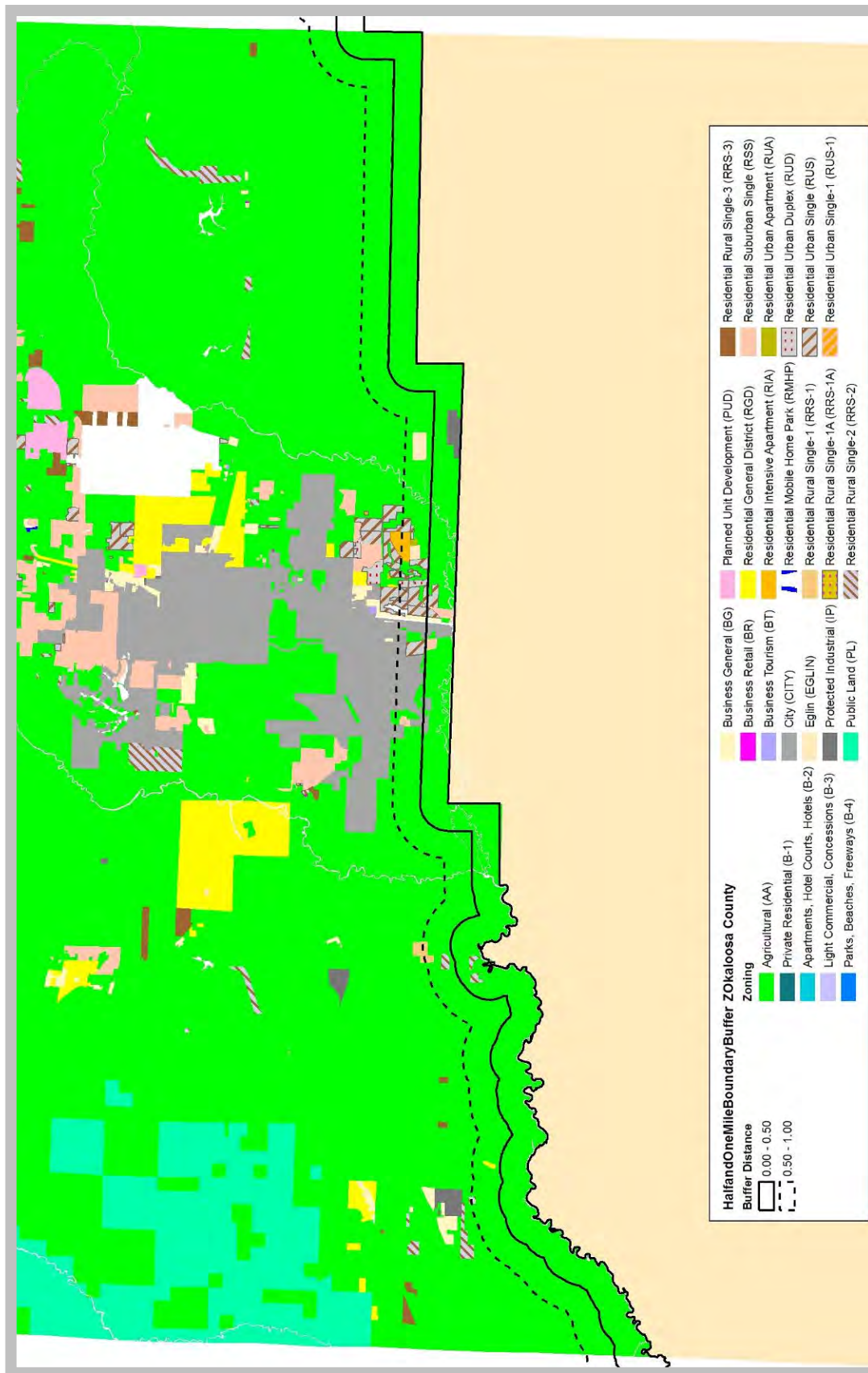


Figure 3-21: Okaloosa County Zoning Map With One-Half and One Mile Buffers



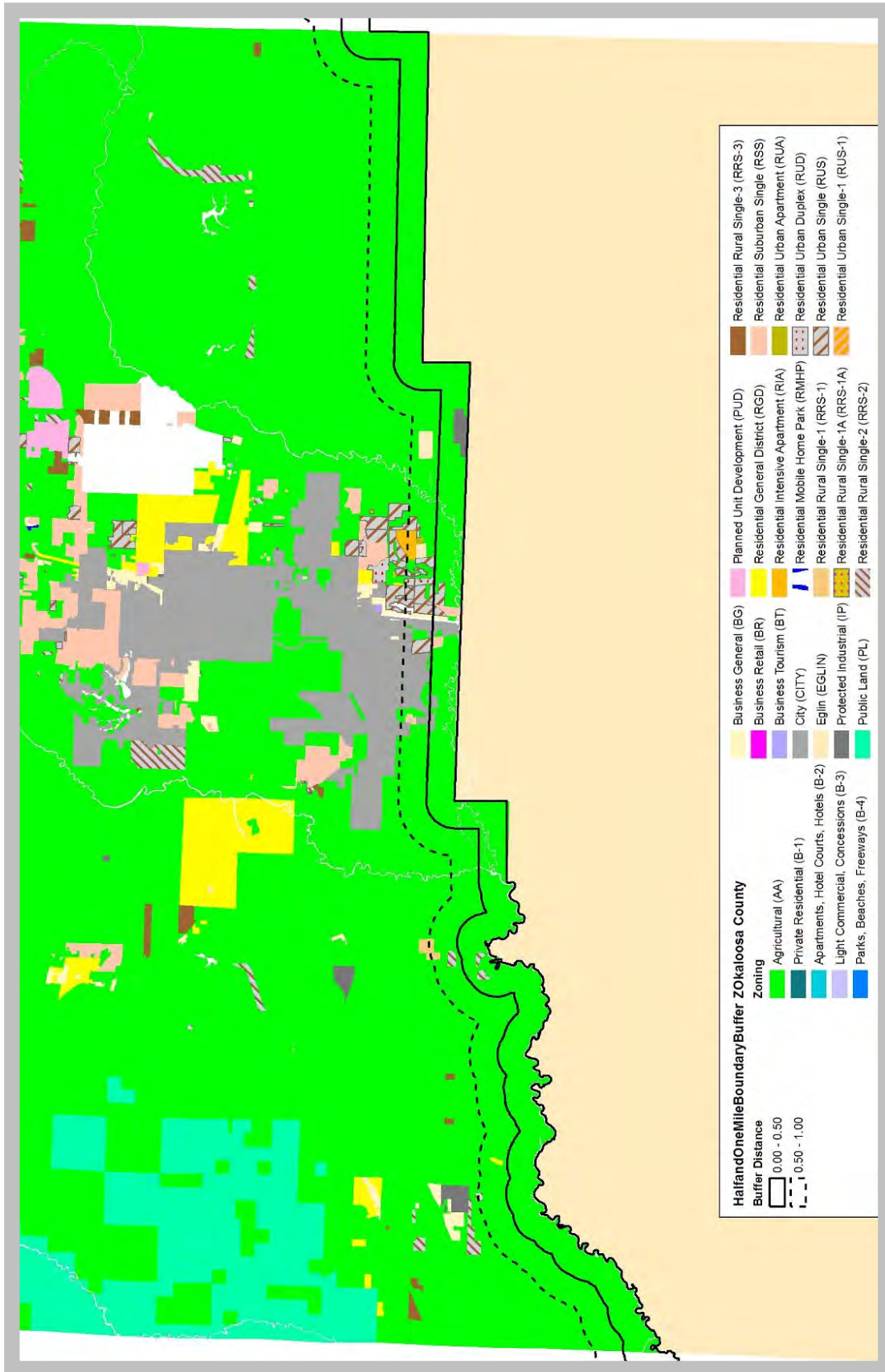


Figure 3-22: Okaloosa County Future Land Use Map With One-Half and One Mile Buffers





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

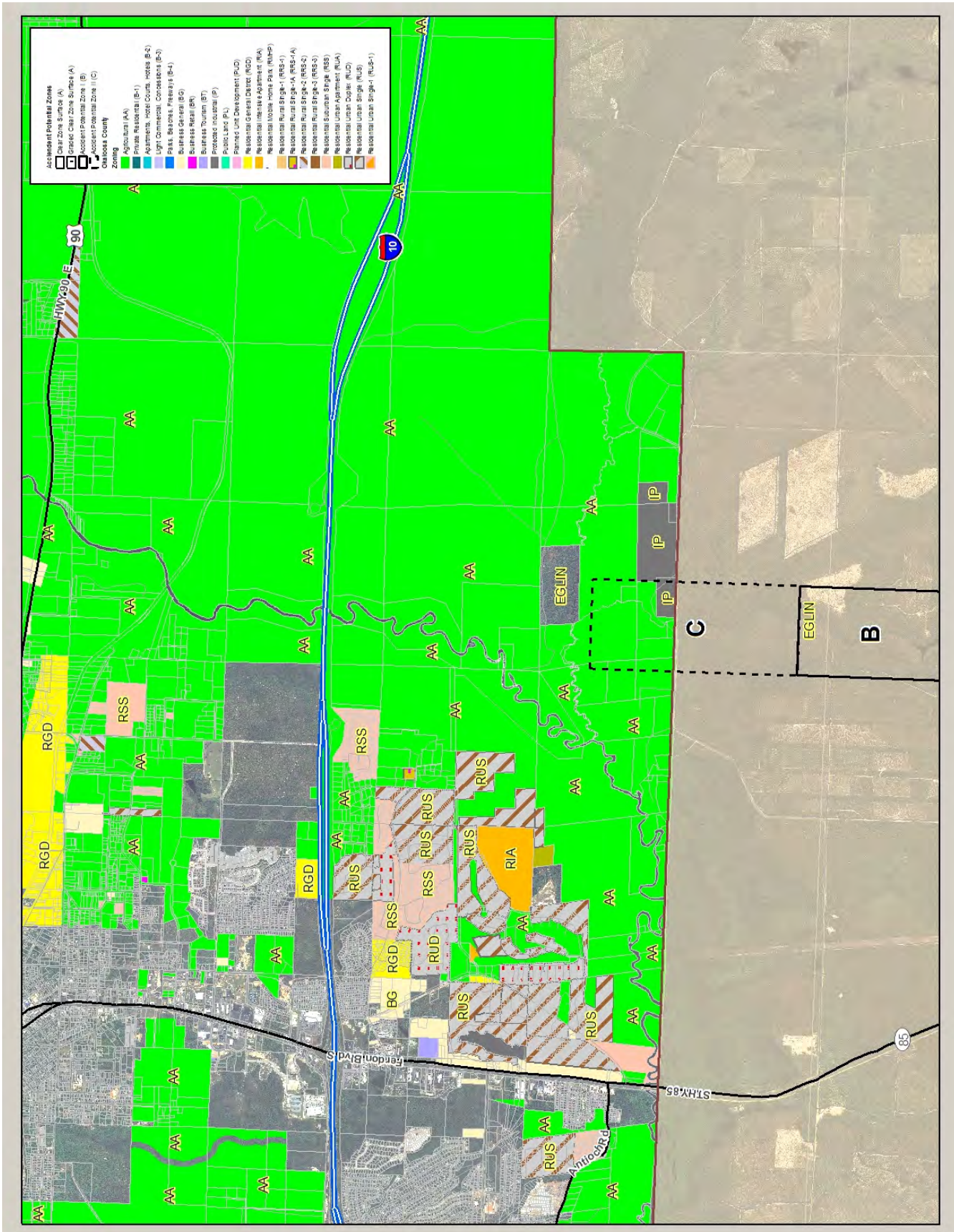


Figure 3-23: Duke Field APZ II With Okaloosa County Zoning Map







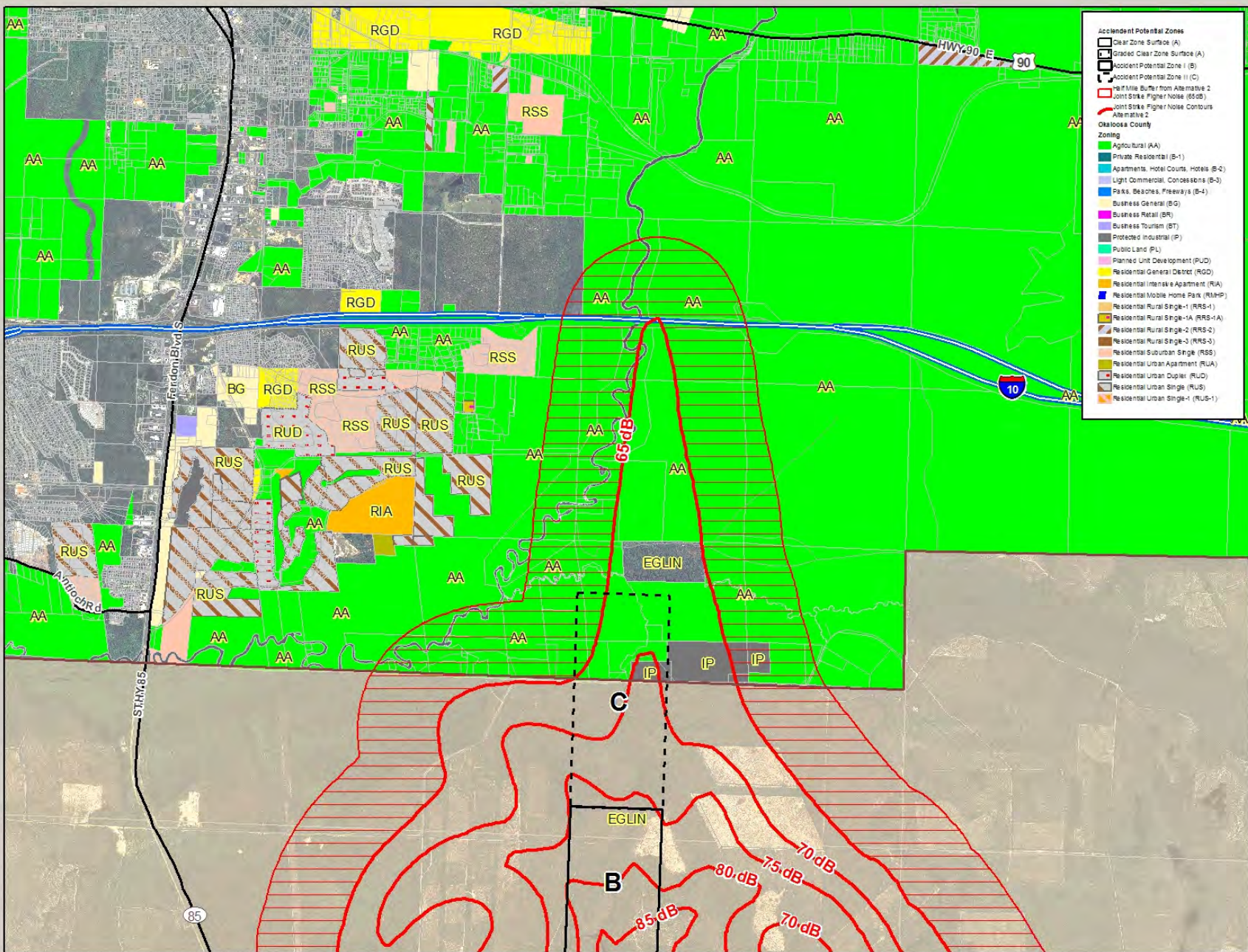


Figure 3-25: Duke Field Maximum Mission Noise Level Contours With Okaloosa County Zoning Map



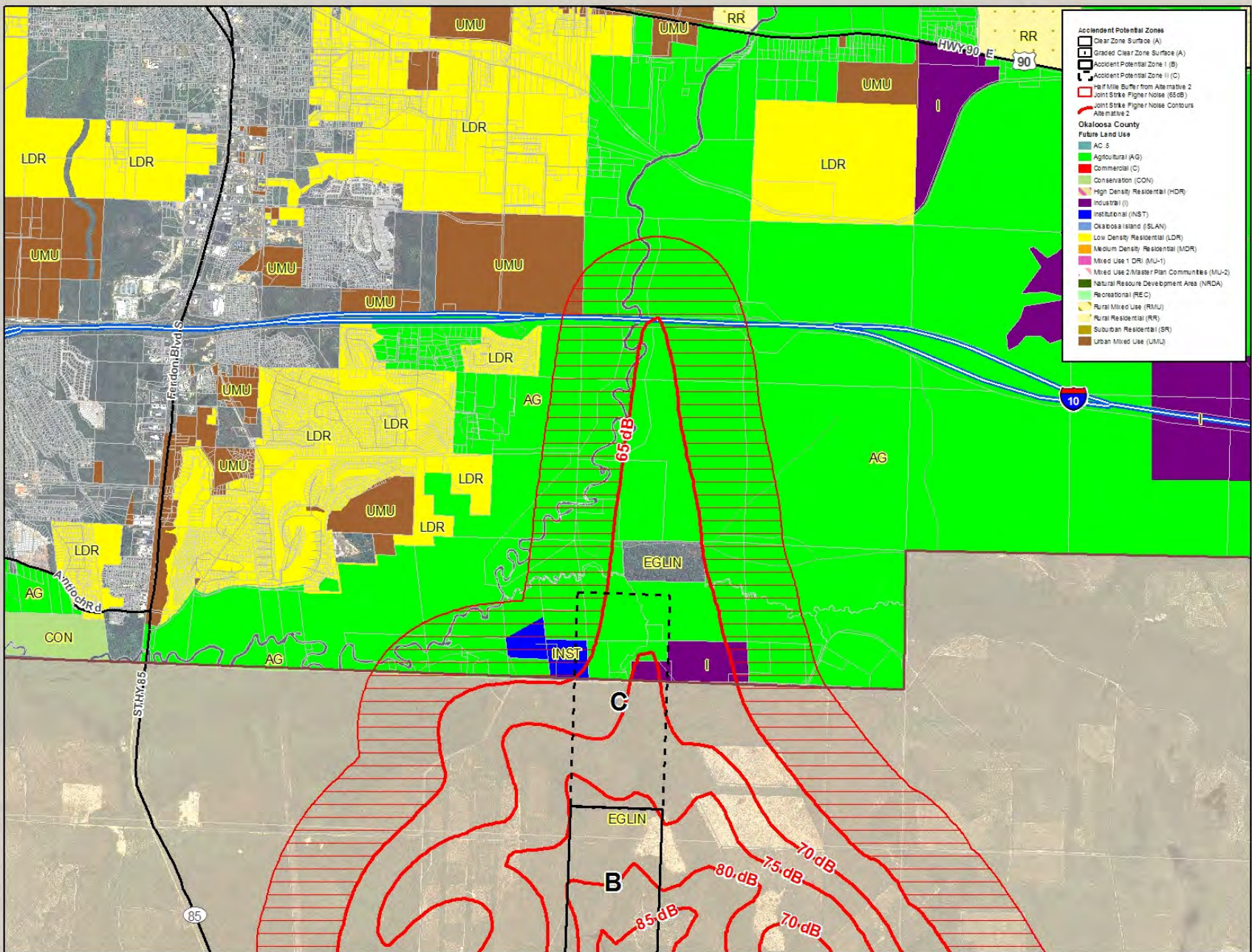


Figure 3-26: Duke Field Maximum Mission Noise Levels With Okaloosa County Future Land Use Map



tively.

As shown in [Table 3-1](#), 702 acres (84%) of non-military lands inside the high noise area are currently undeveloped or included in environmentally sensitive areas. Residential development includes one single family residence, and one mobile home park. Other existing land use within the high noise areas includes juvenile justice center, youth camp, academy timberland, agriculture, and conservation areas.

Land ownership within the high noise areas is predominantly established in medium to large sized parcels typically ranging from 20 to 356 acres in size. There are some smaller parcels but the majority are the medium to large tract size. Currently, nine dwelling units are located in a parcel within or extending into the high noise areas. Current population in the high noise level area is estimated at 23 persons.

The vacant and environmental sensitive lands provide an opportunity to preserve the remaining parcels in the high noise level area.

Eglin Main / Fort Walton Beach Area. This area is located northeast of the Cities of Fort Walton Beach, Shalimar, and Cinco Bayou and include unincorporated areas of the County. [Figures 3-27 and 3-28](#) provide the high level contours from Eglin Main in the Fort Walton Beach area on the County's Zoning and Future Land Use Map, respectively.

As shown in [Table 3-2](#), 32 acres (7%) of non-military lands inside the high noise area (greater than 65dB) are currently undeveloped or included in environmentally sensitive areas. Residential development includes 587 single family residences. Other existing land use within the high noise areas includes golf course and common areas.

Land ownership within the high noise areas is presently established in small sized parcels typically 1/2 acre in size. Current population in the high noise areas is estimated at 1,462 persons. The majority of the single family residential is built-out.

Eglin Main / Destin Area. This area is located east of Airport Road and north of Highway 98 in unincorporated areas near the City of Destin. [Figures 3-29 and 3-30](#) provide the high level contours in the Destin area on the County's Zoning and Future Land Use Map, respectively.

As shown in [Table 3-3](#), 226 acres (40%) of non-military lands inside the high noise area (greater than 65dB) are currently undeveloped or included in environmentally sensitive areas. Residential development includes 435 single family residences or multi-plex residences. This includes 8 parcels containing multi-family condominiums that include 322 residential units. Other existing land use within the

high noise areas includes mixed-use office building, Destin Middle School, utilities, and warehouse.

Land ownership within the high noise areas is presently established in small sized parcels typically 3/4 acre in size. Currently, 435 dwelling units are located in a parcel within or extending into the high noise areas. Current population in the high noise areas is estimated at 1,083 persons.

Based on this analysis, the residential uses and Destin Middle School are perceived incompatible uses/structures in the high noise areas. For this study, the determination of an incompatible land use was defined as an existing use conflicting with compatibility guidelines established in the AICUZ program.

Eglin Main / Niceville Area. This area includes enclaves within the City of Niceville. [Table 3-4](#) shows the predominant use in this area is single family residential with 22 parcels, 7 of which are vacant. Current population in the high noise level area is estimated at 55 persons.

Population and housing estimates were determined by comparing land use records from Okaloosa County with statistical data from the 2000 US Census. Statistical data pertaining to the average number of persons per household for Okaloosa County were applied to the number of estimated occupied housing units.

### 3.3.6 Height of Objects and Low Level Military Training Routes

Areas along the northern boundary of Eglin AFB currently low in population density provide ideal conditions for low level flight and low altitude night vision goggle training, a vital skill for new pilots to learn and veteran pilots to maintain. An increase in population density and development along the northern Eglin boundary would force increases in altitude and/or changes in flight paths, both critically impairing the ability to conduct training at Field 6 (Camp Rudder), Field 1, Pino Drop Zone, Sontay Drop Zone, and Duke Field. The assault landing strip at Duke Field is used for assault landing training and is the only location in the United States that offers this type of training, which is an essential part of special operations capability (U.S. Air Force, 2003b).

To identify the area in which low population densities would be ideal and where incompatible development would cause the most impact, the RAICUZ includes the Northwest Florida Greenway Corridor Study Area was delineated [Figure 3-31](#). The goals of the corridor study area are to promote the sustainability of the military mission, to preserve the high biodiversity of the area, to enhance outdoor recreation, and to support the economic health of the area. It consists of





Existing Land Use	Noise Level		
	65-69 dB		
	Total Acres	% of Total Acreage	# of Parcels
COUNTY	110.2	13%	2
MOBILE HOM	5.89	1%	1
NO AG ACRE	143.94	17%	1
SINGLE FAM	3.73	0%	1
STATE	20.42	2%	1
TIMBERLAND	466.6	55%	2
VACANT	91.77	11%	2
<b>TOTAL</b>	<b>842.55</b>	<b>100%</b>	<b>10</b>

Table 3-1: Existing Land Use Designations Within High Noise Levels Near Duke Field for Unincorporated Okaloosa County

Existing Land Use	Noise Level		
	65-69 dB		
	Total Acres	% of Total Acreage	# of Parcels
COMMON ARE	73.99	16%	5
COUNTY	1.15	0%	1
GOLF COURS	132.3	29%	3
RIVERS AND	1.26	0%	1
SINGLE FAM	218.6	48%	587
VACANT	30.83	7%	50
<b>TOTAL</b>	<b>458.13</b>	<b>100%</b>	<b>647</b>

Table 3-2: Existing Land Use Designations Within High Noise Levels Near Eglin Main in Fort Walton Beach Area Of Unincorporated Okaloosa County

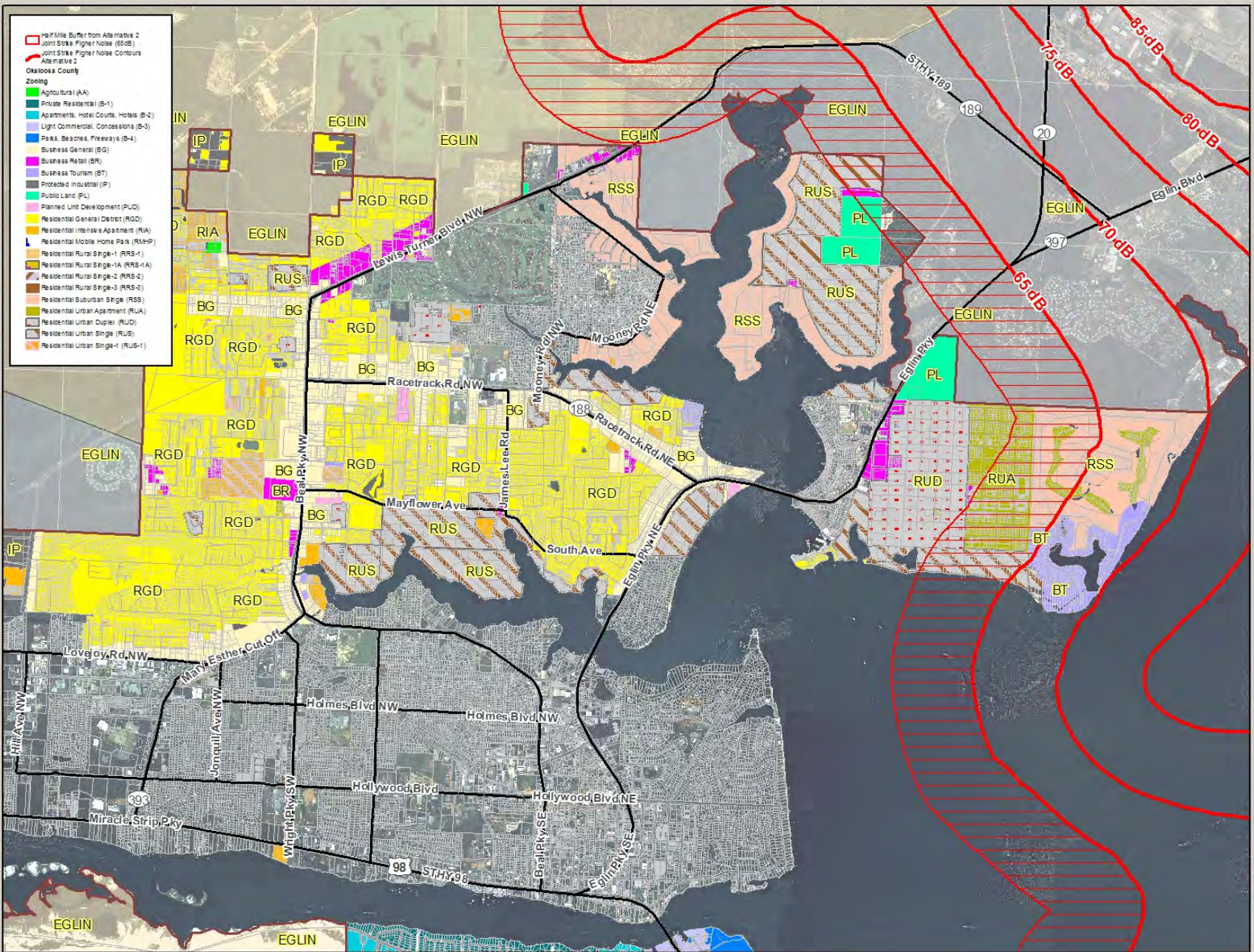


Figure 3-27: F-35 Maximum Mission Noise Contours Near Eglin Main for Unincorporated Okaloosa County in Fort Walton Beach Area With Zoning Map



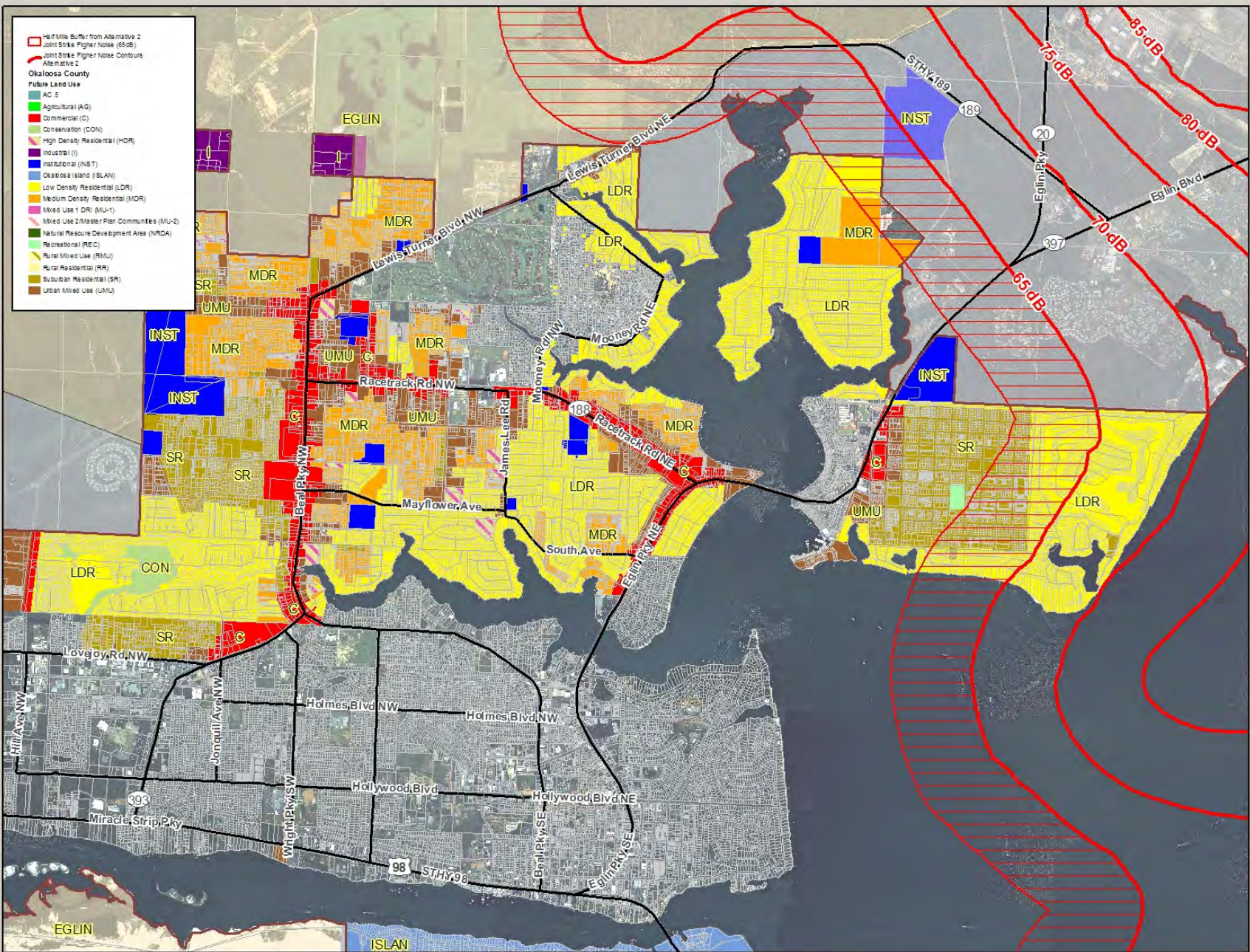


Figure 3-28: F-35 Maximum Mission Noise Contours near Eglin Main in Fort Walton Beach Area with Future Land Use Map



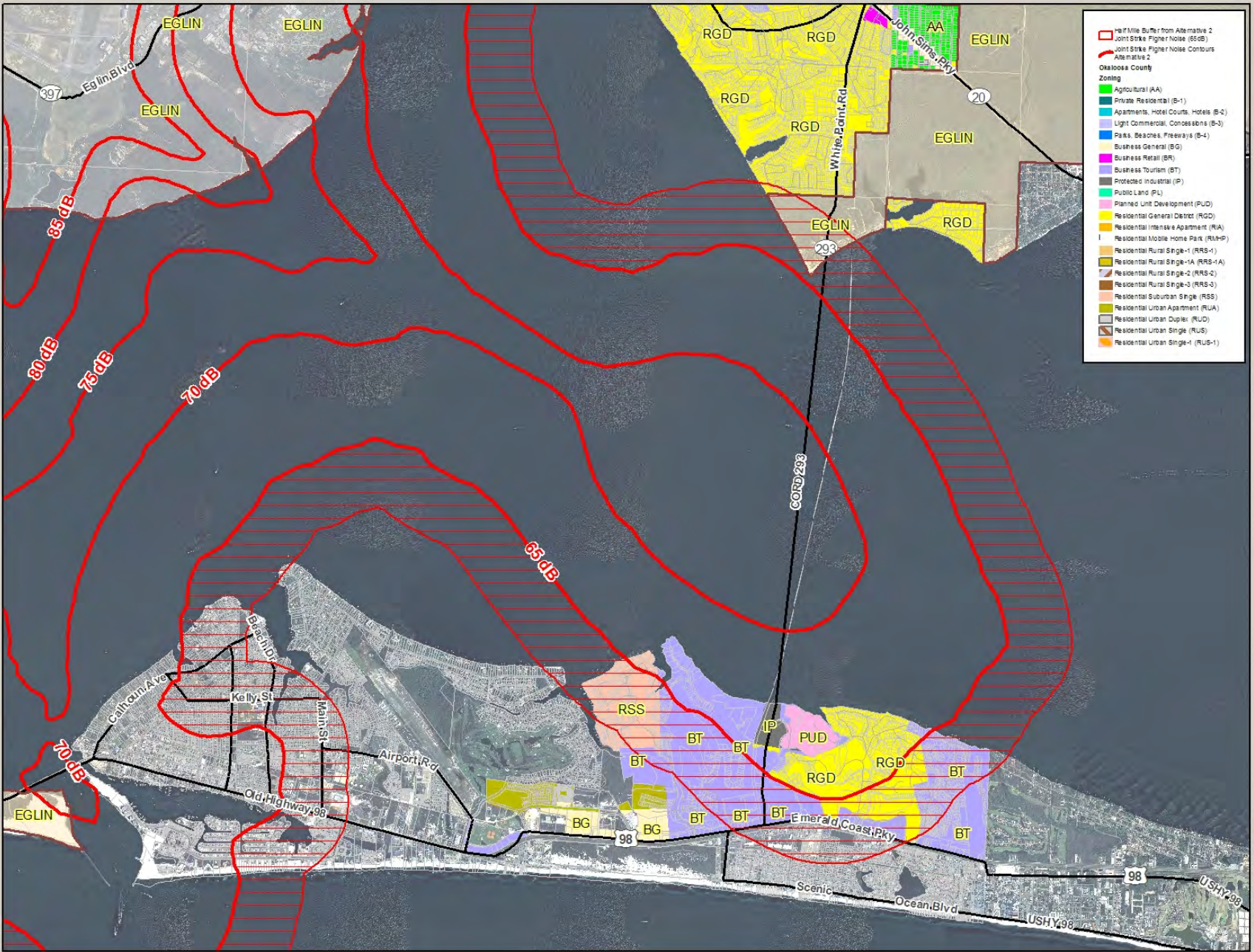


Figure 3-29: F-35 Maximum Mission Noise Contours With Okaloosa County Zoning Map in the Destin Area of Unincorporated Okaloosa County



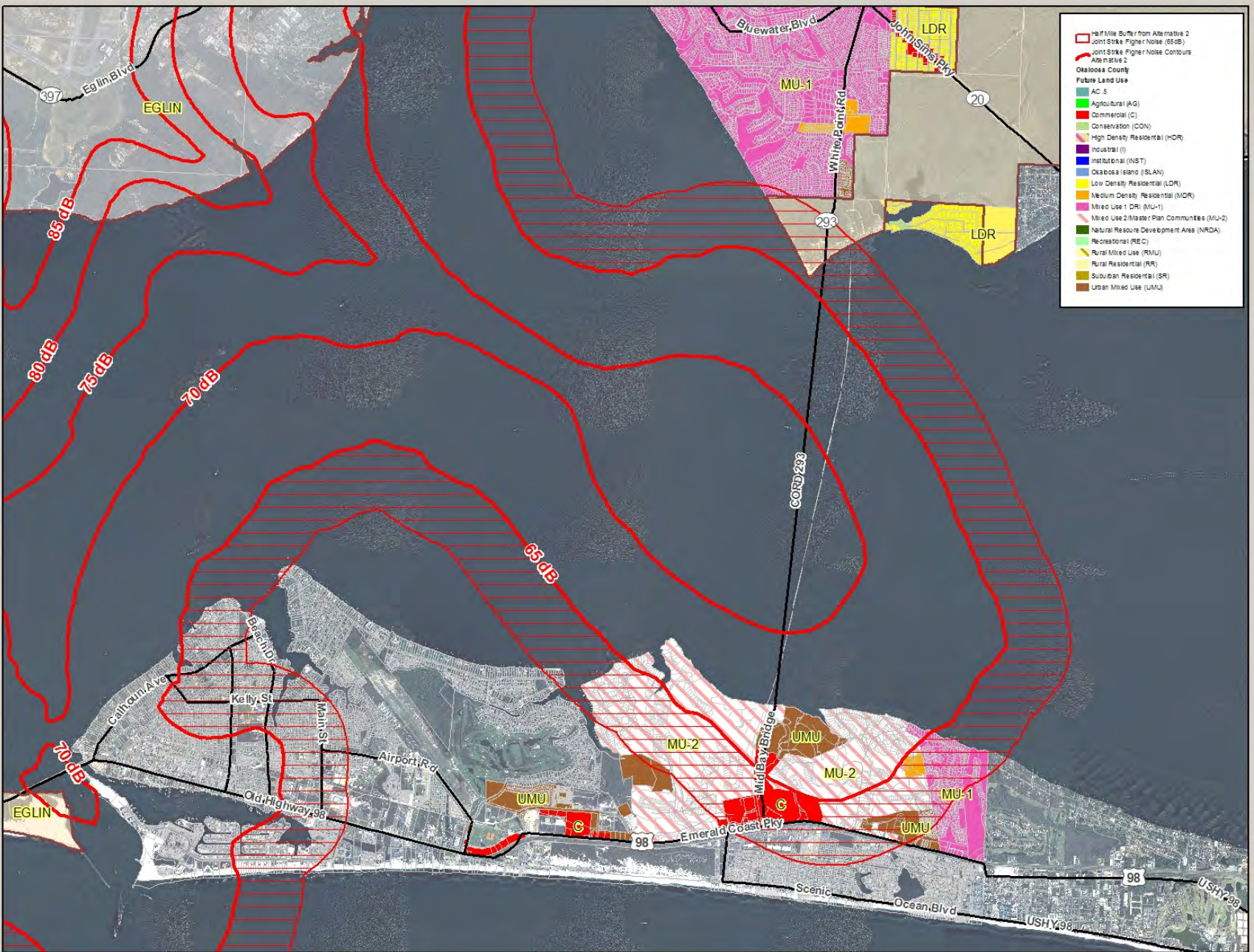


Figure 3-30: F-35 Maximum Mission Noise Contours With Okaloosa County Future Land Use Map in the Destin Area of Unincorporated Okaloosa County



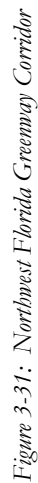
Existing Land Use	Noise Level		
	65-69 dB		
	Total Acres	% of Total Acreage	# of Parcels
Clubs/Lodging	102.9	18%	4
Common Areas	50.78	9%	6
Conservation Area	10.12	2%	3
Header Rec	19.34	3%	8
No Ag Acre	64.04	11%	10
Office Building	13.56	2%	1
Schools, Public	24.23	4%	2
Single Family	105	18%	200
Utilities	0.17	0%	2
Vacant	165.4	29%	128
Warehouse	12.92	2%	1
<b>Total</b>	<b>568.46</b>	<b>100%</b>	<b>365</b>

Table 3-3: Existing Land Use Designations for Parcels Within High Noise Level Areas in Destin Area of Unincorporated Okaloosa County

Existing Land Use	Noise Level					
	65-69 dB			70 - 74 dB		
	Total Acres	% of Total Acreage	# of Parcels	Total Acres	% of Total Acreage	# of Parcels
MILITARY (south-OC)	0	0%	0	0.17	100%	1
SINGLE FAM	14.18	71%	22	0	0%	0
VACANT	5.85	29%	7	0	0%	0
<b>TOTAL</b>	<b>20.03</b>	<b>100%</b>	<b>29</b>	<b>0.17</b>	<b>100%</b>	<b>1</b>

Table 3-4: Existing Land Use Designations for Parcels Within High Noise Level Areas in Niceville Area of Unincorporated Okaloosa County







federally and state managed lands, conservation organization lands, and private lands. By delineating the corridor and agreeing to work together, the federal agencies, state agencies, conservation organizations, and local city and county governments committed to furthering the goals of the Northwest Florida Greenway Corridor Study Area.

### 3.3.7 Radio Frequency Interference

The analysis for radio frequency interference in the County is a simple one. The entire County lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

### 3.3.8 Controlled Firing Areas

The controlled firing areas in Okaloosa County include the waterfront areas near Wynn Haven as previously shown in Figure 3-17. The current zoning for parcels in the controlled firing areas include:

- Planned Unit Development
- Residential General District
- Residential Urban Apartment
- Residential Urban Single

### 3.3.9 Air Traffic Control

The ongoing Air Force funded Gulf Regional Airspace Strategic Initiative (GRASI) is intended to improve the effectiveness and efficiency of airspace utilization across Northwest Florida. The work is being led by representatives from Eglin AFB with civilian aviation authorities with the goal to preserve and protect the airspace requirements of users now and for the foreseeable future. The focus is on sup-

porting multiple military and civilian aviation purposes. The primary military users are the US Air Force and US Navy and the civilian use serves both commercial and general aviation requirements. Of primary interest is the impact of the new F-35 JSF including up to 113 new aircraft and projections that flights over Eglin airspace alone are expected to rise from 192,000 to 427,000 by 2014.

For Okaloosa County, one area of concern is controlling private aircraft utilizing Destin Airport with respect to other aircraft in the area. The Eglin Main runway threshold is only 5.2 miles from the Destin Airport runway threshold. This close proximity creates a situation with high speed military jets quickly converging on general aviation aircraft from the Destin Airport. The current circumstances are unique enough that the FAA website has a specific course on how to use the Destin Airport and the complex airspace around the Airport (Part 93 Airspace).

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## 3.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the County on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the County. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the County's use:

- **OKC 1:** Implement Construction Standards for New Construction to provide Noise Level Reduction Inside Structures Proposed Within Maximum Mission Noise Areas (>65 dB)
- **OKC 2:** Implement Effective Disclosure Procedures Notifying Buyers and Leasers that Property is Near a Military Installation subject to Low Level Aircraft, Impulse Noises, and/or Other Military-Related Issues Identified
- **OKC 3:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **OKC 4:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **OKC 5:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **OKC 6:** Identify Low Level Approach Zones and Cruise Missile Corridors on All County Maps, Preliminary Plats and Public Reports and Require Developers To Identify Same Information on All Proposed Projects
- **OKC 7:** Implement Comprehensive Plan Amendments Discouraging Additional Marine Navigation Channels or Land Cuts, Artificial Reefs, or Other Proposed Activities Increasing Marine Traffic in Controlled Firing Areas
- **OKC 8:** Do not allow increases in Density and Intensity in Low Level Approach Zones, Cruise Missile Corridor, or Eglin AFB Boundary Buffer Until Recommendation **OKC 9** is Completed
- **OKC 9:** Conduct Small Area Studies For The Low Level Approach Zones, Cruise Missile Corridor, and Eglin Buffer
- **OKC 10:** Study Required Implementation Steps to Retrofit Existing Public Buildings Within the High Noise Level Areas (>65 dB) with Sound Attenuation
- **OKC 11:** Study Required Implementation Steps to Develop Retrofit Program for Sound Attenuation for Habitable Buildings in High Noise Level Areas (>65 dB)
- **OKC 12:** Develop and Implement Land Acquisition Program
- **OKC 13:** Support and Promote State and Federal Land Acquisition in Yellow River and Shoal River Floodplains and Tributaries
- **OKC 14:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **OKC 15:** Limit Object Heights Regarding Potential Conflicts With Eglin Missions and Operations
- **OKC 16:** Actively Participate in the Ongoing Department of Defense Airspace Study Currently Scheduled for Completion by December 2010
- **OKC 17:** Continue Pursuing Funding and Construction of the Destin Airport Control Tower
- **OKC 18:** Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III) based on the compatibility issues Identified. The different MIPA designations proposed are shown in [Table 3-5](#) and are summarized as follows:

Military Influence Planning Area (MIPA) Designation	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach &/or Cruise Missile Corridor Area	0.5-1.0 mi Buffer
I	■	■	■			
II				■		
III					■	■

Table 3-5: Proposed MIPA Designations for Okaloosa County



- ◊ **MIPA-I:** Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MIPA-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.
- ◊ **MIPA-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MIPA-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF. MIPA-II's are not recommended for all jurisdictions participating in this study.
- ◊ **MIPA-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation and strategic buffer areas along the northern boundary of the Eglin Reservation. MIPA-III's are focused on limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach MIPA-III's vary but the MIPA-III areas for the buffers are approximately one mile from the Eglin boundary.

*Figure 3-32* shows the locations of the MIPA designations across Okaloosa County. *Figure 3-33* represents the MIPA-III area in northwest Okaloosa County for the Low Level Approach Areas. *Figure 3-34* provides the MIPA-III buffer area along the Eglin AFB boundary. *Figure 3-35* shows the MIPA-I, II and III areas north of Duke Field for the AICUZ (Clear Zone and APZs), high aircraft noise areas, Low Level Approach Areas, and a portion of the cruise missile corridor. *Figure 3-36* shows the MIPA-II area in southwest Okaloosa County for the high intensity impulse noise. *Figure 3-37* provides the geographic location of the MIPA-II area in southern Okaloosa County for the maximum mission noise contour areas including a one-half mile buffer from the 65 dB contour. *Figure 3-38* shows the MIPA-II for unincorporated areas of Okaloosa County in the Niceville area within the maximum mission noise areas.

- **OKC 19:** Update County's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the County's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests
- **OKC 20:** County Should Continue as Lead Facilitator of JLUS Implementation and Contact with OEA

**Additional Implementation Information for Some of the Recommendations.** The following information provides

additional details with implementation steps and/or examples for the County's use:

**OKC 1: Noise Level Reducing Construction Standards.** The City's building construction standards or requirements for development order approval through ordinance adoption or revisions should incorporate construction techniques improving noise insulation for residential and certain non-residential structures within the high noise level areas (>65dB). New construction for residential properties, public or quasi-public service buildings, or public assembly facilities proposed within the MIPA-II should be required to include sound insulation to reduce noise levels by at least 25 dB between 65 – 70 dB DNL contours and by at least 30 dB between 70 – 75 dB DNL contours.

*Appendix A – New Construction Acoustical Design Guide* includes examples of adopted guidelines for new construction to follow in an effort to insulate residences and other uses from aircraft noise. No residential development should be allowed (even with noise reduction) in areas with noise contours exceeding 75 dB DNL. Noise insulation construction standards can be reduced or waived for a parcel when residential development is shown to be clustered or located outside of maximum mission noise areas (>65 dB). Proposed developments should be required to provide acoustical standards or studies for developments within MIPA-II showing the noise level reduction associated with the sound attenuation proposed.

**OKC 2: Implement More Effective Disclosure Procedures.** The disclosure of aircraft Clear Zone and APZs and aircraft and high intensity impulse noise is a preventive strategy and important tool informing and forewarning prospective buyers or tenants of the expected impacts of an installation's interaction with neighboring communities. Mandatory disclosure ensures prospective homebuyers and leasers are knowledgeable about military operations and its potential impact on the community, subsequently reducing frustration and anti-military sentiment by those not adequately informed prior to entering into their purchase or rental agreement. This recommendation includes developing more effective disclosure procedures and broadens the geographical area where disclosure will be required as part of property transactions. Disclosure requirements should include all properties (residential and non-residential) within the Clear Zone, APZ I and II, and maximum mission and higher intensity impulse noise areas.









# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

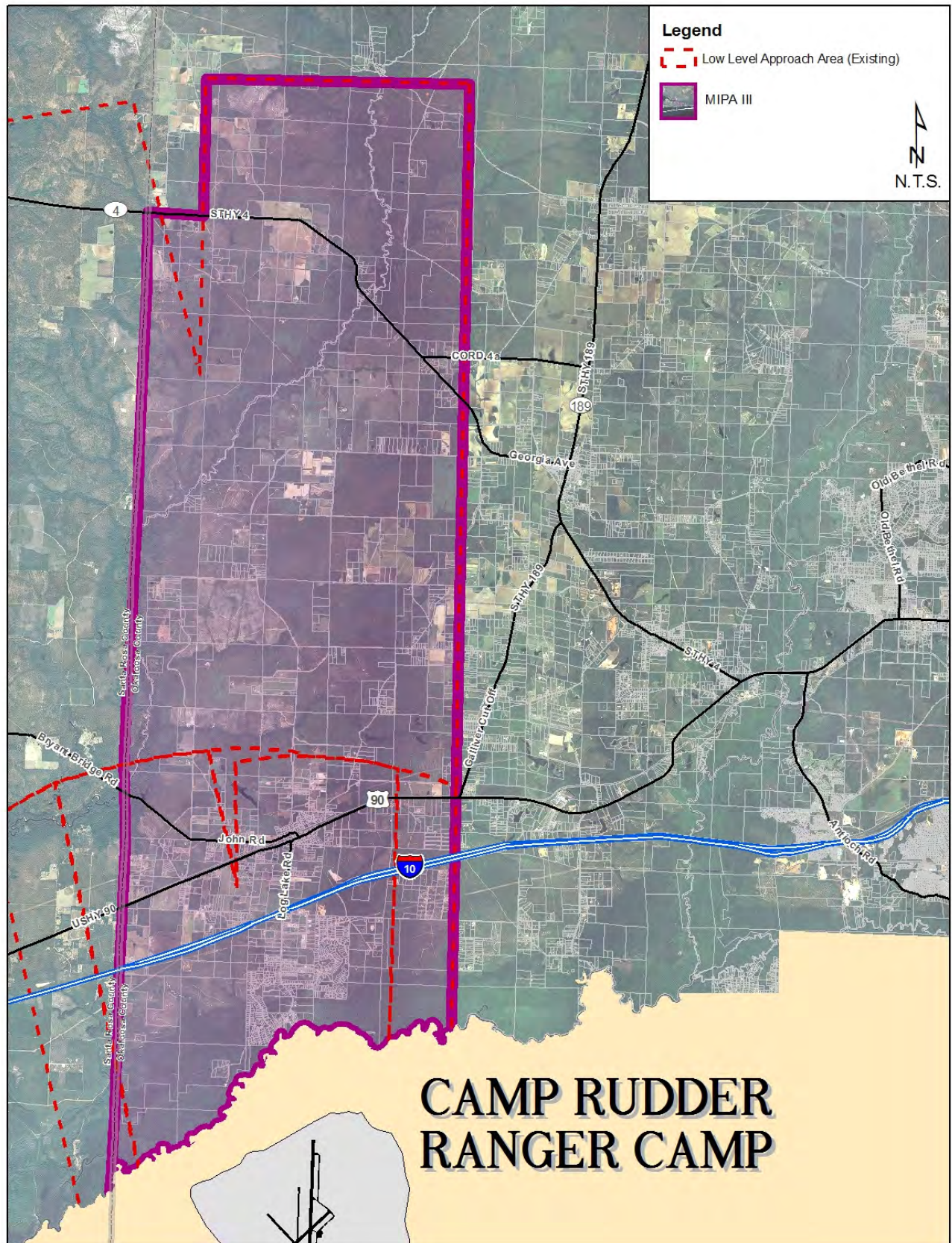


Figure 3-33: Proposed MIPA-III Area in Northwest Okaloosa County



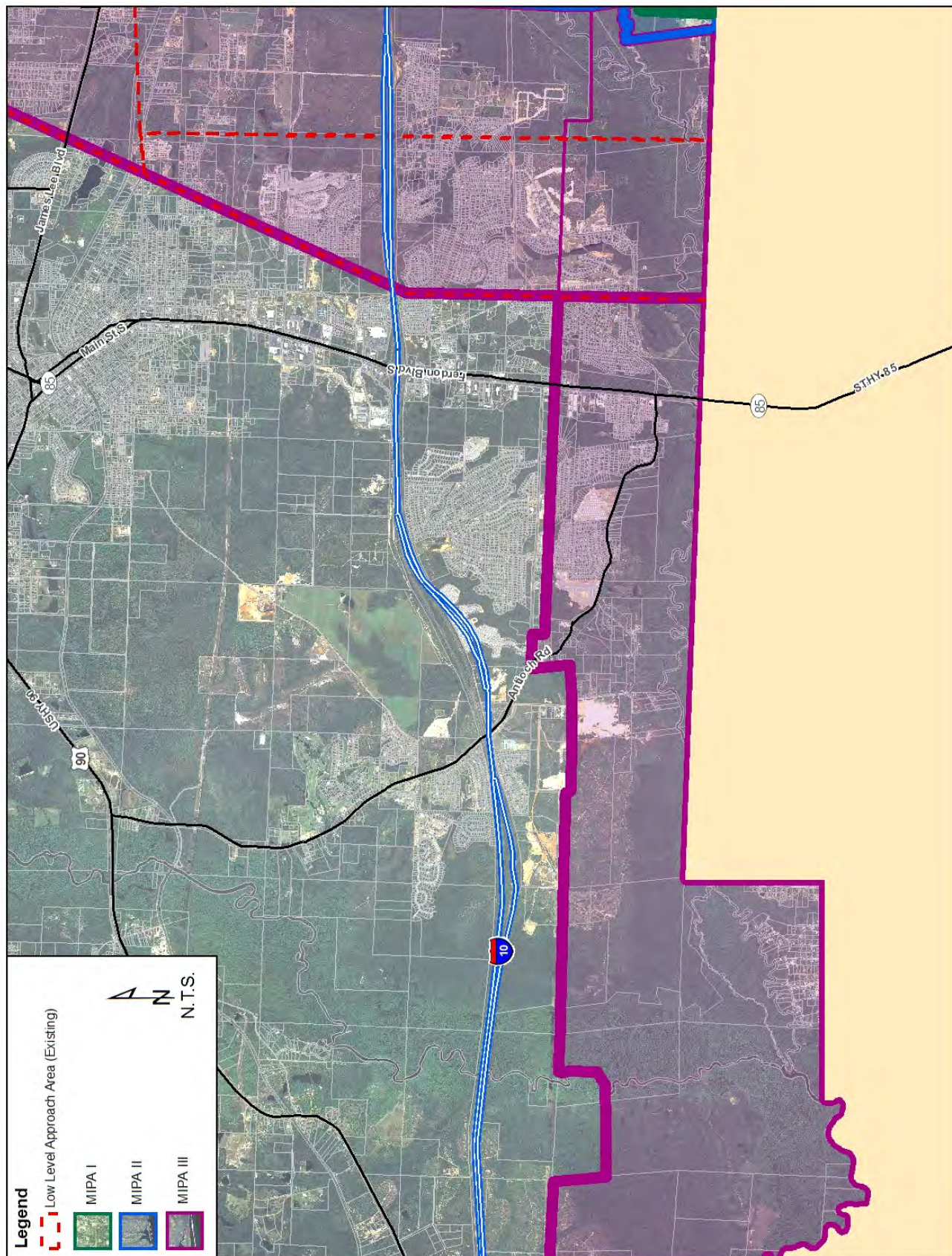


Figure 3-34: Proposed Eglin Boundary Buffer MIP A-III Area in Okaloosa County



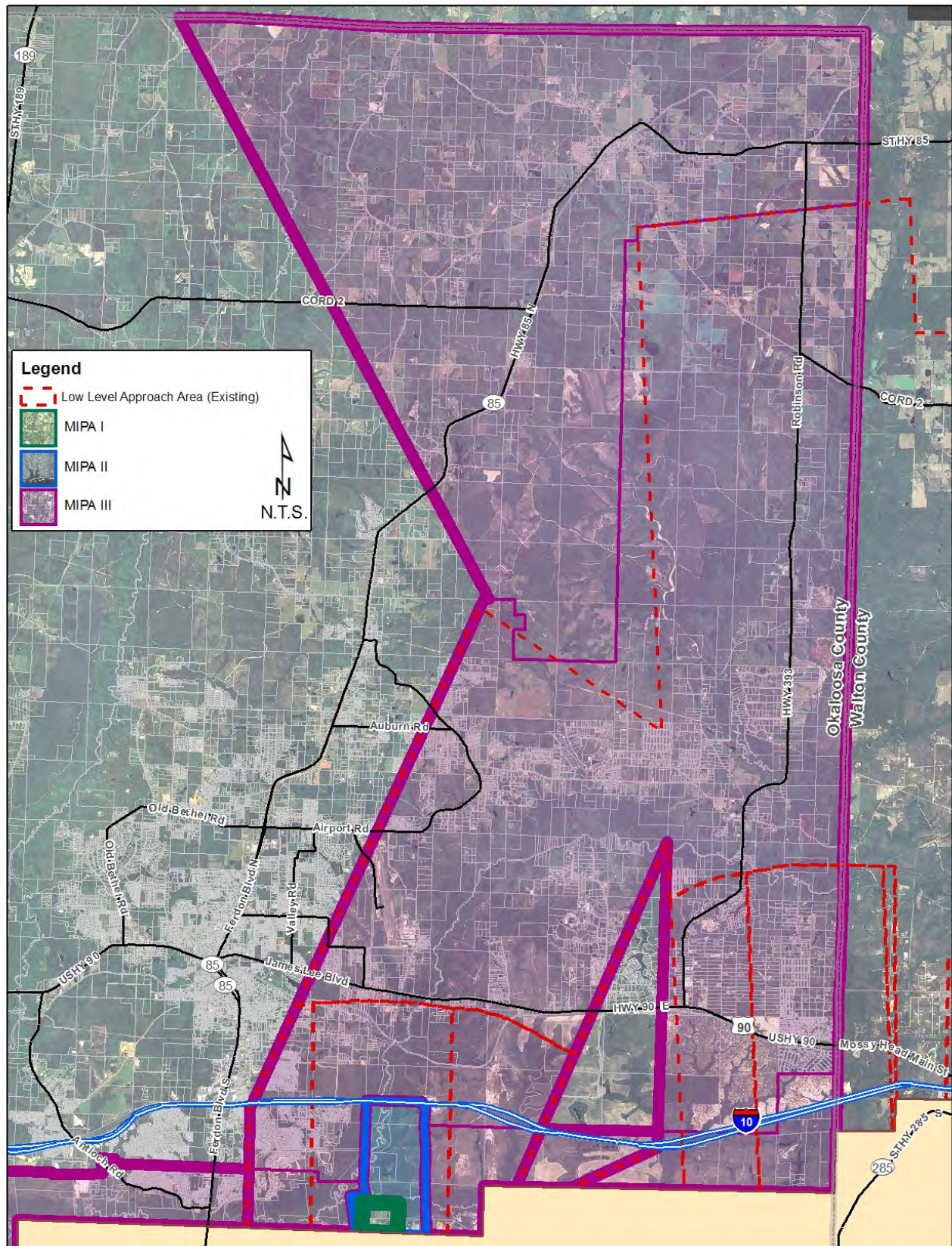


Figure 3-35: Proposed MIPA-I, II, and III Areas in Northeast Okaloosa County





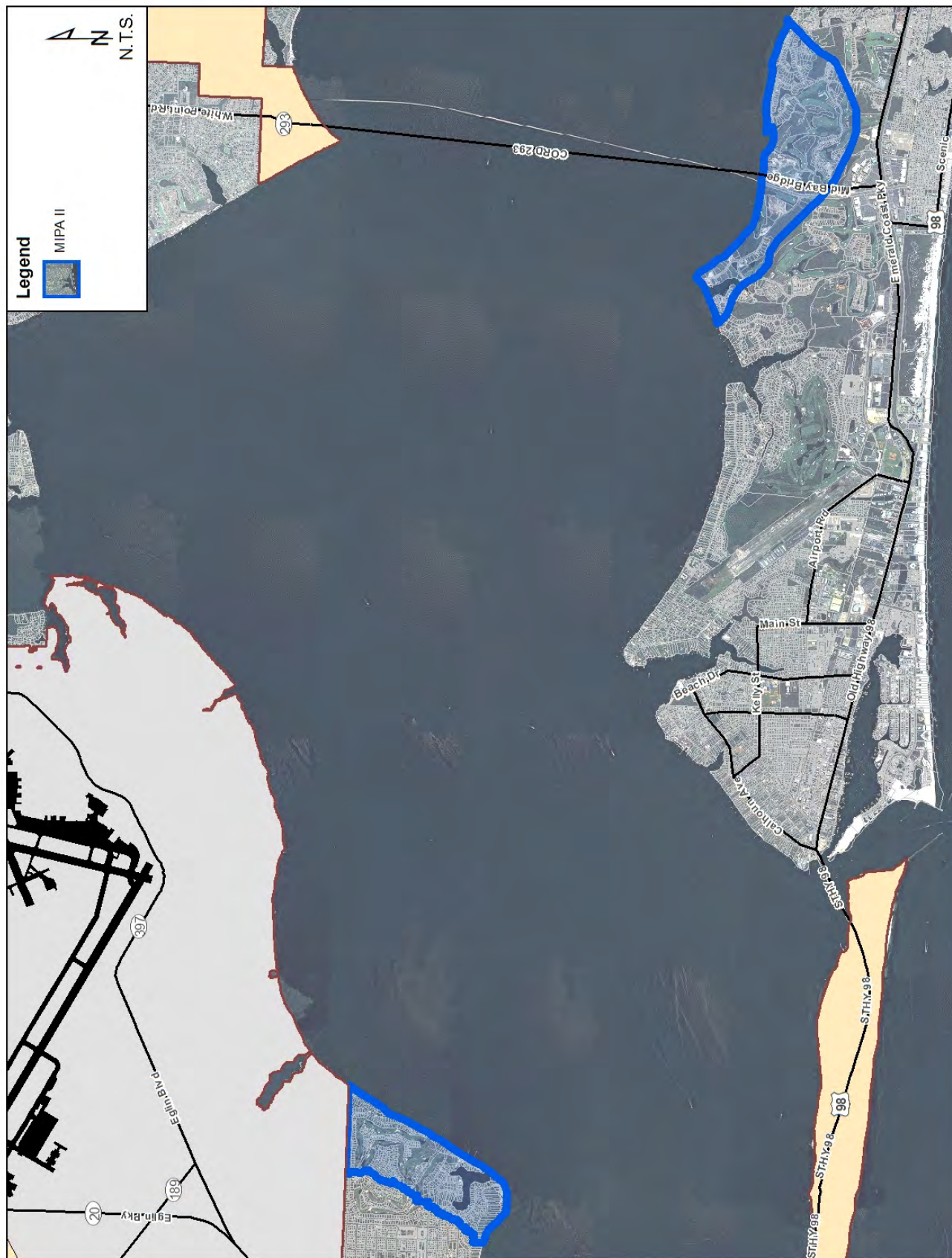


Figure 3-37: Proposed MIP-A-II Areas (Aircraft Noise) in Southern Okaloosa County



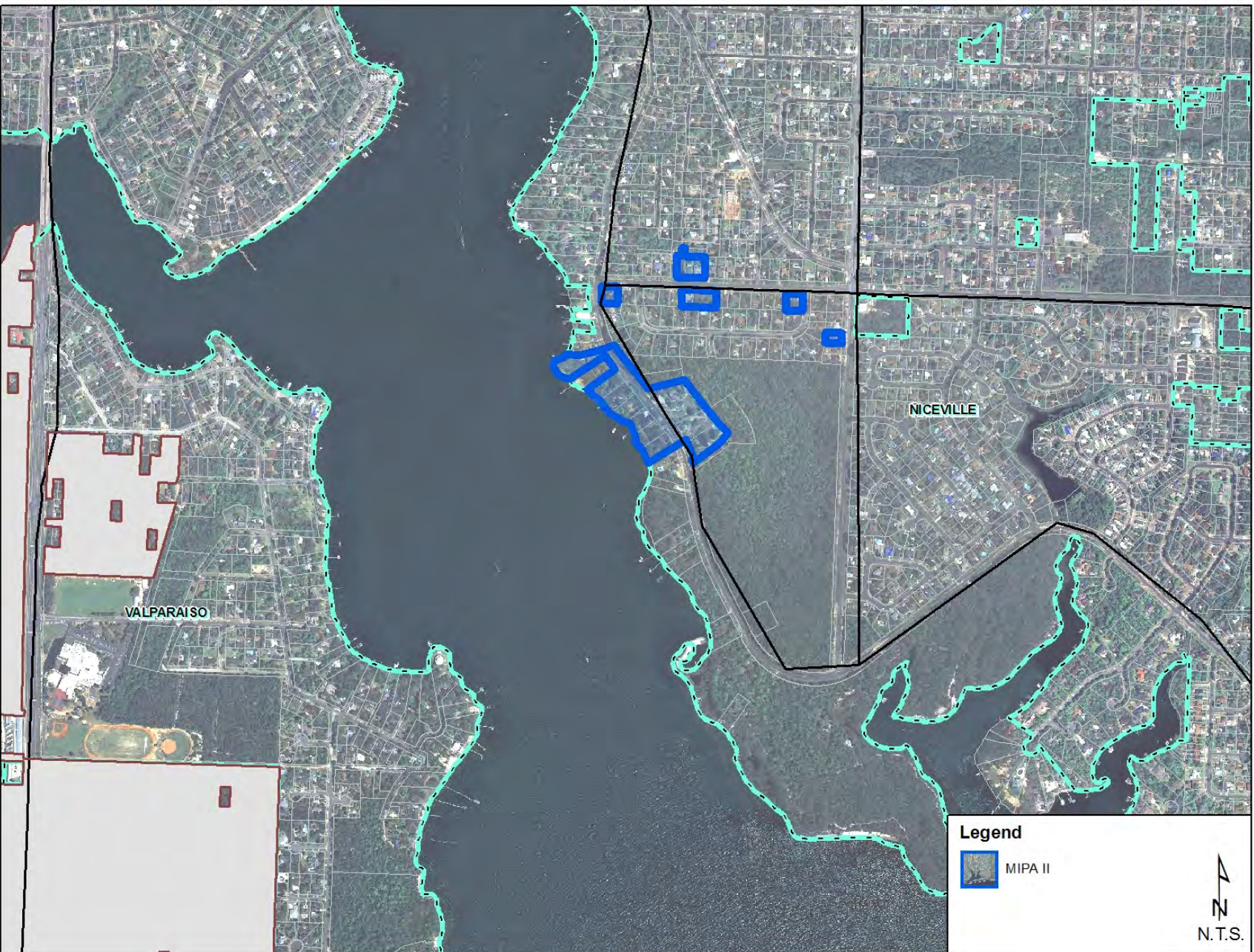


Figure 3-38: Proposed MIPA-II Areas (Aircraft Noise) for Unincorporated Areas of Okaloosa County in the Niceville Area





*Appendix C – Example Noise Disclosure Statement* provides an example disclosure statement for consideration and use in implementing this recommendation.

Property owner disclosure regarding the potential for safety and noise hazards requires development and adoption of an ordinance establishing requirements for the disclosure to foster more practical implementation and enforcement. More important is establishing the effective use of the disclosure in real world situations. The following recommendations are included as part of delivering a disclosure ordinance recommendation with practical implementation in mind:

- ◇ Adopt ordinance including real estate disclosure requirements for deeds, building permits, preliminary subdivision plats (information on the final plat is dictated by Florida Statute), property purchases, renters, resort properties, and new and existing home sales including sales by owner, builder, and developer.
- ◇ Notify all existing property owners in the Clear Zone and APZ I and II by certified mail of their current situation as owners of property within one or more of the areas. Specifically identify the areas related to each parcel owner. Following completion of the Supplemental EIS, notification of all property owners by certified mail owning property in high noise level areas (>65 dB) should also be completed.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort of the Florida Association of Realtors, Santa Rosa County Association of Realtors, Emerald Coast Okaloosa/Walton Association of Realtors to include sections concerning Safety and Noise on the standard Seller's Real Property Disclosure Statement endorsed by each respective group.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort encouraging state lawmakers to strengthen Florida Statute, Chapter 475 to require mandatory disclosure of properties within the Clear Zone, APZ I and II, and high level noise areas.
- ◇ Seek assistance from the West Florida Regional Planning Council or other professionals of participating local jurisdictions to incorporate the disclosure statement requirements into a local ordinance and lobbying efforts with other participating local jurisdictions.
- ◇ Conduct public information meetings on the disclosure requirements. At a minimum, one meeting prior to the first reading of the ordinance and a second meeting following the adoption of the ordinance. The meetings would be in addition to the public meetings where the

ordinances will be read and discussed with public comment periods.

- ◇ Require identification of the Clear Zone, APZ I, APZ II, High Noise Level Areas (>65dB), and High Intensity Impulse Noise Areas on all County maps and public reports and require developers to identify the areas on all proposed projects.
- ◇ Require sales offices used to market, sell, or lease properties, including pre-construction sales, which will be constructed or leased on lots located in a MIPA, must display a map in public view illustrating military installation property boundaries, and MIPA areas. This display requirement shall also apply to temporary realty sales offices. Pamphlets illustrating the same information appearing on the display map on paper not less than 8.5"x11" shall also be made available and placed in public view.

**OKC 3: Implement Lighting Ordinance.** The County should evaluate and update outdoor lighting standards applicable to MIPA areas or all unincorporated areas. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

Community Wide Measures:

- ◇ Turn-off un-needed lights, e.g. unused parking lots
- ◇ Use appropriate levels of illumination
- ◇ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the





form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◇ Light patterns common to military aviation
- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary
- ◇ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◇ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◇ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

**OKC 5: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◇ Post signage in areas screened from airfields and other military operations. The intent of this recommen-

dation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.

- ◇ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**OKC 8: Do not allow increases in Density and Intensity in Low Level Approach Zones, Cruise Missile Corridor, and Eglin AFB Boundary Buffer.** Until OKC 9 is completed, it is recommended that no increases in density and intensity are allowed in the low level approach zones, cruise missile corridors, and Eglin AFB Boundary Buffer as shown in Figure 3-29 as MIPA-III.

**OKC 9: Conduct Small Area Studies in Low Level Approach Zones, Cruise Missile Corridor, and Eglin Buffer.** A variety of land uses occur or are planned to occur in areas within and/or adjacent to the Low Level Approach Zones, Cruise Missile Corridor, and the Eglin Boundary, particularly where access can occur from highways or major county roads. It is recommended that small area studies be prepared for these areas to address transition of land use, plan roadway systems and access management, identify suitable locations for development, and prepare for the planned provision of public facilities. The small area studies will create strategies to transfer development rights, cluster future dwelling units, implement aviation easements, conserve environmentally sensitive areas, and/or implement tax incentive/credit policies. For a successful small area study, key stakeholders such as the County, Eglin AFB, and property owners must play an active role in the planning, analysis, and recommendations.

**OKC 10: Study Required Implementation Steps to Retrofit Existing Public Buildings Within High Noise Areas (>65dB) With Sound Attenuation.** Based on best available information, there is one public building



within the high noise level areas (>65dB) of the maximum mission noise contours in unincorporated Okaloosa County—Destin Middle School. With respect to the Okaloosa School District, there are eight district facilities in the County located within one-half mile of the maximum mission noise contours. These schools include Destin Middle School, Destin Elementary School, Lewis Middle School, Valparaiso Elementary, Edge Elementary, Oak Hill Elementary, Eglin Elementary, and the Okaloosa School District Facility on Highway 85 in Niceville. [Figures 3-39, 3-40, and 3-41](#) show the locations of the School District's facilities in different parts of southern Okaloosa County within one-half mile of the maximum mission noise contours.

Public School facilities within the maximum mission noise contours (MIPA-II) include Destin Middle School, Destin Elementary School, Lewis Middle School, Valparaiso Elementary, Edge Elementary, Oak Hill Elementary, and Eglin Elementary.

Based on the impact this noise level has within the public buildings, it is recommended a further study to determine the highest and best means to retrofit the buildings with noise attenuation elements such as insulation, windows, and associated items. Specific objectives should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

[OKC 11: Study Required Implementation Steps to Develop Retrofit Program for Sound Attenuation of Existing Occupied Buildings in High Noise Level \(>65 dB\) Areas.](#) In an effort to alleviate high sound levels within existing structures, it is recommended to study a development and implementation Assistance Program for sound reduction for private property owners to retrofit existing structures through efforts similar to those described in the previous sub-section for retrofitting existing public buildings. The goal for this program would include achieving noise reductions within dwellings and other structures in areas where the maximum mission noise contours exceed 65 dB. Specific objectives should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise

sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. Noise areas exceeding 75 dB are not compatible for residential uses so a NLR for residential use above this noise contour is not recommended. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

The DNL noise reduction goal in habitable rooms can be supplemented by a single-event noise level criterion. This Sound Exposure Level (SEL) reflects the annoyance associated with individual flyovers because of activity interference. The SEL goal is 65 dB in general living spaces and 60 dB in bedrooms and television viewing rooms. These criteria should only be applied to homes within the maximum mission noise contours (>65 dB), not to homes outside the 65 dB DNL contour line. To use the SEL interior noise criteria, the outside noise exposure level is compared to the interior goal. For example, if a dwelling were between the SEL contour boundaries of 85 to 90 dB, then the required NLR to achieve 60 dB in a bedroom would be 30 dB with the conservative upper bound of the noise zone typically used to set NLR goals.

The proposed NLR Assistance Program should include the creation of a grant program designed to reimburse property owners within the high noise level areas (>65 dB) of the maximum mission noise contours up to a certain dollar amount or percentage of costs for implementing acceptable sound attenuation steps. The program should be voluntary and include the execution of a Hold Harmless Agreement by the property owner. *Appendix B – Noise Reduction Standards for Insulating Structures Exposed to Aircraft Operations* contains two examples of policies and procedures available to guide the recommended NLR Assistance Program.

[OKC 12: Develop Land Acquisition Program.](#) Through the adoption of the recommendations and proposed implementation steps contained herein, there is opportunity to continue conservation efforts by the Northwest Florida Greenway Corridor, The Nature Conservancy, Northwest Florida Water Management District, Florida Department of Environmental Protection, and federal agencies to purchase conservation lands north of Duke Field in the APZ II, within the maximum mission noise contours, along the Yellow River and Shoal River floodplains and tributaries, and within critical parts of the Low Level Approach Zones. As part of this pro-



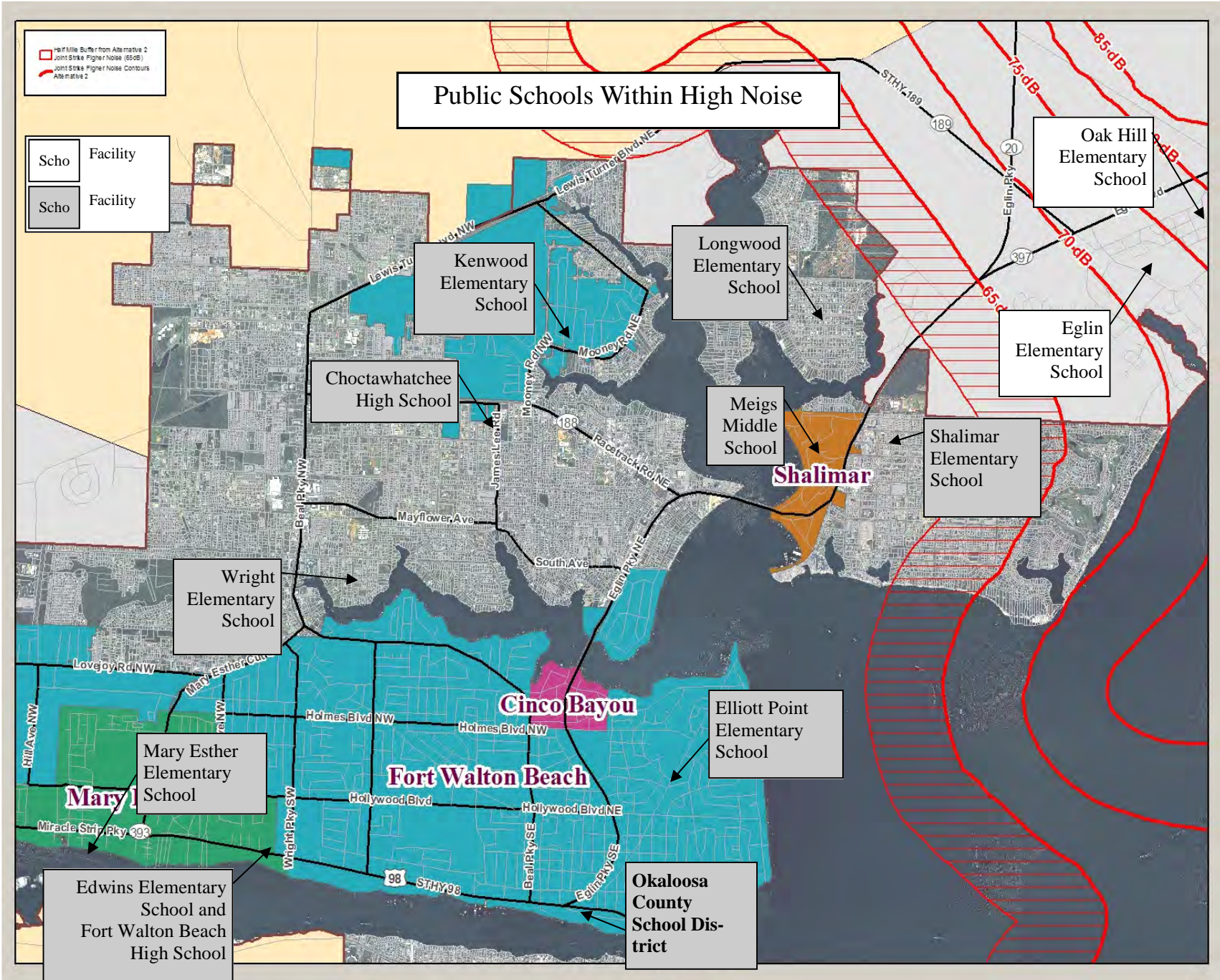


Figure 3-39: Okaloosa School District Facilities in Fort Walton Beach area with Maximum Mission Noise Contours



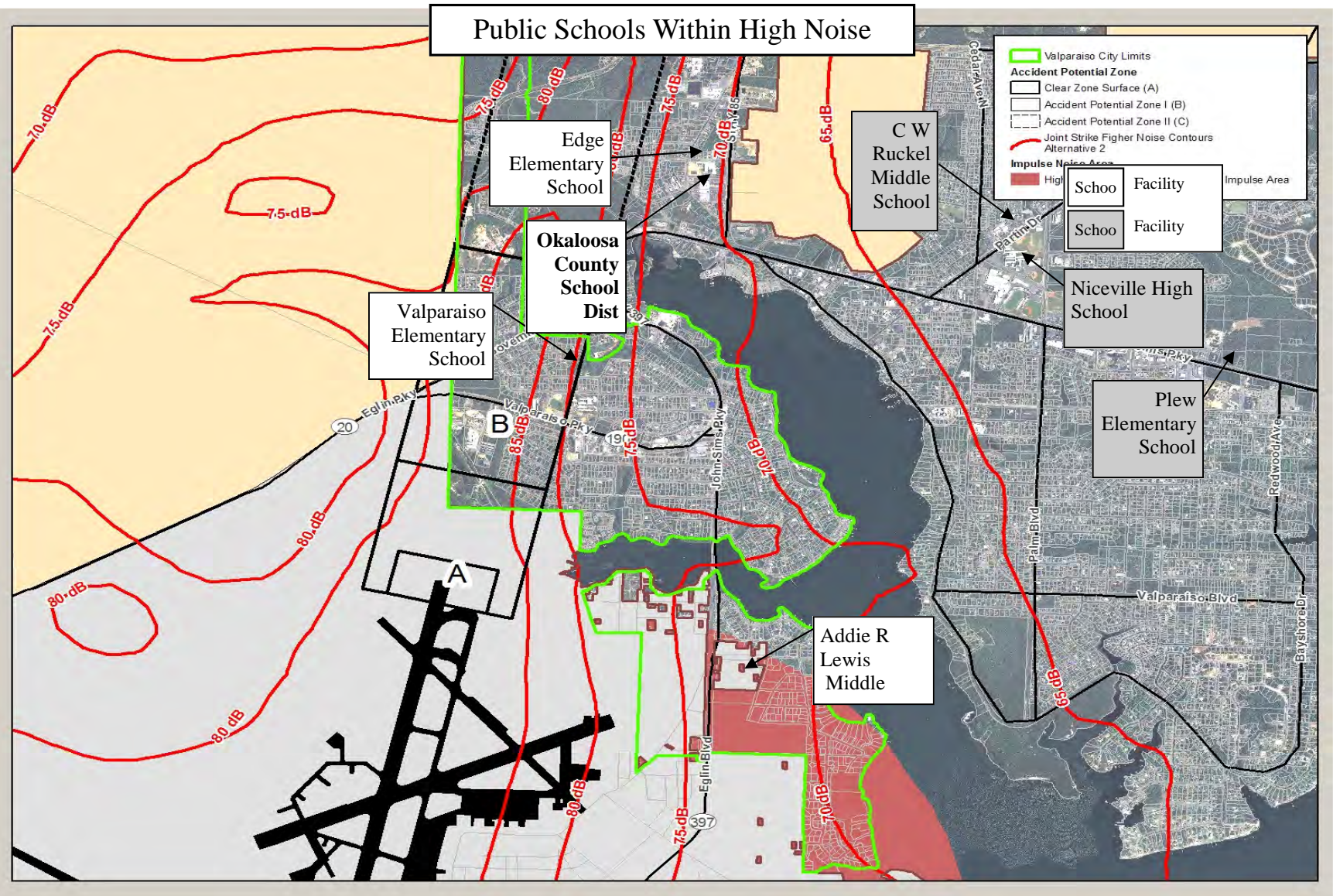


Figure 3-40: Okaloosa School District Facilities in Niceville/Valparaiso area with Maximum Mission Noise Contours



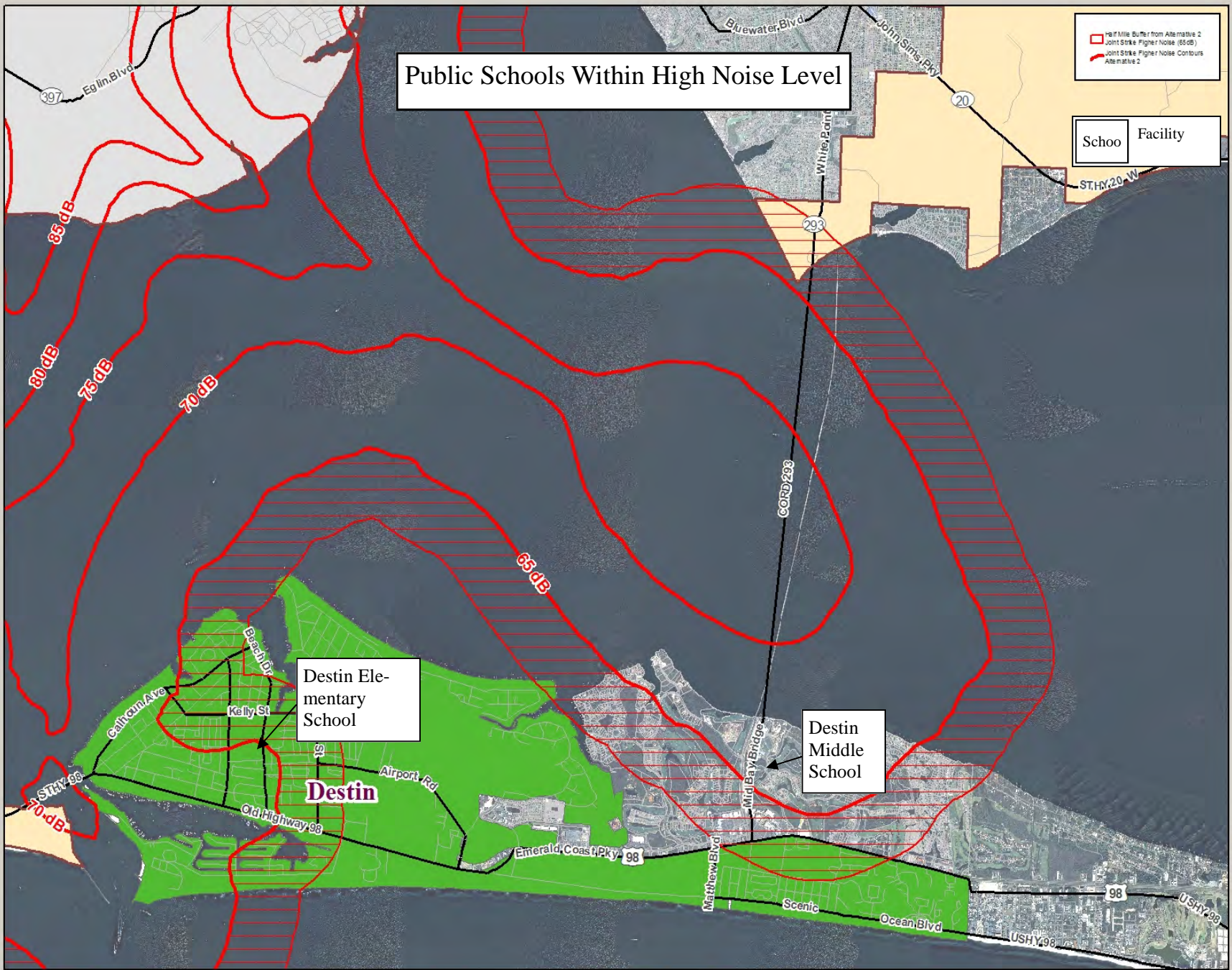


Figure 3-41: Okaloosa School District Facilities in Destin area with Maximum Mission Noise Contours



gram, potential funding sources should be identified and alternative mechanisms to fee simple purchase explored such as restrictive use easements, land exchanges, and transfer of development rights. Prepare a Land Acquisition Plan organized with projected costs for acquisitions to be programmed into the five-year capital improvement fund. The Plan should quantify impacts to changes to tax revenue resulting from the land acquisition program. Once the Plan's acquisition strategies are adopted, it is important to document the planning efforts completed and adopted to date such as the Eglin JLUS and the recommendations implemented to date in order to maximize grant scoring opportunities.

**OKC 14: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.** Okaloosa County should formalize its policy to include military participation in its development review and planning process. This should include a formal communication process between the County and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with County staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and County Commission. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

**OKC 17: Continue Pursuing Funding Construction of the Destin Airport Control Tower.** Over the past several years there have been efforts to apply to the Federal Aviation Administration (FAA) for funding the design and construction of the control tower at Destin Airport. The County should continue its support of an application to the FAA documenting the benefit anticipated by the construction of the tower. The County should also continue supporting ongoing campaigns for discretionary funding at the state

and federal levels to design and construct the tower.

**OKC 18: Establish Different MIPA Designations.** Establishing Military Influence Planning Areas (MIPAs) as geographic planning areas established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIPA recognizes the existence and mission of a military installation within a community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the public
- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses
- More accurately identify areas affected by military operations
- Create compatible mix of land uses

*Table 3-5* has been created based on the existing issues, baseline analysis, and industry standards regarding joint land use between military installations and private lands. This table and *Table 3-6* - Implementation Plan Responsibilities and Timing, are intended to further guide the County into implementing the recommended strategies.

**OKC 19: Update County's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the County's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.** There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Planning Area (MIPA) Sub-element. Following is an outline of typical issues that might be described in the MIPA Sub-element: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range





- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels:  $\geq 65$ -69; 70-74; 75-84;  $\geq 85$
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

**Comprehensive Plan Military Influence Planning Area (MIPA) Subelement Goals, Objectives, and Policies-**  
Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhanc-

ing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.

- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

**Identify Policies to Implement Each Objective, including:**

- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezoning
  - ◊ Establish Military Influence Planning Area (MIPA) Zoning Overlay District:
    - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
    - ⇒ Height Regulations
  - ⇒ Outdoor Lighting Regulations
  - ⇒ Development Review Procedures:
    - + Ex-Officio Military Representation on Planning Board
    - + Early Notification



- ✦ Effectuating Timely Participation and Response
- ✦ Conflict Resolution Mechanisms
- ◇ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
- ◇ Restrict Use Of Radio Frequency Spectrum
- ◇ Bands 5.4 -5.9 Ghz
- ◇ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◇ Special Issues
- ◇ Small Area Land Use Studies
- ◇ Public Awareness
- ◇ Web-Site Public Awareness
- ◇ Public Notice Requirements In Development Review Process
- ◇ Identify When Moa Impacted
- ◇ Street Signage (Military Operations Area)
- ◇ Inform Public of Noise Zone Revisions
- ◇ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◇ Revisions to Construction Standards to Address Noise Attenuation
- ◇ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◇ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◇ Revisions to Instrumentation and/or Physical Orientation
- ◇ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◇ Funding for Implementation

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






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**Legend:**

	Land use and related structures are not normally compatible and should be prohibited
	Land use and related structures are generally compatible with noted restrictions
	Land uses and related structures are normally compatible without restrictions

(#.#) Indicates maximum Floor Area Ratio (FAR) for the land use identified

**Notes:**

- 1 Maximum Density: 1-2 du/acre
- 2 "Other Uses" includes apartments, group quarters, residential hotels, and transient lodging
- 3 Maximum of 25 occupants per acre and approval is subject to review.
- 4 Maximum of 50 occupants per acre and approval is subject to review.
- 5 No clubhouse
- 6 No accessory units - e.g., no passenger terminals and major above ground electrical transmission lines in APZ I
- 7 No chapels
- 8 No activity which produces smoke, glare, bird attractants, or involves explosives.
- 9 Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 10 Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 11 Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 12 If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
- 13 No buildings.
- 14 Land use compatible provided special sound reinforcement systems are installed.
- 15 Residential buildings require a NLR of 25.
- 16 Residential buildings require a NLR of 30.
- 17 Residential buildings not permitted.
- 18 Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn by personnel.





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ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementation Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
OKC 1	Implement Noise Level Reduction Construction Standards	3-41	✓	✓				Okaloosa County	Eglin JLUS Policy Committee & TAG	✓			
OKC 2	Establish Effective Disclosure Procedures	3-41	✓	✓	✓	✓		Okaloosa County	Santa Rosa & Walton Counties	✓			✓
OKC 3	Implement Lighting Ordinance	3-49	✓		✓			Okaloosa County	Eglin AFB, Eglin JLUS Policy Committee & TAG		✓		
OKC 4	Distribute Educational Handouts on Radio Frequency	3-40				✓		Eglin AFB	Okaloosa County	✓			
OKC 5	Implement Public Awareness Measures	3-50	✓	✓	✓			-	Okaloosa County & Eglin AFB				✓
OKC 6	Identify Low Level Approach Zones on Public Documents	3-40			✓			Okaloosa County	Private Party Submittals	✓			
OKC 7	Implement Comp Plan Amendments Discouraging Additional Navigational Channels or Land Cuts, Artificial Reefs, or Other Activities	3-40					✓	Okaloosa County	Santa Rosa & Walton Counties, Ft Walton Beach, Destin		✓		
OKC 8	Do Not Allow Increases in Density & Intensity in Low Level Approach Zones and Eglin AFB Boundary Buffer Until OKC 9 is Completed	3-50			✓			Okaloosa County	-	✓			
OKC 9	Conduct Small Area Studies For The Low Level Approach Zones	3-50			✓			Eglin JLUS Policy Committee & TAG	Eglin JLUS Policy Committee & TAG	✓			
OKC 10	Study Required Implementation Steps to Retrofit Existing Public Buildings Within the High Noise Level Areas (>65 dB) with Sound Attenuation	3-51	✓	✓			✓	Okaloosa County	Eglin JLUS Policy Committee & TAG		✓		
OKC 11	Study Required Steps to Develop Retrofit Program for Sound Attenuation for Occupied Buildings in High Noise Level Areas (>65 dB)	3-51	✓	✓				Okaloosa County	Eglin JLUS Policy Committee & TAG		✓		
OKC 12	Develop Land Acquisition Program	3-51	✓		✓			Okaloosa County	Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
OKC 13	Support and Promote State and Federal Land Acquisition in Yellow River and Shoal River Floodplains and Tributaries	3-40	✓		✓			Okaloosa County	Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
OKC 14	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	3-55				✓		Okaloosa County	Eglin JLUS Policy Committee & TAG	✓			
OKC 15	Limit Object Heights Regarding Potential Conflicts	3-40	✓		✓		✓	Okaloosa County	Eglin AFB	✓			
OKC 16	Participate in the Ongoing Department of Defense Airspace Study	3-40				✓		Eglin AFB	Okaloosa County	✓			
OKC 17	Continue Pursuing Funding and Construction of the Destin Airport Control Tower	3-55					✓	Okaloosa County	-				✓
OKC 18	Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III)	3-55	✓	✓	✓			Okaloosa County	Eglin JLUS Policy Committee & TAG	✓			
OKC 19	Update County's Comprehensive Plan and Land Development Code	3-55	✓	✓	✓			Okaloosa County	Eglin JLUS Policy Committee & TAG	✓			
OKC 20	Continue as Lead Facilitator of JLUS Implementation	3-41				✓		Okaloosa County	Eglin JLUS Policy Committee & TAG				✓

Table 3-6: Implementation Plan Responsibilities and Timing





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## SECTION 4 - CINCO BAYOU



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## 4.1 INTRODUCTION

Cinco Bayou is a town in Okaloosa County completely surrounded by the City of Fort Walton Beach incorporated limits and water.

As of the 2000 census, there were 377 people, 212 households, and 82 families residing in the town. The population was 2,116.0 people per square mile. There were 248 housing units at an average density of 1,392.0 per square mile.

There were 212 households out of which 15% had children under the age of 18 living with them, 28% were married couples living together, 7% had a female householder with no husband present, and 61% were non-families. 46% of all households were made up of individuals and 9% had someone living alone who was 65 years of age or older. The average household size was 1.77 and the average family size was 2.43.

In the town the population was spread out with 12% under the age of 18, 7% from 18 to 24, 43% from 25 to 44, 26% from 45 to 64, and 12% who were 65 years of age or older. The median age was 40 years.

*Figure 4-1* shows Cinco Bayou's town limits with respect to the Eglin Main and Eglin Reservation Boundary.

## 4.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from Okaloosa County and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the County were identified and explained. *Appendix D—Eglin JLUS Public Presentations* provides copies of this information plus all public presentations included with this study.

The following are the issues identified for the County with respect to land use encroachments:

- Impulse Noise
- Low Level Helicopter Training
- Radio Frequency
- Height of Objects
- Lighting

Each issue listed above is described further in the following subsections with descriptions and graphics providing infor-

mation on how military activities influence the public.

### 4.2.1 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

Cinco Bayou includes areas in two of the three categories for impulse noise as shown in *Figure 4-2* - Low and Moderate levels.

### 4.2.2 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in *Figure 4-3*. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and NAS Whiting Field.

### 4.2.3 Height of Objects

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Or-



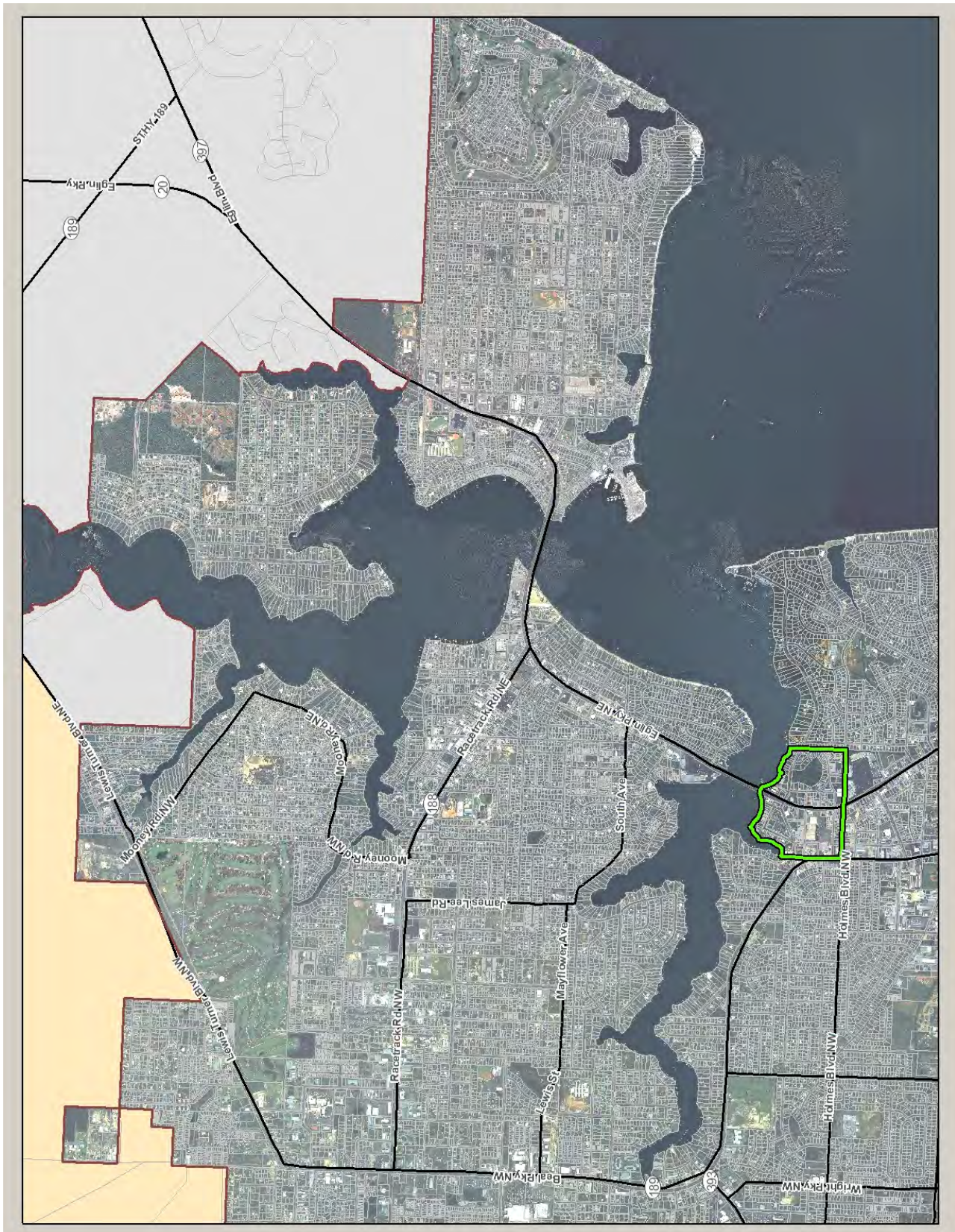


Figure 4-1: Cinco Bayou Town Limits with Respect to Eglin Main and



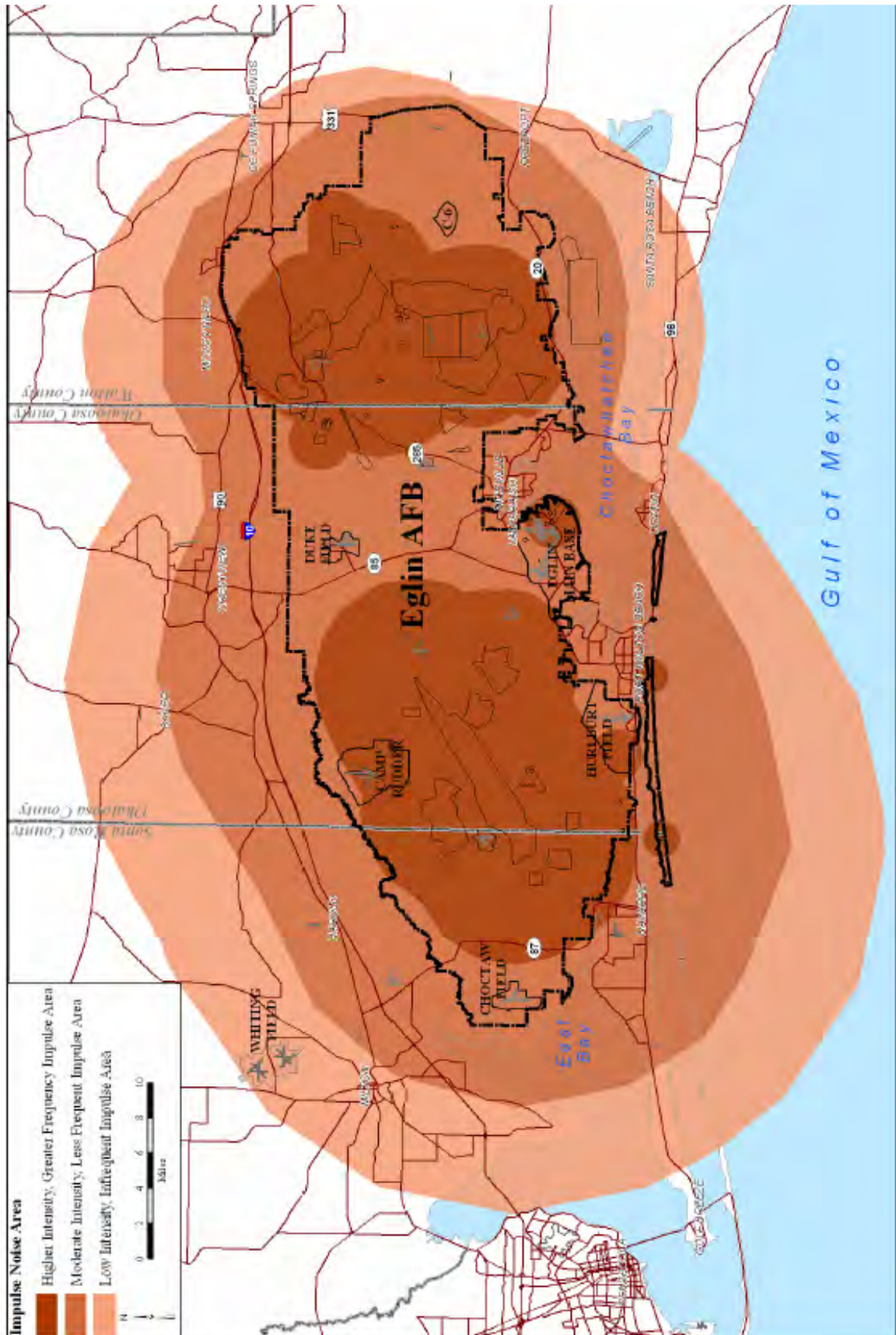


Figure 4-2: Impulse Noise Areas



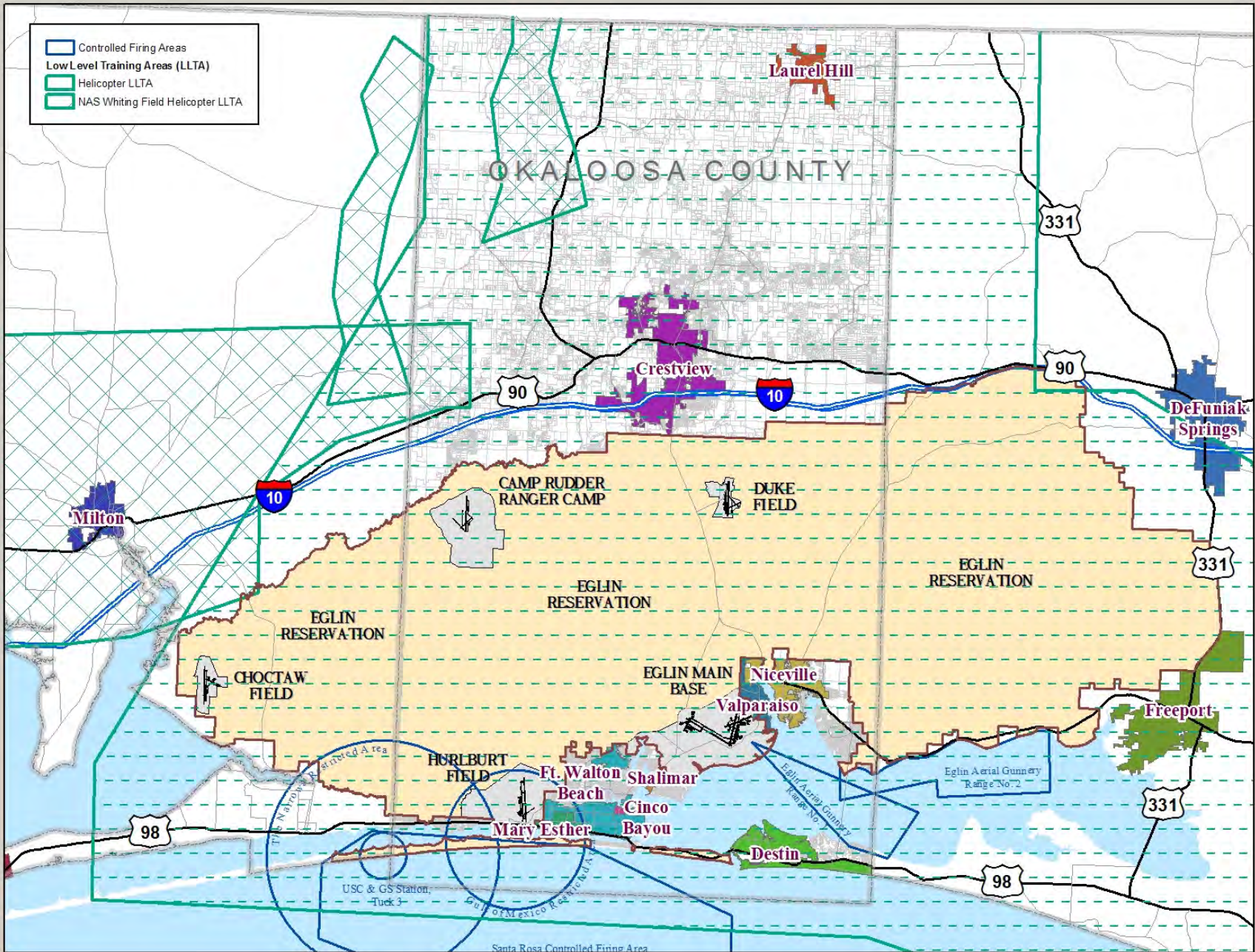


Figure 4-3: Low Level Helicopter and Tiltrotor Training Areas Across Okaloosa County





ders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPS have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure there were no navigation problems. [Figure 4-4](#) identifies the maximum building heights resulting from this study.

#### 4.2.4 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of

ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 16th Special Operations Wing.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. [Figure 4-5](#) shows the increase in artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population. Cinco Bayou/Fort Walton Beach area's sky glow viewed from the nearest point on the Eglin reservation is estimated at almost 4 times what would occur naturally.

#### 4.2.5 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condomin-



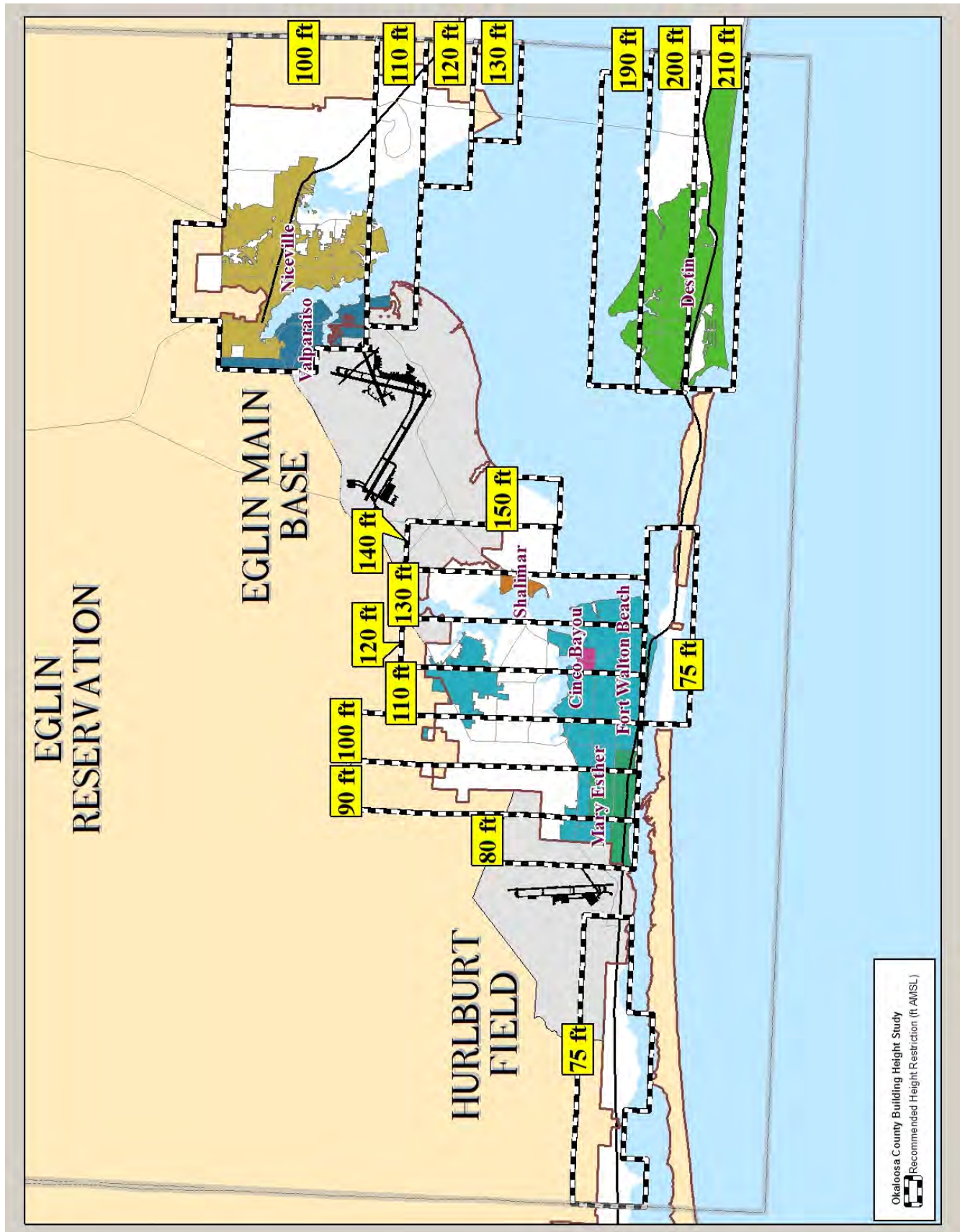


Figure 4-4: Okaloosa Maximum Building Heights (Air Force, 2006)

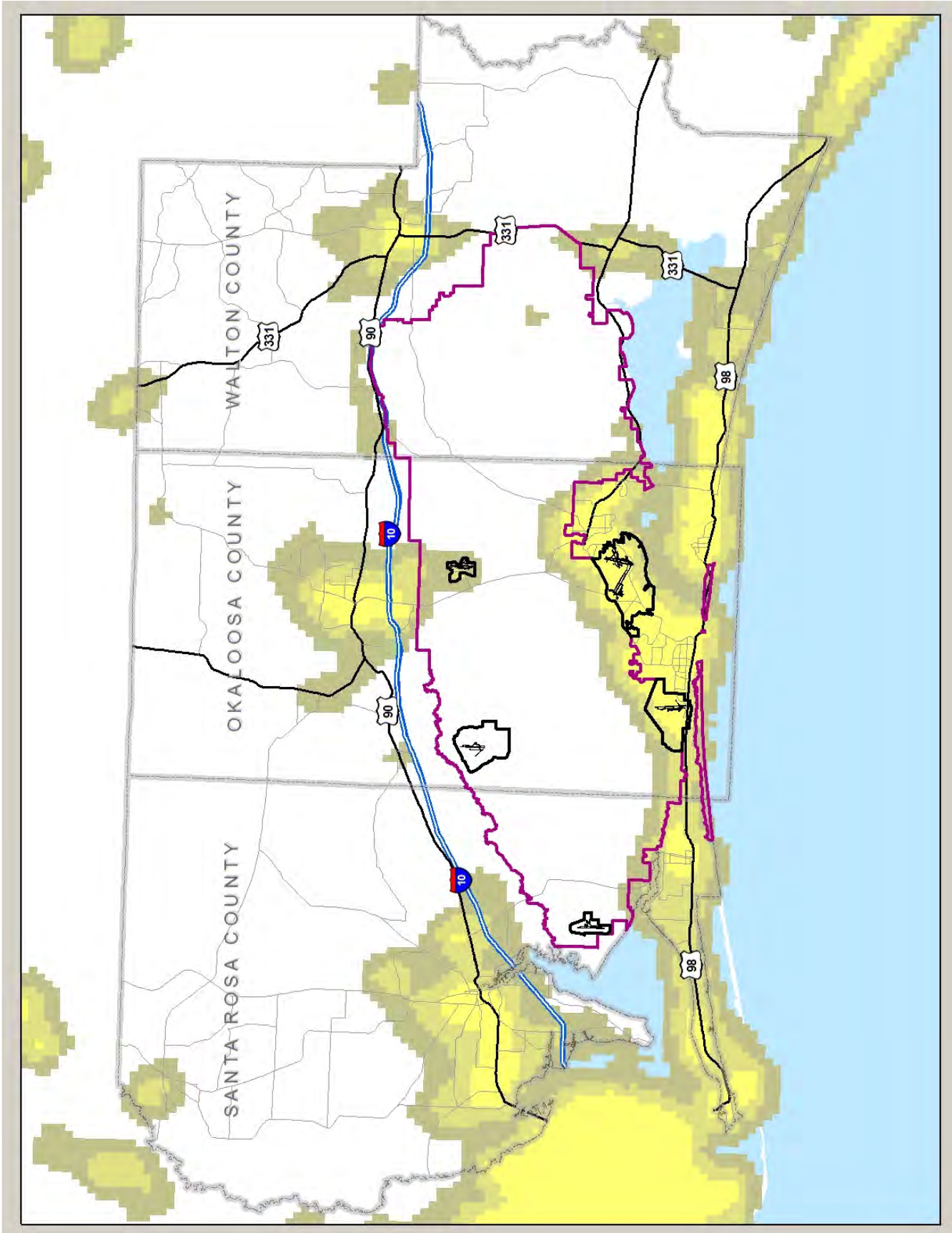


Figure 4-5: Visible Increase in Artificial Lighting from





ium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

### 4.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the City's Zoning Map and Future Land Use Map are provided in *Figures 4-6* and *4-7*, respectively.

#### 4.3.1 Impulse Noise

The nature of the impulse noise in the Town is in the low to moderate ranges as previously shown in Figure 4-2. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

#### 4.3.2 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire Town limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with a low flying helicopter and tiltrotor.

#### 4.3.3 Radio Frequency Interference

The analysis for radio frequency interference in the Town is a simple one. The entire Town lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and

selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

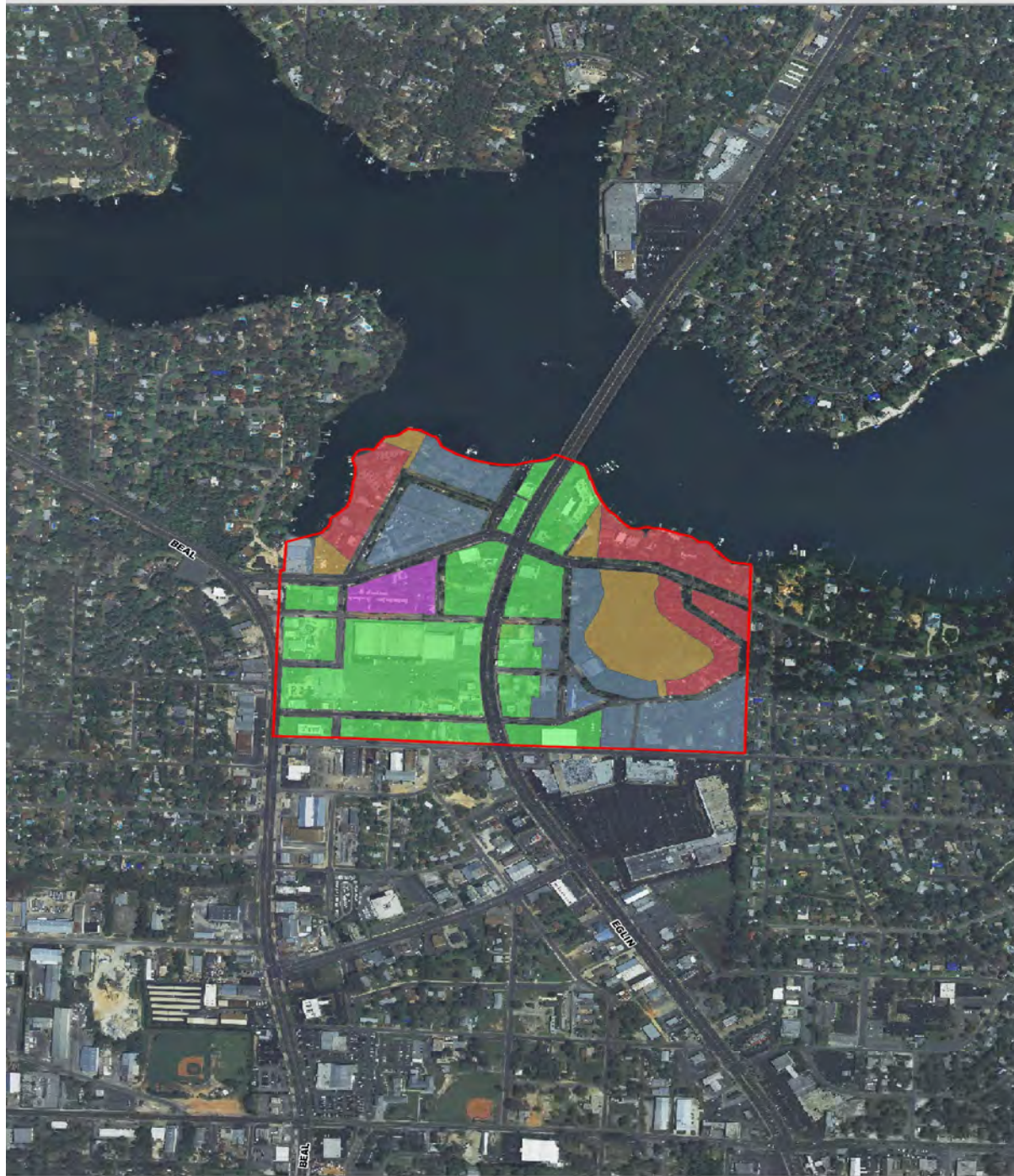
Although the Town is not responsible for regulating or licensing radio frequencies, there are steps the Town can take to help minimize radio frequency interference. The Town should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

### 4.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the Town on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the Town. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the Town's use:

- **CCB 1:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **CCB 2:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference



## ZONING

### Legend

	Municipality Boundary	Zoning Description
	2005 Aerial Photo	C-1
		C-2
		MR-1
		PL
		R-1



Figure 4-6: Cinco Bayou Zoning Map



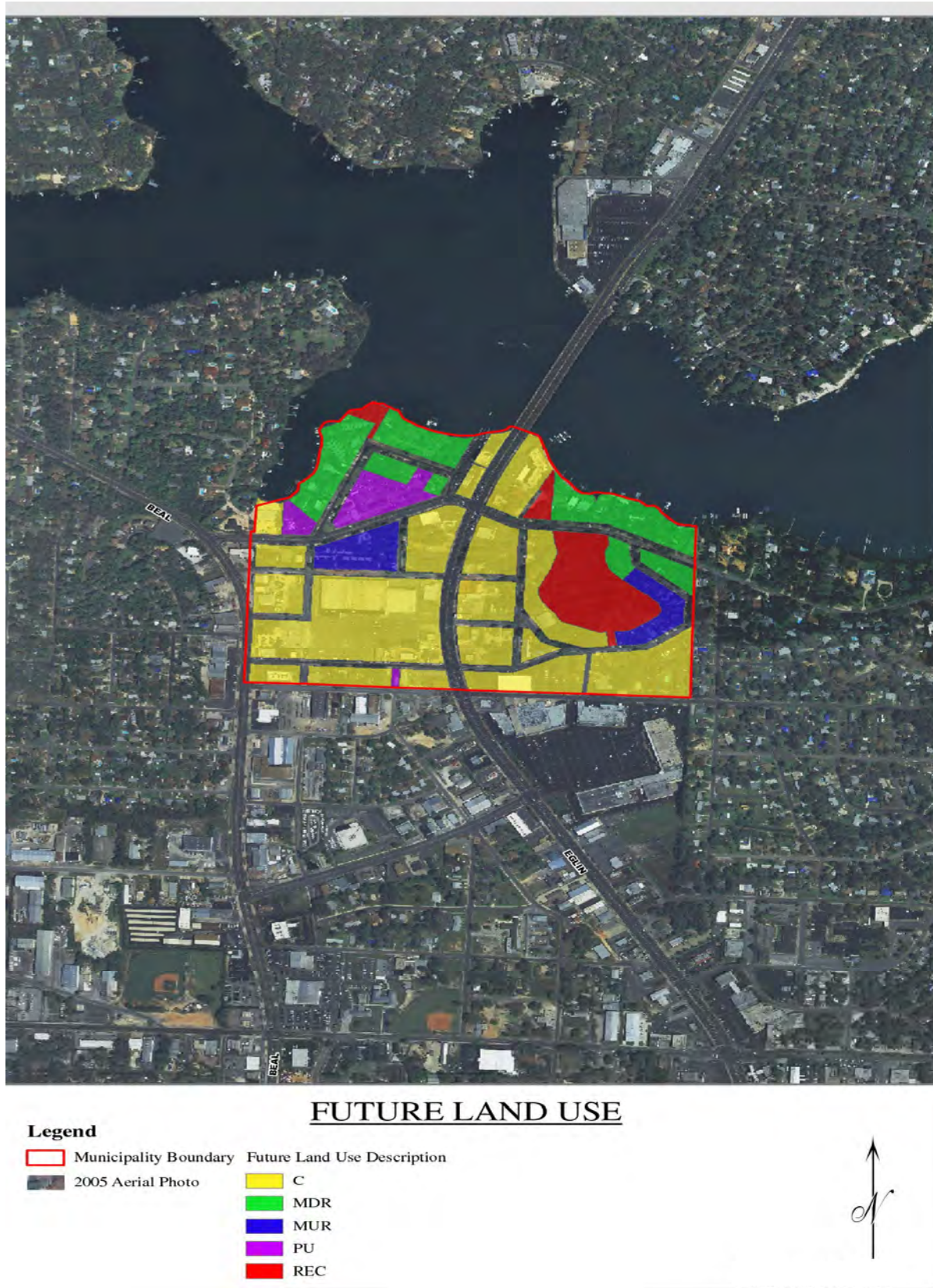


Figure 4-7: Cinco Bayou Future Land Use Map



- **CCB 3:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **CCB 4:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **CCB 5:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **CCB 6:** Update Town's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the Town's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the Town's use:

**CCB 1: Implement Lighting Ordinance.** Evaluate and update outdoor lighting standards applicable to the Town. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

**Community Wide Measures:**

- ♦ Turn-off un-needed lights, e.g. unused parking lots
- ♦ Use appropriate levels of illumination
- ♦ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts

generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ♦ Light patterns common to military aviation
- ♦ Lights to create sky glow (except when used for safety, security, and utility)
- ♦ Luminous tube lighting on building exterior or roof
- ♦ Internally lit awnings
- ♦ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ♦ Minimal illumination necessary
- ♦ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ♦ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ♦ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

**CCB 3: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ♦ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and re-





lated noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.

- ◇ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

CCB 4: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process. Formalize a policy to include military participation in its development review and planning process. This should include a formal communication process between the Town and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with Town staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and Town Council. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

CCB 6: Update Town's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the Town's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests. There are potential military impacts on civilian land, facilities, and citizens. There are

also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Planning Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◇ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◇ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◇ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◇ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◇ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◇ Clear Zone
- ◇ Accident Potential Zone I
- ◇ Accident Potential Zone II
- ◇ Noise Contours in decibels: ≥65-69; 70-74; 75-84; ≥85
- ◇ Cruise Missile Corridors
- ◇ Supersonic Corridor SW of SW portion of AFB
- ◇ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◇ Clear Zone and APZ I & II
- ◇ FAA & Military Approach/Departure Height Thresholds
- ◇ Military Training Routes
- ◇ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◇ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◇ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)



-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

## **Comprehensive Plan Military Influence Planning Area (MIPA) Subelement Goals, Objectives, and Policies-**

Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

## **Identify Policies to Implement Each Objective, including:**

- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezoning
  - ◊ Establish Military Influenced Lands (MIPA) Zoning Overlay District:

- ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
- ⇒ Height Regulations
- ⇒ Outdoor Lighting Regulations
- ⇒ Development Review Procedures:
  - + Ex-Officio Military Representation on Planning Board
  - + Early Notification
  - + Effectuating Timely Participation and Response
  - + Conflict Resolution Mechanisms
- ◊ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
- ◊ Restrict Use Of Radio Frequency Spectrum
- ◊ Bands 5.4 -5.9 Ghz
- ◊ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◊ Special Issues
- ◊ Small Area Land Use Studies
- ◊ Public Awareness
- ◊ Web-Site Public Awareness
- ◊ Public Notice Requirements In Development Review Process
- ◊ Identify When Moa Impacted
- ◊ Street Signage (Military Operations Area)
- ◊ Inform Public of Noise Zone Revisions
- ◊ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◊ Revisions to Construction Standards to Address Noise Attenuation
- ◊ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◊ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◊ Revisions to Instrumentation and/or Physical Orientation
- ◊ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◊ Funding for Implementation





ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementa- tion Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
<b>CCB 1</b>	Implement Lighting Ordinance	4-12					✓	Town of Cinco Bayou	Eglin AFB, Eglin JLUS Policy Committee & TAG		✓		
<b>CCB 2</b>	Distribute Educational Handouts on Radio Frequency	4-9					✓	Eglin AFB	Town of Cinco Bayou	✓			
<b>CCB 3</b>	Implement Public Awareness Measures	4-12					✓	Town of Cinco Bayou	Okaloosa County, Eglin AFB, & Others				✓
<b>CCB 4</b>	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	4-13					✓	Town of Cinco Bayou	Eglin JLUS Policy Committee & TAG	✓			
<b>CCB 5</b>	Limit Object Heights Regarding Potential Conflicts	4-12					✓	Town of Cinco Bayou	Eglin AFB	✓			
<b>CCB 6</b>	Update Town's Comprehensive Plan and Land Development Code	4-13					✓	Town of Cinco Bayou	Eglin JLUS Policy Committee & TAG	✓			

Table 4-1: Timing and Implementation Responsibilities

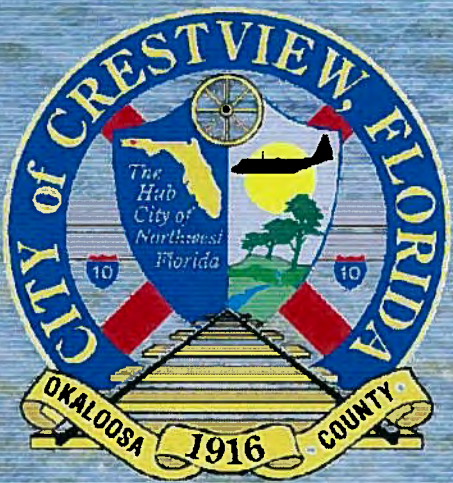
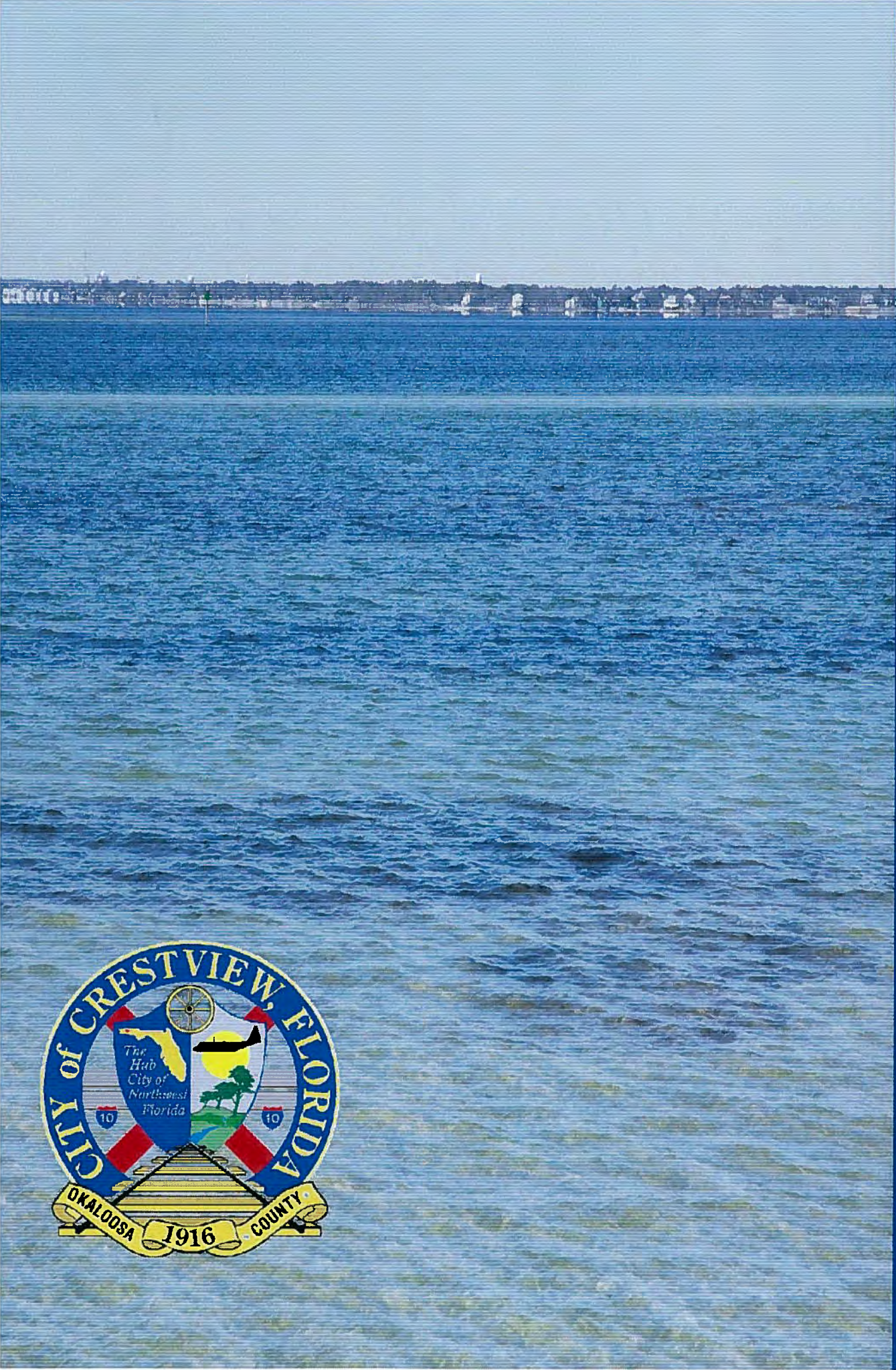


# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

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## SECTION 5 - CRESTVIEW



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## 5.1 INTRODUCTION

Crestview is the county seat of Okaloosa County. The City goes by the nickname "Hub City" of Northwest Florida. According to the U.S Census estimates of 2005, the City had a population of 17,707. Crestview is one of Florida's fastest growing cities, and with all of the residential developments, shopping, and land area to grow, it has, as of July 2007, become the largest city by population in Okaloosa County. As of the 2000 census, there were 14,766 people, 5,297 households, and 3,893 families residing in the City. The population density was 1,153.7 people per square mile (sq mi). There were 5,918 housing units at an average density of 462.4/sq mi.

There were 5,297 households out of which 41% had children under the age of 18 living with them, 54% were married couples living together, 16% had a female householder with no husband present, and 27% were non-families. 23% of all households were made up of individuals and 8% had someone living alone who was 65 years of age or older. The average household size was 2.64 and the average family size was 3.09.

In the City, the population was spread out with 29% under the age of 18, 9% from 18 to 24, 33% from 25 to 44, 18% from 45 to 64, and 12% who were 65 years of age or older. The median age was 33 years old.

*Figure 5-1* shows Crestview's city limits.

## 5.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with Joint Land Use Technical Advisory Committee (TAC) which includes representatives from the City and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the City were identified and explained. The following are the issues identified for the City with respect to land use encroachments:

- Eglin Perimeter Boundary Development
- Impulse Noise
- Low Level Helicopter and Tiltrotor Training
- Height of Objects and Low Level Training Areas
- Lighting
- Radio Frequency Interference

For clarification, each issue listed above is described further in the following subsections with descriptions providing information on how military activities influence the public.

### 5.2.1 Eglin Perimeter Boundary Development

As the City continues to grow, it is likely the City limits will continue to expand, especially southward towards the boundary of the Eglin Reservation. Development near the boundary of a military reservation can create security concerns, promote excessive light during nighttime hours, and encourage other encroachments onto the reservation. For Crestview, development around Eglin's perimeter is not an obvious immediate concern, this issue is managed easiest by recognizing and implementing necessary land use controls. Figure 5-1 shows the portion of the City currently adjacent to Eglin's boundary at the southern end of the City along State Road 85.

### 5.2.2 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the Eglin Reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

The City is included in the *Low Intensity—Infrequent Impulse Noise* area and a portion of the City is located within the *Moderate Intensity—Less Frequent Impulse Noise* area. The extent of the two different levels of impulse noise on the City is shown in *Figure 5-2*.

### 5.2.3 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) in *Figure 5-3*. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and NAS Whiting Field.



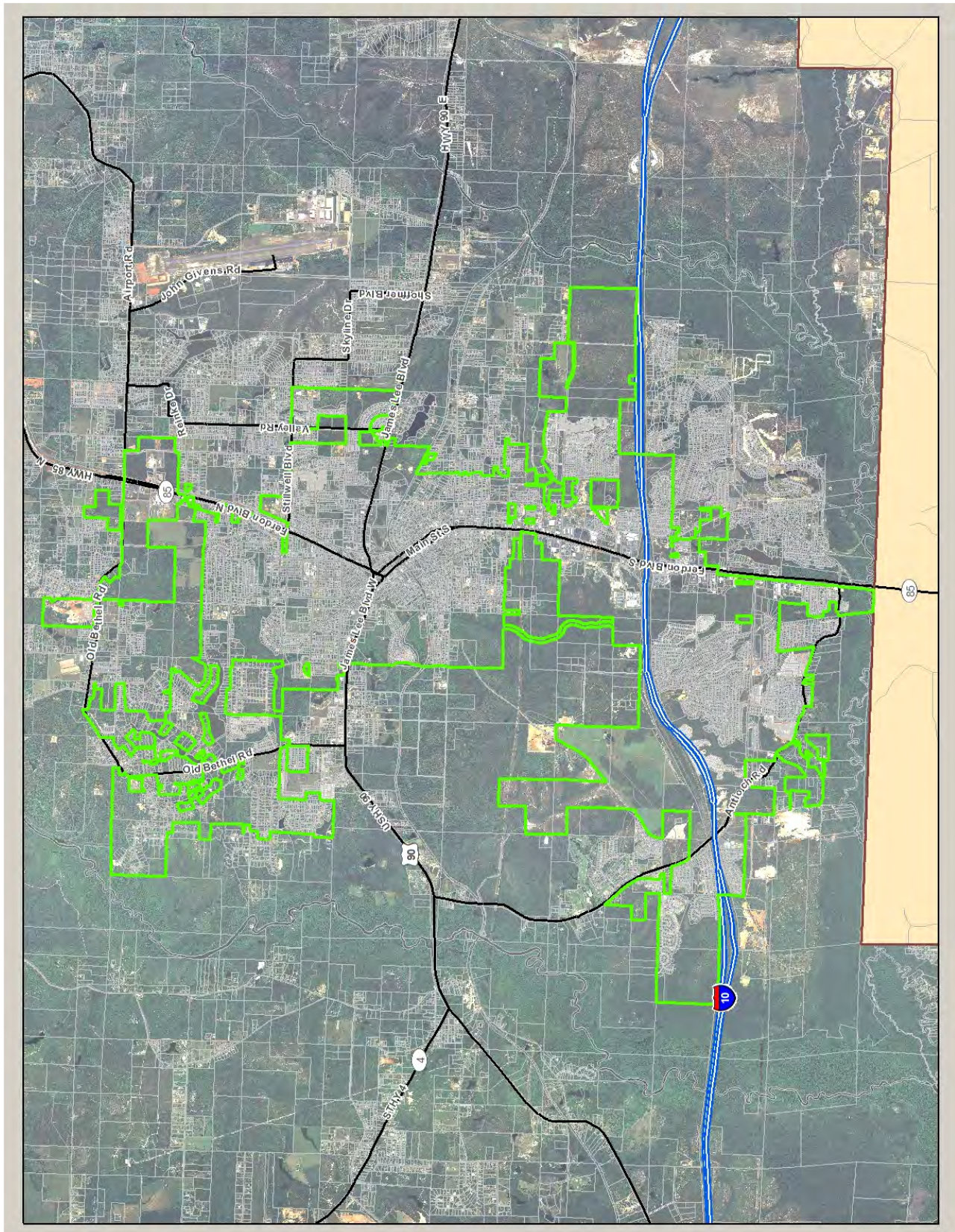


Figure 5-1: Crestview City Limits





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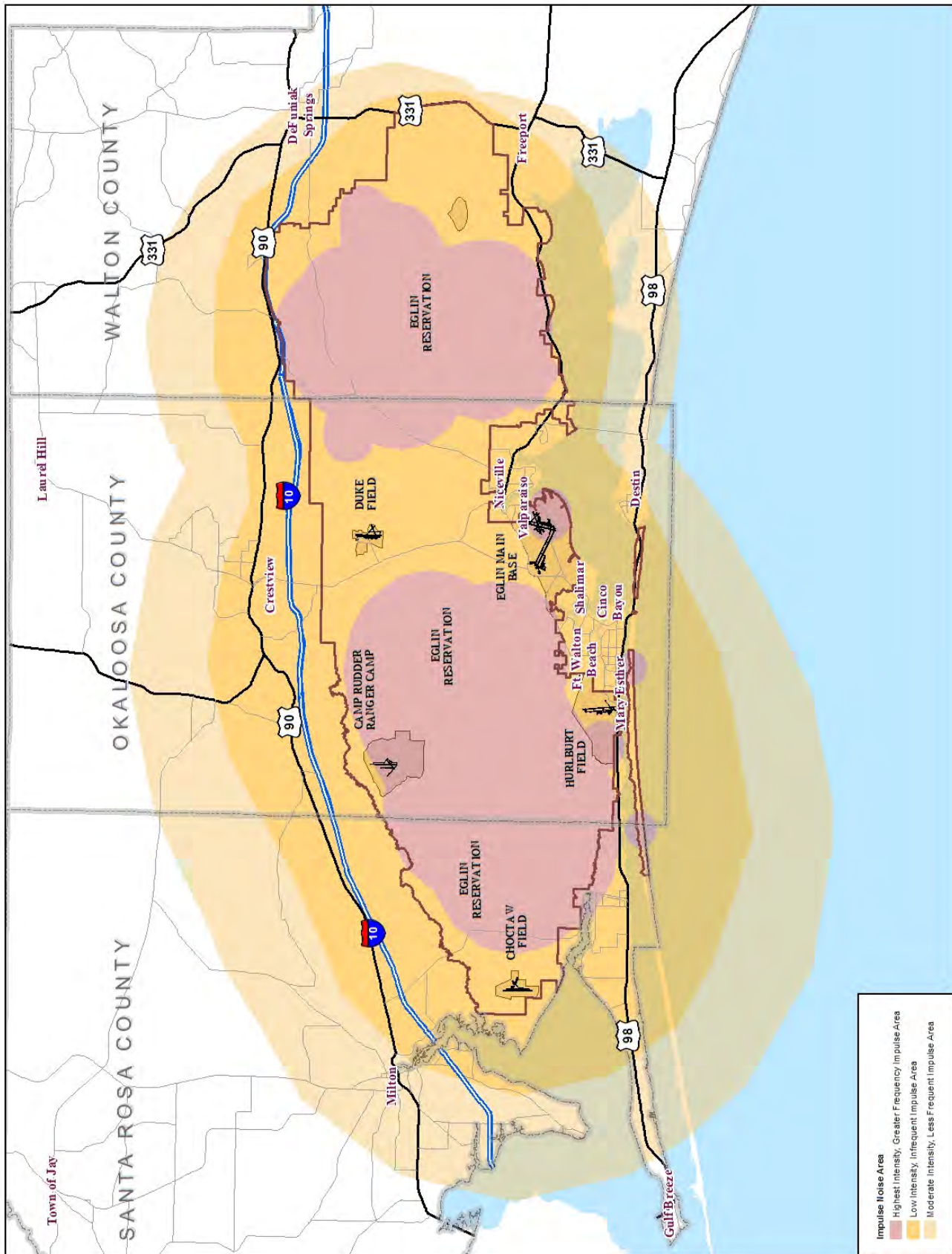


Figure 5-2: Impulse Noise Areas



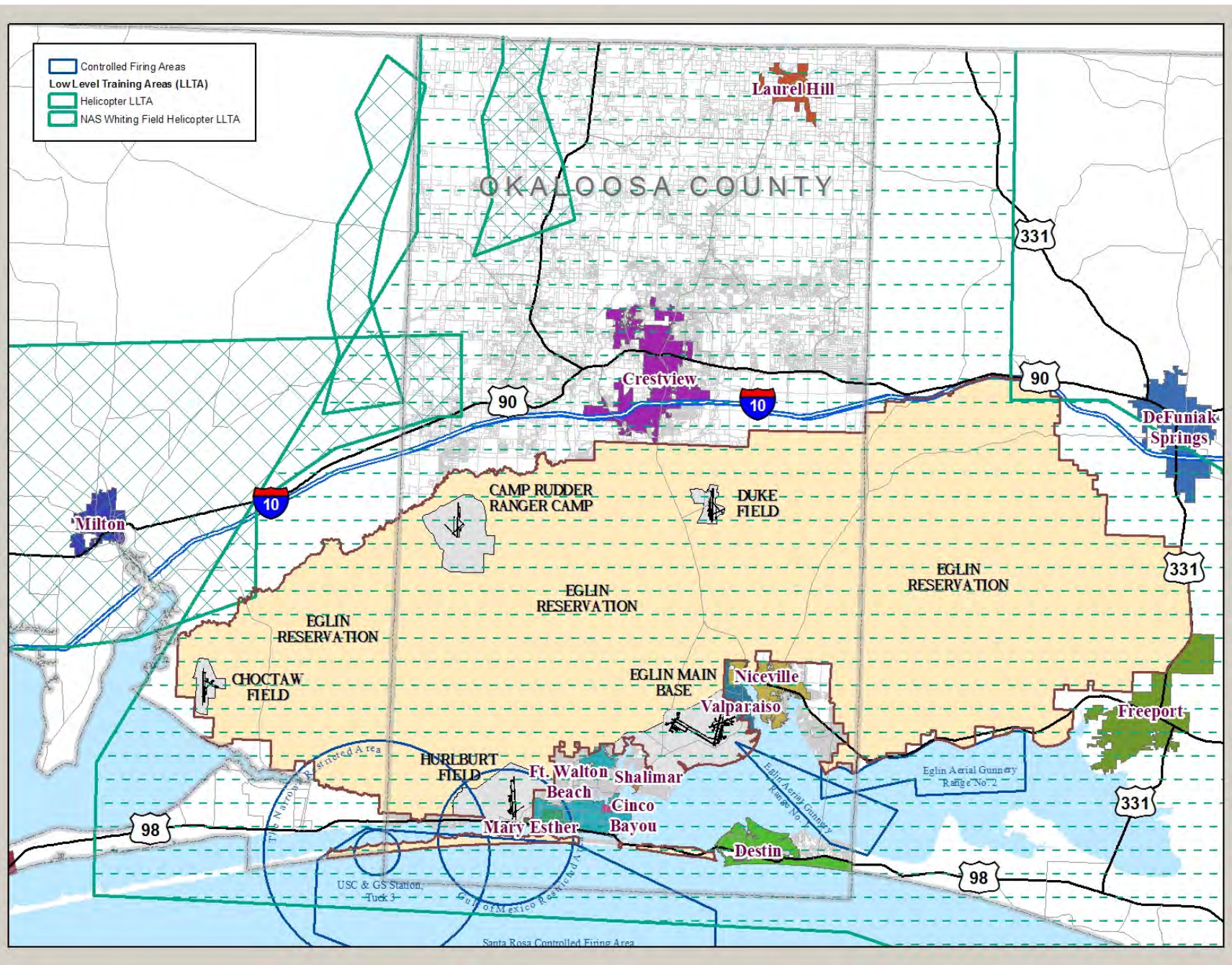


Figure 5-3: Low Level Helicopter and Tiltrotor Training Areas Across Okaloosa County





## 5.2.4 Height of Objects and Other Military Training Routes

According to the RAICUZ, Military Training Routes (MTR) are corridors of a defined width established and designated by the Federal Aviation Administration (FAA) specifically for military training. Within these corridors, military aircraft are permitted to conduct military training/RDT&E below 10,000 feet above mean sea level (MSL) in excess of 250 knots indicated airspeed (KIAS).

Two additional military training areas are the Slow Speed Low Altitude Training Route (SR) and the LLTA area. Flight within the SR must be below 1,500 feet above ground level (AGL) and at or below 250 KIAS. Typically SRs are flown with C-130 aircraft and helicopters as well as some slow speed training aircraft. LLTAs are large geographic areas where random low altitude operations are conducted at airspeeds below 250 KIAS. Typically A-10 aircraft and helicopters frequent LLTAs.

Within all of the MTRs, SRs, and LLTAs, low altitude navigation tactical training is currently conducted by C-130 cargo transport aircraft, helicopters, CV-22 Osprey, CA-212 light transport aircraft, fighter and attack aircraft, and training aircraft.

As population density increases underneath the MTRs and LLTAs, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1 SOW and NAS Whiting Field.

Maintaining lower population densities underneath the low level MTRs along the northern boundary of Eglin, which are used by the 16 SOW, is important for safety reasons. As these routes transition into Field 6 (Camp Rudder), Duke Field, Field 1, Pino Drop Zone, and Sontay Drop Zone, the aircraft is not able to deviate from its selected approach path in an attempt to avoid more densely populated areas or noise sensitive features (e.g., hospital, school, or church). The approach path generally begins approximately 10 nautical miles from the center point of the airfield or drop zone. Approach paths for northern Okaloosa County are shown in *Figure 5-4*.

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from

terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPS have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

*Figure 5-5* provides height limits based on military training routes and TERPS.

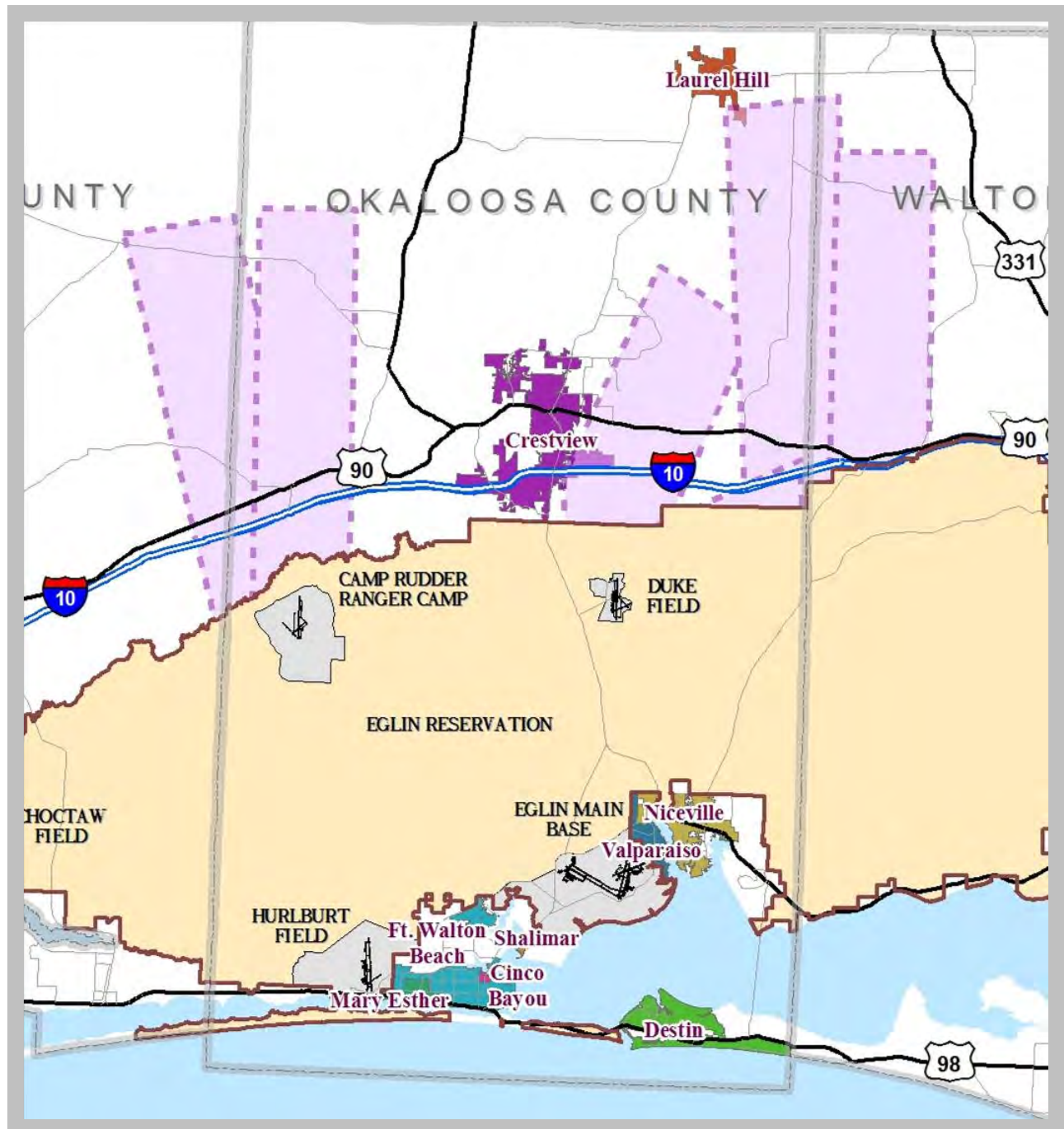


Figure 5-4: Low Level Approach Areas





## 5.2.5 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. *Figure 5-6* shows the increase in artificial lighting visible from satellites. It is clearly evident that the amount of lights is increasing with population. Crestview's sky glow viewed from the nearest point on the Eglin reservation is estimated at almost 2¼ times what would occur naturally. *Figure 5-7* presents estimated sky glow due to the City in the Crestview vicinity.

## 5.2.6 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

## 5.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the City's Zoning Map and Future Land Use Map are provided in *Figures 5-8 and 5-9*, respectively.

### 5.3.1 Eglin Perimeter Boundary Development

The area of the City within one mile of Eglin's boundary includes the small portion along Highway 85. It is uncertain at this time if and when the City will annex additional lands within one mile of the Eglin boundary. It is very likely the City will continue seeing annexation requests since the City has the ability to provide water and sewer service to residents in this area to support development.

### 5.3.2 Impulse Noise

The nature of the impulse noise in the City is in the low to moderate ranges as previously shown in *Figure 5-2*. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 5.3.3 Low Level Helicopter and Tiltrotor Training

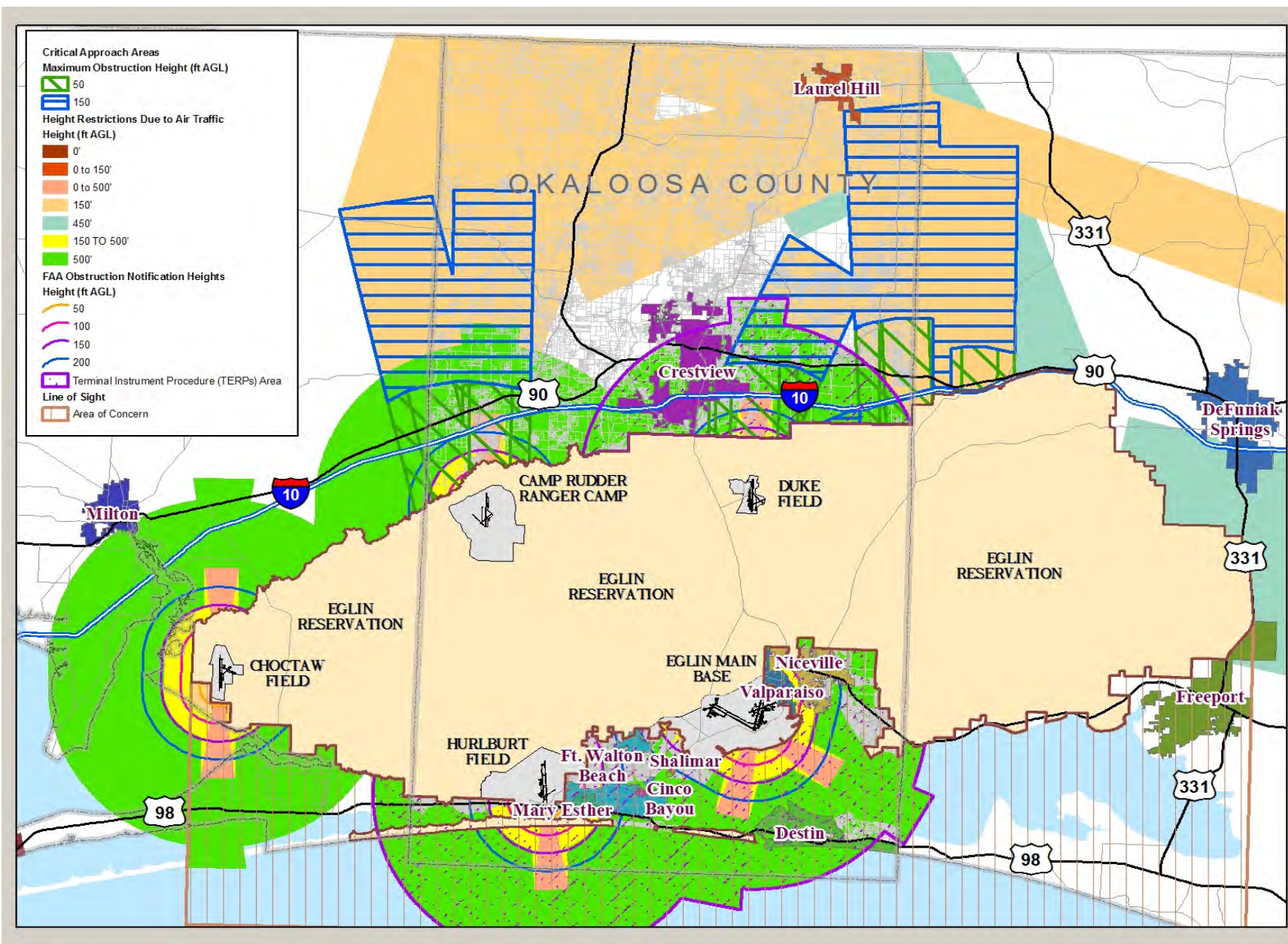


Figure 5-5: Maximum Obstruction Heights For Other Military Training Routes and Terminal Instrument Procedures (TERPs). Note lowest height shown shall govern.



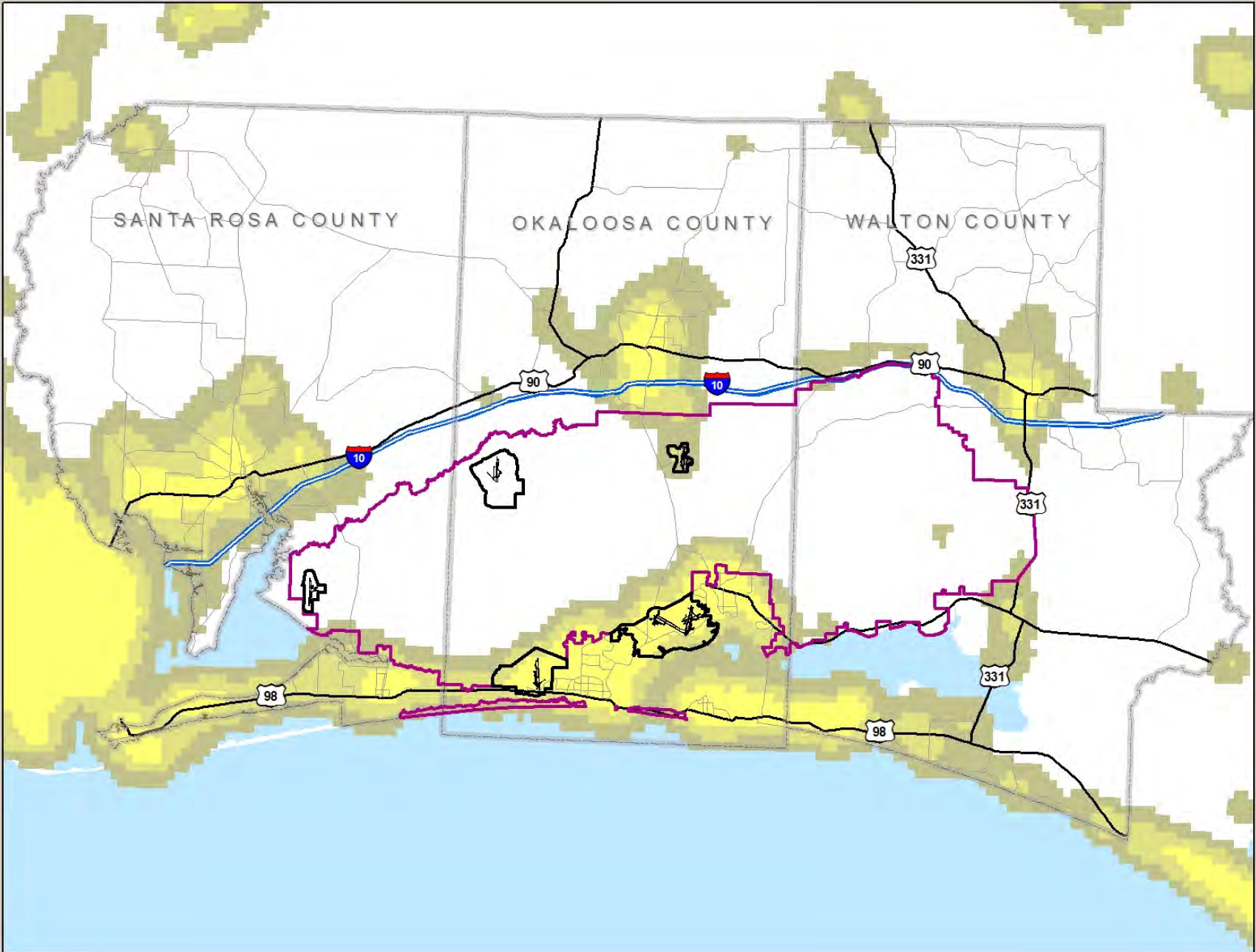


Figure 5-6: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)

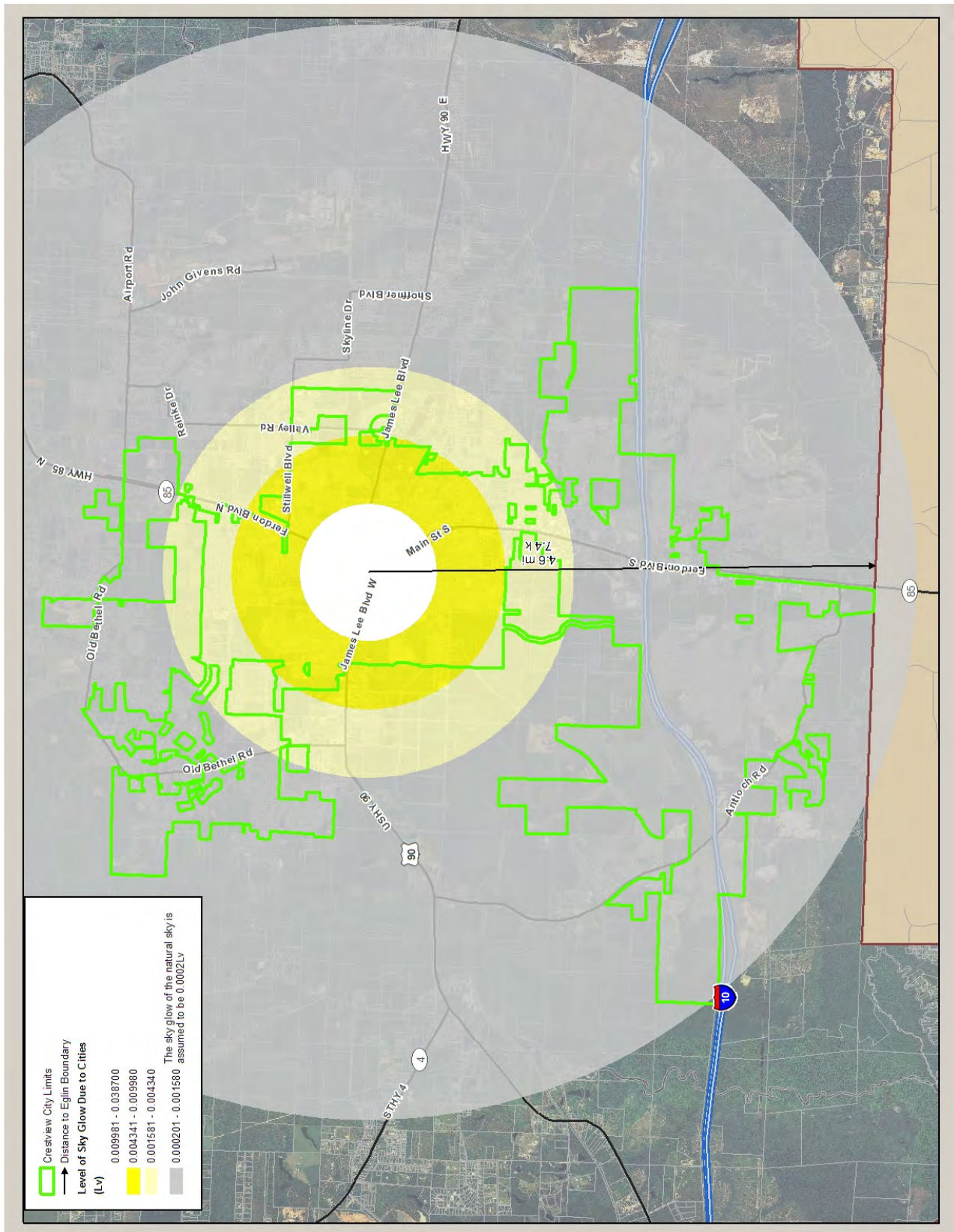
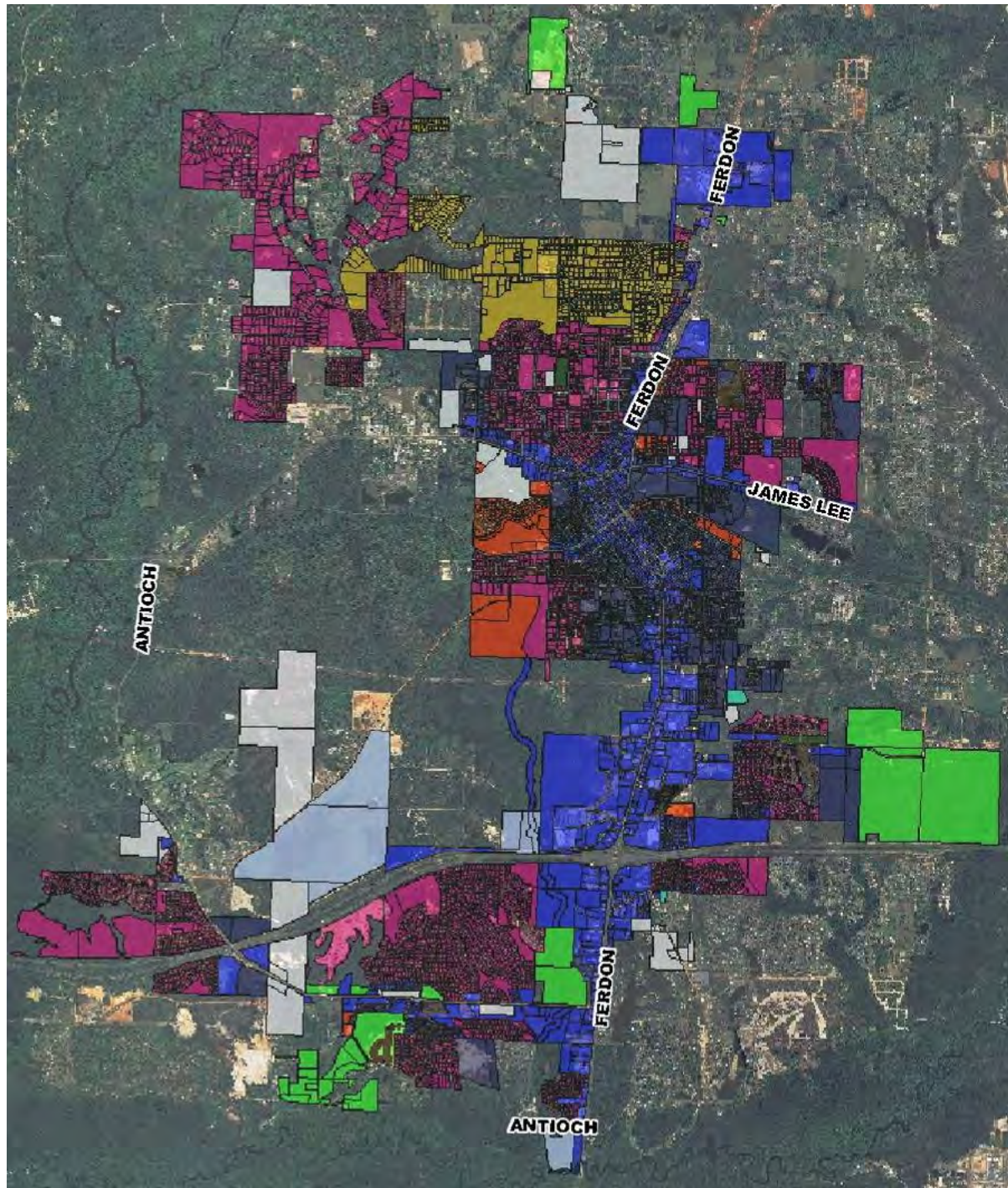


Figure 5-7: Level of Sky Glow in Crestview Vicinity





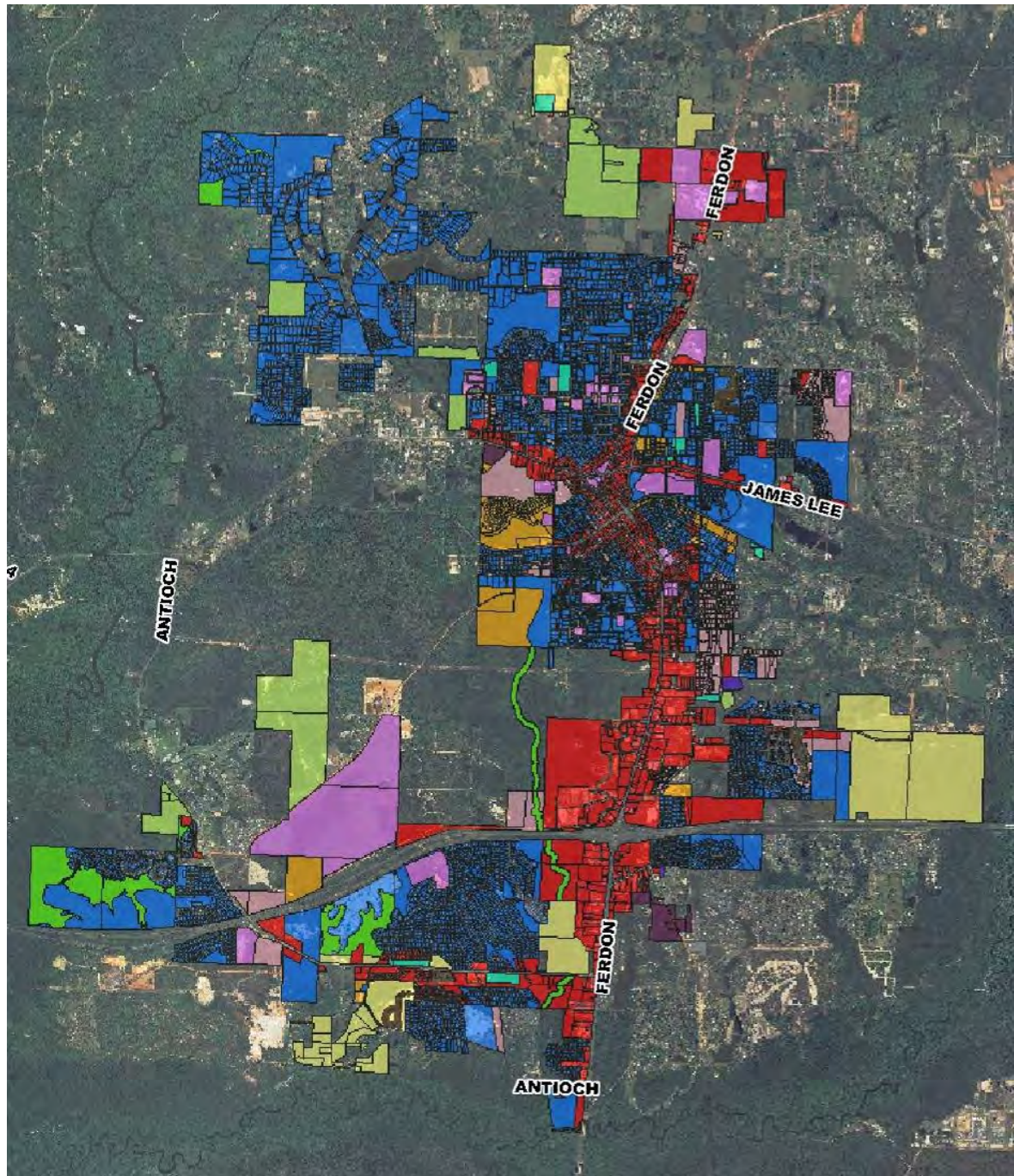
## Legend

2005 Aerial Photo	Zoning Description	M-1	R-2
A	PUD	R-3	
C-1	R-1	NOT ASSIGNED	
CYCLE 07-1	R-1A		

Figure 5-8: Crestview Zoning Map







## Legend

	2005 Aerial Photo	Future Land Use Description			
	C		IN		MU
	CON		LDR		PL
	HDR		MDR		NOT ASSIGNED
			MDR-10		CYCLE 07-1



Figure 5-9: Crestview Future Land Use Map





The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with low flying helicopters and tiltrotors.

### 5.3.4 Height of Objects and Low Level Training Areas

According to the RAICUZ, areas along the northern boundary of Eglin AFB currently low in population density provide ideal conditions for low level flight and low altitude night vision goggle training, a vital skill for new pilots to learn and veteran pilots to maintain. An increase in population density and development along the northern Eglin boundary would force increases in altitude and/or changes in flight paths, both critically impairing the ability to conduct training at Field 6 (Camp Rudder), Field 1, Pino Drop Zone, Sontay Drop Zone, and Duke Field. The assault landing strip at Duke Field is used for assault landing training and is the only location in the United States that offers this type of training, which is an essential part of special operations capability (U.S. Air Force, 2003b).

To identify the area in which low population densities would be ideal and where incompatible development would cause the most impact, the Northwest Florida Greenway Corridor Study Area was delineated and shown in [Figure 5-10](#). The goals of the corridor study area are to promote the sustainability of the military mission, to preserve the high biodiversity of the area, to enhance outdoor recreation, and to support the economic health of the area. It consists of federally and state managed lands, conservation organization lands, and private lands. By delineating the corridor and agreeing to work together, the federal agencies, state agencies, conservation organizations, and local city and county governments committed to furthering the goals of the Northwest Florida Greenway Corridor Study Area.

### 5.3.5 Radio Frequency Interference

The analysis for radio frequency interference in the City is simple. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with ga-

rage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the City is not responsible for regulating or licensing radio frequencies, there are steps the City can take to help minimize radio frequency interference. The City should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

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# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

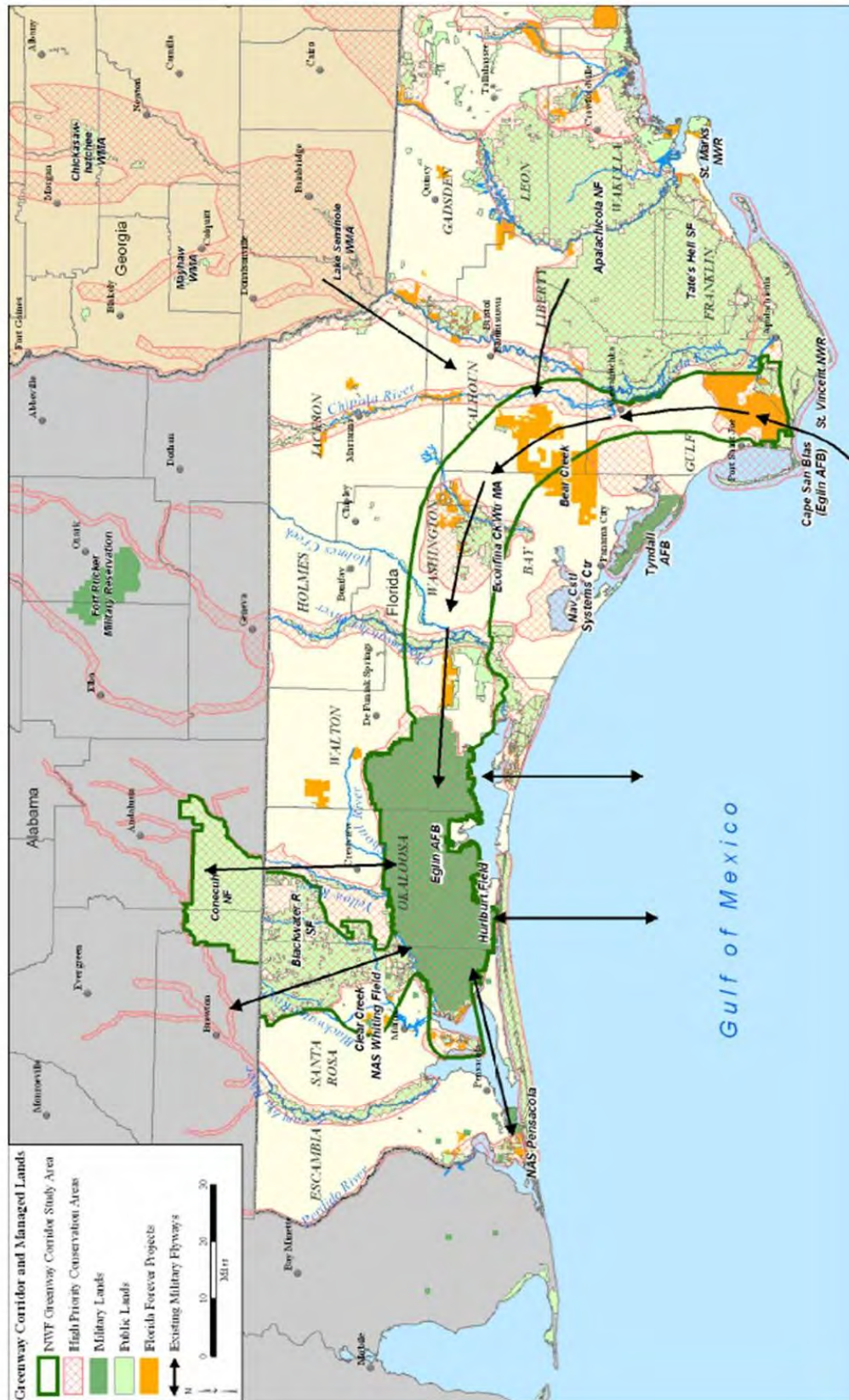


Figure 5-10: Northwest Florida Greenway Corridor





## 5.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations included in this report to provide guidance to the City on land use and land activities associated with encroachment items with definitive direction and in some cases, applicable examples from across the US that have been successfully implemented. This study with the identified issues, analysis, and recommendations is a stepping off point for the City to see the recommendations through to reality.

The following summarizes the recommendations for the City. Some of the recommendations require further information beyond the following summary bullets and this type of detail is provided at the end of this section:

- **CRV 1:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **CRV 2:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **CRV 3:** Identify Low Level Approach Zones on Preliminary Plats and Public Reports and Require Developers To Identify the Approach Zones on All Proposed Projects
- **CRV 4:** Do Not Allow increases in Density and Intensity in Low Level Approach Zones and Eglin AFB Boundary Buffer Until CRV 5 Recommendation is Completed
- **CRV 5:** Conduct Small Area Studies For The Low Level Approach Zones and Eglin Buffer
- **CRV 6:** Amend Comprehensive Plan and Land Development Code to Limit Object Heights According to

Information Provided by Eglin AFB (*Figure 5-5*)

- **CRV 7:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **CRV 8:** Promote State and Federal Land Acquisition in Yellow River and Shoal River Floodplain and Tributaries
- **CRV 9:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **CRV 10:** Establish Military Influence Planning Area (MIPA) Zoning Overlay District to create different MIPA designations. It is recommended to create levels of MIPAs corresponding with the recommended MIPAs (I, II, or III).

The creation of MIPAs with different designations based on the compatibility issues being addressed is recommended. The different MIPA designations proposed in the Eglin JLUS are shown in *Table 5-1* and are summarized below. Note that all MIPAs are not recommended for all Eglin JLUS jurisdictions.

- ◊ **MIPA-I:** Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MIPA-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.
- ◊ **MIPA-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MIPA-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF and are not recommended for all jurisdictions participating in this study.
- ◊ **MIPA-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation and strategic buffer areas along the northern boundary of the Eglin Reservation. MIPA-III's are focused on

Military Influence Planning Area (MIPA) Designation	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach & or Cruise Missile Corridor	0.5-1.0 mi Buffer
I	■	■	■			
II				■		
III					■	■

*Table 5-1: Proposed MIPA Designations in the Eglin JLUS. Note that all MIPAs are not recommended for all Eglin JLUS jurisdictions.*



limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach MIPA-III's vary but the MIPA-III areas for the buffers are approximately one mile from the Eglin boundary.

*Figure 5-11* shows the locations of the MIPA-III designations in Crestview.

- **CRV 11:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the City's use:

**CRV 2: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of the Eglin AFB and its operations and community impacts both from an economic and encroachment perspective. Examples of measures to be taken include:

- ◇ Post signage in residential areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◇ Provide links on the City's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**CRV 4: Do not allow increases in Density and Intensity in Low Level Approach Zones and Eglin AFB Boundary Buffer.** Until CRV 5 is completed, it is recommended that no increases in density and intensity are allowed in the low level approach zones and Eglin AFB Boundary Buffer as shown in *Figure 5-11* as MIPA-III.

**CRV 5: Conduct Small Area Studies in Low Level Approach Zones and Eglin Buffer.** A variety of land uses occur or are planned to occur in areas within and/or adjacent to the Low Level Approach Zones and the Eglin Boundary, particularly where access can occur from highways or major county roads. It is recommended that small area studies be prepared for these areas to address transition of land use, plan roadway systems and access management, identify suitable locations for development, and prepare for the planned provision of public facilities. The small area studies will create strategies to transfer development rights, develop voluntary land acquisition program, implement Navigation easements, cluster future dwelling units, conserve environmentally sensitive areas, and/or implement tax incentive/credit policies. For a successful small area study, key stakeholders such as the City, County, Eglin AFB, and property owners must play an active role in the planning, analysis, and recommendations.

**CRV 7: Implement Lighting Ordinance.** The City should evaluate and update outdoor lighting standards applicable to MIPA areas or all unincorporated areas. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

Community Wide Measures:

- ◇ Turn-off un-needed lights, e.g. unused parking lots
- ◇ Use appropriate levels of illumination
- ◇ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts



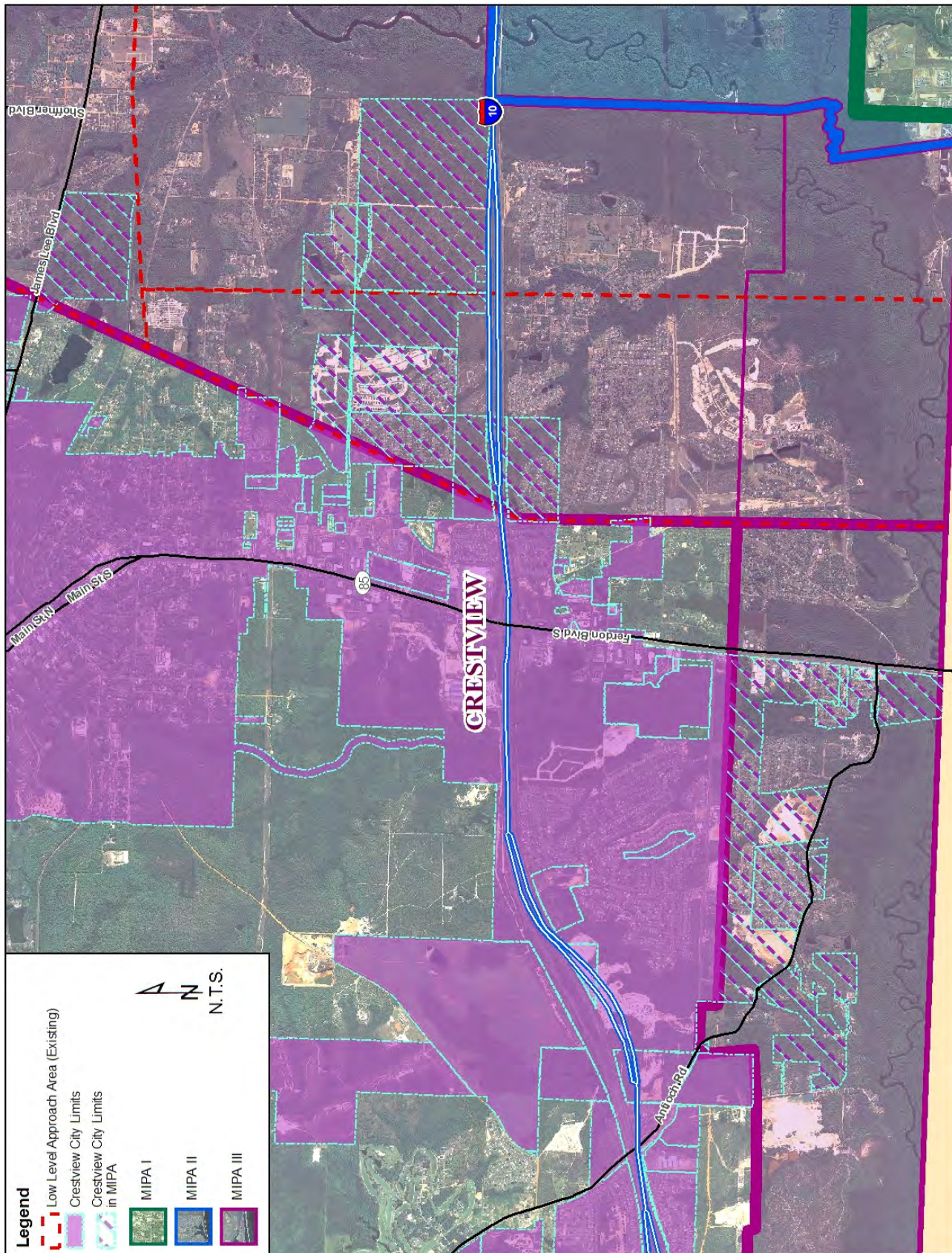


Figure 5-11: Proposed MIP A-III's Within City of Crestview





generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◇ Light patterns common to military aviation
- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary
- ◇ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◇ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◇ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

[CRV 9: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.](#) The City should formalize its policy to include military participation in its development review and planning process. This should include a formal communication process between the City and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive

approach to working with developers from their initial contact with City staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and City Council. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

[CRV 10: Establish MIPA Designations.](#) Establishing Military Influence Planning Areas (MIPAs) as geographic planning areas established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIPA recognizes the existence and mission of a military installation within a community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the public
- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses
- More accurately identify areas affected by military operations
- Create compatible mix of land uses

[CRV 11: Establish MIPA Ordinance to Include Specific Language Designed to Strengthen the County's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.](#)

There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influence Planning Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be dis-





cussed.

## Comprehensive Plan Military Encroachments Element Data Inventory and Analysis

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels:  $\geq 65$ -69; 70-74; 75-84;  $\geq 85$
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

## Comprehensive Plan Military Influence Planning Area (MIPA) Subelement Goals, Objectives, and Policies- Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

## Identify Policies to Implement Each Objective, including:

- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezoning
  - ◊ Establish Military Influence Planning Area Lands (MIPA) Zoning Overlay District:
    - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
    - ⇒ Height Regulations



- ⇒ Outdoor Lighting Regulations
- ⇒ Development Review Procedures:
  - + Ex-Officio Military Representation on Planning Board
  - + Early Notification
  - + Effectuating Timely Participation and Response
  - + Conflict Resolution Mechanisms
- ◇ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
- ◇ Restrict Use Of Radio Frequency Spectrum
- ◇ Bands 5.4 -5.9 Ghz
- ◇ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◇ Special Issues
- ◇ Small Area Land Use Studies
- ◇ Public Awareness
- ◇ Web-Site Public Awareness
- ◇ Public Notice Requirements In Development Review Process
- ◇ Identify When Moa Impacted
- ◇ Street Signage (Military Operations Area)
- ◇ Inform Public of Noise Zone Revisions
- ◇ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◇ Revisions to Construction Standards to Address Noise Attenuation
- ◇ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◇ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◇ Revisions to Instrumentation and/or Physical Orientation
- ◇ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◇ Funding for Implementation

*Table 5-2* - Implementation Plan Responsibilities and Timing, is intended to further guide the City into implementing the recommended strategies.

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ID #	Recommended Strategy	Eglin JLUS Page No.		MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementation Timing			
									Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
CRV 1	Distribute Educational Handouts on Radio Frequency	5-16					✓		Eglin AFB	City of Crestview	✓			
CRV 2	Implement Public Awareness Measures	5-17				✓			City of Crestview	Okaloosa County & Eglin AFB				✓
CRV 3	Identify Low Level Approach Zones on Public Documents	5-16				✓			City of Crestview	Private Party Submittals	✓			
CRV 4	Do Not Allow Increases in Density and Intensity in Low Level Approach Zones and Eglin AFB Boundary Buffer Until CRV 5 is Completed	5-17				✓			City of Crestview	-	✓			
CRV 5	Conduct Small Area Studies For The Low Level Approach Zones & Eglin Buffer Areas	5-17				✓			Eglin JLUS Policy Committee	Eglin JLUS Policy Committee & TAG	✓			
CRV 6	Limit Object Heights Regarding Potential Conflicts	5-16				✓	✓		City of Crestview	Eglin AFB	✓			
CRV 7	Implement Lighting Ordinance	5-17				✓			City of Crestview	Eglin JLUS Policy Committee & TAG		✓		
CRV 8	Support and Promote State and Federal Land Acquisition in Yellow River and Shoal River Floodplains and Tributaries	5-16				✓			City of Crestview	Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
CRV 9	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	5-19					✓		City of Crestview	Eglin JLUS Policy Committee & TAG	✓			
CRV 10	Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating Applicable MIPA Designations (I, II, or III)	5-19				✓			City of Crestview	Eglin JLUS Policy Committee & TAG	✓			
CRV 11	Update City's Comprehensive Plan and Land Development Code	5-19				✓			City of Crestview	Eglin JLUS Policy Committee & TAG	✓			

Table 5-2: Implementation Plan Responsibilities and Timing









## SECTION 6 - DESTIN



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## 6.1 INTRODUCTION

Destin is located in Okaloosa County. Destin is a popular tourist destination, and the Florida Department of Environmental Protection estimates over 80% of the Emerald Coast's 4.5 million people visit each year.

As of the 2000 census, there were 11,119 people, 4,877 households, and 3,135 families residing in the city. The population density was 1,477.1 per square mile. There were 10,599 housing units at an average density of 1,408.0 per square mile.

There were 4,877 households out of which 25% had children under the age of 18 living with them, 53% were married couples living together, 8% had a female householder with no husband present, and 36% were non-families. 27% of all households were made up of individuals and 9% had someone living alone who was 65 years of age or older. The average household size was 2.26 and the average family size was 2.72.

In the city the population was spread out with 19% under the age of 18, 6% from 18 to 24, 30% from 25 to 44, 28% from 45 to 64, and 17% who were 65 years of age or older. The median age was 42 years.

Figure 6-1 shows Destin's city limits.

## 6.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from the City and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the City were identified and explained. The following are the issues identified for the County with respect to land use encroachments:

- Impulse Noise
- Airfield Noise
- Low Level Helicopter & Tiltrotor Training Areas
- Height of Objects
- Lighting
- Radio Frequency
- Air Traffic Control

Each issue listed above is described further in the following subsections with descriptions and graphics providing infor-

mation on how military activities influence the public.

### 6.2.1 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity*, *Infrequent Impulse Noise*, *Moderate Intensity*, *Less Frequent Impulse Noise*, and *Higher Intensity*, *Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

The City is included in the *Low Intensity*, *Infrequent Impulse Noise* area and a portion of the City is located within the *Moderate Intensity*, *Less Frequent Impulse Noise* area. The extent of the two different levels of impulse noise on the City is shown in Figure 6-2.

### 6.2.2 Airfield Noise

In addition to addressing safety concerns, the AICUZ also addresses noise exposure to non-military lands near military installations. Noise exposure can create conflicts with public welfare and quality of life for those living or working near airfields. Noise level contours extending from the airfield are incrementally measured from the highest typical decibel (dB) generated within a military installation to 65 dB within non-military property. For the Eglin AFB JLUS, the future aircraft (F-35) is not located at Eglin at this time so the AICUZ does not include noise levels associated with the F-35. In order for this study to be based on best available, useful, and applicable information, it was determined this study would utilize noise levels available from the Air Force for the proposed F-35 in lieu of using F-15 noise levels which will be obsolete in the coming years.

Noise contours are delineated by computerized simulation of aircraft activity at each installation and integrate operational data specific to the types of aircraft using a particular airfield. The methodology used to identify noise counters takes into consideration flight paths, frequency and time of operation, as well as the type and mix of aircraft. The noise contours utilized in this study were provided by the Air Force. The scope of this study does not include manipulating the computer simulation to adjust noise contours.

At the time of this report, the Air Force is developing the curriculum for the F-35. Two different noise alternatives (Alternate 1 and Alternate 2) were developed as part of the *Base Realignment and Closure (BRAC) 2005, Environmental Impact Statement (EIS)* and this information is being





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

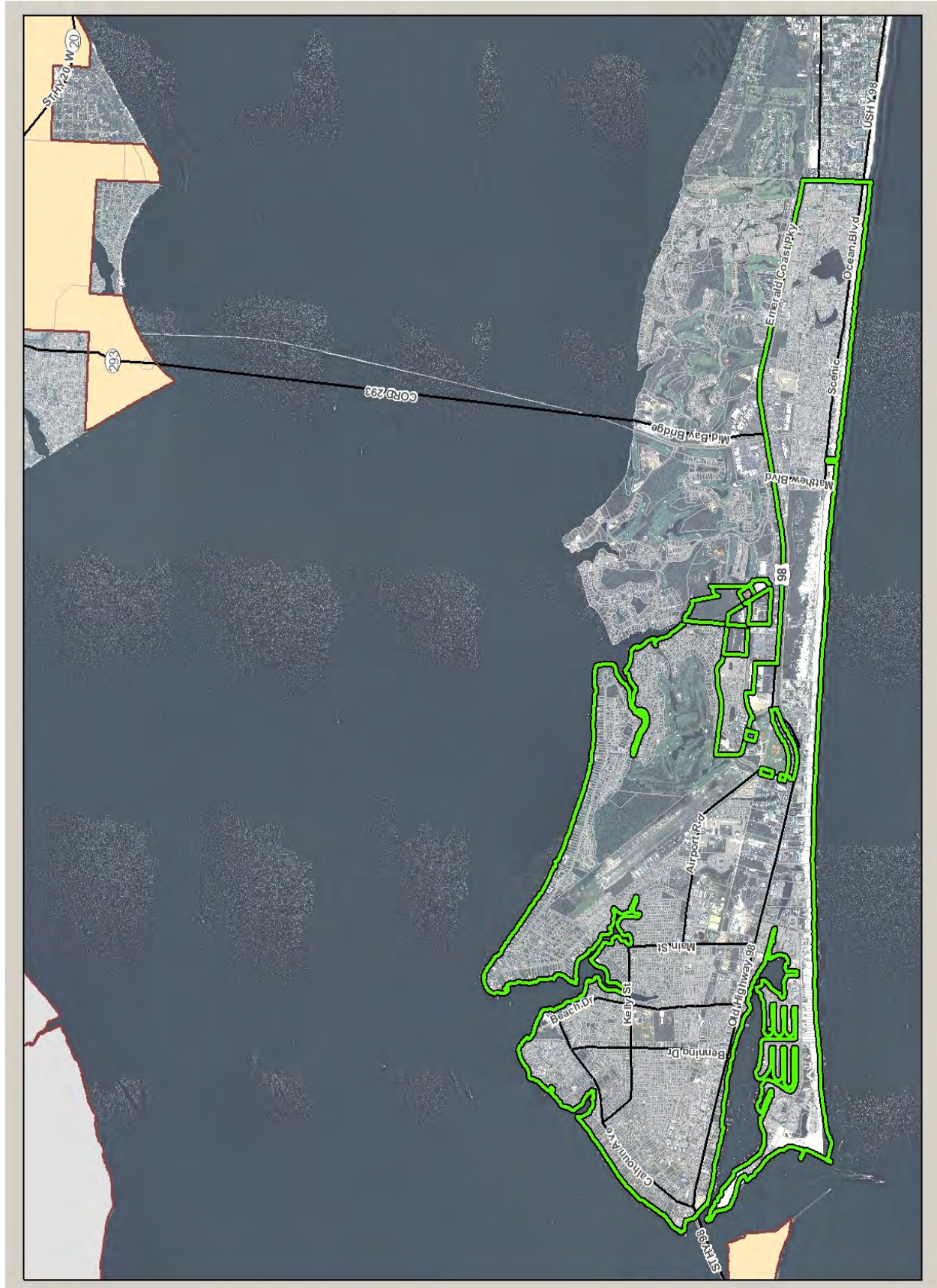


Figure 6-1: Destin City Limits



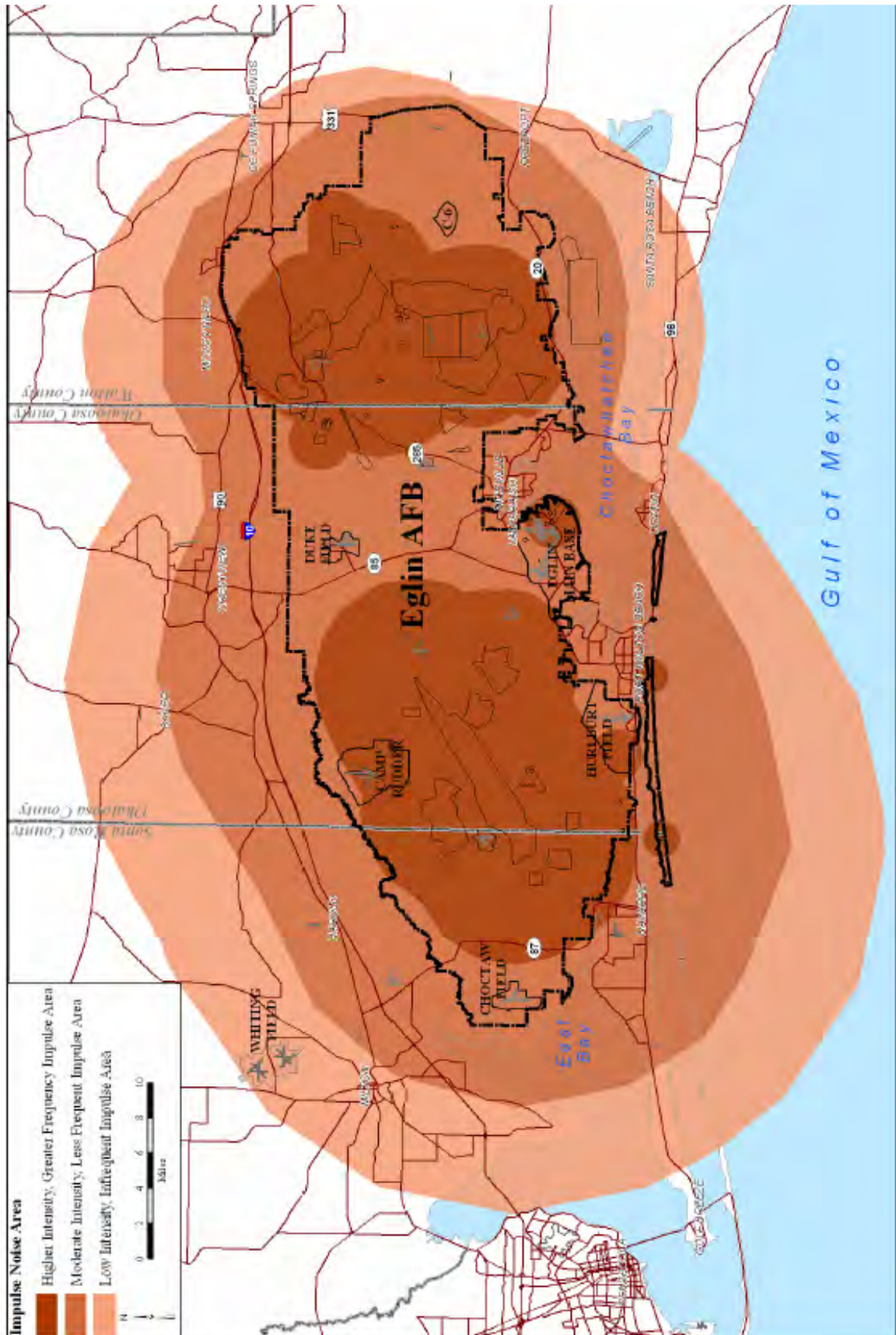
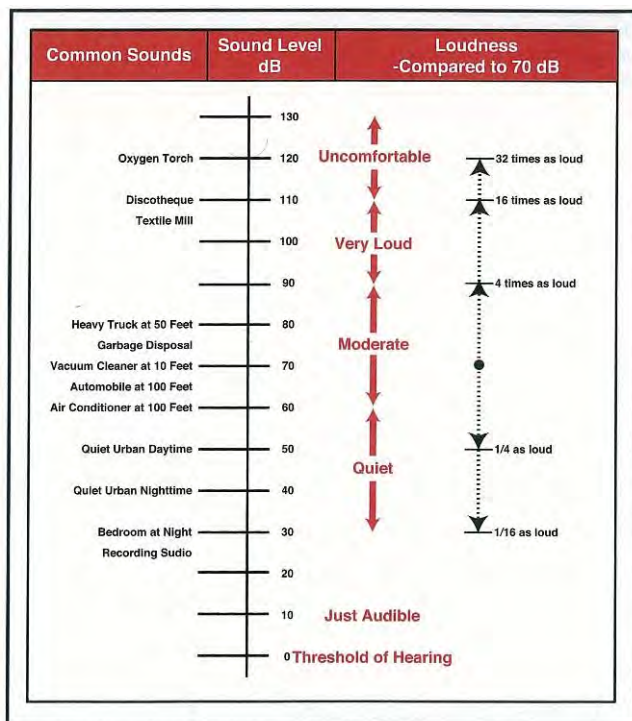


Figure 6-2: Impulse Noise Areas





Source: Handbook of Noise Control, C.M. Harris, McGraw-Hill Book Co., 1979, and Ref. E5.

utilized as part of this JLUS. It appears the noise associated with Alternate 2 provides the maximum mission noise contours in the unincorporated parts of the County and, therefore, will be the contours used for analysis and form the basis for recommendations. Figure 6-3 shows the Airfield Noise associated with the two F-35 alternatives with a one-half mile buffer shown. Figure 6-4 shows the specific noise contours associated with F-35 maximum mission noise contours in the Destin area.

## 6.2.3 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in Figure 6-5. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and NAS Whiting Field.

## 6.2.4 Height of Objects

According to the RAICUZ, Military Training Routes (MTR) are corridors of a defined width established and designated by the Federal Aviation Administration (FAA) specifically for military training. Within these corridors, military aircraft are permitted to conduct military training/RDT&E below 10,000 feet above mean sea level (MSL) in excess of 250 knots indicated airspeed (KIAS).

Two additional military training areas are the Slow Speed Low Altitude Training Route (SR) and the LLTA area. Flight within the SR must be below 1,500 feet above ground level (AGL) and at or below 250 KIAS. Typically SRs are flown with C-130 aircraft and helicopters as well as some slow speed training aircraft. LLTAs are large geographic areas where random low altitude operations are conducted at airspeeds below 250 KIAS. Typically A-10 aircraft and helicopters frequent LLTAs.

Within all of the MTRs, SRs, and LLTAs, low altitude navigation tactical training is currently conducted by C-130 cargo transport aircraft, helicopters, fighter and attack aircraft, and training aircraft. The CV-22 Osprey and the CA-212 light transport aircraft are proposed to fly in these areas in the future (U.S. Air Force, 2004a).

As population density increases underneath the MTRs and LLTAs, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 16th Special Operations Wing (16 SOW) and Naval Air Station Whiting Field. Maintaining lower population densities underneath the low level MTRs along the northern boundary of Eglin, which are used by the 16 SOW, is important for safety reasons. As these routes transition into Field 6 (Camp Rudder), Duke Field, Field 1, Pino Drop Zone, and Sontay Drop Zone, the aircraft is not able to deviate from its selected approach path in an attempt to avoid more densely populated areas or noise sensitive features (e.g., hospital, school, or church). The approach path generally begins approximately 10 nautical miles (NM) from the center point of the airfield or drop zone.

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is de-

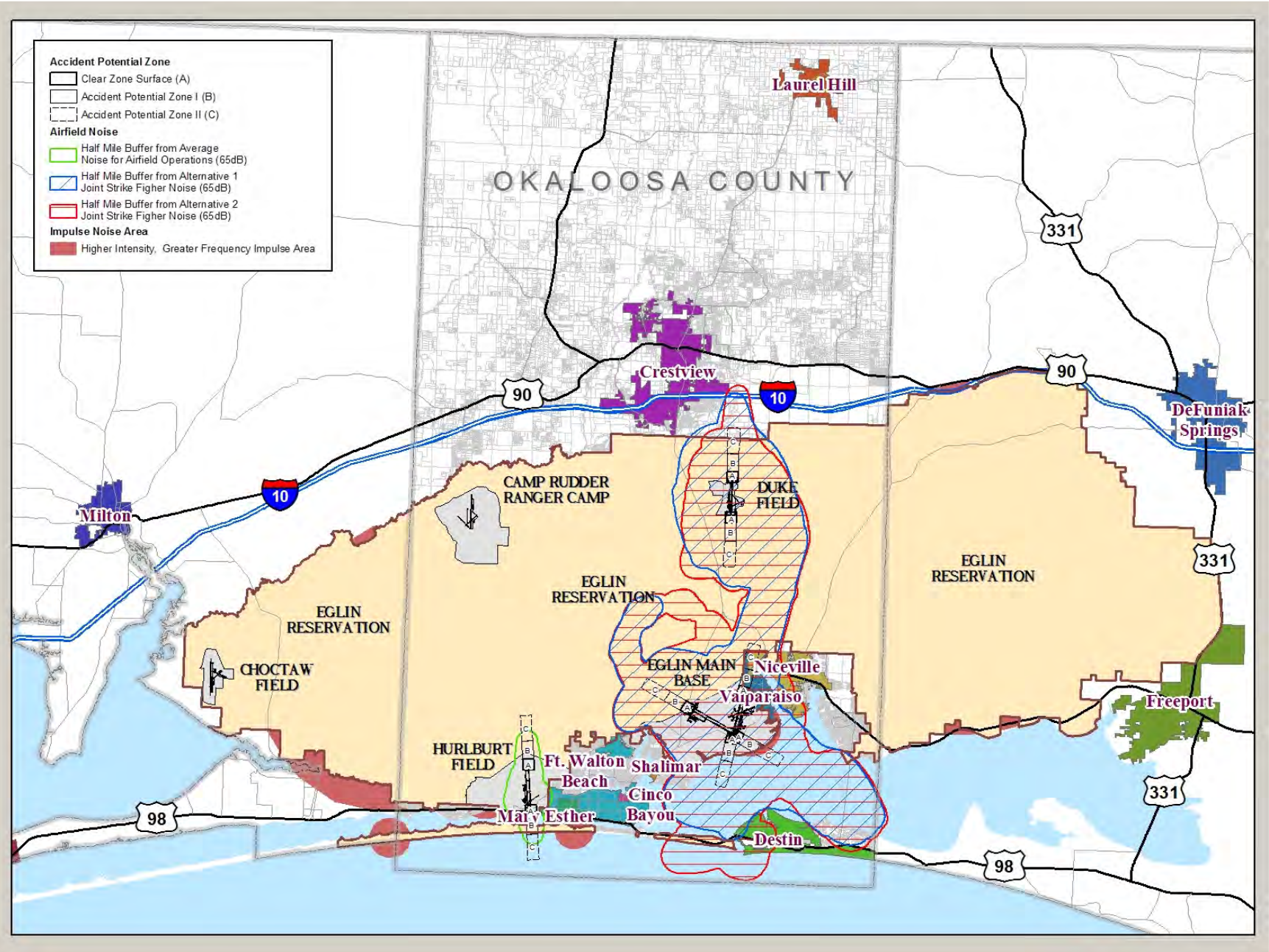


Figure 6-3: F-35 Noise Contours for EIS Alternate 1 and 2 in Ft. Walton Beach / Destin Area



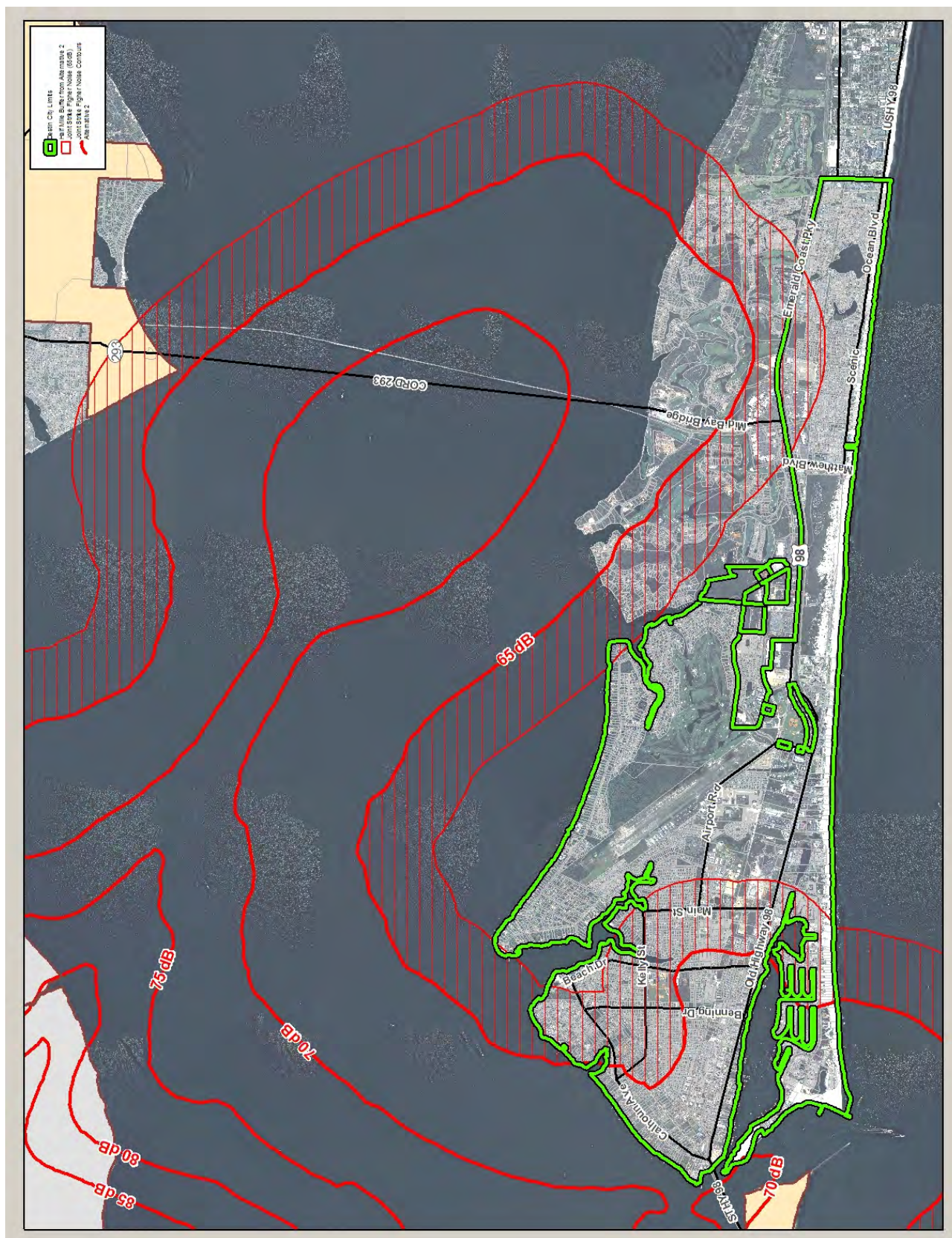


Figure 6-4: F-35 Maximum Mission Noise Contours Over Destin



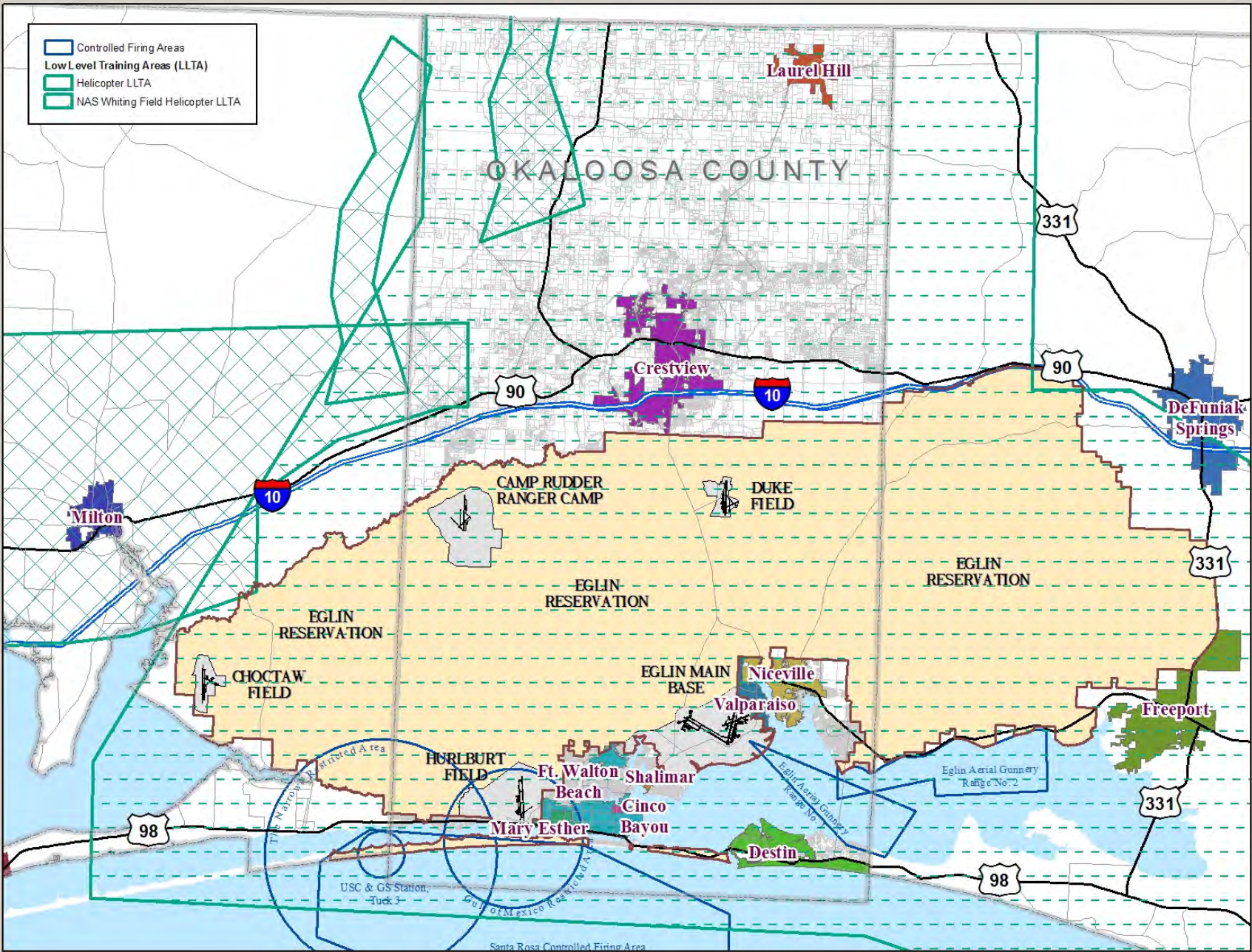


Figure 6-5: Low Level Helicopter and Tiltrotor Training Areas Across Okaloosa County





signed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPs have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure that there were no aviation problems. *Figure 6-6* identifies the maximum building heights resulting from this study.

## 6.2.5 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. *Figure 6-7* shows the increase in artificial lighting that is visible from satellites for the Destin area. It is clearly evident that the amount of lights is increasing with population.

## 6.2.6 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

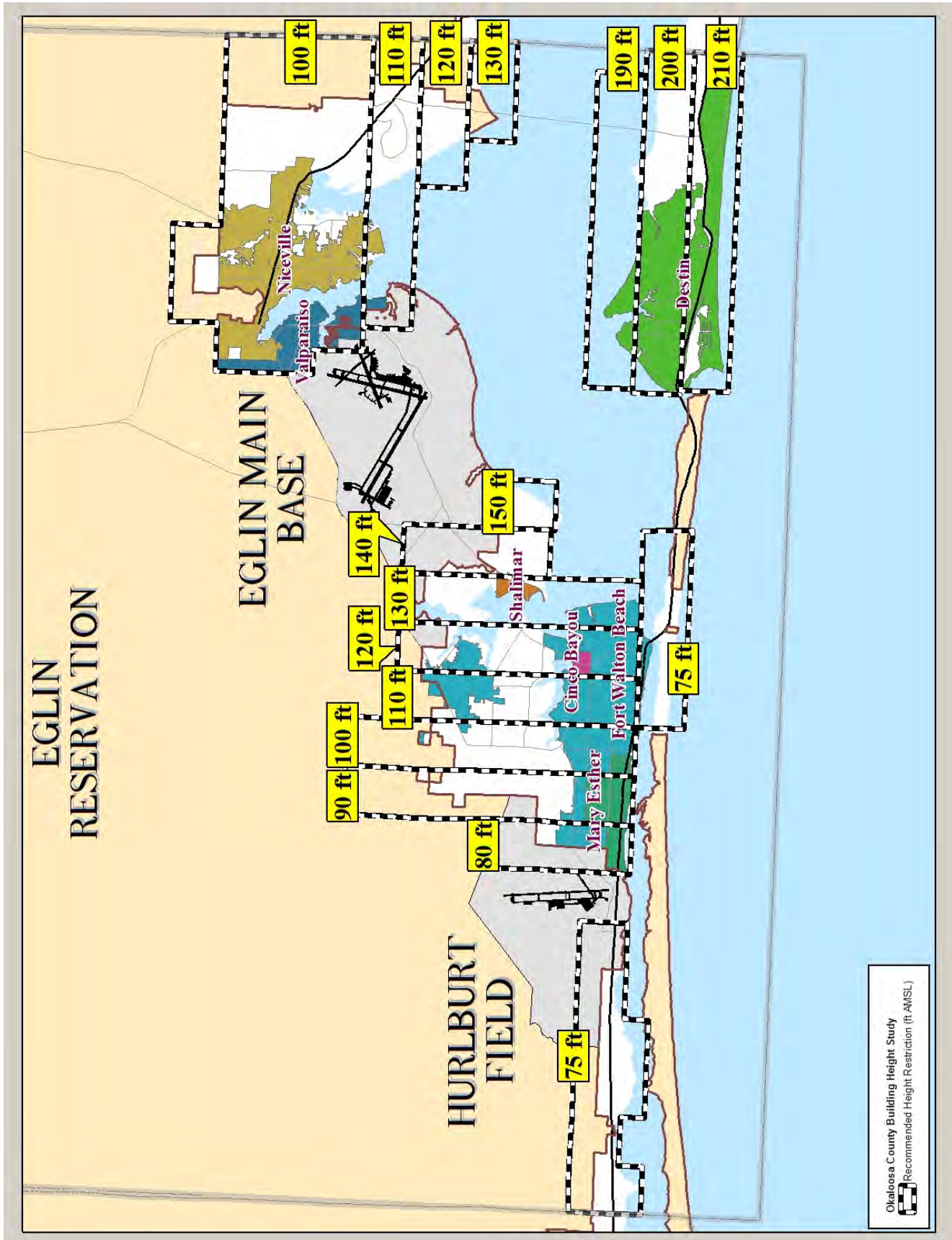


Figure 6-6: Okaloosa County Maximum Building Heights (Air Force, 2006)



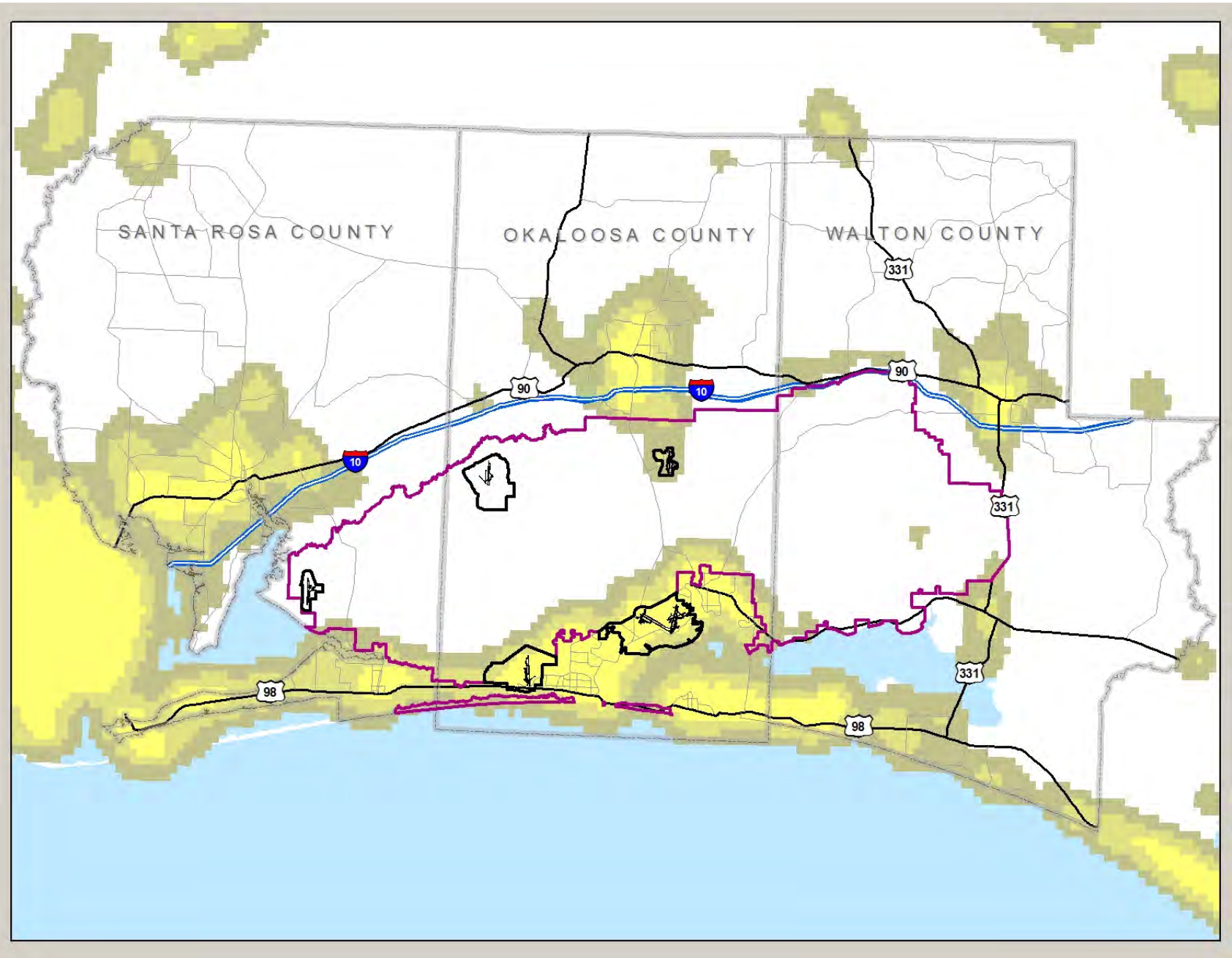


Figure 6-7: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)



The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

## 6.2.7 Air Traffic Control

Air Traffic from Eglin AFB, Northwest Florida Regional Airport, Destin Airport, and Bob Sikes Airport, originates in Okaloosa County. Adjacent Counties east and west also have NAS Whiting Field and its six outlying fields, Peter Prince Airfield, and Defuniak Springs Airport.

## 6.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the City's Zoning Map and Future Land Use Map are provided in *Figures 6-8 and 6-10*, respectively, with the Maximum Mission F-35 Noise Contours. *Figures 6-9 and 6-11* show the west end of the City of Destin Zoning Map and Future Land Use Map, respectively, with the Noise Contours at a smaller scale to help delineate the areas within the high level noise areas (>65 dB). An one-half mile buffer is also shown on these figures to assist in planning proposed recommendations by providing flexibility in delineating geographical areas included near a 65 dB contour.

### 6.3.1 Impulse Noise

The nature of the impulse noise in the City is in the low to moderate ranges as previously shown in *Figure 6-2*. The

effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 6.3.2 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with a low flying helicopters and tiltrotors.

### 6.3.3 Radio Frequency Interference

The analysis for radio frequency interference in the City is a simple one. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the City is not responsible for regulating or licensing radio frequencies, there are steps the City can take to help minimize radio frequency interference. The City should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

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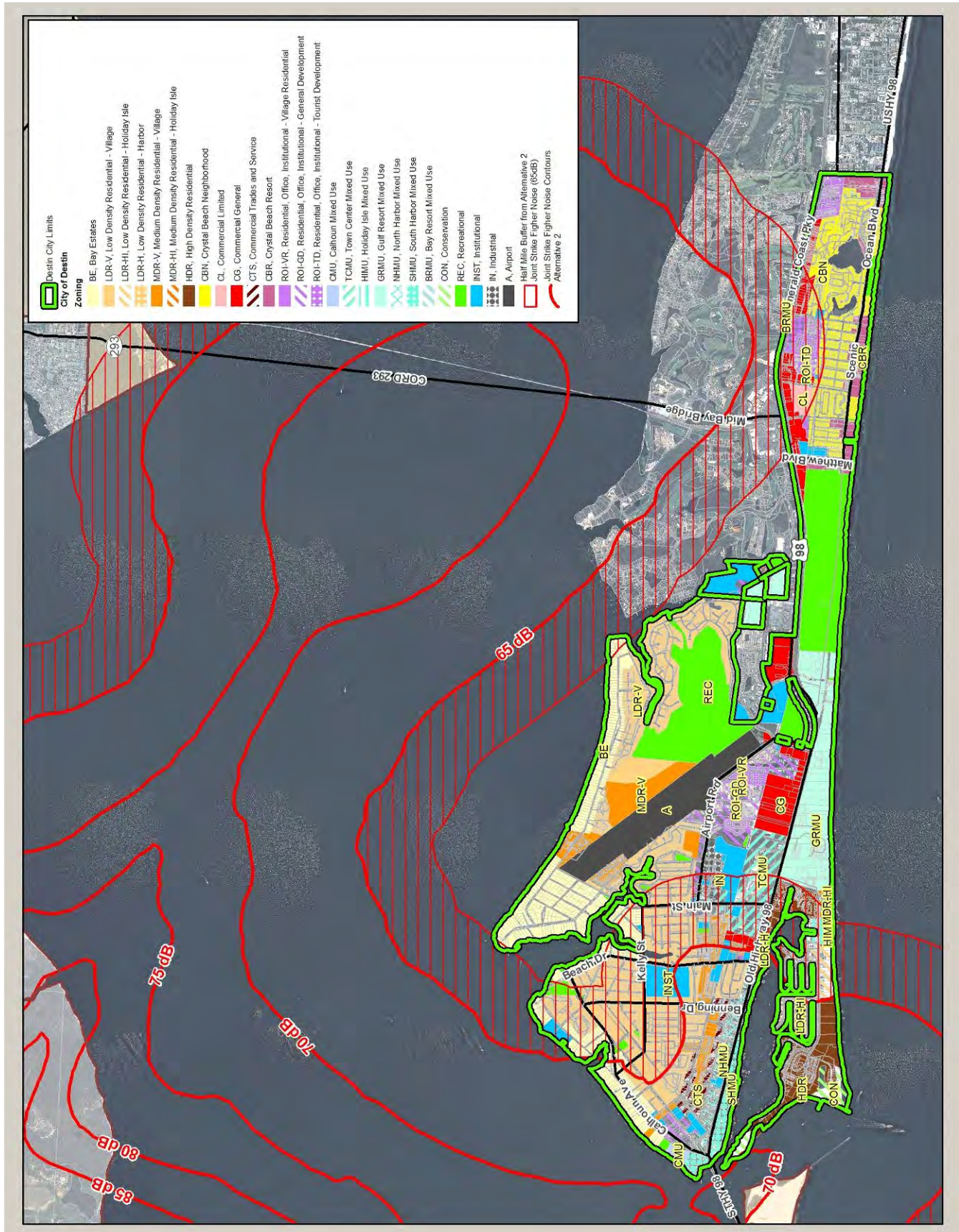


Figure 6-8: Destin Zoning Map with Maximum Mission F-35 Noise Contours





Figure 6-9: West End of City of Destin Zoning Map with Maximum Mission F-35 Noise Contours



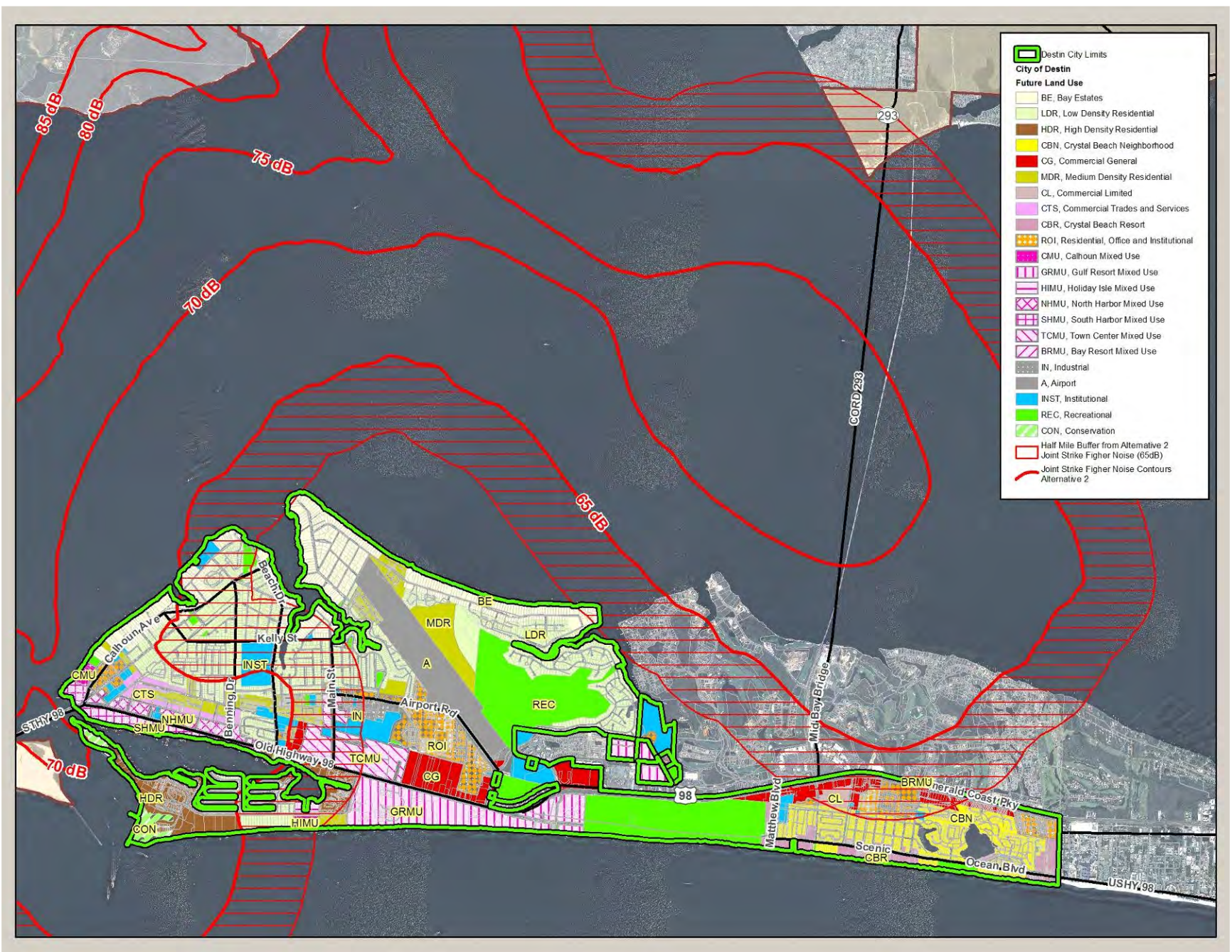


Figure 6-10: Destin Future Land Use Map with Maximum Mission F-35 Noise Contours



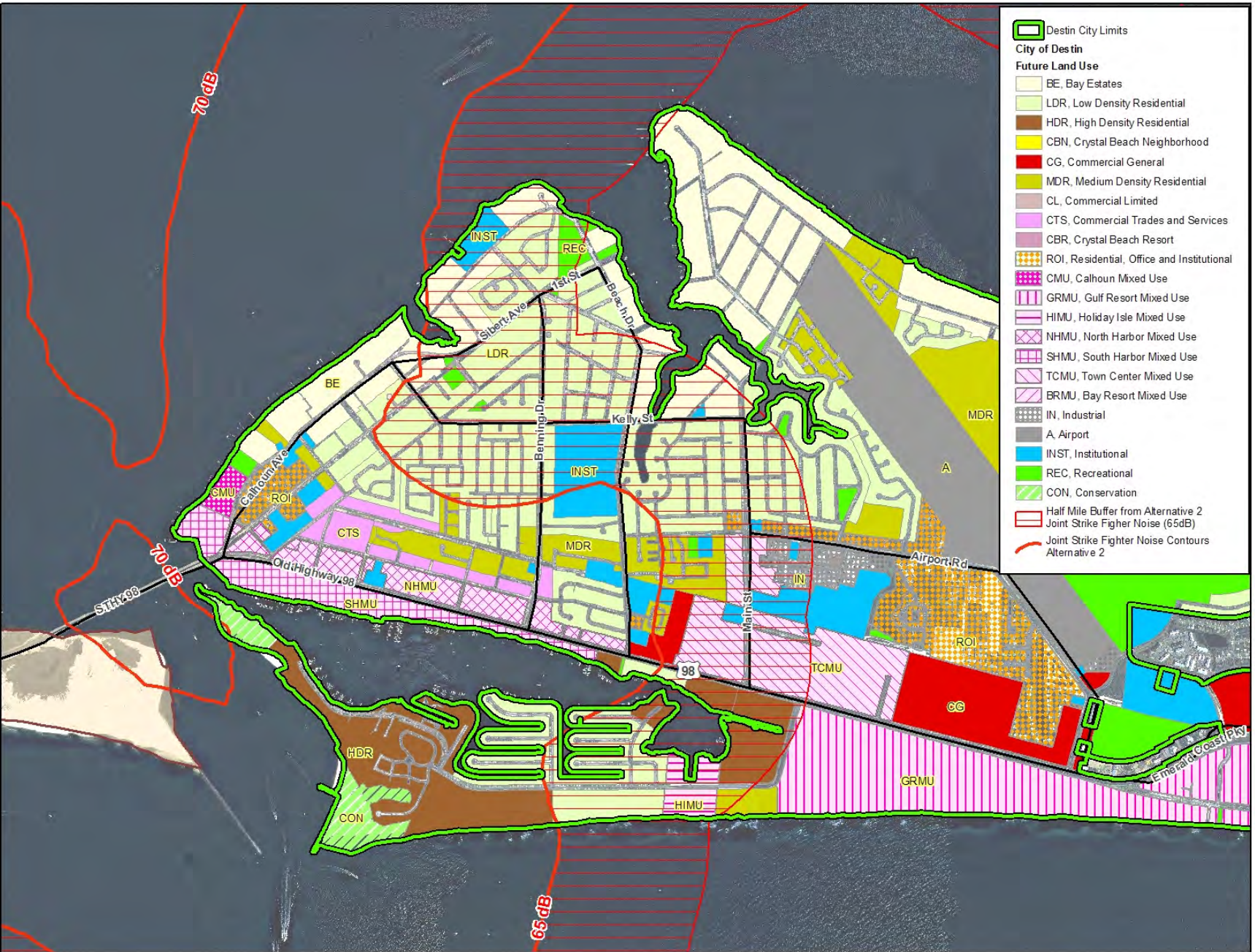


Figure 6-11: West End of City of Destin Future Land Use Map with Maximum Mission F-35 Noise Contours





## 6.3.4 Air Traffic Control

The Department of Defense is working with civilian aviation authorities to review airspace over Northwest Florida as the result of an increase in air traffic and anticipated addition of aircraft and training due to base realignment and closure. Of primary interest is the impact of the new F-35 JSF including up to 113 new aircraft and projections that flights over Eglin airspace alone are expected to rise from 192,000 to 427,000 by 2014.

For Okaloosa County, one area of concern is controlling private aircraft utilizing Destin Airport with respect to other aircraft in the area. The Eglin Main runway threshold is only 5.2 miles from the Destin Airport runway threshold. This close proximity creates a situation with high speed military jets quickly converging on general aviation aircraft from the Destin Airport. The current circumstances are unique enough that the FAA website has a specific course on how to use the Destin Airport and the complex airspace around the Airport (Part 93 Airspace).

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## 6.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the City on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the City. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the City's use:

- **DST 1:** Implement Construction Standards for New Construction to provide Noise Level Reduction Inside Structures Proposed Within Maximum Mission Noise Areas (>65 dB)
- **DST 2:** Implement Effective Disclosure Procedures Notifying Buyers and Leasers that Property is Near a Military Installation subject to Low Level Aircraft, Impulse Noises, and/or Other Military-Related Issues Identified
- **DST 3:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **DST 4:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **DST 5:** Upon Completion of the Supplemental EIS, Identify High Noise Areas on All City Maps, Preliminary Plats and Public Reports and Require Developers To Identify Same Information on All Proposed Projects
- **DST 6:** Study Required Implementation Steps to Retrofit Existing Public Buildings Within the High Noise Level Areas (>65 dB) with Sound Attenuation
- **DST 7:** Study Required Implementation Steps to Develop Retrofit Program for Sound Attenuation for Habitable Buildings in High Noise Level Areas (>65 dB)
- **DST 8:** Implement Comprehensive Plan Amendments Discouraging Additional Marine Navigation Channels or Land Cuts, Artificial Reefs, or Other Proposed Activities Increasing Marine Traffic in Controlled Firing Areas
- **DST 9:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **DST 10:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **DST 11:** Actively Participate in the Ongoing Department of Defense Airspace Study Currently Scheduled for Completion by December 2010
- **DST 12:** Continue Supporting Pursuit of Funding and Construction of the Destin Airport Control Tower
- **DST 13:** Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III) based on the compatibility issues identified. The different MIPA designations proposed in the Eglin JLUS are shown in [Table 6-1](#) and are summarized as follows (note not all apply to each jurisdiction):
  - ◊ **MIPA-I:** Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MIPA-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.
  - ◊ **MIPA-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MIPA-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF. MIPA-II's are not recommended for all jurisdictions participating in this study.
  - ◊ **MIPA-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation and strategic buffer areas along the northern boundary of the Eglin Reservation. MIPA-III's are focused on

Military Influence Planning Area (MIPA) Designation	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach &/ or Cruise Missile Corridor	0.5-1.0 mi Buffer
I	■	■	■			
II				■		
III					■	■

Table 6-1: Proposed MIPA Designations for Eglin JLUS. Note not all jurisdictions have each MIPA Planning Area recommended.





limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach MIPA-III's vary but the MIPA-III areas for the buffers are approximately one mile from the Eglin boundary.

*Figure 6-12* shows the location of the MIPA-III designation in Destin for the high aircraft noise area.

- **DST 13:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the City's use:

**DST 1: Noise Level Reducing Construction Standards.**

The City's building construction standards or requirements for development order approval through ordinance adoption or revisions should incorporate construction techniques improving noise insulation for residential and certain non-residential structures within the high noise level areas (>65dB). New construction for residential properties, public or quasi-public service buildings, or public assembly facilities proposed within the MIPA-II should be required to include sound insulation to reduce noise levels by at least 25 dB between 65 – 70 dB DNL contours and by at least 30 dB between 70 – 75 dB DNL contours.

*Appendix A – New Construction Acoustical Design Guide* includes examples of adopted guidelines for new construction to follow in an effort to insulate residences and other uses from aircraft noise. No residential development should be allowed (even with noise reduction) in areas with noise contours exceeding 75 dB DNL. Noise insulation construction standards can be reduced or waived for a parcel when residential development is shown to be clustered or located outside of maximum mission noise areas (>65 dB). Proposed developments should be required to provide acoustical standards or studies for developments within MIPA-II showing the noise level reduction associated with the sound attenuation proposed.

**DST 2: Implement More Effective Disclosure Procedures.**

The disclosure of high aircraft noise is a preventive strategy and important tool informing and forewarning prospective buyers or tenants of the expected impacts of an installation's interaction with neighboring communities. Mandatory disclosure ensures prospective homebuyers and leasers are knowledgeable about military operations and its poten-

tial impact on the community, subsequently reducing frustration and anti-military sentiment by those not adequately informed prior to entering into their purchase or rental agreement. This recommendation includes developing more effective disclosure procedures and broadens the geographical area where disclosure will be required as part of property transactions. Disclosure requirements should include all properties (residential and non-residential) within the Clear Zone, APZ I and II, and maximum mission and higher intensity impulse noise areas.

*Appendix C – Example Noise Disclosure Statement* provides an example disclosure statement for consideration and use in implementing this recommendation.

Property owner disclosure regarding the potential for safety and noise hazards requires development and adoption of an ordinance establishing requirements for the disclosure to foster more practical implementation and enforcement. More important is establishing the effective use of the disclosure in real world situations. The following recommendations are included as part of delivering a disclosure ordinance recommendation with practical implementation in mind:

- ◇ Adopt ordinance including real estate disclosure requirements for deeds, building permits, preliminary subdivision plats (information on the final plat is dictated by Florida Statute), property purchases, renters, resort properties, and new and existing home sales including sales by owner, builder, and developer.
- ◇ Notify all existing property owners in the Clear Zone and APZ I and II by certified mail of their current situation as owners of property within one or more of the areas. Specifically identify the areas related to each parcel owner. Following completion of the Supplemental EIS, notification of all property owners by certified mail owning property in high noise level areas (>65 dB) should also be completed.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort of the Florida Association of Realtors, Santa Rosa County Association of Realtors, Emerald Coast Okaloosa/Walton Association of Realtors to include sections concerning Safety and Noise on the standard Seller's Real Property Disclosure Statement endorsed by each respective group.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort encouraging state lawmakers to strengthen Florida Statute, Chapter 475 to require mandatory disclosure of properties within the Clear Zone, APZ I and II, and high level noise areas.



Figure 6-12: Proposed MIPA-II Area for Maximum Mission F-35 Noise Contours





- ◇ Seek assistance from the West Florida Regional Planning Council or other professionals of participating local jurisdictions to incorporate the disclosure statement requirements into a local ordinance and lobbying efforts with other participating local jurisdictions.
- ◇ Conduct public information meetings on the disclosure requirements. At a minimum, one meeting prior to the first reading of the ordinance and a second meeting following the adoption of the ordinance. The meetings would be in addition to the public meetings where the ordinances will be read and discussed with public comment periods.
- ◇ Require identification of the Clear Zone, APZ I, APZ II, High Noise Level Areas (>65dB), and High Intensity Impulse Noise Areas on all City maps and public reports and require developers to identify the areas on all proposed projects.
- ◇ Require sales offices used to market, sell, or lease properties, including pre-construction sales, which will be constructed or leased on lots located in a MIPA, must display a map in public view illustrating military installation property boundaries, and MIPA areas. This display requirement shall also apply to temporary realty sales offices. Pamphlets illustrating the same information appearing on the display map on paper not less than 8.5"x11" shall also be made available and placed in public view.

**DST 4: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◇ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◇ Provide links on the City's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries,

real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**DST 6: Retrofit Public Buildings Within 65dB and Greater Sound Contour With Sound Attenuation.** Based on best available information, there are three public buildings within the high noise level areas (>65dB) of the maximum mission noise contours in the City of Destin - Destin Elementary, Destin Community Center, and Destin Library.

Based on the impact this noise level has within the public buildings, it is recommended a further study to determine the highest and best means to retrofit the buildings with noise attenuation elements such as insulation, windows, and associated items. Specific objectives should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

Public facilities within the maximum mission noise contours (MIPA-II) include Destin Elementary School, Destin Community Center, Destin Library.

**DST 7: Develop Retrofit Program for Sound Attenuation of Existing Occupied Buildings in High Noise Level (>65 dB) Areas.** In an effort to alleviate high sound levels within existing structures, it is recommended to study a development and implementation Assistance Program for sound reduction for private property owners to retrofit existing structures through efforts similar to those described in the previous sub-section for retrofitting existing public buildings. The goal for this program would include achieving noise reductions within dwellings and other structures in areas where the maximum mission noise contours exceed 65 dB. Specific objectives should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. Noise areas exceeding 75 dB



are not compatible for residential uses so a NLR for residential use above this noise contour is not recommended. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

The DNL noise reduction goal in habitable rooms can be supplemented by a single-event noise level criterion. This Sound Exposure Level (SEL) reflects the annoyance associated with individual flyovers because of activity interference. The SEL goal is 65 dB in general living spaces and 60 dB in bedrooms and television viewing rooms. These criteria should only be applied to homes within the maximum mission noise contours (>65 dB), not to homes outside the 65 dB DNL contour line. To use the SEL interior noise criteria, the outside noise exposure level is compared to the interior goal. For example, if a dwelling were between the SEL contour boundaries of 85 to 90 dB, then the required NLR to achieve 60 dB in a bedroom would be 30 dB with the conservative upper bound of the noise zone typically used to set NLR goals.

The proposed NLR Assistance Program should include the creation of a grant program designed to reimburse property owners within the high noise level areas (>65 dB) of the maximum mission noise contours up to a certain dollar amount or percentage of costs for implementing acceptable sound attenuation steps. The program should be voluntary and include the execution of a Hold Harmless Agreement by the property owner. *Appendix B – Noise Reduction Standards for Insulating Structures Exposed to Aircraft Operations* contains two examples of policies and procedures available to guide the recommended NLR Assistance Program.

**DST 8: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.** Formalize a policy to include military participation in its development review and planning process. This should include a formal communication process between the City and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with City staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and City Council. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical

Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

**DST 11: Continue Pursuing Funding Construction of the Destin Airport Control Tower.** Over the past several years there have been efforts to apply to the Federal Aviation Administration (FAA) for funding the design and construction of the control tower at Destin Airport. The City should continue its support of an application to the FAA documenting the benefit anticipated by the construction of the tower. The City should also continue supporting ongoing campaigns for discretionary funding at the state and federal levels to design and construct the tower.

**DST 12: Establish Different MIPA Designations.** Establishing Military Influence Planning Areas (MIPAs) as geographic planning areas established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIPA recognizes the existence and mission of a military installation within a community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the public
- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses
- More accurately identify areas affected by military operations
- Create compatible mix of land uses

*Table 6-2* has been created based on the existing issues, baseline analysis, and industry standards regarding joint land use between military installations and private lands. This table and *Table 6-3 - Implementation Plan Responsibilities and Timing*, are provided at the end of this section and intended to further guide the City into implementing the recommended strategies.

**DST 13: Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.** There are potential military impacts on civilian land, facilities, and citizens. There are also





potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Planning Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels:  $\geq 65$ -69; 70-74; 75-84;  $\geq 85$
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

## **Comprehensive Plan Military Influence Planning Area (MIPA) Subelement Goals, Objectives, and Policies-**

Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

## **Identify Policies to Implement Each Objective, including:**

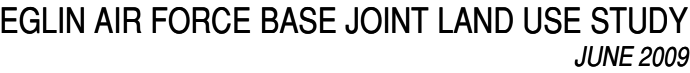
- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezoning
  - ◊ Establish Military Influence Planning Area Lands (MIPA) Zoning Overlay District:






- ⇒ Permitted, Conditional, and Prohibited Land Uses  
( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
- ⇒ Height Regulations
- ⇒ Outdoor Lighting Regulations
- ⇒ Development Review Procedures:
  - + Ex-Officio Military Representation on Planning Board
  - + Early Notification
  - + Effectuating Timely Participation and Response
  - + Conflict Resolution Mechanisms
- ◇ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
- ◇ Restrict Use Of Radio Frequency Spectrum
- ◇ Bands 5.4 -5.9 Ghz
- ◇ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◇ Special Issues
- ◇ Small Area Land Use Studies
- ◇ Public Awareness
- ◇ Web-Site Public Awareness
- ◇ Public Notice Requirements In Development Review Process
- ◇ Identify When Moa Impacted
- ◇ Street Signage (Military Operations Area)
- ◇ Inform Public of Noise Zone Revisions
- ◇ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◇ Revisions to Construction Standards to Address Noise Attenuation
- ◇ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◇ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◇ Revisions to Instrumentation and/or Physical Orientation
- ◇ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◇ Funding for Implementation

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**Legend:**

	Land use and related structures are not normally compatible and should be prohibited
	Land use and related structures are generally compatible with noted restrictions
	Land uses and related structures are normally compatible without restrictions

(#.#) Indicates maximum Floor Area Ratio (FAR) for the land use identified

**Notes:**

- 1 Maximum Density: 1-2 du/acre
- 2 "Other Uses" includes apartments, group quarters, residential hotels, and transient lodging
- 3 Maximum of 25 occupants per acre and approval is subject to review.
- 4 Maximum of 50 occupants per acre and approval is subject to review.
- 5 No clubhouse
- 6 No accessory units - e.g., no passenger terminals and major above ground electrical transmission lines in APZ I
- 7 No chapels
- 8 No activity which produces smoke, glare, bird attractants, or involves explosives.
- 9 Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 10 Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 11 Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 12 If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
- 13 No buildings.
- 14 Land use compatible provided special sound reinforcement systems are installed.
- 15 Residential buildings require a NLR of 25.
- 16 Residential buildings require a NLR of 30.
- 17 Residential buildings not permitted.
- 18 Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn by personnel.



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ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementation Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
DST 1	Implement Noise Level Reduction Construction Standards	6-17	✓					City of Destin	Eglin JLUS Policy Committee & TAG	✓			
DST 2	Establish Effective Disclosure Procedures	6-17	✓			✓		City of Destin	Eglin JLUS Policy Committee & TAG	✓			✓
DST 3	Distribute Educational Handouts on Radio Frequency	6-16				✓		Eglin AFB	City of Destin	✓			
DST 4	Implement Public Awareness Measures	6-19	✓					-	City of Destin & Eglin AFB				✓
DST 5	Upon Completion of the Supplemental EIS, Identify High Noise Area on Public Documents	6-16						City of Destin	Private Party Submittals	✓			
DST 6	Study Required Implementation Steps to Retrofit Existing Public Buildings Within the High Noise Level Areas (>65 dB) with Sound Attenuation	6-19	✓				✓	City of Destin	Eglin JLUS Policy Committee & TAG		✓		
DST 7	Study Required Steps to Develop Retrofit Program for Sound Attenuation for Occupied Buildings in High Noise Level Areas (>65 dB)	6-19	✓					City of Destin	Eglin JLUS Policy Committee & TAG		✓		
DST 8	Implement Comp Plan Amendments Discouraging Additional Navigational Channels or Land Cuts, Artificial Reefs, or Other Activities	6-18					✓	City of Destin	Okaloosa, Santa Rosa & Walton Counties		✓		
DST 8	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	6-20				✓		City of Destin	Eglin JLUS Policy Committee & TAG	✓			
DST 9	Limit Object Heights Regarding Potential Conflicts	6-16					✓	City of Destin	Eglin AFB	✓			
DST 10	Participate in the Ongoing Department of Defense Airspace Study	6-16				✓		Eglin AFB	City of Destin	✓			
DST 11	Continue Supporting Pursuit of Funding and Construction of the Destin Airport Control Tower	6-20					✓	City of Destin	-				✓
DST 12	Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III)	6-20	✓					City of Destin	-	✓			
DST 13	Update City's Comprehensive Plan and Land Development Code	6-20	✓					City of Destin	Eglin JLUS Policy Committee & TAG	✓			

Table 6-3: Implementation Plan Responsibilities and Timing

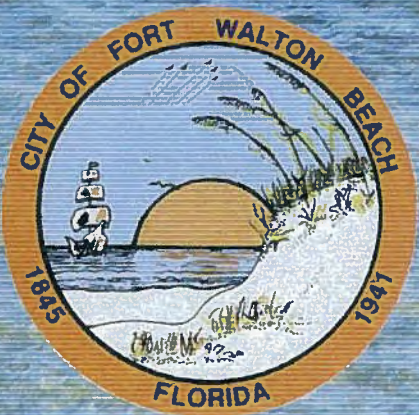


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## SECTION 7 - FORT WALTON BEACH



### Section Contents

Section No.	Title	Page No.
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## 7.1 INTRODUCTION

Fort Walton Beach is in Okaloosa County and, as of 2004, the population estimate for Fort Walton Beach was 19,992, recorded by the U.S. Census Bureau.

As of the census of 2000, there were 19,973 people, 8,460 households, and 5,419 families residing in the City. The population density was 2,683.0 per square mile.

There were 8,460 households out of which 26% had children under the age of 18 living with them, 47% were married couples living together, 13% had a female householder with no husband present, and 36% were non-families. 29% of all households were made up of individuals and 10% had someone living alone who was 65 years of age or older. The average household size was 2.33 and the average family size was 2.85.

In the city the population was spread out with 22% under the age of 18, 9% from 18 to 24, 30% from 25 to 44, 23% from 45 to 64, and 16% who were 65 years of age or older. The median age was 39 years.

*Figure 7-1* shows Fort Walton Beach's city limits.

## 7.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from Okaloosa County and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the County were identified and explained. *Appendix D—Eglin JLUS Public Presentations* provides copies of this information plus all public presentations included with this study.

The following are the issues identified for the City with respect to land use encroachments:

- Eglin Perimeter Boundary Development
- Impulse Noise
- Low Level Helicopter and Tiltrotor Training Area
- Height of Objects
- Lighting
- Radio Frequency
- Controlled Firing Areas

Each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

### 7.2.1 Eglin Perimeter Boundary Development

Development near the boundary of a military reservation can create security concerns, promote excessive light during nighttime hours, and encourage other encroachments onto the reservation. For Fort Walton Beach, development around Eglin's perimeter is mostly isolated to the west side of the City's Industrial Park with the exception of a small residential area to the north. This issue is managed easiest by recognizing and implementing necessary land use controls.

### 7.2.2 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

Fort Walton Beach includes areas in two of the three (Low and Moderate) categories for impulse noise as shown in *Figure 7-2*.

### 7.2.3 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in *Figure 7-3*. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and Naval Air Station Whiting Field.

### 7.2.4 Height of Objects

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for



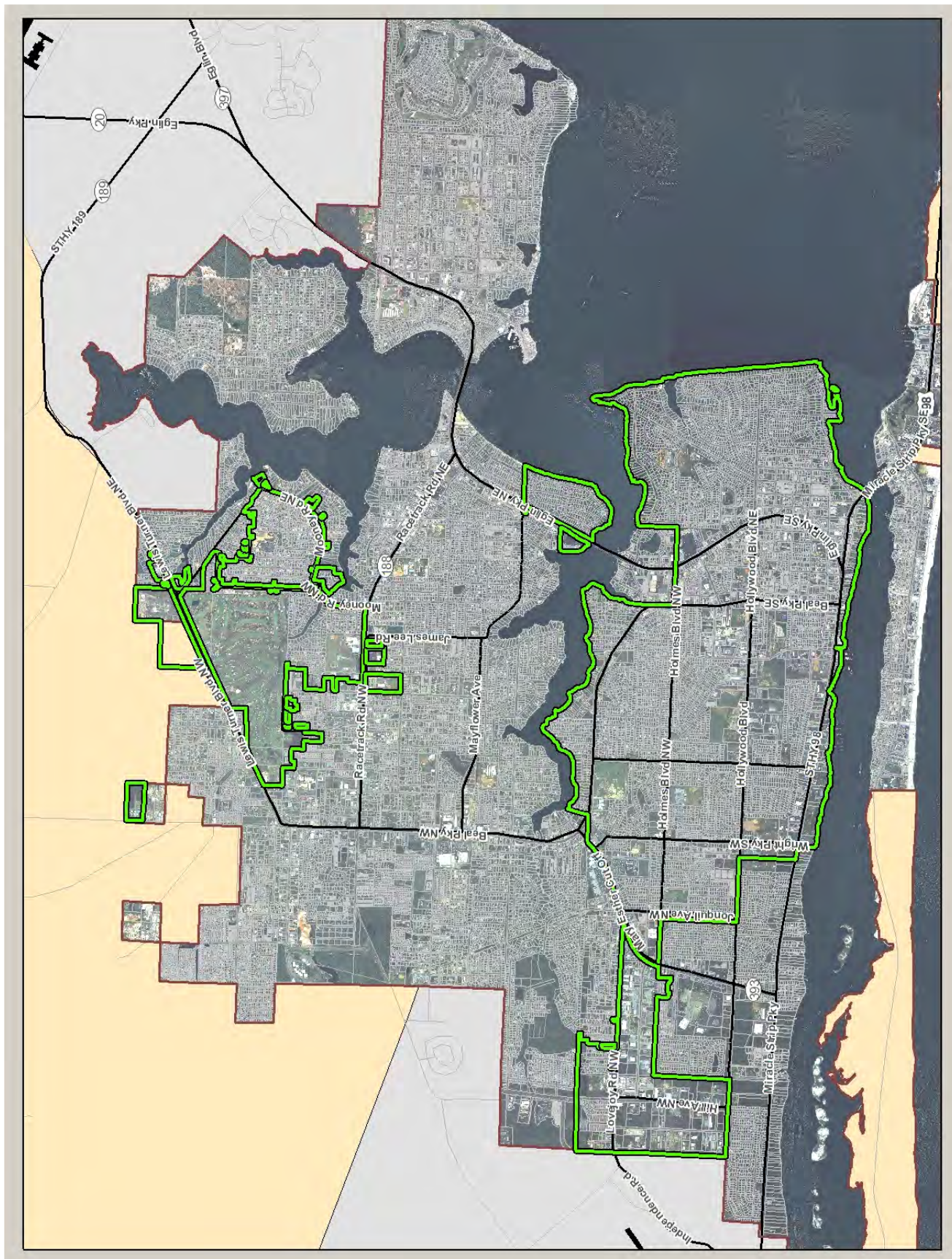


Figure 7-1: Fort Walton Beach City Limits







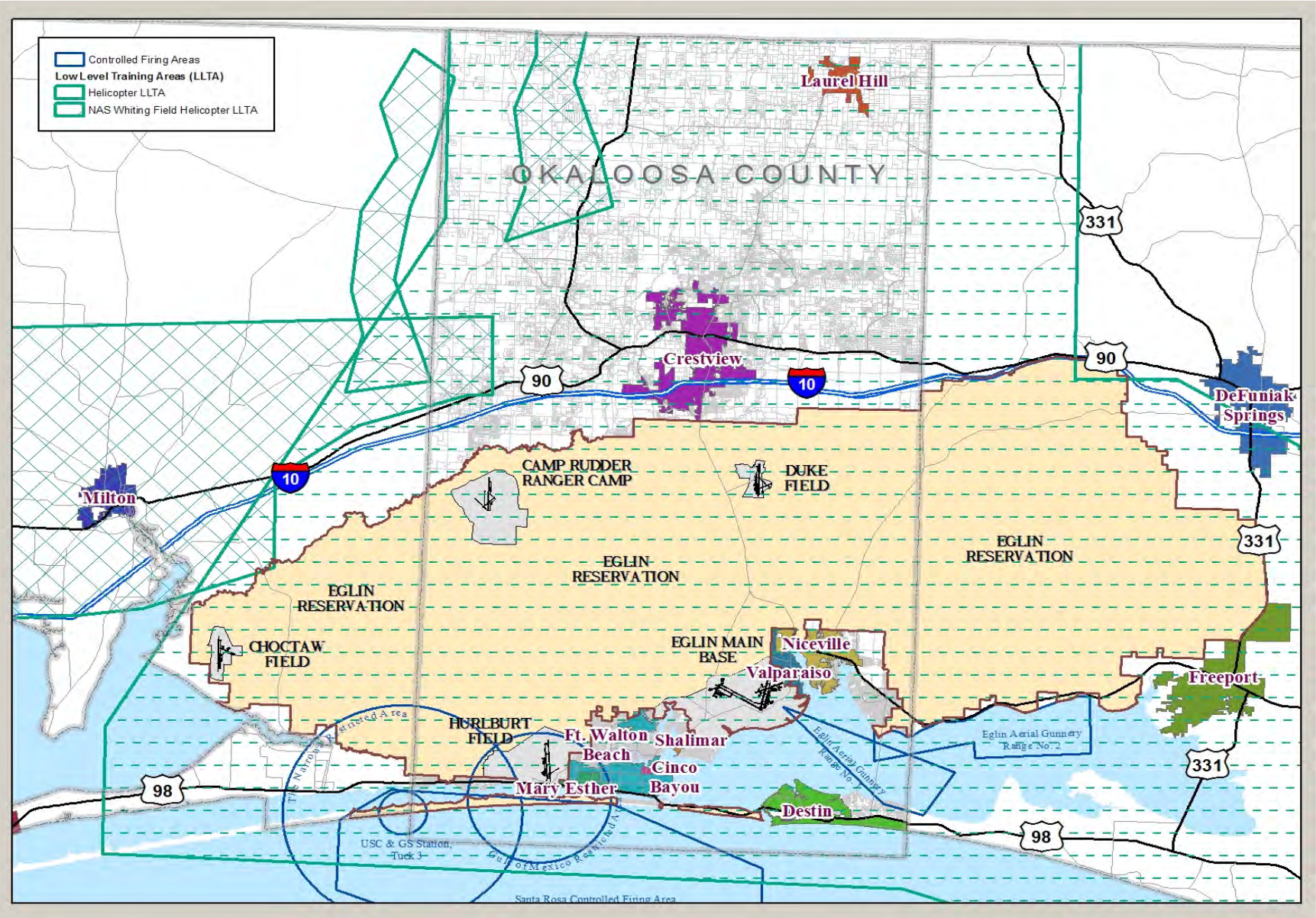


Figure 7-3: Low Level Helicopter and Tiltrotor Training Area Across Okaloosa County including Fort Walton Beach





prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPs have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure that there were no navigation problems. *Figure 7-4* identifies the maximum building heights resulting from this study.

## 7.2.5 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns. Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. *Figure 7-5* shows the increase in artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population.

## 7.2.6 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high

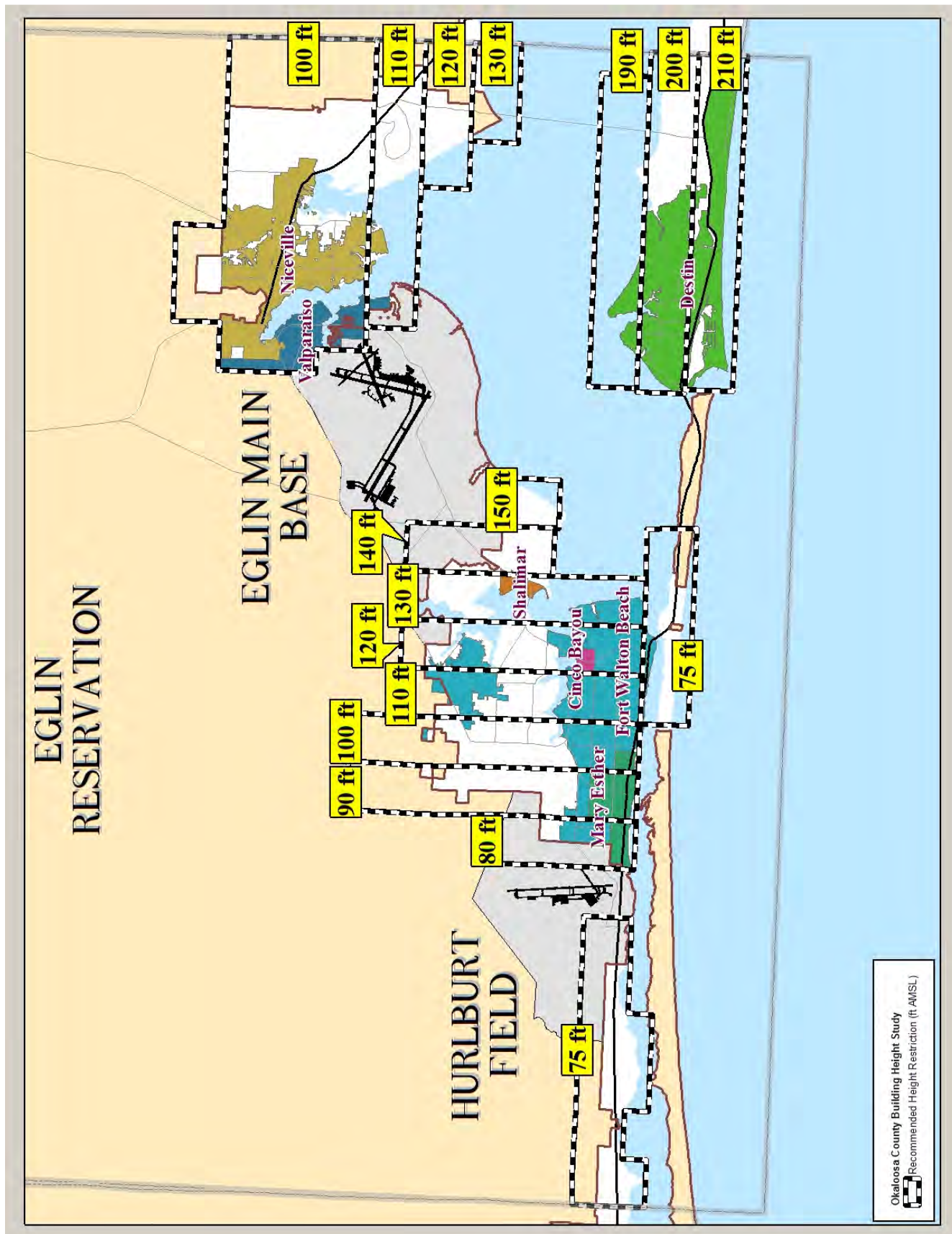


Figure 7-4: Fort Walton Beach Maximum Building Heights (Air Force, 2006)



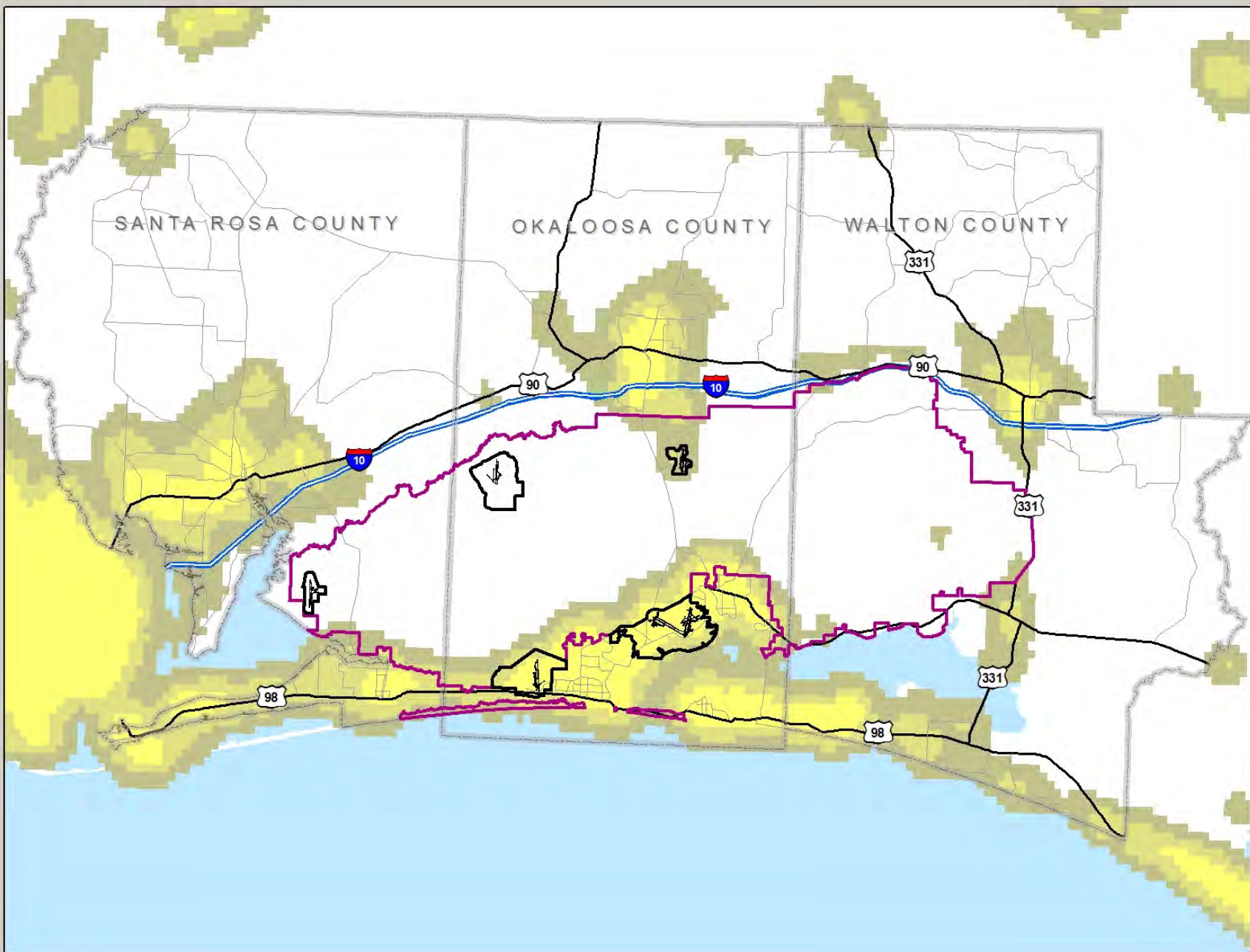


Figure 7-5: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)



frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

### 7.2.7 Controlled Firing Areas

According to the RAICUZ, there are 20 test sites associated with Santa Rosa Island, 11 of which are actively used in support of the test and training mission at Eglin. The missions at the test sites range from Command Centers that control the activation of flight termination systems for items being tested (Test Site A-3) to the launching of surface-to-air missiles such as the Air Intercept Missile and the Patriot missile (Test Site A-15). In the airspace above the island and seaward for three nautical miles is a Controlled Firing Area. [Figure 7-3](#) also includes the Controlled Firing Areas in the Fort Walton Beach Vicinity. These areas are defined airspace blocks that contain activities that would be potentially hazardous to nonparticipating aircraft.

Successful and safe completion of the mission on land and the adjacent waters requires the control of the airspace, water, and land that are part of the mission scenario. Access restriction ensures the safety of people not participating in the mission as well as maintains mission integrity. Restricting access becomes increasingly problematic as the number of residents and civilian boat traffic increase. Po-

tential changes to the island or shoreline and surrounding area could potentially lead to more increases in civilian and commercial boat traffic. As stated in the RAICUZ, these possible changes, such as construction of a pass through the non-federally owned portions of Santa Rosa Island or establishment of artificial reefs, would attract marinas and additional boats to the area. The associated increase in boat traffic would complicate access restriction measures and potentially cause safety concerns, mission delay, or cancellation of the mission.

## 7.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the City's Zoning Map and Future Land Use Map are provided in [Figures 7-6 and 7-7](#), respectively.

### 7.3.1 Eglin Perimeter Boundary Development

The area of the City within one mile of Eglin's boundary is almost at buildout with the exception of a few parcels in the City's Industrial Park and a few platted single-family residential lots. It is uncertain at this time if and when the City will annex additional lands within one mile of the Eglin boundary since the County has the infrastructure (water and wastewater) in place or readily available in these areas to support development.

### 7.3.2 Impulse Noise

The nature of the impulse noise in the City is in the low to moderate ranges as previously shown in [Figure 7-2](#). The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 7.3.3 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with low flying helicopters and tiltrotors.

### 7.3.4 Radio Frequency Interference

The analysis for radio frequency interference in the City is a simple one. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with



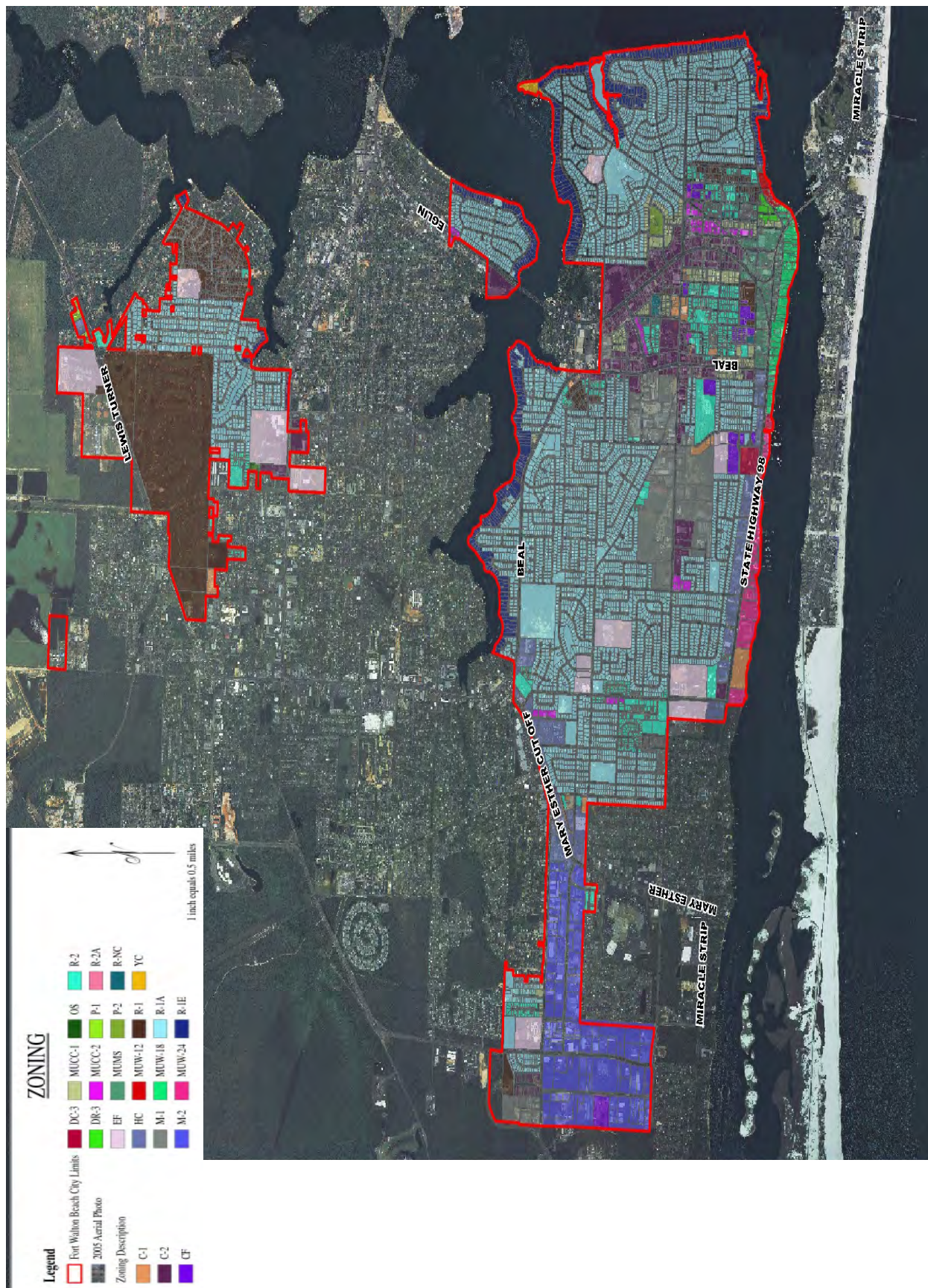


Figure 7-6: Fort Walton Beach Zoning Map



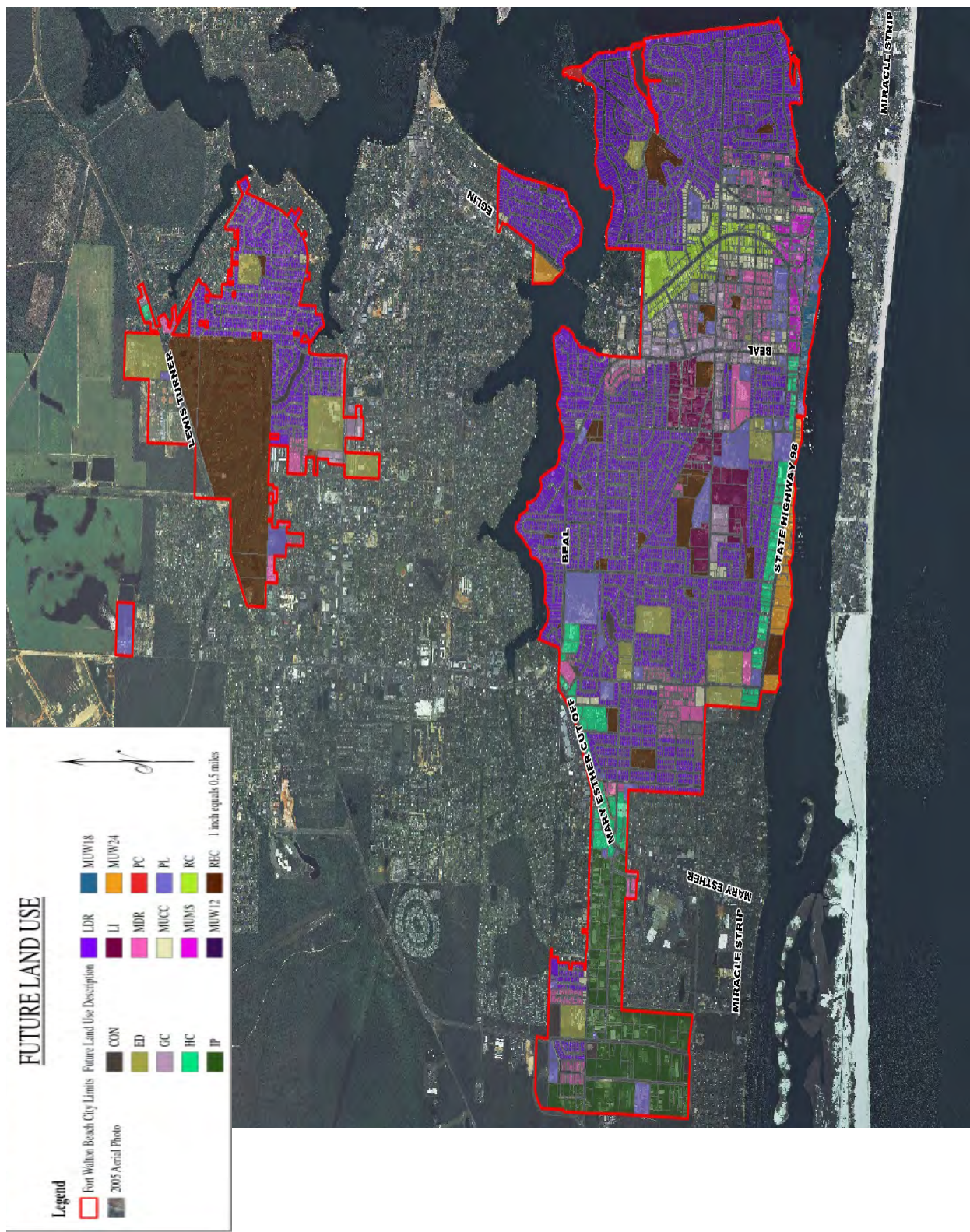


Figure 7-7: Fort Walton Beach Future Land Use Map





Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the City is not responsible for regulating or licensing radio frequencies, there are steps the City can take to help minimize radio frequency interference. The City should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

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## 7.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the City on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the City. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the City's use:

- **FWB 1:** Implement Lighting Ordinance to Avoid Glare and Reflection Within One Mile of the Eglin Boundary
- **FWB 2:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **FWB 3:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **FWB 4:** Implement Comprehensive Plan Amendments Discouraging Additional Marine Navigation Channels or Land Cuts, Artificial Reefs, or Other Proposed Activities Increasing Marine Traffic in Controlled Firing Areas
- **FWB 5:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **FWB 6:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **FWB 7:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the City's use:

**FWB 1: Implement Lighting Ordinance.** Evaluate and update outdoor lighting standards applicable to areas within one mile of the Eglin Boundary. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing

approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

### Community Wide Measures:

- ◇ Turn-off un-needed lights, e.g. unused parking lots
- ◇ Use appropriate levels of illumination
- ◇ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◇ Light patterns common to military aviation
- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary
- ◇ No outdoor lighting to illuminate golf courses/driving





- ◊ ranges, athletic fields/courts
- ◊ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◊ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

**FWB 3: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◊ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◊ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◊ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**FWB 5: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.** Formalize its policy to include military participation in its development review and planning process. This should include a formal communication process between the City and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of

an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with City staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and City Commission. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

**FWB 7: Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.** There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts



-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels:  $\geq 65$ -69; 70-74; 75-84;  $\geq 85$
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

**Comprehensive Plan Military Influence Area Subelement Goals, Objectives, and Policies-** Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Re-

gion's economy while protecting the quality of life within the three-county area.

- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

**Identify Policies to Implement Each Objective, including:**

- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezonings
  - ◊ Establish Military Influence Planning Area (MIPA) Zoning Overlay District:
    - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
    - ⇒ Height Regulations
  - ⇒ Outdoor Lighting Regulations
  - ⇒ Development Review Procedures:
    - + Ex-Officio Military Representation on Planning Board
    - + Early Notification
    - + Effectuating Timely Participation and Response
    - + Conflict Resolution Mechanisms
  - ◊ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
  - ◊ Restrict Use Of Radio Frequency Spectrum
  - ◊ Bands 5.4 -5.9 Ghz
  - ◊ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
  - ◊ Special Issues
  - ◊ Small Area Land Use Studies
  - ◊ Public Awareness
  - ◊ Web-Site Public Awareness





- ◇ Public Notice Requirements In Development Review Process
- ◇ Identify When Moa Impacted
- ◇ Street Signage (Military Operations Area)
- ◇ Inform Public of Noise Zone Revisions
- ◇ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◇ Revisions to Construction Standards to Address Noise Attenuation
- ◇ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◇ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◇ Revisions to Instrumentation and/or Physical Orientation
- ◇ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◇ Funding for Implementation

*Table 7-1* is provided as a guide for the City summarizing the proposed recommendations with an Implementation Plan Responsibilities and Timing assigned to each recommendation.

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ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementa- tion Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
<b>FWB 1</b>	Implement Lighting Ordinance	7-13					✓	City of Ft. Walton Beach	Eglin AFB, Eglin JLUS Policy Committee & TAG		✓		
<b>FWB 2</b>	Distribute Educational Handouts on Radio Frequency	7-13				✓		Eglin AFB	City of Ft. Walton Beach	✓			
<b>FWB 3</b>	Implement Public Awareness Measures	7-14				✓		City of Ft. Walton Beach	Okaloosa County & Eglin AFB				✓
<b>FWB 4</b>	Implement Comp Plan Amendments Discouraging Additional Navigational Channels or Land Cuts, Artificial Reefs, or Other Activities	7-13					✓	City of Ft. Walton Beach	Eglin JLUS Policy Committee & TAG		✓		
<b>FWB 5</b>	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	7-14				✓		Eglin JLUS Policy Committee & TAG	City of Ft. Walton Beach	✓			
<b>FWB 6</b>	Limit Object Heights Regarding Potential Conflicts	7-13					✓	City of Ft. Walton Beach	Eglin AFB	✓			
<b>FWB 7</b>	Update City's Comprehensive Plan and Land Development Code	7-14					✓	City of Ft. Walton Beach	Eglin JLUS Policy Committee & TAG	✓			

Table 7-1: Implementation Plan Responsibilities and Timing





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## SECTION 8 - LAUREL HILL

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## 8.1 INTRODUCTION

Laurel Hill is a city in north Okaloosa County, Florida. As of 2004, the population for Laurel Hill was 576, recorded by the U.S. Census Bureau.

As of the census of 2000, there were 549 people, 223 households, and 158 families residing in the city. The population density was 74.9 per square mile. There were 254 housing units at an average density of 80.9 per square mile.

There were 223 households out of which 31% had children under the age of 18 living with them, 50% were married couples living together, 17% had a female householder with no husband present, and 29% were non-families. 26% of all households were made up of individuals and 12% had someone living alone who was 65 years of age or older. The average household size was 2.46 and the average family size was 2.93.

In the city the population was spread out with 27% under the age of 18, 6% from 18 to 24, 28% from 25 to 44, 24% from 45 to 64, and 16% who were 65 years of age or older. The median age was 39 years.

*Figure 8-1* shows where Laurel Hill is located in northern Okaloosa County.

## 8.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Group (TAG) which includes representatives from Valparaiso and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 TAG meeting and the June 18, 2008 Public Open House, the issues for the City were identified and explained. *Appendix D—Eglin JLUS Public Presentations* provides copies of this information plus all public presentations included with this study.

The following are the issues identified for the City with respect to land use encroachments:

- Low Level Helicopter and Tiltrotor Training Area
- Height of Objects
- Outdoor Lighting
- Cruise Missile Corridor
- Radio Frequency Interference

Each issue listed above is described further in the following

subsections with descriptions and graphics providing information on how military activities influence the public.

### 8.2.1 Low Level Helicopter and Tiltrotore Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in *Figure 8-2*. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and Naval Air Station Whiting Field.

### 8.2.2 Height of Objects

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPS have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle



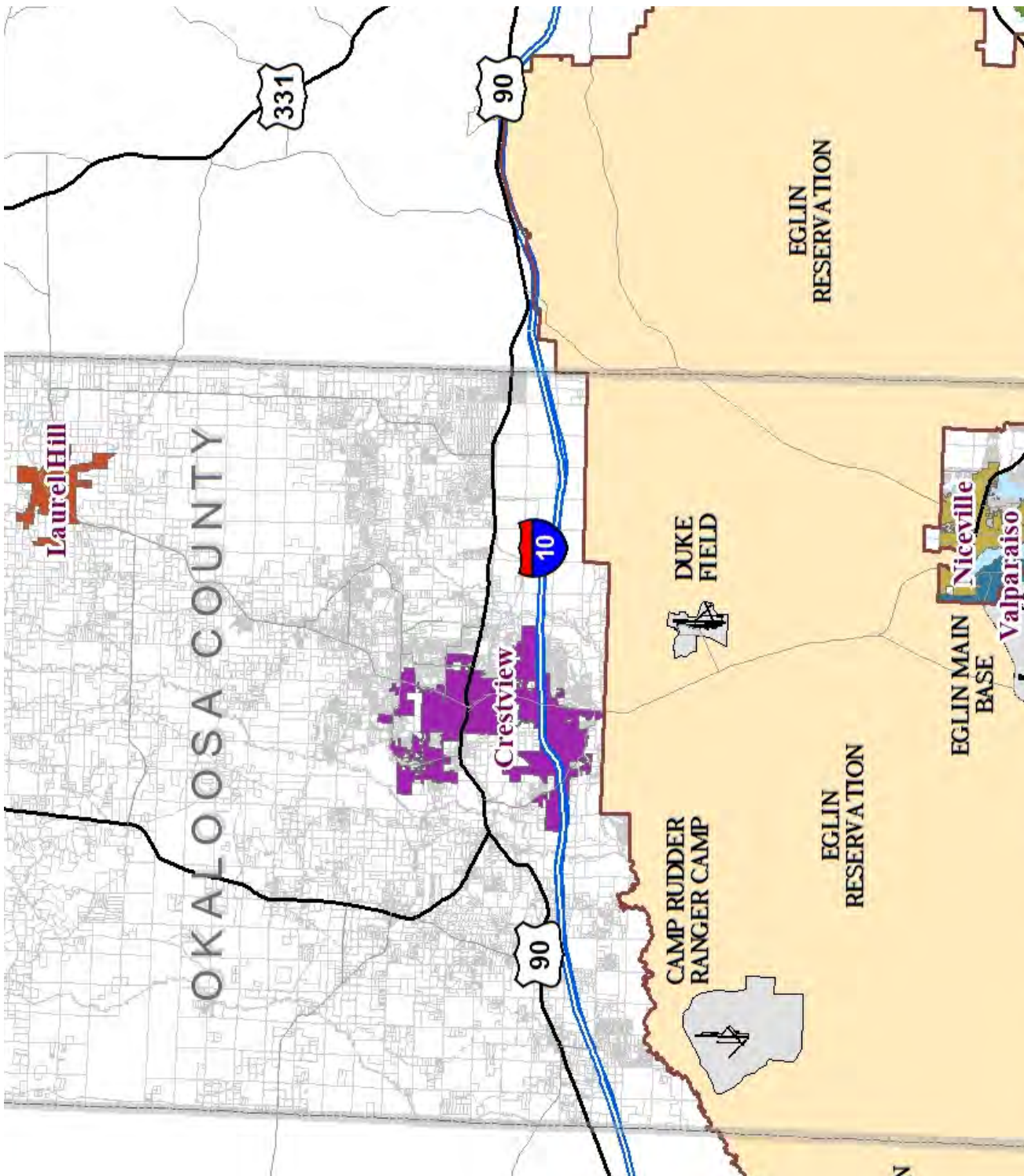


Figure 8-1: Laurel Hill is located in northern Okaloosa County



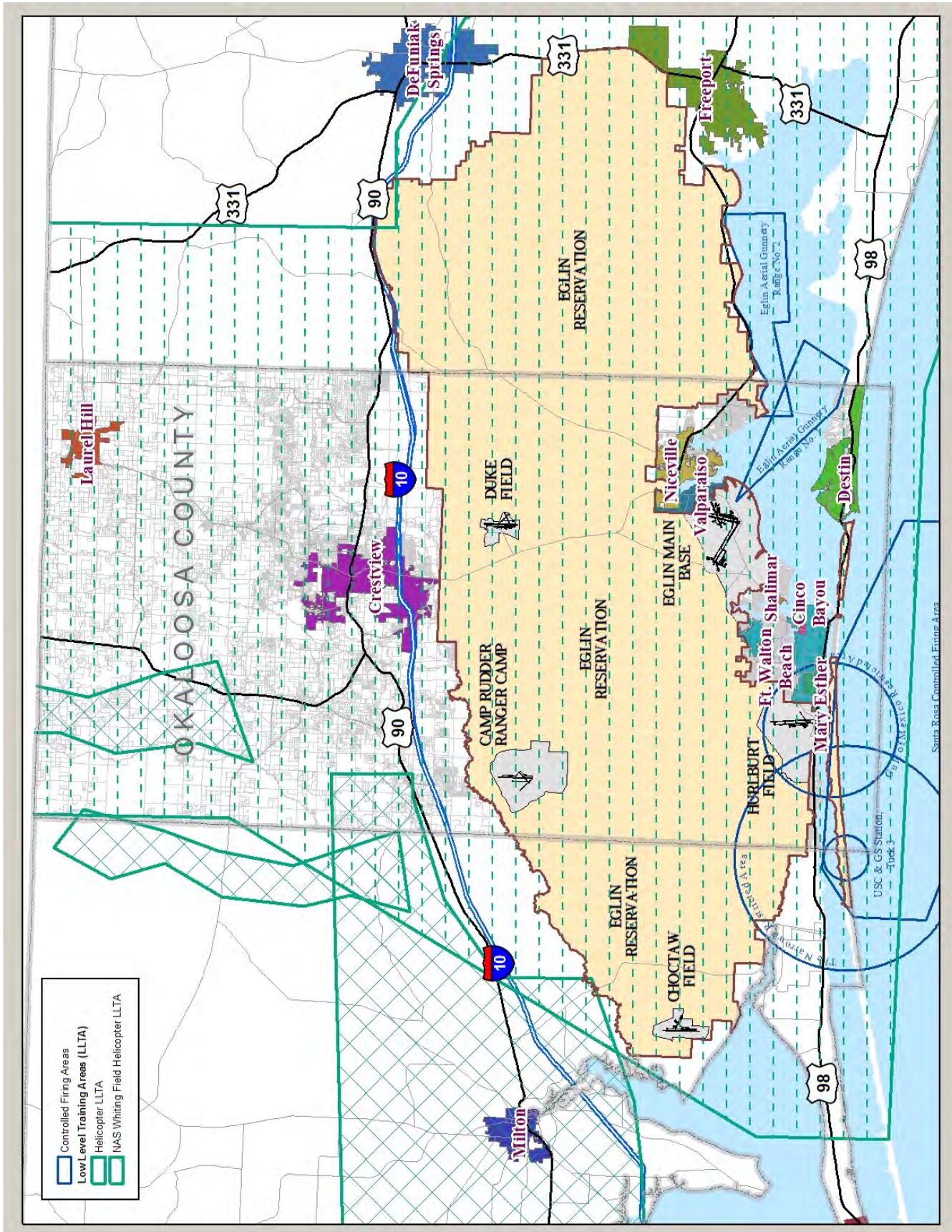


Figure 8-2: Low Level Helicopter and Tiltrotor Training Areas



down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

*Figure 8-3* provides height limits based on military operations training routes.

## 8.2.3 Outdoor Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas

not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. *Figure 8-4* shows the increase in artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population.

## 8.2.4 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz band width would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

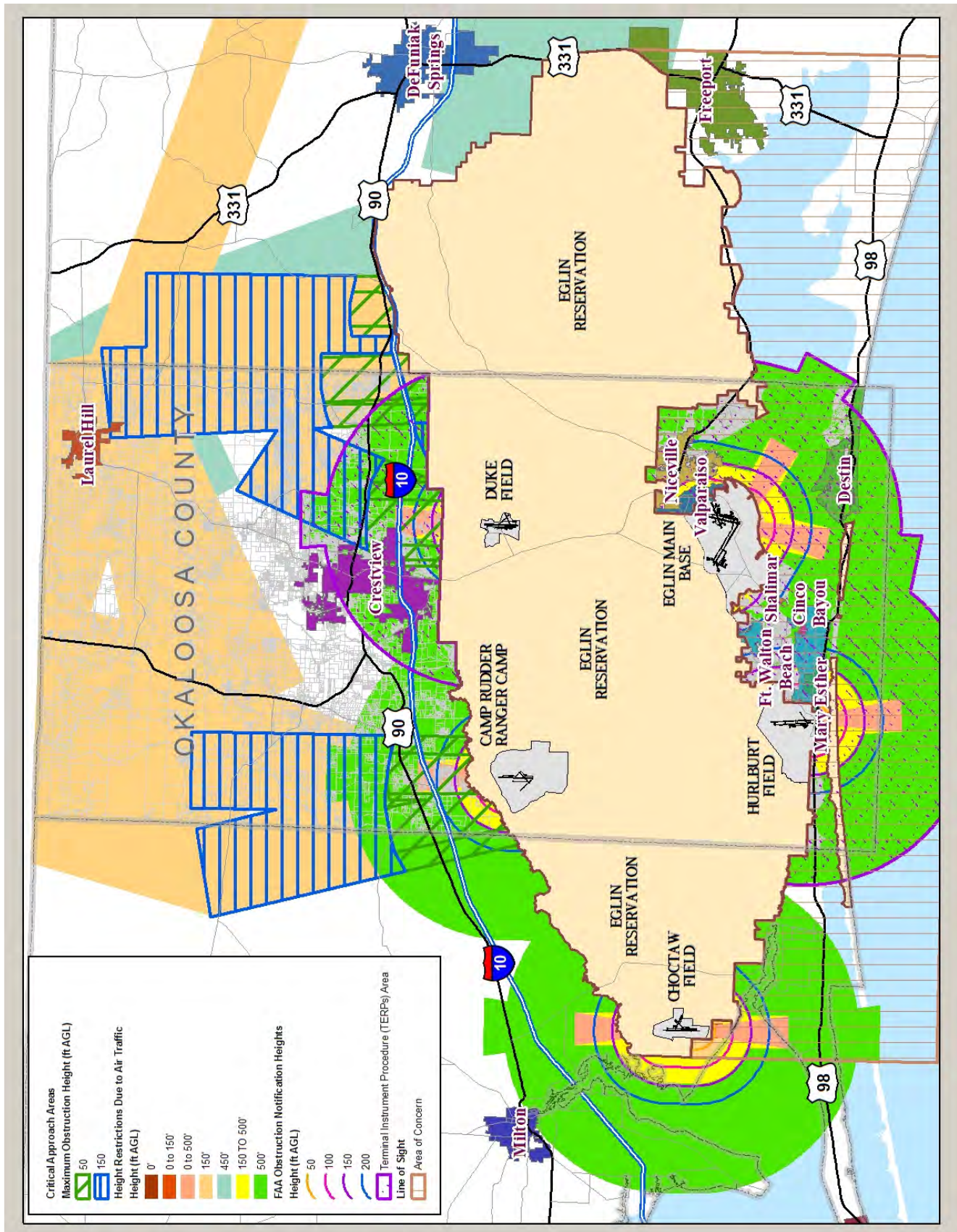


Figure 8-3: Maximum Obstruction Heights For Other Military Training Routes



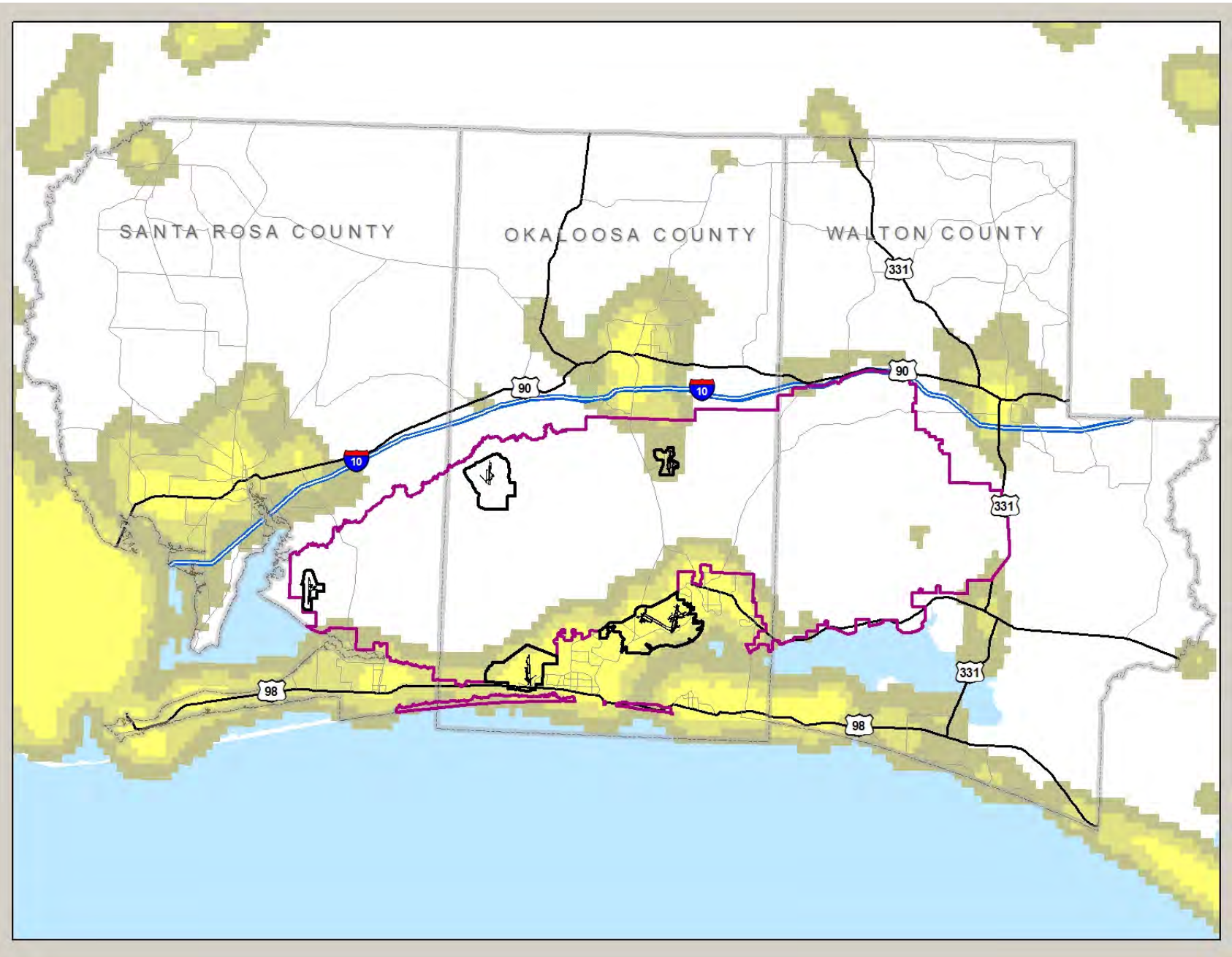


Figure 8-4: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)

## 8.2.5 Cruise Missile Corridor

Tomahawk® cruise missile testing and training is conducted at Eglin AFB within existing designated IR Military Training Routes (MTRs). The Tomahawk® missile is a long-range subsonic cruise missile used for striking high value or heavily defended land targets. It is launched from U.S. Navy surface ships and submarines (U.S. Navy, 2004). Cruise missiles are self-propelled and guided through on-board global positioning systems. During test and training activities at Eglin AFB, the Tomahawk® cruise missile flies between the altitudes 500 feet above ground level (AGL) to 4,000 feet above MSL. The areas in which cruise missiles are flown are depicted as "Cruise Missile Corridor" in *Figure 8-5*.

The Tomahawk® cruise missile flies much like an aircraft and requires similar obstruction-free flight paths. Since the cruise missile flies between 500 feet AGL to 4,000 feet above MSL, objects or structures taller than 450 feet can cause problems and should be minimized as much as possible.

To provide safe operating conditions for missions involving the cruise missile, the Commander of AAC at Eglin AFB follows criteria established to minimize risk. The Range Commanders Council, Risk and Lethality Commonality Team of the Range Safety Group (2000), developed common risk criteria (Standard 321-000, 2000) for national test ranges and Major Range and Test Facility Bases, of which Eglin AFB is one. The criteria apply to debris generated from numerous missions including those involving cruise missiles. The criteria define the acceptable risk to the general public as a result of flying cruise missiles within the designated IR route. To effectively minimize risk to the general public, population density underneath the cruise missile corridor would remain low. This ensures that if a missile were to malfunction or break apart, the likelihood of debris coming into contact with a person on the ground would be lessened. The need to maintain low population density within the cruise missile corridor is fundamental to continuing this part of the Eglin AFB mission.

## 8.3 ANALYSIS

### 8.3.1 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with low flying helicopters

and tiltrotors.

### 8.3.2 Radio Frequency Interference

The analysis for radio frequency interference in the City is a simple one. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the City is not responsible for regulating or licensing radio frequencies, there are steps the City can take to help minimize radio frequency interference. The City should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

### 8.3.3 Cruise Missile Corridor

To identify the area in which low population densities would be ideal and where incompatible development would cause the most impact, the Northwest Florida Greenway Corridor Study Area was delineated (*Figure 8-6*). The goals of the corridor study area are to promote the sustainability of the military mission, to preserve the high biodiversity of the area, to enhance outdoor recreation, and to support the economic health of the area. It consists of federally and state managed lands, conservation organization lands, and



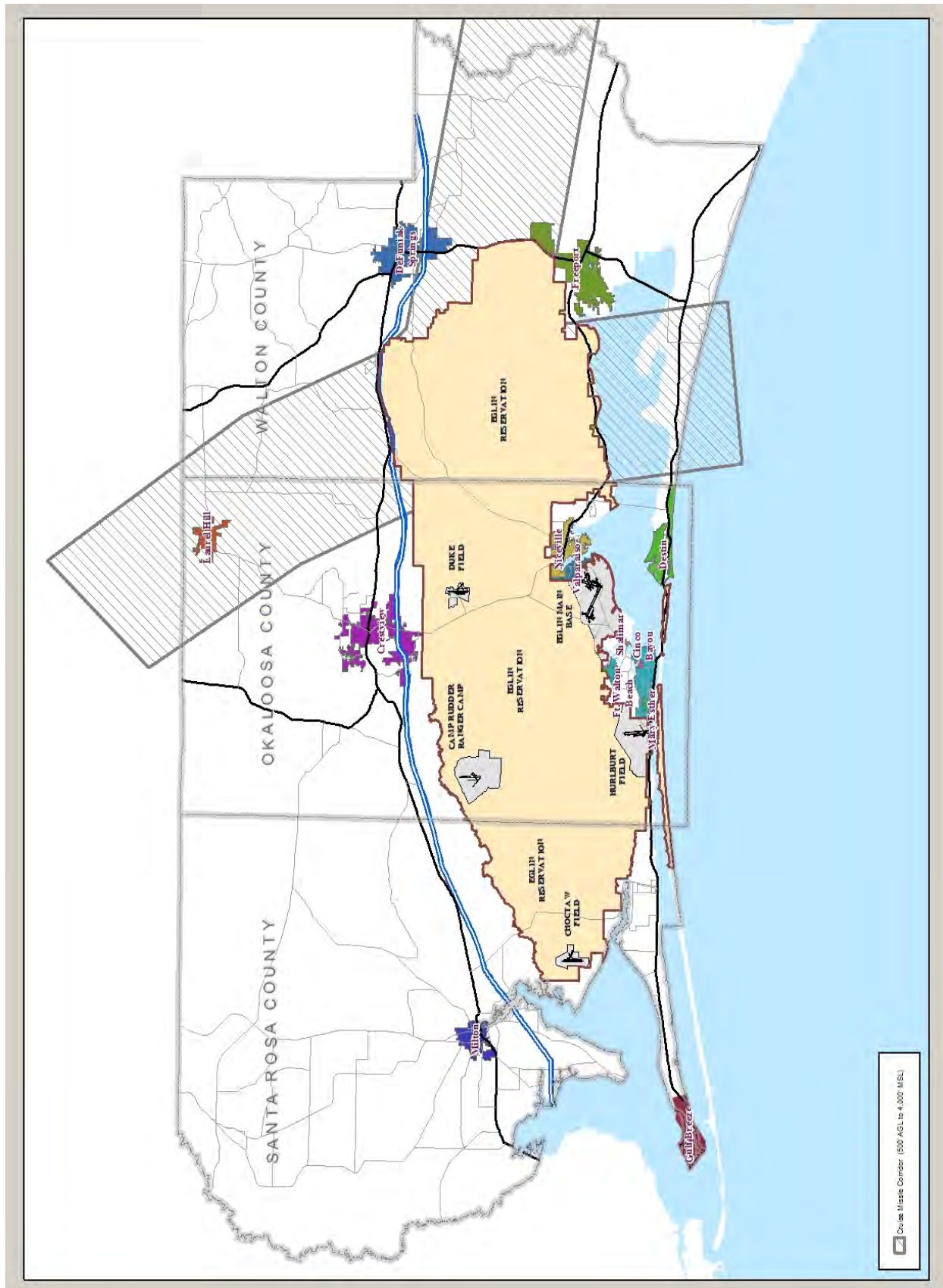


Figure 8-5: Cruise Missile Corridors

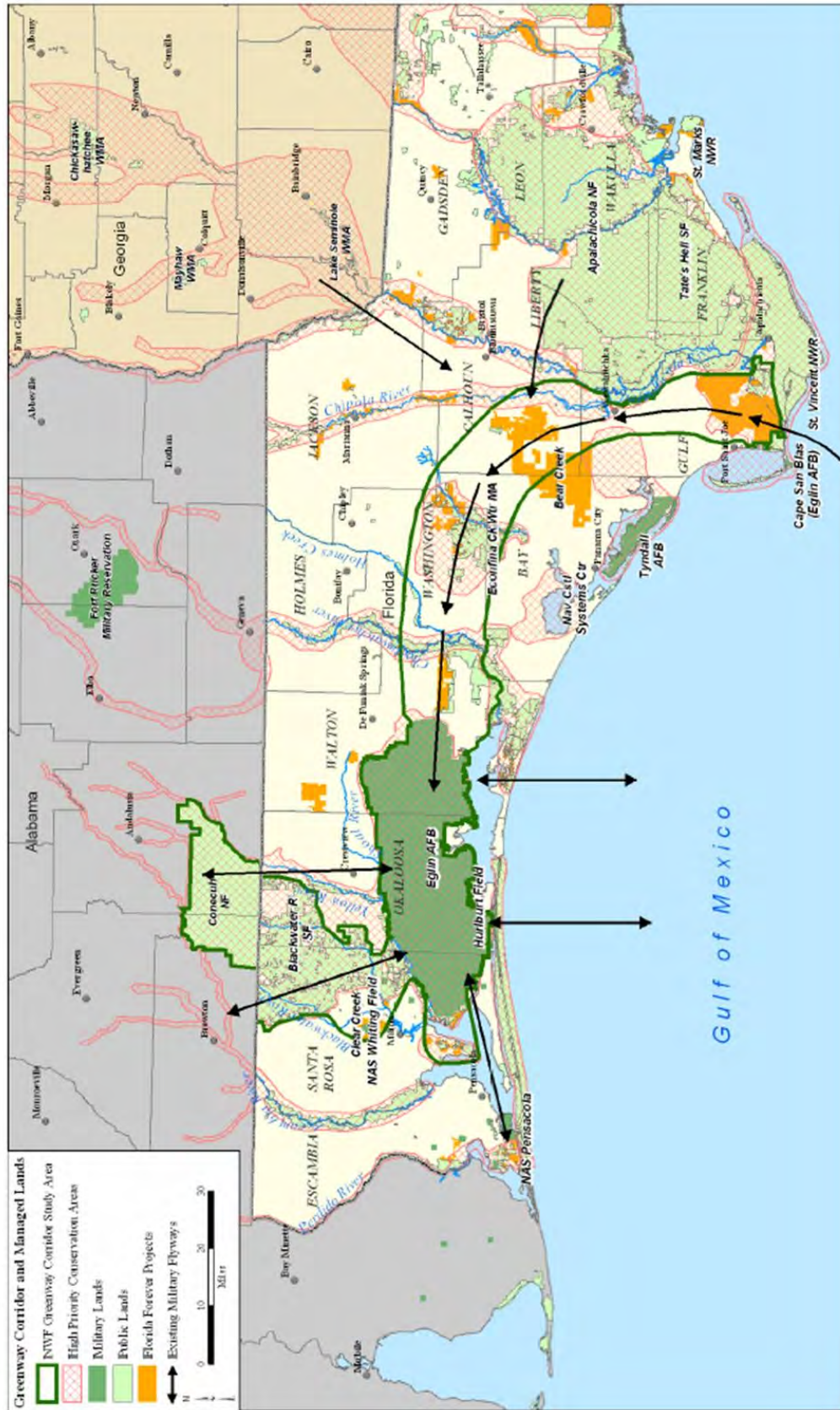


Figure 13-8: Northwest Florida Greenway Corridor



private lands. By delineating the corridor and agreeing to work together, the federal agencies, state agencies, conservation organizations, and local city and county governments committed to furthering the goals of the Northwest Florida Greenway Corridor Study Area.

## 8.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the City on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the City. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the City's use:

- **LHL 1:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **LHL 2:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **LHL 3:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **LHL 4:** Identify Cruise Missile Corridors on All City Maps, Preliminary Plats and Public Reports and Require Developers To Identify Same Information on All Proposed Projects
- **LHL 5:** Conduct Small Area Study For The Low Level Approach Zone and Cruise Missile Corridor
- **LHL 6:** Support and Promote State and Federal Land Acquisition in Florida Greenway Program
- **LHL 7:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **LHL 8:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **LHL 9:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the County's use:

**LHL 1: Implement Lighting Ordinance.** Evaluate and update outdoor lighting standards applicable to MIPA areas or all unincorporated areas. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

Community Wide Measures:

- ◊ Turn-off un-needed lights, e.g. unused parking lots
- ◊ Use appropriate levels of illumination
- ◊ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◊ Light patterns common to military aviation

- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary
- ◇ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◇ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◇ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

**LHL 3: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◇ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◇ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community

buildings, and other locations existing and prospective residents and business owners frequent.

**LHL 5: Conduct Small Area Studies in Low Level Approach Zone and Cruise Missile Corridor.** A variety of land uses occur or are planned to occur in areas within and/or adjacent to the Low Level Approach Zones, Cruise Missile Corridor, and the Eglin Boundary, particularly where access can occur from highways or major county roads. It is recommended that small area studies be prepared for these areas to address transition of land use, plan roadway systems and access management, identify suitable locations for development, and prepare for the planned provision of public facilities. The small area studies will create strategies to transfer development rights, cluster future dwelling units, implement aviation easements, conserve environmentally sensitive areas, and/or implement tax incentive/credit policies. For a successful small area study, key stakeholders such as the County, Eglin AFB, and property owners must play an active role in the planning, analysis, and recommendations.

**LHL 7: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.** Formalize the planning policy to include military participation in the development review and planning process. This should include a formal communication process between the County and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with County staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and County Commission. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th



Special Forces Group.

LHL 9: Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests. There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influence Planning Area (MIPA) Sub-element. Following is an outline of typical issues that might be described in the MIPA Sub-element: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels: ≥65-69; 70-74; 75-84; ≥85
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II

- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

**Comprehensive Plan Military Influence Area Subelement Goals, Objectives, and Policies-** Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

## Identify Policies to Implement Each Objective, including:

- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezoning
  - ◊ Establish Military Influenced Lands (MIPA) Zoning Overlay District:
    - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
    - ⇒ Height Regulations
  - ⇒ Outdoor Lighting Regulations
  - ⇒ Development Review Procedures:
    - + Ex-Officio Military Representation on Planning Board
    - + Early Notification
    - + Effectuating Timely Participation and Response
    - + Conflict Resolution Mechanisms
  - ◊ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
  - ◊ Restrict Use Of Radio Frequency Spectrum
  - ◊ Bands 5.4 -5.9 Ghz
  - ◊ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
  - ◊ Special Issues
  - ◊ Small Area Land Use Studies
  - ◊ Public Awareness
  - ◊ Web-Site Public Awareness
  - ◊ Public Notice Requirements In Development Review Process
  - ◊ Identify When Moa Impacted
  - ◊ Street Signage (Military Operations Area)
  - ◊ Inform Public of Noise Zone Revisions
  - ◊ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
  - ◊ Revisions to Construction Standards to Address Noise Attenuation
  - ◊ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
  - ◊ Collaborative Efforts to Mitigate Issues with Eglin AFB
  - ◊ Revisions to Instrumentation and/or Physical Orientation

- ◊ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◊ Funding for Implementation

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ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see descrip-	Implementation Responsibility		Implementa- tion Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
LHL 1	Implement Lighting Ordinance	8-11			✓			Laurel Hill	Eglin AFB, Eglin JLUS Policy Committee & TAG		✓		
LHL 2	Distribute Educational Handouts on Radio Frequency	8-11				✓		Eglin AFB	Laurel Hill	✓			
LHL 3	Implement Public Awareness Measures	8-12			✓			-	Laurel Hill & Eglin AFB				✓
LHL 4	Identify Cruise Missile Corridor on Public Documents	8-11			✓			Laurel Hill	Private Party Submittals	✓			
LHL 5	Conduct Small Area Studies For The Cruise Missile Corridor	8-12			✓			Eglin JLUS Policy Committee & TAG	Laurel Hill	✓			
LHL 6	Support and Promote State and Federal Land Acquisition in Florida Greenway Program	8-11			✓			Laurel Hill	Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
LHL 7	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	8-12				✓		Laurel Hill	Eglin JLUS Policy Committee & TAG	✓			
LHL 8	Limit Object Heights Regarding Potential Conflicts	8-11			✓			Laurel Hill	Eglin AFB	✓			
LHL 9	Update City's Comprehensive Plan and Land Development Code	8-13			✓			Laurel Hill	Eglin JLUS Policy Committee & TAG	✓			

Table 8-1: Implementation Plan Responsibilities and Timing

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## SECTION 9 - MARY ESTHER



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## 9.1 INTRODUCTION

Mary Esther is a city in Okaloosa County, Florida. Located between Fort Walton Beach and Hurlburt Field, the City was incorporated in 1946 and as of 2004 has a population of 4,115, recorded by the U.S. Census Bureau.

As of the census of 2000, there were 4,055 people, 1,623 households, and 1,147 families residing in the City. The population density was 2,635 per square mile. There were 1,732 housing units at an average density of 1,125 per square mile.

There were 1,623 households out of which 29% had children under the age of 18 living with them, 57% were married couples living together, 10% had a female householder with no husband present, and 29% were non-families. 22% of all households were made up of individuals and 7% had someone living alone who was 65 years of age or older. The average household size was 2.50 and the average family size was 2.93.

In the city the population was spread out with 23% under the age of 18, 8% from 18 to 24, 31% from 25 to 44, 25% from 45 to 64, and 13% who were 65 years of age or older. The median age was 39 years.

Figure 9-1 shows Mary Esther's city limits.

## 9.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from Okaloosa County and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the County were identified and explained. *Appendix D—Eglin JLUS Public Presentations* provides copies of this information plus all public presentations included with this study.

The following are the issues identified for the City with respect to land use encroachments:

- Eglin Perimeter Boundary Development
- Impulse Noise
- Controlled Firing Areas
- Radio Frequency
- Low Level Helicopter Training Area
- Height of Objects
- Lighting

Each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

### 9.2.1 Eglin Perimeter Boundary Development

Development near the boundary of a military reservation can create security concerns, promote excessive light during nighttime hours, and encourage other encroachments onto the reservation. This issue is managed easiest by recognizing and implementing necessary land use controls.

### 9.2.2 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

Mary Esther includes areas in two of the three (Low and Moderate) categories for impulse noise as shown in *Figure 9-2*.

### 9.2.3 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in *Figure 9-3*. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and Naval Air Station Whiting Field.

### 9.2.4 Height of Objects

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and de-

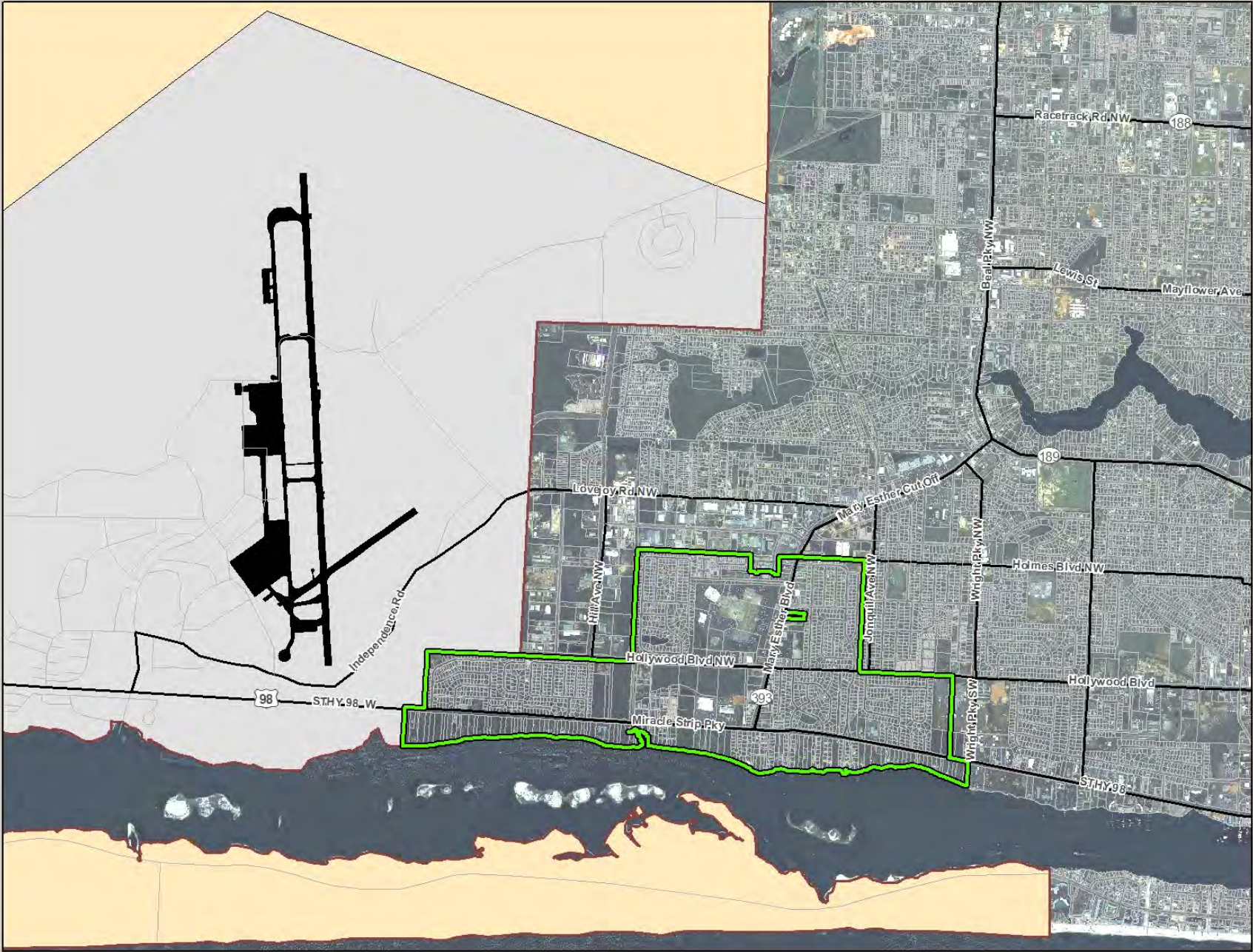


Figure 9-1: Mary Esther is located in south Okaloosa County, west of Ft Walton Beach, and southeast of Hurlburt Field







# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

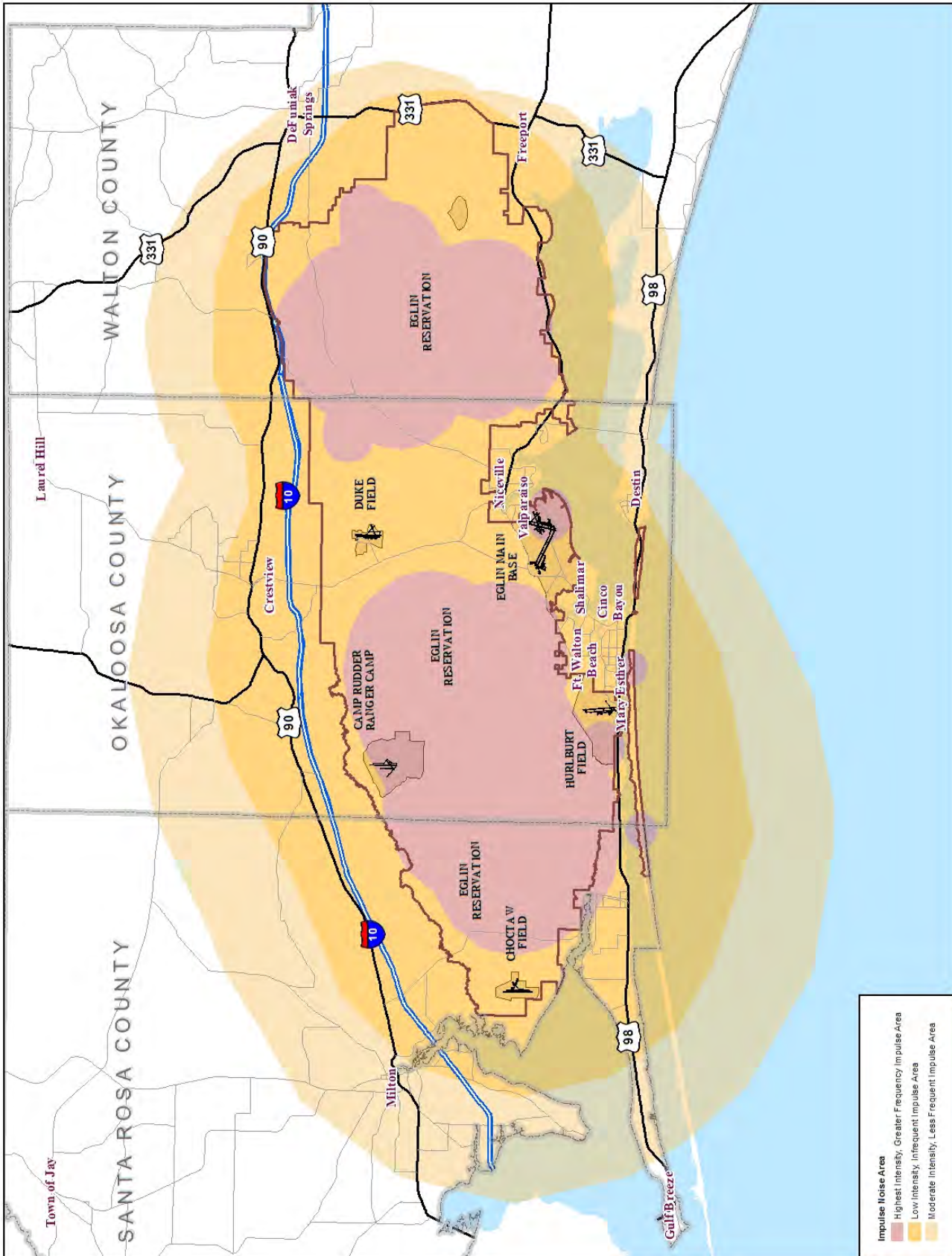


Figure 9-2: Impulse Noise Areas



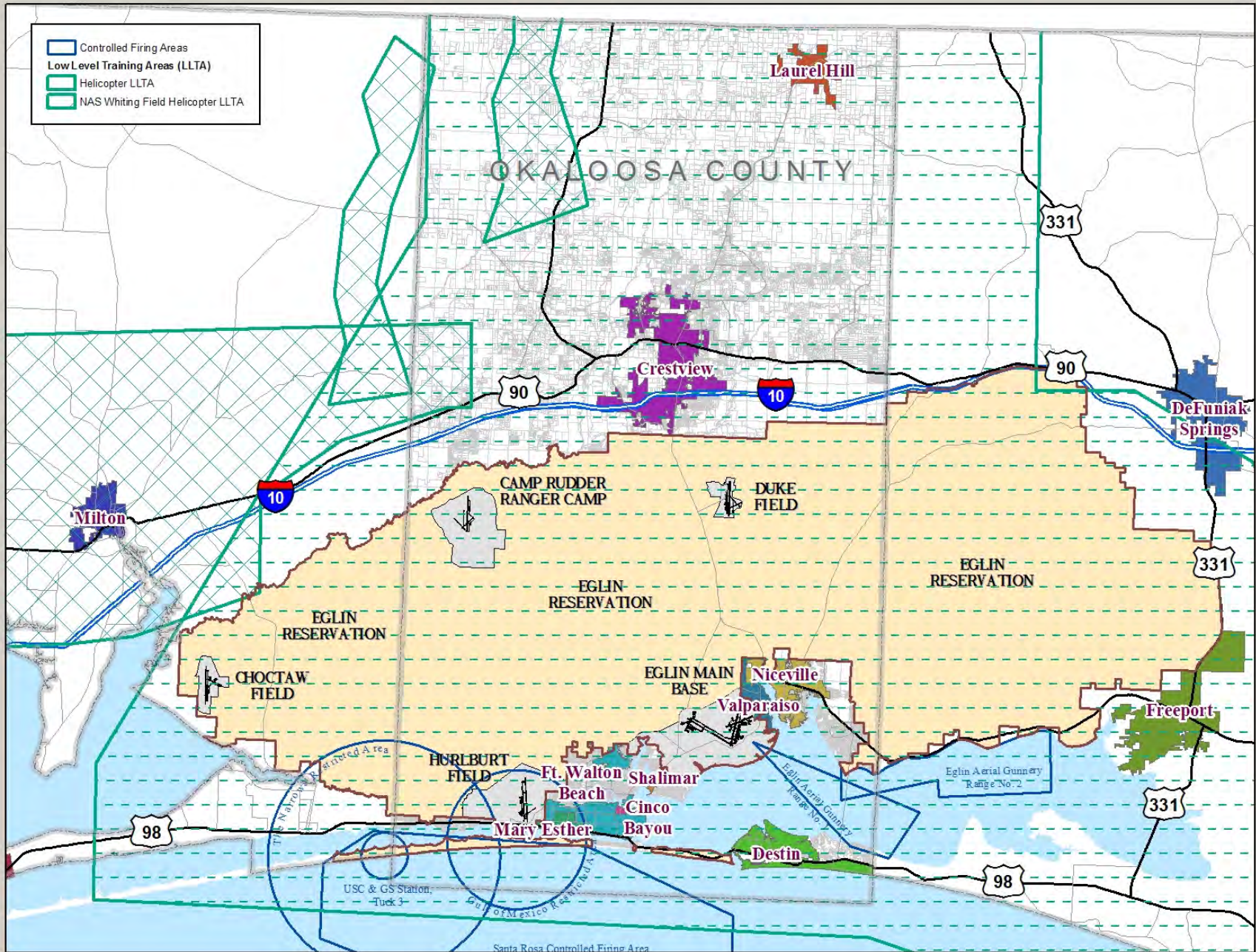


Figure 9-3: Low Level Helicopter and Tiltrotor Training Areas Across Okaloosa County







departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPS have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure that there were no navigation problems. [Figure 9-4](#) identifies the maximum building heights resulting from this study.

## 9.2.5 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. [Figure 9-5](#) shows the increase in artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population. Crestview's sky glow viewed from the nearest point on the Eglin reservation is estimated at almost 4 times what would occur naturally.

## 9.2.6 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious

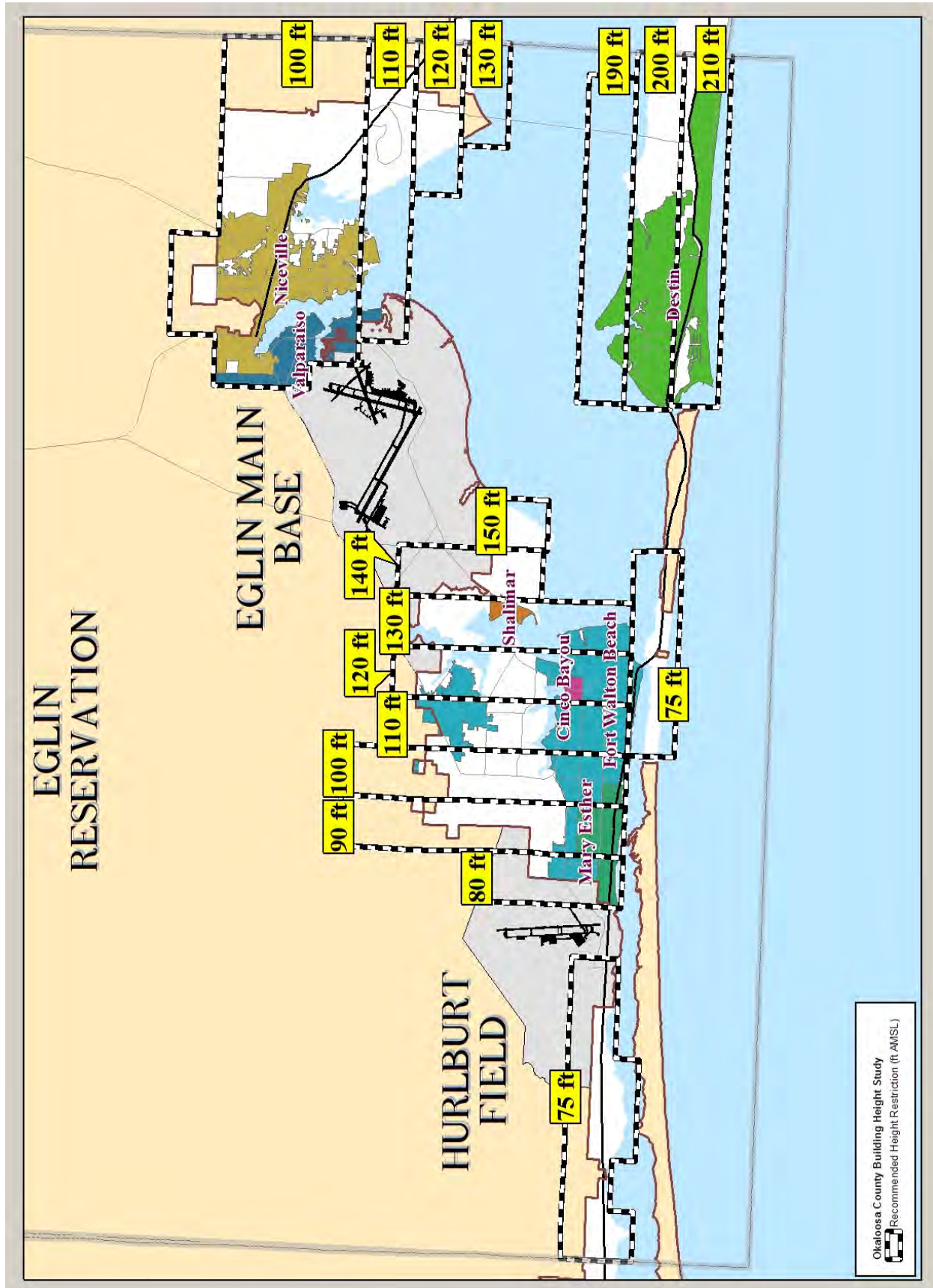


Figure 9-4: Okaloosa County Maximum Building Heights (Air Force, 2006)



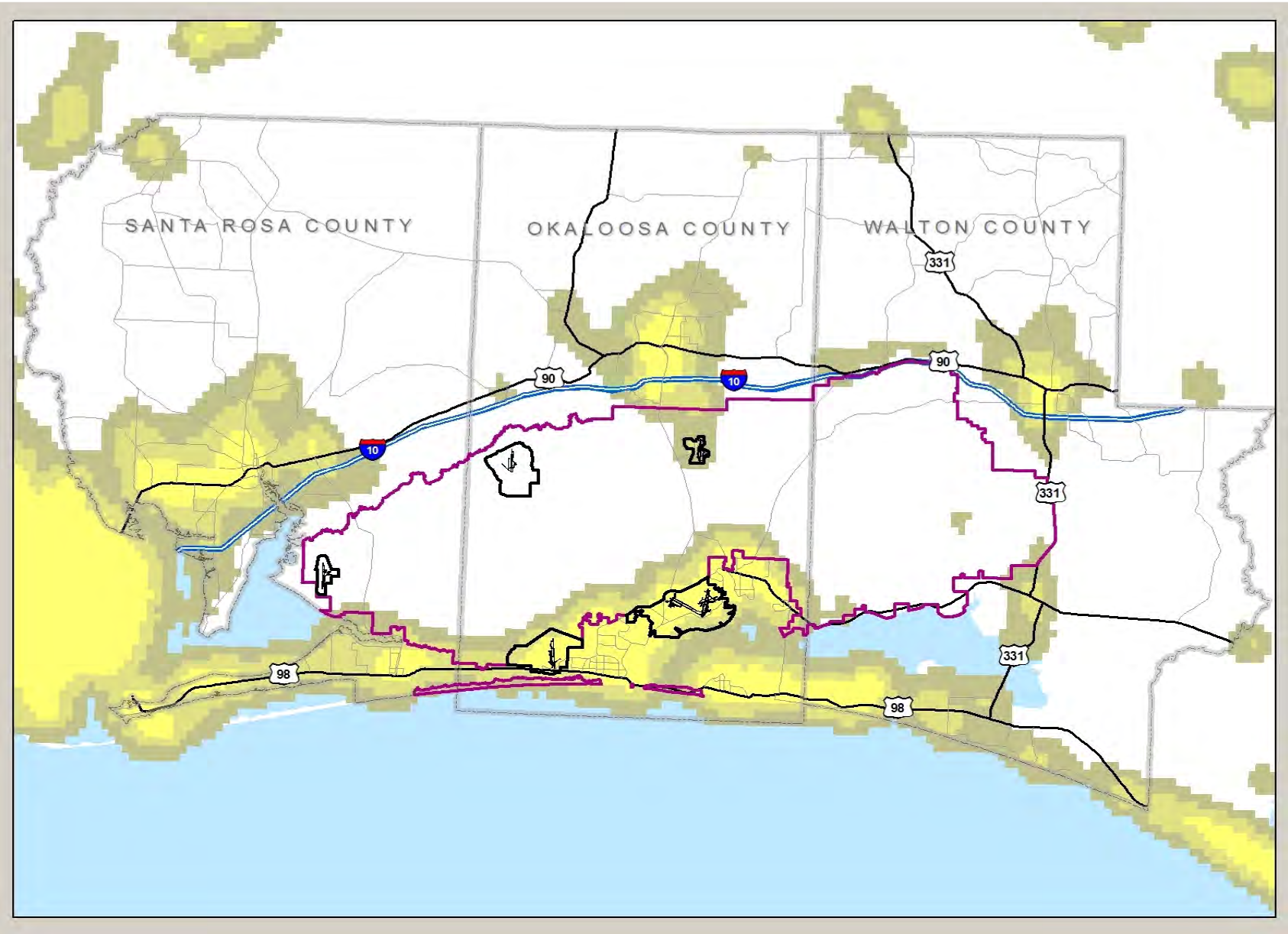


Figure 9-5: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)





encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

## 9.2.7 Controlled Firing Areas

According to the RAICUZ, there are 20 test sites associated with Santa Rosa Island, 11 of which are actively used in support of the test and training mission at Eglin. The missions at the test sites range from Command Centers that control the activation of flight termination systems for items being tested (Test Site A-3) to the launching of surface-to-air missiles such as the Air Intercept Missile and the Patriot missile (Test Site A-15). In the airspace above the island and seaward for three nautical miles is a Controlled Firing Area. *Figure 9-6* shows the Controlled Firing Areas in the Mare Esther Vicinity. These areas are defined airspace blocks that contain activities that would be potentially hazardous to nonparticipating aircraft.

Successful and safe completion of the mission on land and the adjacent waters requires the control of the airspace, water, and land that are part of the mission scenario. Access restriction ensures the safety of people not participating in the mission as well as maintains mission integrity. Restricting access becomes increasingly problematic as the number of residents and civilian boat traffic increase. Potential changes to the island or shoreline and surrounding area could potentially lead to more increases in civilian and commercial boat traffic. As stated in the RAICUZ, these possible changes, such as construction of a pass through

the non-federally owned portions of Santa Rosa Island or establishment of artificial reefs, would attract marinas and additional boats to the area. The associated increase in boat traffic would complicate access restriction measures and potentially cause safety concerns, mission delay, or cancellation of the mission.

## 9.3 ANALYSIS

### 9.3.1 Eglin Perimeter Boundary Development

The area of the City within one mile of Eglin's boundary is almost at build-out with the exception of a few parcels. It is uncertain at this time if and when the City will annex additional lands within one mile of the Eglin boundary since the City is landlocked by the City of Fort Walton Beach and water.

### 9.3.2 Impulse Noise

The nature of the impulse noise in the City is in the low to moderate ranges as previously shown in *Figure 9-2*. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 9.3.3 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with low flying helicopters and tiltrotors.

### 9.3.4 Radio Frequency Interference

The analysis for radio frequency interference in the City is a simple one. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is



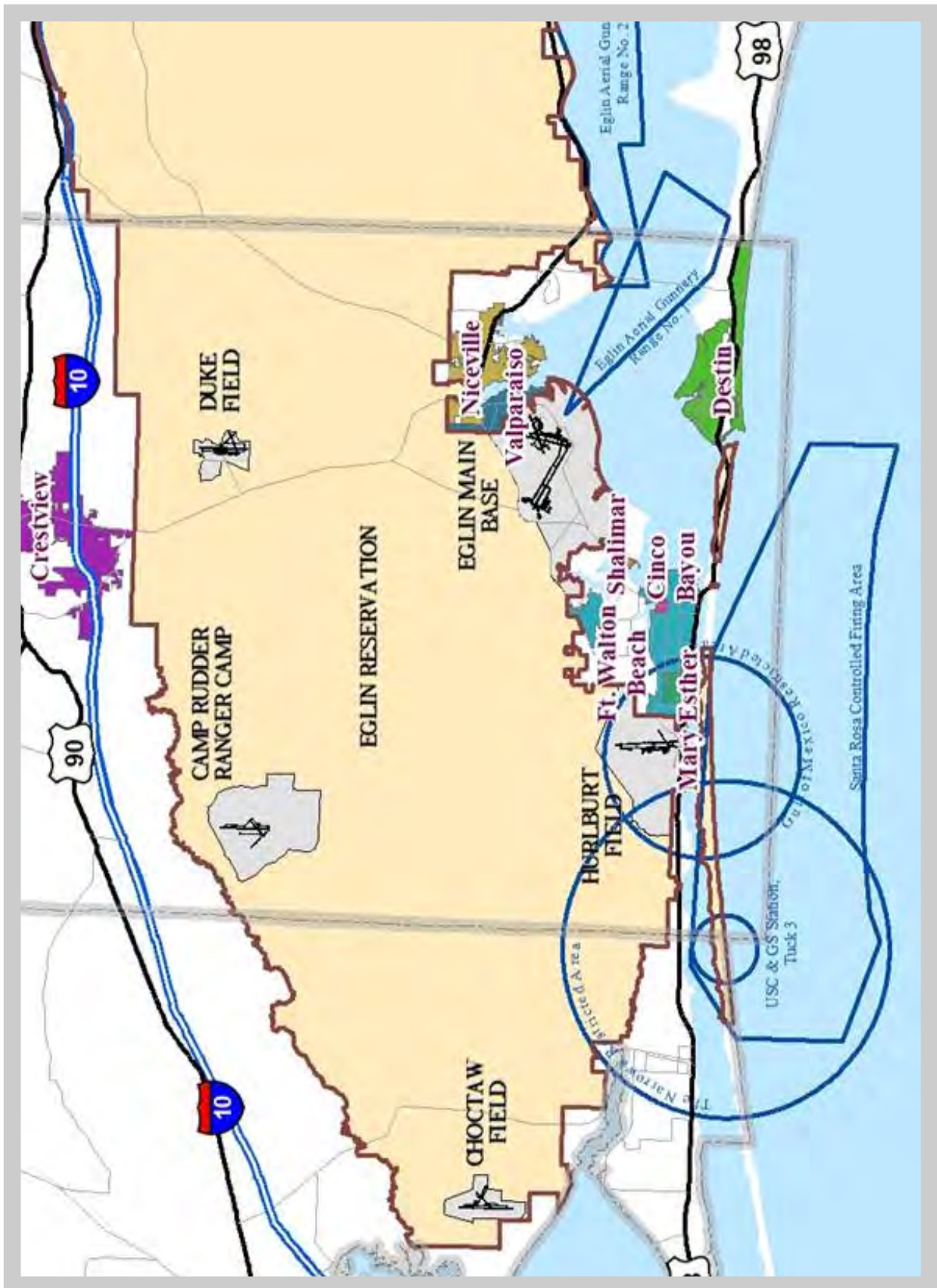


Figure 9-6: Controlled Firing Areas



detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the City is not responsible for regulating or licensing radio frequencies, there are steps the City can take to help minimize radio frequency interference. The City should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

## 9.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the City on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the City. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the City's use:

- **MES 1:** Implement Lighting Ordinance to Avoid Glare and Reflection Within One Mile of the Eglin Boundary
- **MES 2:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **MES 3:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **MES 4:** Implement Comprehensive Plan Amendments Discouraging Additional Marine Navigation Channels or Land Cuts, Artificial Reefs, or Other Proposed Activities Increasing Marine Traffic in Controlled Firing Areas
- **MES 5:** Formalize Policy to Include Military Participa-

tion and Cross-Jurisdiction Coordination in Development Review and Planning Process

- **MES 6:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **MES 7:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the City's use:

**MES 1: Implement Lighting Ordinance.** Evaluate and update outdoor lighting standards applicable to areas within one mile of the Eglin Boundary. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

Community Wide Measures:

- ♦ Turn-off un-needed lights, e.g. unused parking lots
- ♦ Use appropriate levels of illumination
- ♦ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing





Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◇ Light patterns common to military aviation
- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary  
No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◇ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◇ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

**MES 3: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◇ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vege-

tation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.

- ◇ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**MES 5: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.** Formalize its policy to include military participation in its development review and planning process. This should include a formal communication process between the City and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with City staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and City Commission. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

**MES 7: Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.** There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such



issues could be called the Military Influenced Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels: ≥65-69; 70-74; 75-84; ≥85
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

**Comprehensive Plan Military Influence Area Subelement Goals, Objectives, and Policies-** Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

**Identify Policies to Implement Each Objective, including:**

- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezoning
  - ◊ Establish Military Influenced Lands (MIPA) Zoning Overlay District:





- ⇒ Permitted, Conditional, and Prohibited Land Uses  
( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
- ⇒ Height Regulations
- ⇒ Outdoor Lighting Regulations
- ⇒ Development Review Procedures:
  - + Ex-Officio Military Representation on Planning Board
  - + Early Notification
  - + Effectuating Timely Participation and Response
  - + Conflict Resolution Mechanisms
- ◇ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
- ◇ Restrict Use Of Radio Frequency Spectrum
- ◇ Bands 5.4 -5.9 Ghz
- ◇ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◇ Special Issues
- ◇ Small Area Land Use Studies
- ◇ Public Awareness
- ◇ Web-Site Public Awareness
- ◇ Public Notice Requirements In Development Review Process
- ◇ Identify When Moa Impacted
- ◇ Street Signage (Military Operations Area)
- ◇ Inform Public of Noise Zone Revisions
- ◇ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◇ Revisions to Construction Standards to Address Noise Attenuation
- ◇ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◇ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◇ Revisions to Instrumentation and/or Physical Orientation
- ◇ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◇ Funding for Implementation

*Table 9-1* is provided as a guide for the City summarizing the proposed recommendations with an Implementation Plan Responsibilities and Timing assigned to each recommendation.

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ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementa- tion Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
MES 1	Implement Lighting Ordinance	9-11					✓	City of Mary Esther	Eglin AFB, Eglin JLUS Policy Committee and TAG		✓		
MES 2	Distribute Educational Handouts on Radio Frequency	9-11					✓	Eglin AFB	City of Mary Esther	✓			
MES 3	Implement Public Awareness Measures	9-12					✓	City of Mary Esther	Okaloosa County & Eglin AFB				✓
MES 4	Implement Comp Plan Amendments Discouraging Additional Navigational Channels or Land Cuts, Artificial Reefs, or Other Activities	9-11					✓	City of Mary Esther	Eglin JLUS Policy Committee and TAG		✓		
MES 5	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	9-12					✓	Eglin JLUS Policy Committee & TAG	City of Mary Esther	✓			
MES 6	Limit Object Heights Regarding Potential Conflicts	9-11					✓	City of Mary Esther	Eglin AFB	✓			
MES 7	Update City's Comprehensive Plan and Land Development Code	9-12					✓	City of Mary Esther	Eglin JLUS Policy Committee and TAG	✓			

Table 9-1: Implementation Plan Responsibilities and Timing





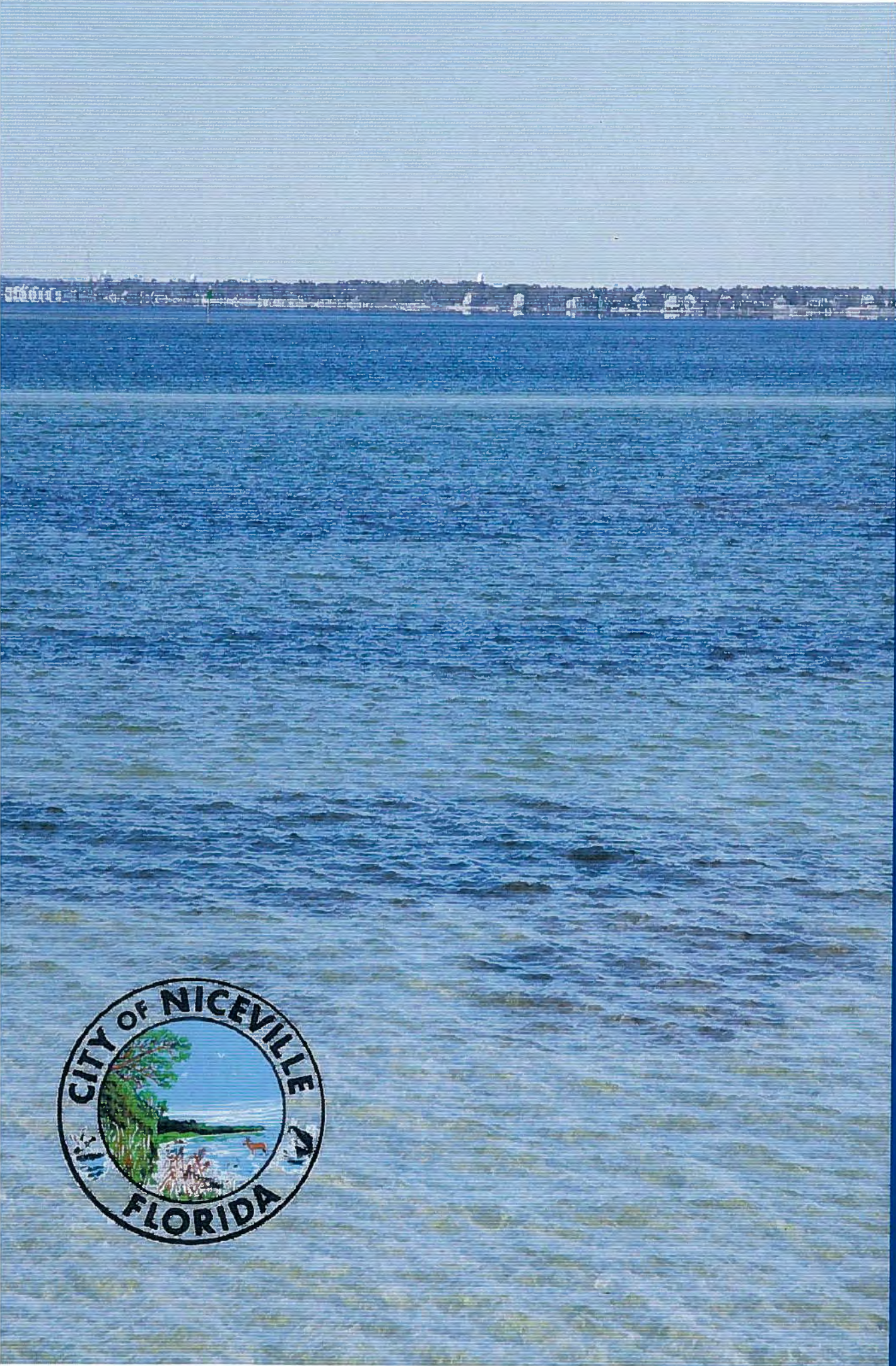


# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

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## SECTION 10 - NICEVILLE



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## 10.1 INTRODUCTION

Niceville is a city in Okaloosa County located in close proximity to Eglin Main. As of 2005, the population estimate was at 12,582.

As of census of 2000, there were 11,684 people, 4,637 households, and 3,385 families residing in the City. The population density was 1,069.8 per square mile. There were 4,907 housing units at an average density of 449.3 per square mile.

There were 4,637 households out of which 32% had children under the age of 18 living with them, 59% were married couples living together, 10% had a female householder with no husband present, and 27% were non-families. 22% of all households were made up of individuals and 8% had someone living alone who was 65 years of age or older. The average household size was 2.49 and the average family size was 2.89.

In the city the population was spread out with 23% under the age of 18, 9% from 18 to 24, 27% from 25 to 44, 27% from 45 to 64, and 13% who were 65 years of age or older. The median age was 39 years.

*Figure 10-1* shows Niceville's city limits.

## 10.2 ISSUES

Based on individual and group meetings with City representatives, information provided by Eglin AFB, and meetings and discussions with Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the City were identified and explained. The following are the issues identified for the City:

- Development at Eglin AFB Boundary
- Impulse Noise
- Runway Accident Potential Zones (APZs) I and II
- Airfield Noise
- Low Level Helicopter and Tiltrotor Training Courses
- Terminal Instrument Procedures (TERPs)
- Radio Frequency Interference
- Height of Objects
- Lighting

For clarification, each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

### 10.2.1 Eglin Perimeter Boundary Development

The majority of the City's northernmost city limits abut Eglin's boundary. However, with the exception of the northwest corner of the city limits, there is an established right-of-way buffer in College Boulevard or the Eglin Golf Course. It is important to note development near the boundary of a military base/reservation can create security concerns, promote excessive light during nighttime hours, and encourage other encroachments onto the base/reservation. *Figure 10-1* shows the portion of the City currently adjacent to Eglin's boundary.

### 10.2.2 Accident Potential Zones I and II (Area "B" and "C")

Beyond the runway Clear Zone is an area along the flight path that possesses a significant potential for accidents. Created as part of the AICUZ program, Accident Potential Zones (APZ) are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, APZs function to heighten the general public's awareness to areas where higher risks occur. They also help local governments to identify where to direct zoning regulations and land use standards designed to reduce potential conflicts between airfield operations and civilian populations.

APZs are divided into two (2) designations based on accident potential. The zone closest to the Clear Zone is referred to as APZ-I. It has been labeled "B" for easier depiction throughout this study. APZ-II (labeled "C") is typically furthest from the runway in terms of the flight path and it has a measurable potential for accidents. Approach or departure flight paths will turn into or away from a runway. Therefore, APZ I and II may curve away from the end of a clear zone as well as lead straight out. Based on designated airport flight paths for approach and departure, some areas in a APZ-II zone may actually be closer to a runway than portion of the APZ-I. For the City of Niceville, APZ I and II lead straight out from the end of the Clear Zone and are shown in *Figure 10-2*.

Fixed-wing aircraft and helicopters takeoff or land into the wind. Landing or takeoff against the wind provides optimal aerodynamic conditions to lift aircraft and gain altitude. Flight paths leading toward an airfield, called an entry pattern, frequently enter from a course not aligned with the upwind runway or landing approach. In such situations, aircraft must fly an established local pattern until aligned



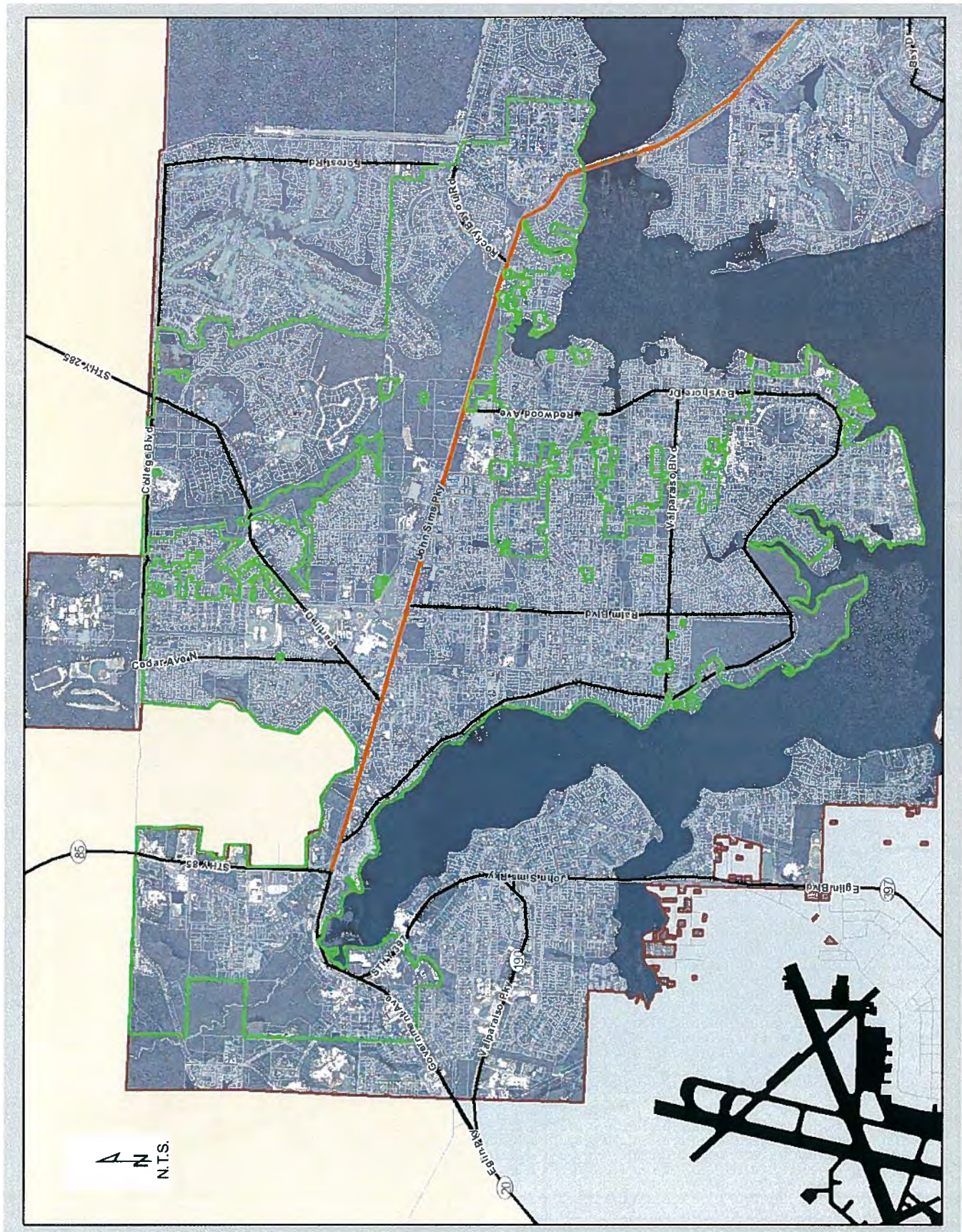


Figure 10-1: Niceville City Limits



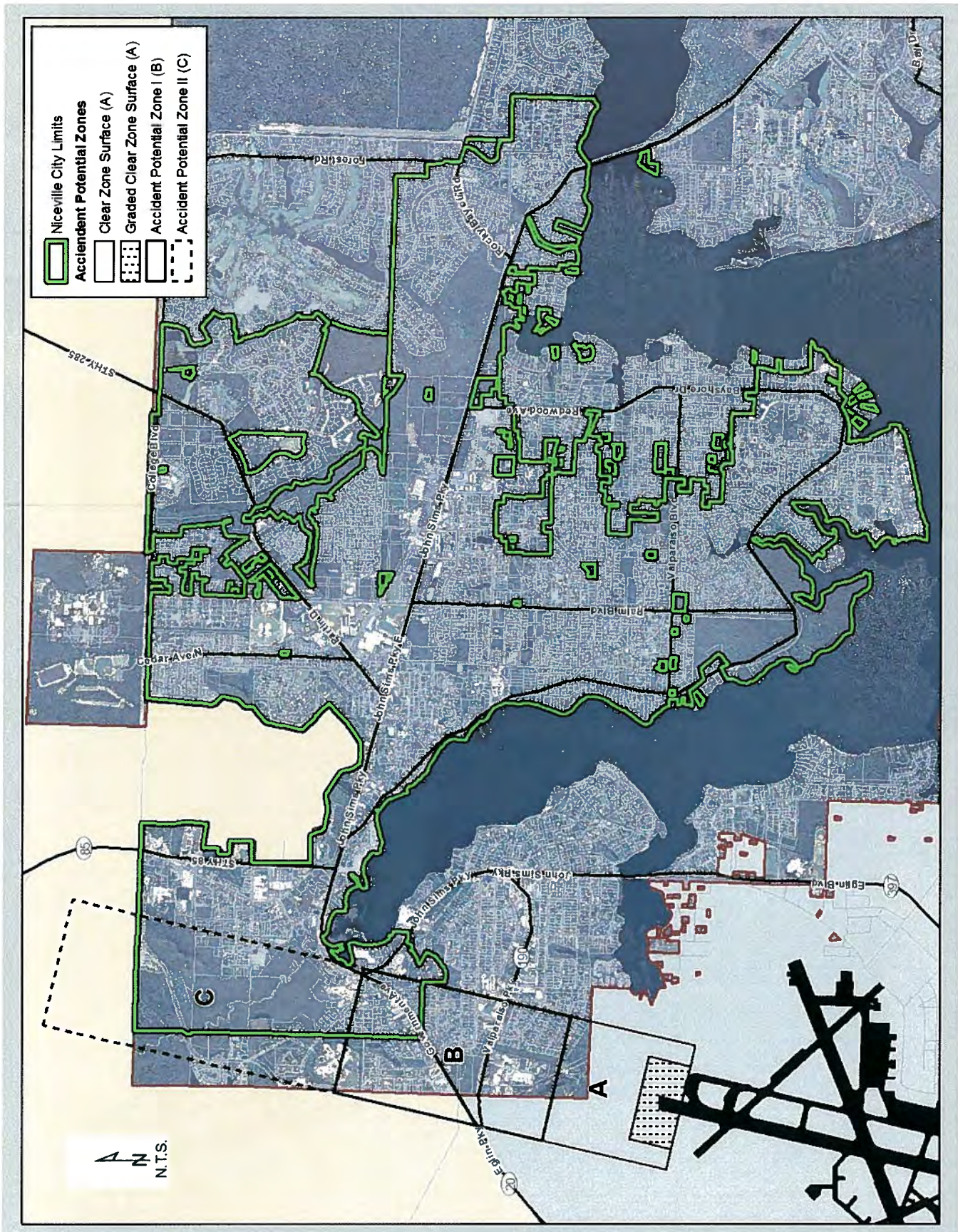
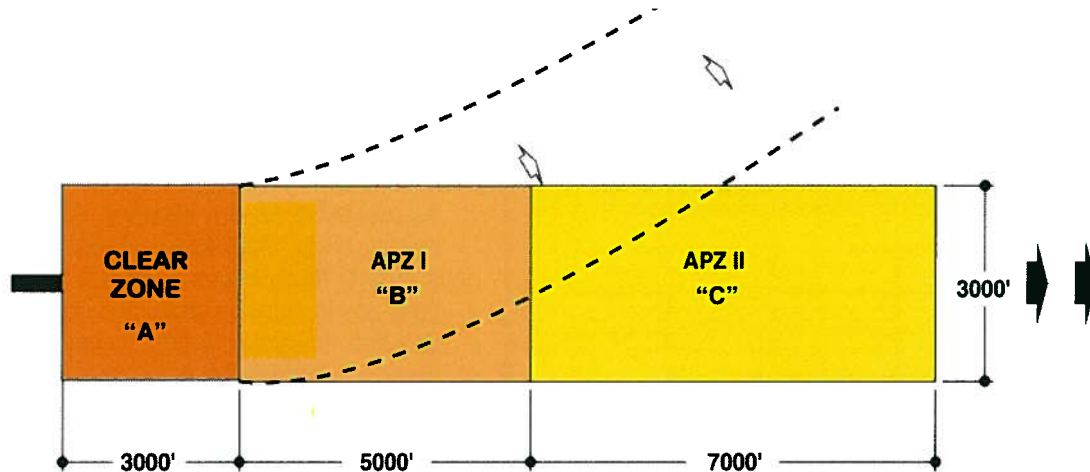


Figure 10-2: Clear Zone (Area "A") and Accident Potential Zones (APZs) I and II (Areas "B" and "C", respectively)





## CLASS "B" RUNWAY

*Typical Locations of Clear Zones and Accident Potential Zones (APZs I and II).*

with the upwind direction or the runway best aligned with the upwind direction. Likewise, takeoff direction does not always align with the intended departure direction, resulting in left or right turns shortly after takeoff in order to enter the departure pattern. APZ boundaries will bend to acknowledge left and right turning movements used to align with departure or landing patterns. Most APZ-I "B" and APZ-II "C" boundaries curve for this reason.

Landing and takeoff patterns differ between helicopters and fixed-wing aircraft because of their separate aerodynamic requirements. Having a greater dependence on wind direction, helicopters takeoff and land facing oncoming wind. Flight paths for helicopters will vary with changes in the direction of the wind. APZ boundaries for helicopters may be aligned with prevailing or normal wind conditions. Fixed-wing aircraft are limited to a runway's course, making flight path more predicate. Boundaries and size of APZ vary from airport to airport to address field conditions as well as unique and separate needs differentiating helicopters and fixed-wing aircraft. At Eglin AFB, most APZ boundaries and designations (i.e., APZ-I "B" and APZ-II "C") established for Eglin Main runways were specifically designed for fixed-wing military needs. APZ boundaries and designations for the airfield are attributed to flight characteristics and historical experiences for fixed-wing aircraft.

### 10.2.3 Airfield Noise

In addition to addressing safety concerns, the AICUZ also addresses noise exposure to non-military lands near military installations. Noise exposure can create conflicts with public welfare and quality of life for those living or working

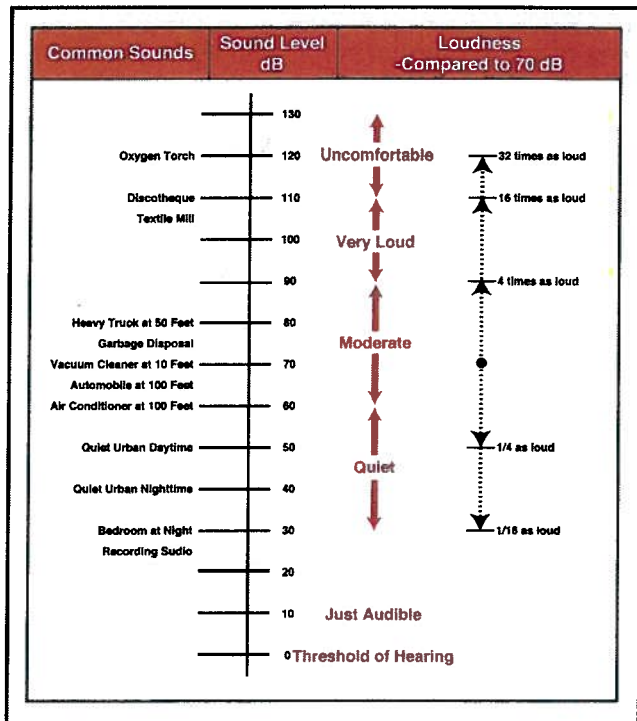
near airfields. Noise level contours extending from the airfield are incrementally measured from the highest typical decibel (dB) generated within a military installation to 65 dB within non-military property. For the Eglin AFB JLUS, the future aircraft (F-35) is not located at Eglin at this time so the AICUZ does not include noise levels associated with the F-35. In order for this study to be based on useful and applicable information, it was determined this study would utilize noise levels available from the Air Force for the proposed F-35 in lieu of using F-15 noise levels which will be obsolete in the coming years.

Noise contours are delineated by computerized simulation of aircraft activity at each installation and integrate operational data specific to the types of aircraft using a particular airfield. The methodology used to identify noise counters takes into consideration flight paths, frequency and time of operation, as well as the type and mix of aircraft. The noise contours utilized in this study were provided by the Air Force. The scope of this study does not include manipulating the computer simulation to adjust noise contours.

At the time of this report, the Air Force is developing the curriculum and finalizing the process for the F-35. Two different noise alternatives (Alternate 1 and Alternate 2) were developed as part of the *Base Realignment and Closure (BRAC) 2005, Environmental Impact Statement (EIS)* and this information is being utilized as part of this JLUS. It appears the noise for Alternate 2 provides the maximum mission noise contours in the City of Niceville and, therefore, will be the noise contours used for analysis. *Figure 10-3* shows the Airfield Noise associated with the two F-35 alternatives with a one-half mile buffer shown across all of



Okaloosa County. *Figure 10-4* shows the specific noise contours associated with F-35 maximum mission noise



Source: Handbook of Noise Control, C.M. Harris, McGraw-Hill Book Co., 1979, and Ref. E5.

Typical A-weighted Levels of Common Sounds

contours in Niceville.

## 10.2.4 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity - Infrequent Impulse Noise*, *Moderate Intensity - Less Frequent Impulse Noise*, and *Higher Intensity - Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

The City is included in the *Moderate Intensity - Less Frequent Impulse Noise* area and a portion of the southern end of the City is located within the *Higher Intensity - Greater Frequency Impulse Noise* area. The extent of the two different levels of impulse noise on the City is shown in *Figure 10-5*.

## 10.2.5 Low Level Helicopter and Tiltrotor Training

Helicopters and tiltrotors conduct training operations within

the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in *Figure 10-6* across Okaloosa County which includes all of Niceville.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of Eglin and associated fields and ranges.

## 10.2.6 Height of Objects

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPs have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landingsystems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed





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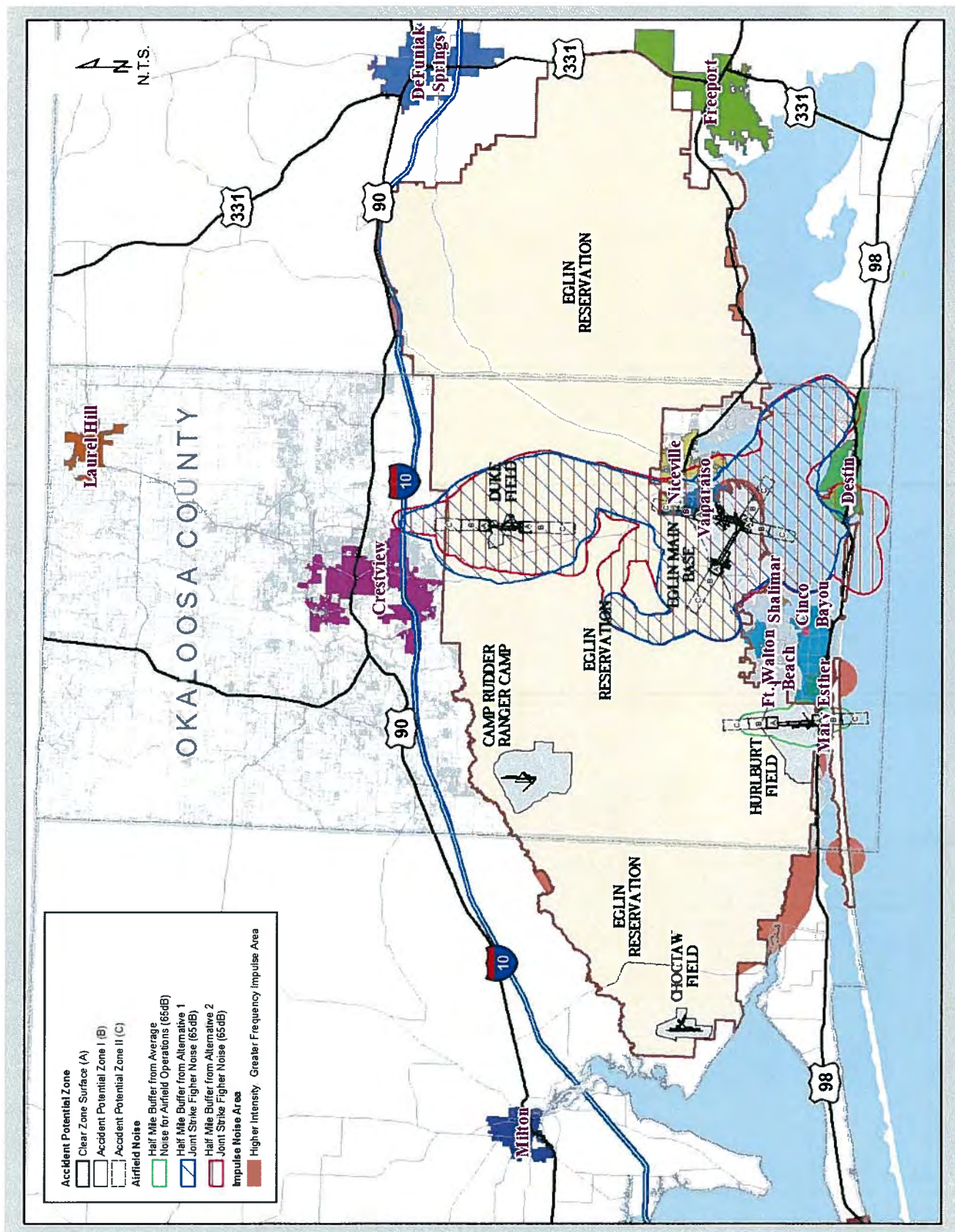


Figure 10-3: F-35 Alternates 1 and 2 High Level Noise Zones (>65 dB) With One-half Mile Buffer



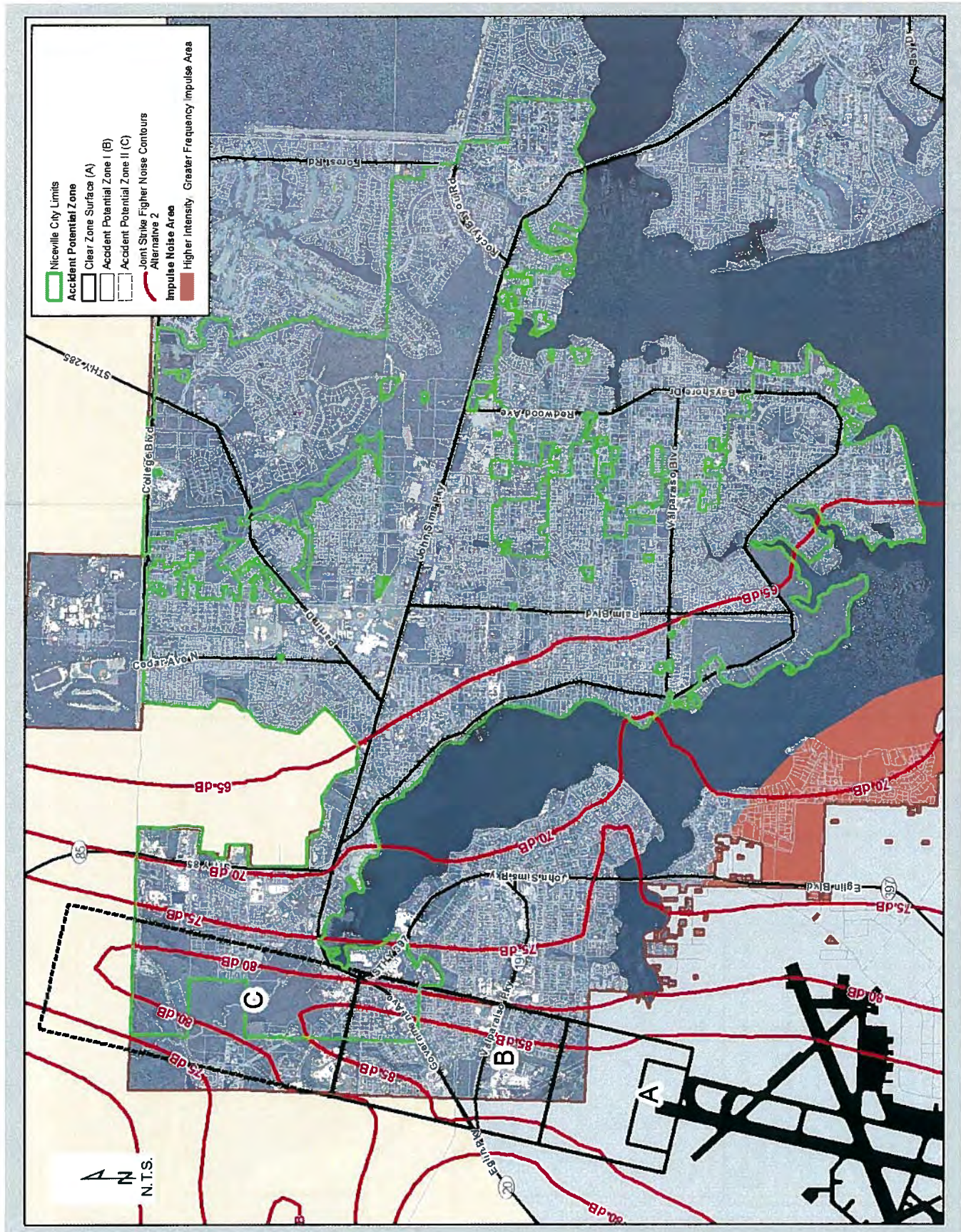


Figure 10-4: F-35 Maximum Mission Noise Contours in Niceville









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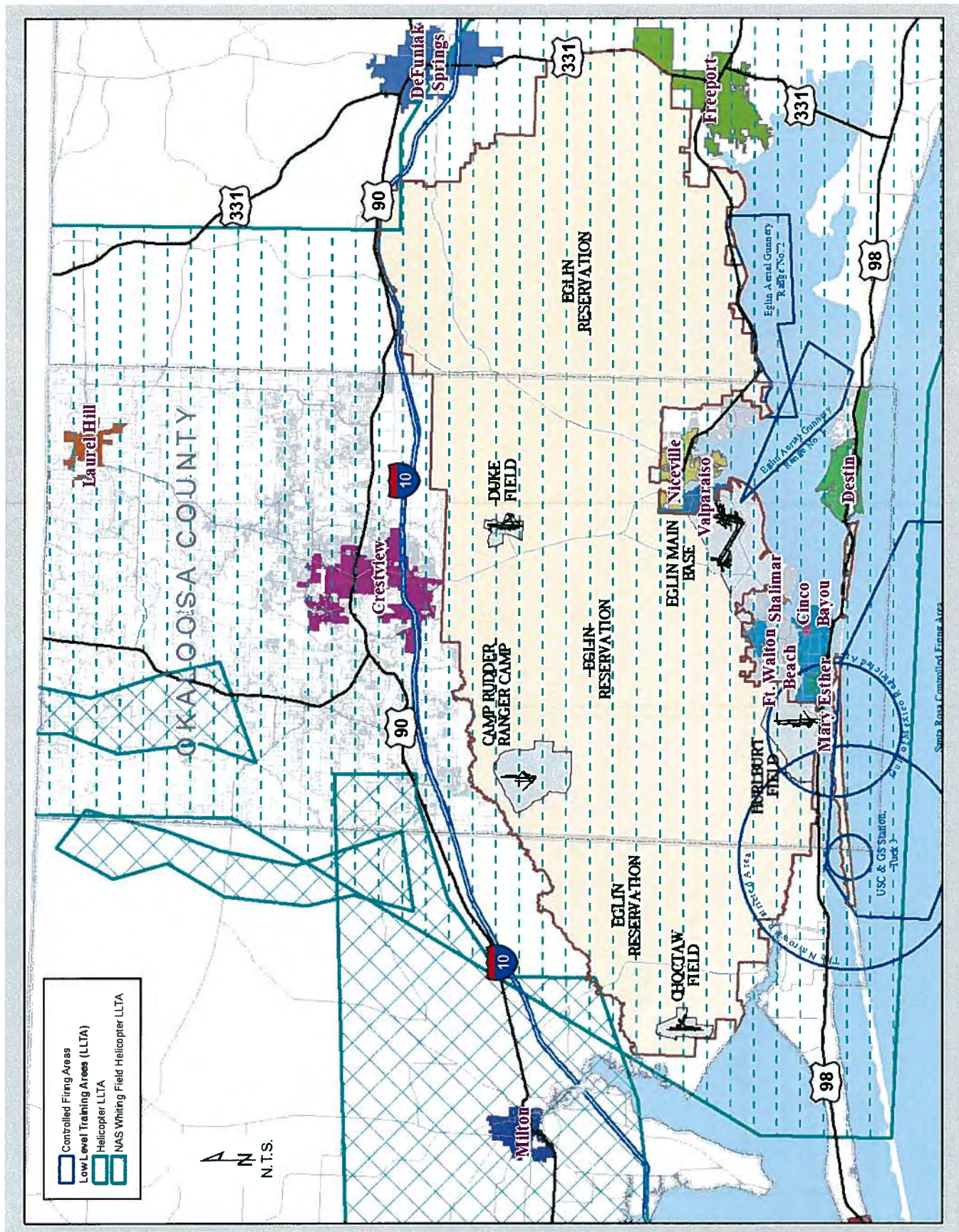


Figure 10-6 Low Level Helicopter and Tiltrotor Training Areas Across Okaloosa County





by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure there were no navigation problems. *Figure 10-7* identifies the maximum building heights resulting from this study.

## 10.2.7 Night Vision Training

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1st Special Operations Wing. Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units.

Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. *Figure 10-8* shows the increase in artificial lighting that is visible

from satellites. It is clearly evident that the amount of lights is increasing with population. Based on information in the RAICUZ, the Niceville/Valparaiso area's sky glow viewed from the nearest point on the Eglin reservation is estimated to be almost 17 times what would occur naturally.

## 10.2.8 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

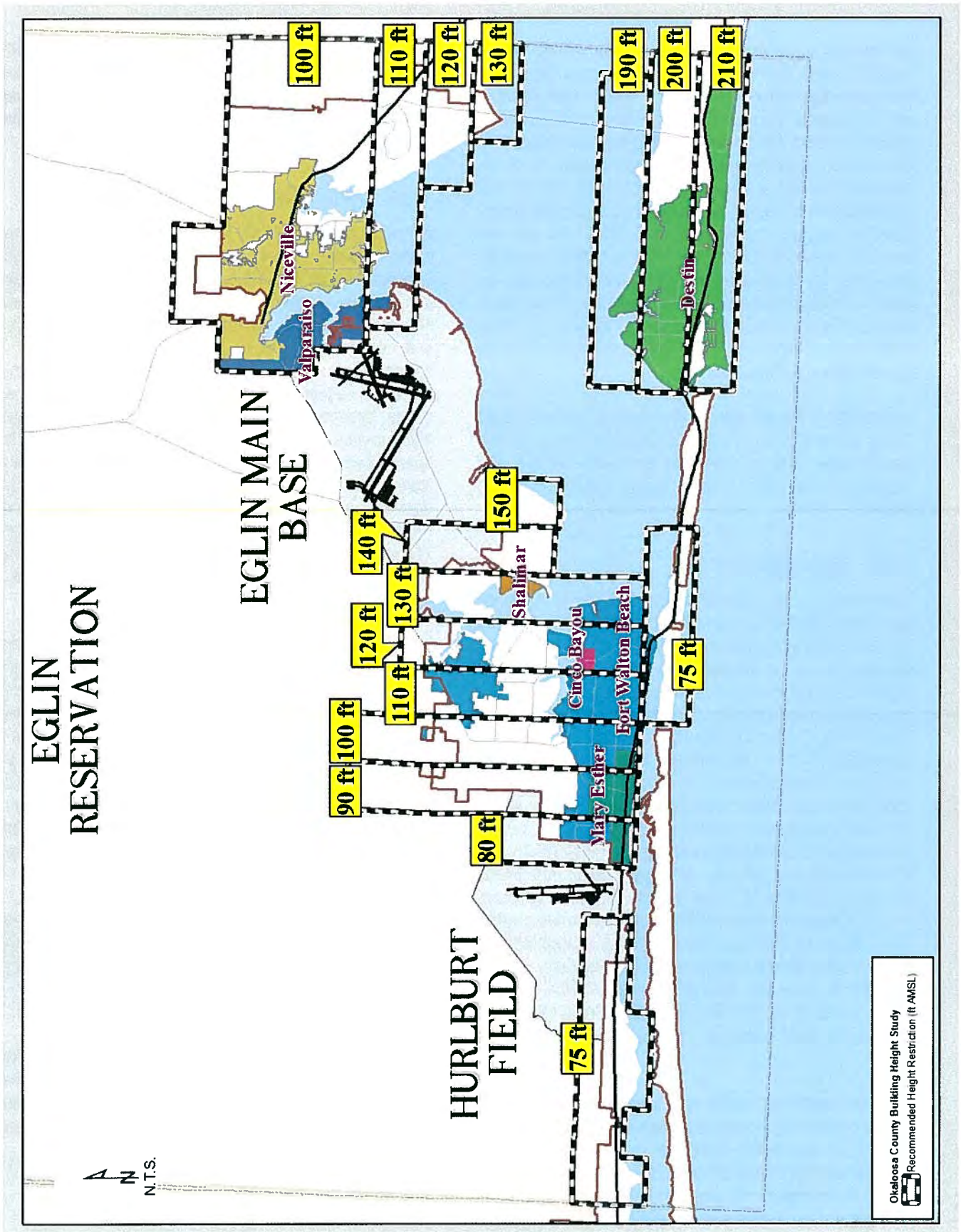


Figure 10-7 Okaloosa County (South) Building Height Study (Air Force 2006)



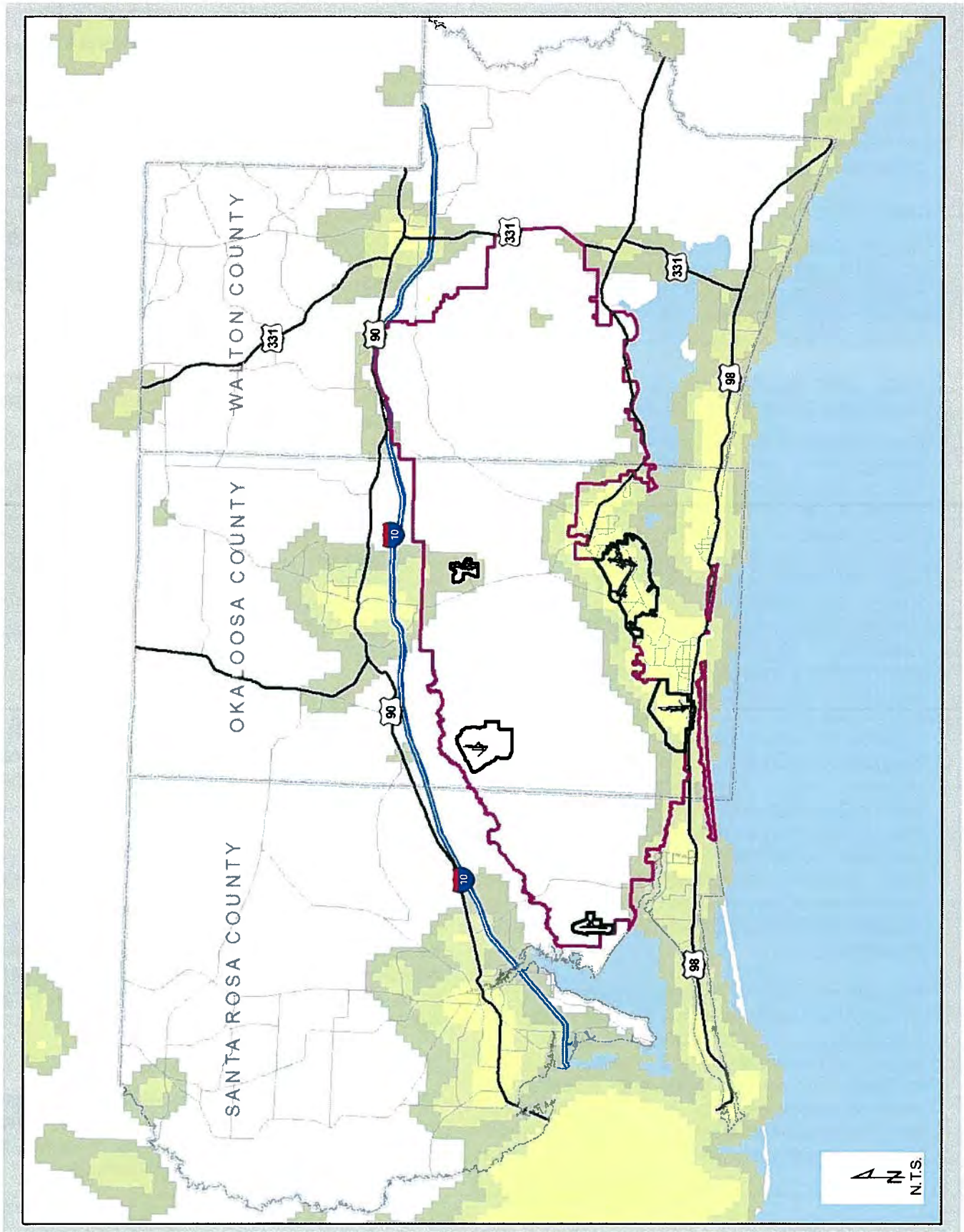


Figure 10-8: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)



## 10.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the City's Existing Land Use Map and Future Land Use Map are provided in *Figures 10-9 and 10-10*, respectively.

### 10.3.1 Eglin Perimeter Boundary Development

The area of the City within one mile of Eglin's boundary includes the entire northern portions of the City. This area currently has Future Land Use Designations of Industrial, Medium Density Residential, Low Density Residential, Commercial, Public Lands, Mixed Use and Conservation.

### 10.3.2 Land Uses/Structures in Accident Potential Zones I and II (Areas "B" and "C", respectively)

*Figure 10-11* shows the APZs I and II with existing land use and *Figure 10-12* provides the APZs I and II with future land use. As shown in *Table 10-1*, approximately 93 acres (31%) of non-military lands inside the APZs are undeveloped or included in environmentally sensitive areas. Approximately 20 acres of which are in APZ I and 73 acres in APZ II. Residential development amounts to 167 single family or multi-plex residences, housing approximately 416 residents. Approximately 40% of the residents (or 166) reside in APZ I. Single Family Residential Land ownership within the APZ is presently established in small parcels typically 1/4 acre or less in size.

In general, industrial, recreational, vacant, and agricultural/open land uses are compatible with the safety criteria established for APZ I. Compatibility of commercial uses within APZ I is dependent on densities and intensity of uses. A large area of low density residential area with densities greater than one dwelling unit per acre exists in APZ I and II. There is one church parcel in the APZ II that would be considered incompatible, however, it appears only the church parking lot is located within the APZ II boundary, not the building.

Population and housing estimates were determined by comparing land use records from Okaloosa County with statistical data from the 2000 US Census. Statistical data pertaining to the average number of persons per household for Okaloosa County were applied to the number of estimated occupied housing units. Occupancy rates for Okaloosa County were applied to the total number of residential units documented in the City to obtain occupied housing unit figures.

### 10.3.3 Incompatible Uses in High Noise Areas

*Figures 10-11 and 10-12* also show the proposed noise contours with the existing land use and future land use map, respectively. As shown in *Table 10-2*, approximately 983 acres of non-military lands are located inside the high noise area (greater than 65dB). Residential development includes approximately 958 single family or multi-plex residences covering approximately 295 acres. Other existing incompatible land uses within the high noise areas include approximately 6 churches (10 acres), 1 public school (Edge Elementary), 1 public building (Okaloosa School District Office), and 1 hospital (Twin Cities Hospital).

Residential land ownership within the high noise areas is presently established in small parcels average approximately 1/3 acre in size. Current population in the high noise areas is estimated at approximately 2,385 persons.

Population and housing estimates were determined by comparing land use records from Okaloosa County with statistical data from the 2000 US Census. Statistical data pertaining to the average number of persons per household for Okaloosa County were applied to the number of estimated occupied housing units. Occupancy rates for Okaloosa County were applied to the total number of residential units documented in the City to obtain occupied housing unit figures.

### 10.3.4 Impulse Noise

The nature of the impulse noise in the City is in the moderate to high ranges as previously shown in *Figure 10-5*. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 10.3.5 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a temporary nuisance resulting from low level helicopters and tiltrotors flying overhead and the temporary sound and vibration increases associated with low flying helicopters and tiltrotors.

### 10.3.6 Radio Frequency Interference

The analysis for radio frequency interference in the City is a simple one. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.





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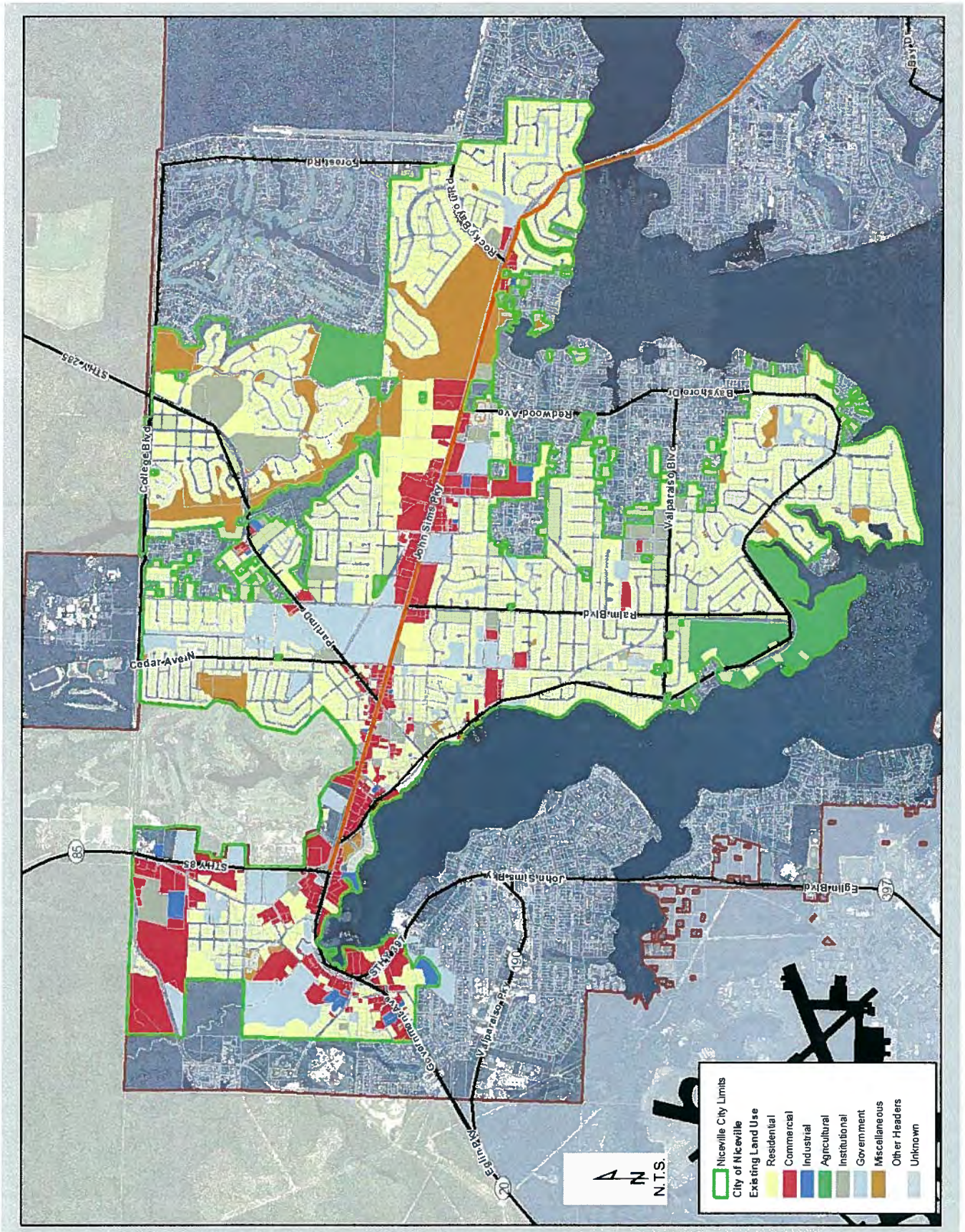


Figure 10-9: Niceville Existing Land Use Map





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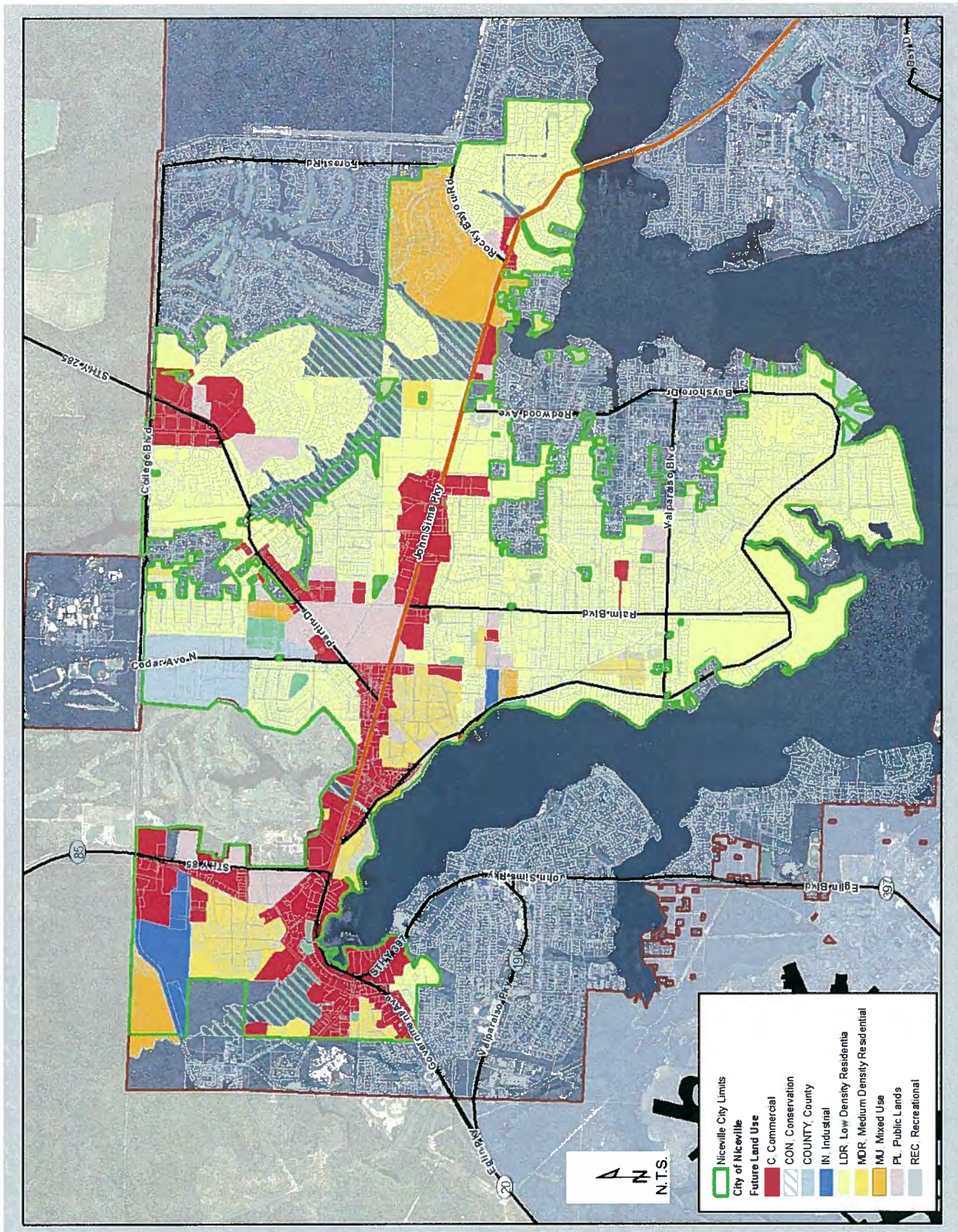


Figure 10-10: Niceville Future Land Use Map





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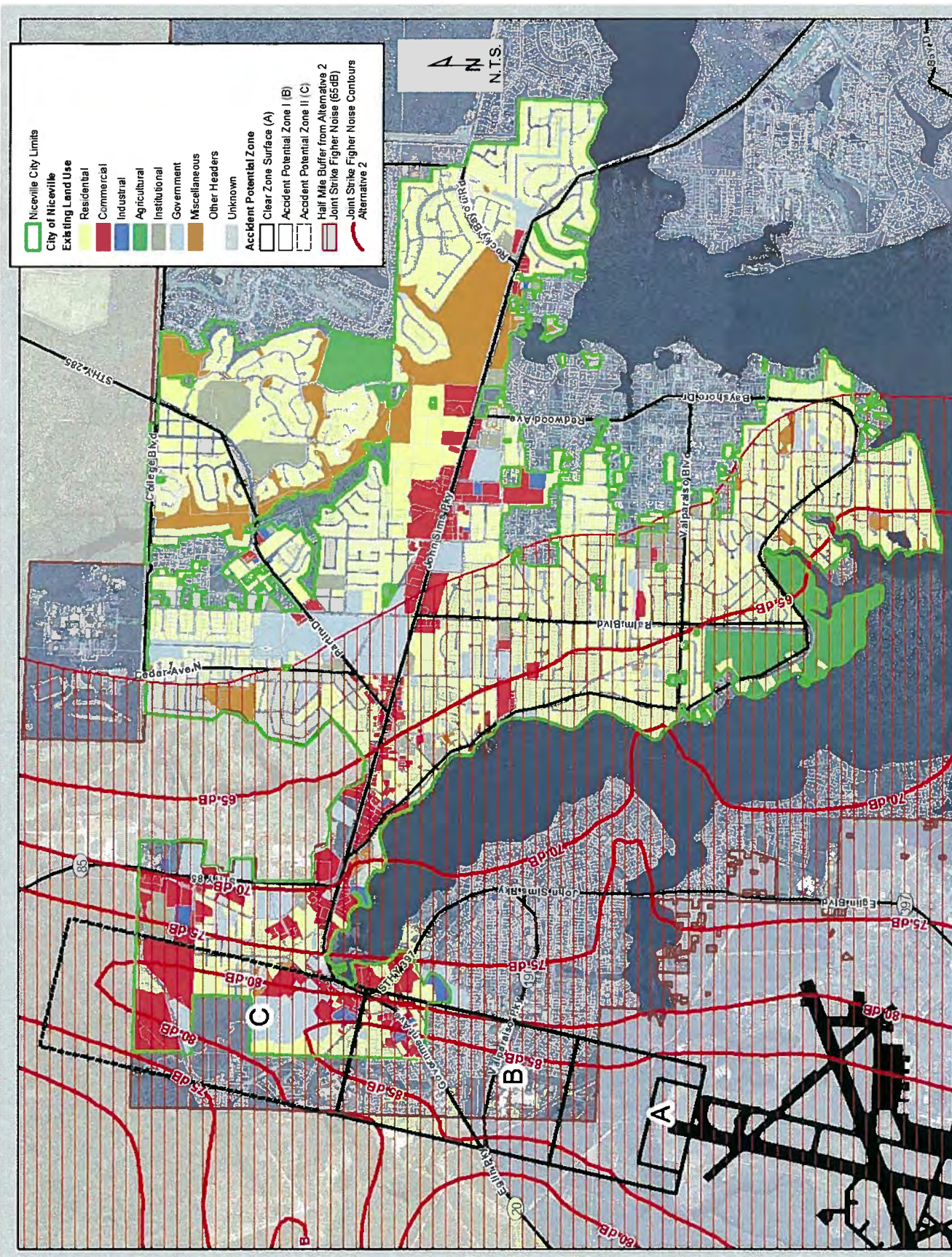


Figure 10-11: F-35 Maximum Mission Noise Contours With One-Half Mile Buffer shown on Niceville Existing Land Use Map





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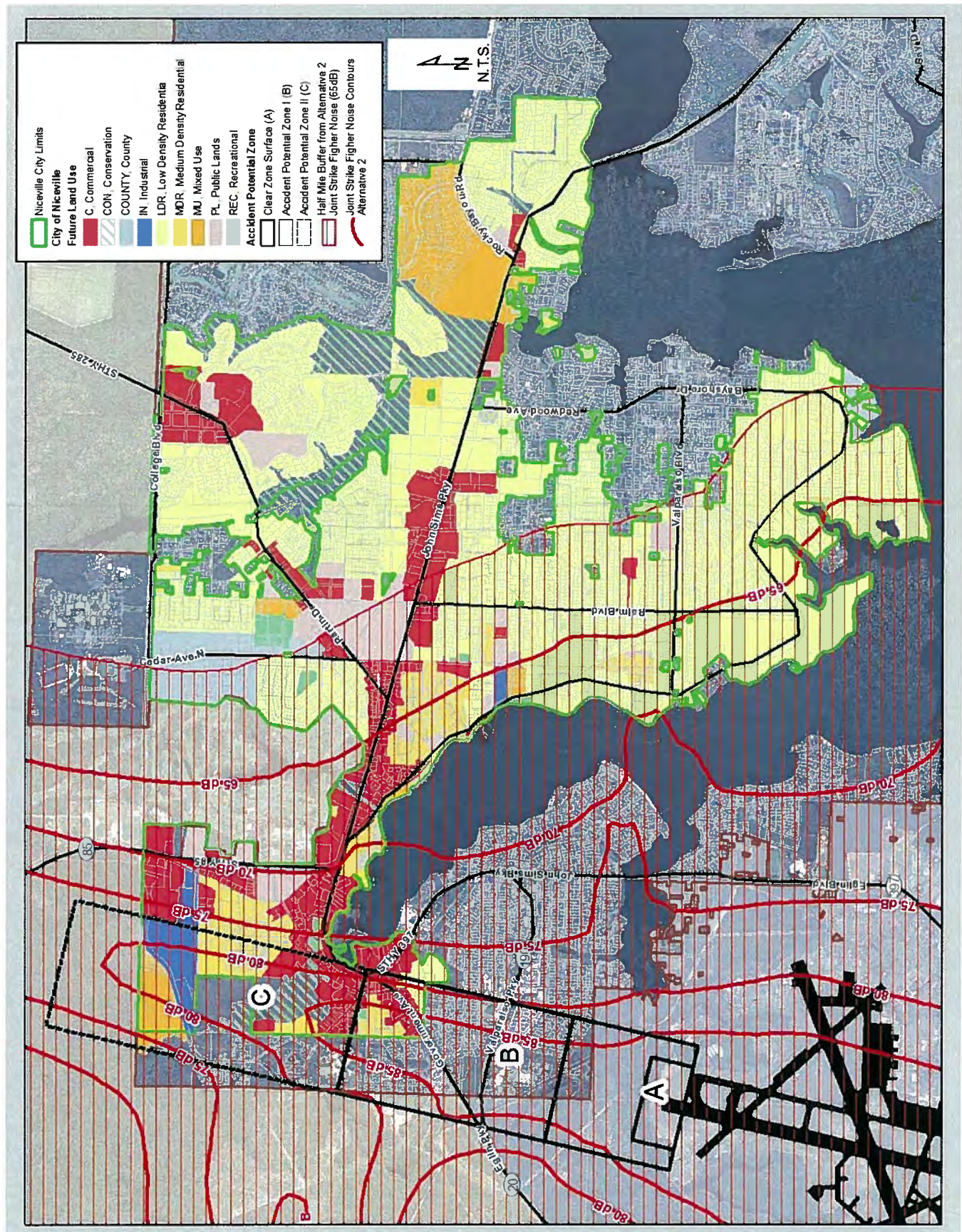


Figure 10-12: F-35 Maximum Mission Noise Contours With: One-Half Mile Buffer on Niceville Future Land Use Map





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Existing Land Use	Clear Zone and Accident Potential Zones											
	Clear Zone (Area A)				APZ I (Area B)				APZ II (Area C)			
	Total Acres	% of Total Acreage	# of Parcels	Total Acres	% of Total Acreage	# of Parcels	Total Acres	% of Total Acreage	Total Acres	% of Total Acreage	# of Parcels	Total Acres
Churches	0	0	0	0	0%	0	0.91	0%	0.91	0%	1	0.91
Commercial Unlimited	0	0	0	2.88	7%	8	0	0%	0	0%	0	2.88
Common Area/Community	0	0	0	0.38	1%	1	3.47	1%	3.47	1%	1	3.85
County	0	0	0	0	0%	0	0.59	0%	0.59	0%	2	0.59
Header Rec	0	0	0	0.36	1%	1	0	0%	0	0%	0	0.36
Hotels and Motels	0	0	0	0	0%	0	2.18	1%	2.18	1%	3	2.18
Light Manufacturing	0	0	0	1.32	3%	1	0	0%	0	0%	0	1.32
Mobile Home	0	0	0	0.19	0%	1	0	0%	0	0%	0	0.19
Multi-Family	0	0	0	5.9	14%	18	8.75	4%	8.75	4%	4	14.65
Municipal	0	0	0	1.14	3%	2	49.91	21%	49.91	21%	8	51.05
Nightclub	0	0	0	0	0%	0	0.3	0%	0.3	0%	1	0.3
Office Building	0	0	0	5.78	13%	7	0.33	0%	0.33	0%	1	6.11
Office Com	0	0	0	0.11	0%	5	0	0%	0	0%	0	0.11
Professional Office	0	0	0	0.16	0%	1	60.84	26%	60.84	26%	3	61
Repair Service Shop	0	0	0	0.62	1%	2	0	0%	0	0%	0	0.62
Restaurant	0	0	0	0.48	1%	2	0.77	0%	0.77	0%	3	1.25
Single Family	0	0	0	13.14	30%	46	20.38	9%	20.38	9%	74	33.52
Single Family - Townhome	0	0	0	0	0%	0	0.76	0%	0.76	0%	19	0.76
State	0	0	0	0.33	1%	2	0	0%	0	0%	0	0.33
Store/SFR	0	0	0	0.48	1%	1	0	0%	0	0%	0	0.48
Stores, 1	0	0	0	1.06	2%	3	0.64	0%	0.64	0%	2	1.7
Vacant	0	0	0	6.88	16%	20	80.08	34%	80.08	34%	73	86.96
Vehicle Sales	0	0	0	0.26	1%	1	2.45	1%	2.45	1%	3	2.71
Warehouse	0	0	0	1.76	4%	3	4.16	2%	4.16	2%	3	5.92
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>43.23</b>	<b>100%</b>	<b>125</b>	<b>236.5</b>	<b>100%</b>	<b>236.5</b>	<b>100%</b>	<b>201</b>	<b>279.75</b>
												<b>100%</b>
												<b>326</b>

Table 10-1: Existing Land Use Development Within Clear Zone (Area A) and Accident Potential Zones I and II (Areas B and C, respectively) in the City of Niceville



# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

Existing Land Use	65-69 dB			70 - 74 dB			75 - 79 dB			80 - 84 dB			85+ dB			Total		
	Total Acres	% of Total Acres	# of Parcels	Total Acres	% of Total Acres	# of Parcels	Total Acres	% of Total Acres	# of Parcels	Total Acres	% of Total Acres	# of Parcels	Total Acres	% of Total Acres	# of Parcels	Total Acres	% of Total Acres	# of Parcels
Beauty Parlor	0.3	0%	2										0.91	2%	1	0.3	0%	2
Churches	7.02	1%	9	2.38	2%	3										10.31	1%	13
Clubs/Lodging	0.97	0%	2													0.97	0%	2
Commercial Unlimited																		
Common Area/Community	9.89	2%	9	2.74	2%	4	7.41	5%	4				2.88	8%	8	2.88	0%	8
Condominia	13.6	3%	16										0.38	1%	1	20.42	2%	18
County	0.03	0%	1													13.6	1%	16
Financial - Bank	0.25	0%	1							0.59	0%	2				0.62	0%	3
Header Rec	0.85	0%	1													0.25	0%	1
Hotels and Motels	5.23	1%	3				0.98	1%	1				0.36	1%	1	1.21	0%	2
Light Manufacturing	0.5	0%	1							1.2	1%	2				7.41	1%	6
Lumber Yard	1.44	0%	1	5.93	4%	1							1.32	3%	1	7.75	1%	3
Military	4.83	1%	1													1.44	0%	1
Mobile Home	0.12	0%	1				0.31	0%	1							4.83	0%	1
Multi-Family	5.9	1%	25	4.73	3%	11	1.58	1%	5				0.19	1%	1	0.62	0%	3
Municipal	16.62	3%	17	8.66	6%	6	4	3%	3	11.01	7%	9	2.83	7%	9	26.05	3%	59
Nightclub	0.5	0%	1				0.3	0%	1	49.91	34%	8	1.14	3%	2	80.33	8%	36
Office Building	2.81	1%	11	10.13	7%	7	7.92	5%	3							0.8	0%	2
Office Com										1.21	1%	2	4.57	12%	5	26.64	3%	28
Parking Lot	1.21	0%	2										0.11	0%	5	0.11	0%	5
Private Hospital				14.11	10%	2	0.51	0%	1							1.21	0%	2
Professional Office	1.27	0%	2	7.8	5%	5	60.84	40%	3	0.16	0%	1				14.62	1%	3
Repair Service Shop										0.62	0%	2				70.07	7%	11
Restaurant	5.52	1%	5	5.58	4%	6	1.17	1%	4	0.48	0%	2				0.62	0%	2
School, Private	1.01	0%	1													12.75	1%	17
School, Public	5.97	1%	1	13.83	10%	6										1.01	0%	1
Single Family	193.1	38%	557	17.13	12%	53	21.78	14%	64	12.21	8%	54	14.89	39%	44	19.8	2%	7
Single Family - Townhome	3.84	1%	46	4.41	3%	32	0.96	1%	24	0.28	0%	7				259.11	26%	772
State	6.69	1%	3	1.41	1%	3	0.49	0%	1	0.33	0%	2				9.49	1%	109
Store/Office	0.18	0%	2													8.92	1%	9
Store/SFR																0.18	0%	2
Stores, 1	4.63	1%	9	3.49	2%	3	2.84	2%	2	0.48	0%	1				3.32	0%	3
Supermarket	1.33	0%	2	0.49	0%	1	4.39	3%	4	1.29	1%	3	0.19	1%	1	13.99	1%	20
Timberland	120.5	24%	4													1.82	0%	3
Transit TE	6.25	1%	2													120.5	12%	4
Vacant	79.15	16%	143	34.09	24%	41	32.54	21%	67	62.03	42%	31	6.04	16%	16	6.25	1%	2
Vehicle Sales	1.95	0%	2	4.08	3%	6	0.4	0%	1	1.87	1%	1	0.84	2%	3	213.85	22%	298
Warehouse	0.16	0%	1	2.88	2%	1	5.32	3%	1	4.61	3%	4	1.31	3%	2	9.14	1%	13
Total	503.6	100%	884	143.9	100%	191	153.7	100%	190	148.3	100%	131	37.96	100%	100	987.47	100%	1496
Total Percentages	51%		59%	15%		13%	16%		13%	15%		9%	4%		7%	100%		100%

Table 10-2: Breakdown of Existing Land Use Designations Within High Noise Levels in City of Niceville





## 10.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the City on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the City. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the City's use:

- **NCV 1:** Implement Construction Standards for New Construction to provide Noise Level Reduction Inside Structures Proposed Within Maximum Mission Noise Areas (>65 dB)
- **NCV 2:** Implement Effective Disclosure Procedures Notifying Buyers and Leasers that Property is Near a Military Installation subject to Low Level Aircraft, Impulse Noises, and/or Other Military-Related Issues Identified
- **NCV 3:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **NCV 4:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **NCV 5:** Implement Public Awareness Measures Through Environs Signage, Website Links, and Educational Handouts
- **NCV 6:** Identify APZ I and II and High Noise Zones (> 65 dB) Low Level Approach Zones and Cruise Missile Corridors on All City Maps, Preliminary Plats and Public Reports and Require Developers To Identify Same Information on All Proposed Projects
- **NCV 7:** Study Required Implementation Steps to Retrofit Existing Public Buildings Within the High Noise

Level Areas (>65 dB) with Sound Attenuation

- **NCV 8:** Study Required Implementation Steps to Develop Retrofit Program for Sound Attenuation for Habitable Buildings in High Noise Level Areas (>65 dB)
- **NCV 9:** Develop Land Acquisition Program
- **NCV 10:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **NCV 11:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **NCV 12:** Establish Military Influence Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III) based on the compatibility issues identified. The different MIPA designations proposed are shown in *Table 10-3* and are summarized as follows:
  - ◊ **MIPA-I:** Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing MIPA-I: Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MIPA-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.
  - ◊ **MIPA-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MIPA-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF. MIPA-II's are not recommended for all jurisdictions participating in this study.
  - ◊ **MIPA-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation and strategic buffer areas along the northern boundary of the Eglin Reservation. MIPA-III's are focused on limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach MIPA-III's vary but, where recommended, the MIPA-III areas for the

Military Influence Planning Area (MIPA) Designation	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach &/ or Cruise Missile Corridor	0.5-1.0 mi Buffer
I	■	■	■			
II				■		
III					■	■

Th

Table 10-3: Proposed MIPA Designations for Eglin JLUS (not all MIPA's apply to every jurisdiction).



buffers are approximately one mile from the Eglin boundary.

*Figure 10-13* shows the location of the MIPA designations in Niceville.

- **NCV 13:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the City's use:

**NCV 1: Noise Level Reducing Construction Standards.** The City's building construction standards or requirements for development order approval through ordinance adoption or revisions should incorporate construction techniques improving noise insulation for residential and certain non-residential structures within the high noise level areas (>65dB). New construction for residential properties, public or quasi-public service buildings, or public assembly facilities proposed within the MIPA-II should be required to include sound insulation to reduce noise levels by at least 25 dB between 65 – 70 dB DNL contours and by at least 30 dB between 70 – 75 dB DNL contours.

*Appendix A – New Construction Acoustical Design Guide* includes examples of adopted guidelines for new construction to follow in an effort to insulate residences and other uses from aircraft noise. No residential development should be allowed (even with noise reduction) in areas with noise contours exceeding 75 dB DNL. Noise insulation construction standards can be reduced or waived for a parcel when residential development is shown to be clustered or located outside of maximum mission noise areas (>65 dB). Proposed developments should be required to provide acoustical standards or studies for developments within MIPA-II showing the noise level reduction associated with the sound attenuation proposed.

**NCV 2: Implement Effective Disclosure Procedures.** The disclosure of aircraft Clear Zone and APZs and aircraft and high intensity impulse noise is a preventive strategy and important tool informing and forewarning prospective buyers or tenants of the expected impacts of an installation's interaction with neighboring communities. Mandatory disclosure ensures prospective homebuyers and leasers are knowledgeable about military operations and its potential impact on the community, subsequently reducing frustration and anti-military sentiment by those not adequately in-

formed prior to entering into their purchase or rental agreement. This recommendation includes developing more effective disclosure procedures and broadens the geographical area where disclosure will be required as part of property transactions. Disclosure requirements should include all properties (residential and non-residential) within the Clear Zone, APZ I and II, and maximum mission and higher intensity impulse noise areas.

*Appendix C – Example Noise Disclosure Statement* provides an example disclosure statement for consideration and use in implementing this recommendation.

Property owner disclosure regarding the potential for safety and noise hazards requires development and adoption of an ordinance establishing requirements for the disclosure to foster more practical implementation and enforcement. More important is establishing the effective use of the disclosure in real world situations. The following recommendations are included as part of delivering a disclosure ordinance recommendation with practical implementation in mind:

- ◇ Adopt ordinance including real estate disclosure requirements for deeds, building permits, preliminary subdivision plats (information on the final plat is dictated by Florida Statute), property purchases, renters, resort properties, and new and existing home sales including sales by owner, builder, and developer.
- ◇ Notify all existing property owners in the Clear Zone and APZ I and II by certified mail of their current situation as owners of property within one or more of the areas. Specifically identify the areas related to each parcel owner. Following completion of the Supplemental EIS, notification of all property owners by certified mail owning property in high noise level areas (>65 dB) should also be completed.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort of the Florida Association of Realtors, Santa Rosa County Association of Realtors, Emerald Coast Okaloosa/Walton Association of Realtors to include sections concerning Safety and Noise on the standard Seller's Real Property Disclosure Statement endorsed by each respective group.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort encouraging state lawmakers to strengthen Florida Statute, Chapter 475 to require mandatory disclosure of properties within the Clear Zone, APZ I and II, and high level noise areas.
- ◇ Seek assistance from the West Florida Regional Planning Council or other professionals of participating local





jurisdictions to incorporate the disclosure statement requirements into a local ordinance and lobbying efforts with other participating local jurisdictions.

- ◇ Conduct public information meetings on the disclosure requirements. At a minimum, one meeting prior to the first reading of the ordinance and a second meeting following the adoption of the ordinance. The meetings would be in addition to the public meetings where the ordinances will be read and discussed with public comment periods.
- ◇ Require identification of the Clear Zone, APZ I, APZ II, High Noise Level Areas (>65dB), and High Intensity Impulse Noise Areas on all County maps and public reports and require developers to identify the areas on all proposed projects.
- ◇ Require sales offices used to market, sell, or lease properties, including pre-construction sales, which will be constructed or leased on lots located in a MIPA, must display a map in public view illustrating military installation property boundaries, and MIPA areas. This display requirement shall also apply to temporary realty sales offices. Pamphlets illustrating the same information appearing on the display map on paper not less than 8.5"x11" shall also be made available and placed in public view.

NCV 3: Implement Lighting Ordinance. Evaluate and update outdoor lighting standards applicable to MIPA areas or all unincorporated areas. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

#### Community Wide Measures:

- ◇ Turn-off un-needed lights, e.g. unused parking lots
- ◇ Use appropriate levels of illumination
- ◇ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach

lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◇ Light patterns common to military aviation
- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary
- ◇ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◇ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◇ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

NCV 5: Implement Public Awareness Measures. Through



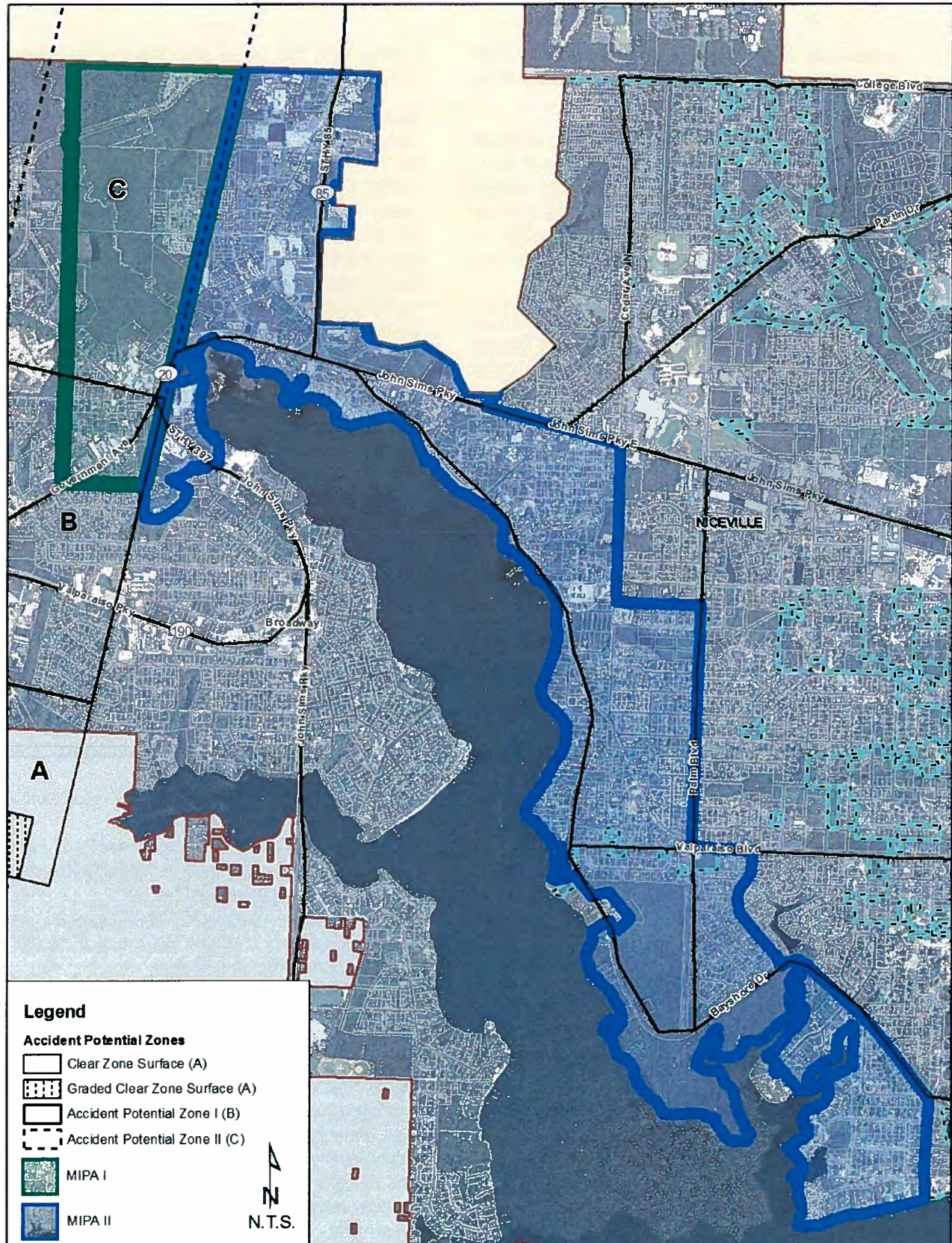


Figure 10-13 Proposed MIPA Designations in City of Niceville





a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◊ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◊ Provide links on the City's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◊ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**NCV 7: Retrofit Public Buildings Within 65dB and Greater Sound Contour With Sound Attenuation.** There are two public buildings within the maximum mission high noise level areas (>65dB) of the maximum mission noise contours in Niceville-Edge Elementary School and an Okaloosa School District office.

Based on the impact this noise level has within the public buildings, it is recommended a further study to determine the highest and best means to retrofit the buildings with noise attenuation elements such as insulation, windows, and associated items. Specific objectives should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

Edge Elementary School is recommended to be retrofitted with sound attenuation.

**NCV 8: Develop Retrofit Program for Sound Attenuation of Existing Occupied Buildings in High Noise Level (>65 dB) Areas.** In an effort to alleviate high sound levels within existing structures, it is recommended to study a development and implementation Assistance Program for sound reduction for private property owners to retrofit existing structures through efforts similar to those described in the previous sub-section for retrofitting existing public buildings. The goal for this program would include achieving noise reductions within dwellings and other structures in areas where the maximum mission noise contours exceed 65 dB. Specific objectives should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. Noise areas exceeding 75 dB are not compatible for residential uses so a NLR for residential use above this noise contour is not recommended. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

The DNL noise reduction goal in habitable rooms can be supplemented by a single-event noise level criterion. This Sound Exposure Level (SEL) reflects the annoyance associated with individual flyovers because of activity interference. The SEL goal is 65 dB in general living spaces and 60 dB in bedrooms and television viewing rooms. These criteria should only be applied to homes within the maximum mission noise contours (>65 dB), not to homes outside the 65 dB DNL contour line. To use the SEL interior noise criteria, the outside noise exposure level is compared to the interior goal. For example, if a dwelling were between the SEL contour boundaries of 85 to 90 dB, then the required NLR to achieve 60 dB in a bedroom would be 30 dB with the conservative upper bound of the noise zone typically used to set NLR goals.

The proposed NLR Assistance Program should include the creation of a grant program designed to reimburse property owners within the high noise level areas (>65 dB) of the maximum mission noise contours up to a certain dollar amount or percentage of costs for implementing acceptable sound attenuation steps. The program should be voluntary and include the execution of a Hold Harmless Agreement by the property owner. *Appendix B – Noise Reduction Standards for Insulating Structures Exposed to Aircraft Operations* contains two examples of policies and procedures available to guide the recommended NLR Assistance Program.



**NCV 9: Develop Land Acquisition Program.** Through the adoption of the recommendations and proposed implementation steps contained herein, there is opportunity to continue conservation efforts by the Northwest Florida Greenway Corridor, The Nature Conservancy, Northwest Florida Water Management District, Florida Department of Environmental Protection, and federal agencies to purchase conservation lands in the APZ I and II, and within the maximum mission noise contours. There are also opportunities to acquire parcels beyond the jurisdictional wetland and sensitive environmental habitat areas within APZ I and II and those parcels should be pursued on a voluntary basis for purchase. As part of this program, potential funding sources should be identified and alternative mechanisms to fee simple purchase explored such as restrictive use easements, land exchanges, and transfer of development rights. Prepare a Land Acquisition Plan organized with projected costs for acquisitions to be programmed into the five-year capital improvement fund. The Plan should quantify impacts to changes to tax revenue resulting from the land acquisition program. Once the Plan's acquisition strategies are adopted, it is important to document the planning efforts completed and adopted to date such as the Eglin JLUS and the recommendations implemented to date in order to maximize grant scoring opportunities.

**NCV 10: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.** Formalize a policy to include military participation in its development review and planning process. This should include a formal communication process between the City and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with City staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and City Council. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp

Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

**NCV 12: Establish Different MIPA Designations.** Establishing Military Influence Areas (MIPAs) as geographic planning areas established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIPA recognizes the existence and mission of a military installation within a community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the public
- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses
- More accurately identify areas affected by military operations
- Create compatible mix of land uses

*Table 10-4* at the end of this section has been created based on the existing issues, baseline analysis, and industry standards regarding joint land use between military installations and private lands. This table and *Table 10-5 - Implementation Plan Responsibilities and Timing*, are intended to further guide the City into implementing the recommended strategies.

**NCV 13: Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the County's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.** There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)





- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
  - ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
  - ◊ Timing & severity of impacts
- Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:
- ◊ Clear Zone
  - ◊ Accident Potential Zone I
  - ◊ Accident Potential Zone II
  - ◊ Noise Contours in decibels: ≥65-69; 70-74; 75-84; ≥85
  - ◊ Cruise Missile Corridors
  - ◊ Supersonic Corridor SW of SW portion of AFB
  - ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.
- Tall structures and potential height thresholds needed within the following areas (with reference maps):
- ◊ Clear Zone and APZ I & II
  - ◊ FAA & Military Approach/Departure Height Thresholds
  - ◊ Military Training Routes
  - ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
  - ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
  - ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)
- Outdoor Lighting
- Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

## **Comprehensive Plan Military Influence Area Subelement Goals, Objectives, and Policies-** Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

## **Identify Policies to Implement Each Objective, including:**

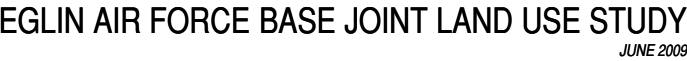
- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezoning
  - ◊ Establish Military Influenced Lands (MIPA) Zoning Overlay District:
    - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
    - ⇒ Height Regulations
  - ⇒ Outdoor Lighting Regulations
  - ⇒ Development Review Procedures:
    - + Ex-Officio Military Representation on Planning Board
    - + Early Notification
    - + Effectuating Timely Participation and Response
    - + Conflict Resolution Mechanisms
  - ◊ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
  - ◊ Restrict Use Of Radio Frequency Spectrum
  - ◊ Bands 5.4 -5.9 Ghz






- ◊ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◊ Special Issues
- ◊ Small Area Land Use Studies
- ◊ Public Awareness
- ◊ Web-Site Public Awareness
- ◊ Public Notice Requirements In Development Review Process
- ◊ Identify When Moa Impacted
- ◊ Street Signage (Military Operations Area)
- ◊ Inform Public of Noise Zone Revisions
- ◊ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◊ Revisions to Construction Standards to Address Noise Attenuation
- ◊ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◊ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◊ Revisions to Instrumentation and/or Physical Orientation
- ◊ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◊ Funding for Implementation

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**Legend:**

	Land use and related structures are not normally compatible and should be prohibited
	Land use and related structures are generally compatible with noted restrictions
	Land uses and related structures are normally compatible without restrictions

(#.#) Indicates maximum Floor Area Ratio (FAR) for the land use identified

**Notes:**

- 1 Maximum Density: 1-2 du/acre
- 2 "Other Uses" includes apartments, group quarters, residential hotels, and transient lodging
- 3 Maximum of 25 occupants per acre and approval is subject to review.
- 4 Maximum of 50 occupants per acre and approval is subject to review.
- 5 No clubhouse
- 6 No accessory units - e.g., no passenger terminals and major above ground electrical transmission lines in APZ I
- 7 No chapels
- 8 No activity which produces smoke, glare, bird attractants, or involves explosives.
- 9 Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 10 Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 11 Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 12 If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
- 13 No buildings.
- 14 Land use compatible provided special sound reinforcement systems are installed.
- 15 Residential buildings require a NLR of 25.
- 16 Residential buildings require a NLR of 30.
- 17 Residential buildings not permitted.
- 18 Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn by personnel.



# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementation Timing			
										Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
NCV 1	Implement Noise Level Reduction Construction Standards	10-23	✓	✓				City of Niceville	Eglin JLUS Policy Committee & TAG	✓			
NCV 2	Establish and Implement Effective Disclosure Procedures	10-23	✓	✓		✓		City of Niceville	Eglin JLUS Policy Committee & TAG	✓			✓
NCV 3	Implement Lighting Ordinance	10-25	✓				✓	City of Niceville	Eglin AFB, Eglin JLUS Policy Committee & TAG		✓		
NCV 4	Distribute Educational Handouts on Radio Frequency	10-22				✓		Eglin AFB	City of Niceville	✓			
NCV 5	Implement Public Awareness Measures	10-25				✓		City of Niceville	Okaloosa County, Eglin AFB, & Others				✓
NCV 6	Identify APZs and High Noise Areas on Public Documents*	10-22	✓	✓				City of Niceville	Private Party Submittals	✓			
NCV 7	Study Required Implementation Steps to Retrofit Existing Public Buildings Within the High Noise Level Areas (>65 dB) with Sound Attenuation	10-26	✓	✓				City of Niceville	Eglin JLUS Policy Committee & TAG		✓		
NCV 8	Study Required Steps to Develop Retrofit Program for Sound Attenuation for Occupied Buildings in High Noise Level Areas (>65 dB)	10-26	✓	✓				City of Niceville	Eglin JLUS Policy Committee & TAG		✓		
NCV 9	Study the Development and Implementation of a Voluntary Land Acquisition Program	10-26	✓	✓				City of Niceville	Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
NCV 10	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review & Planning Process	10-27				✓		City of Niceville	Eglin JLUS Policy Committee & TAG	✓			
NCV 11	Limit Object Heights Regarding Potential Conflicts	10-22	✓				✓	City of Niceville	Eglin AFB	✓			
NCV 12	Establish Military Influence Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III)	10-27	✓	✓				City of Niceville	Eglin JLUS Policy Committee & TAG	✓			
NCV 13	Update City's Comprehensive Plan and Land Development Code	10-27	✓	✓				City of Niceville	Eglin JLUS Policy Committee & TAG	✓			

\* Area shown for High Aircraft Noise shall be subject to change based on the results of the Supplemental BRAC EIS.

Table 10-5: Implementation Plan Responsibilities and Timing





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## SECTION 11 - SHALIMAR



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## 11.1 INTRODUCTION

Shalimar is a town in Okaloosa County originally known as Port Dixie, developed in 1947 by Cliff Meigs for military housing. As of 2004, the population as recorded by the U.S. Census Bureau is 738.

As of the 2000 census, there were 718 people, 288 households, and 209 families residing in the Town. The population density was 2,441.6 per square mile. There were 311 housing units at an average density of 1,057.6 per square mile.

There were 288 households out of which 32% had children under the age of 18 living with them, 65% were married couples living together, 6% had a female householder with no husband present, and 27% were non-families. 22% of all households were made up of individuals and 8% had someone living alone who was 65 years of age or older. The average household size was 2.49 and the average family size was 2.94.

In the town the population was spread out with 25% under the age of 18, 5% from 18 to 24, 31% from 25 to 44, 28% from 45 to 64, and 11% who were 65 years of age or older. The median age was 41 years.

Figure 11-1 shows Shalimar's town limits.

## 11.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the Town were identified and explained. The following are the issues identified for the Town:

- Impulse Noise
- Low Level Helicopter and Tiltrotor Areas
- Terminal Instrument Procedures (TERPs)
- Radio Frequency
- Height of Objects
- Lighting

For clarification, each issue listed above is described further in the following subsections with descriptions providing information on how military activities influence the public.

### 11.2.1 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity, Infrequent Impulse Noise, Moderate Intensity, Less Frequent Impulse Noise*, and *Higher Intensity, Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

The Town is included in the *Low Intensity, Infrequent Impulse Noise* area and a portion of the Town is located within the *Moderate Intensity, Less Frequent Impulse Noise* area. The extent of the two different levels of impulse noise on the Town is shown in Figure 11-2.

### 11.2.2 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area* as shown in Figure 11-3). The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and Naval Air Station Whiting Field.

### 11.2.3 Object Heights

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Or-



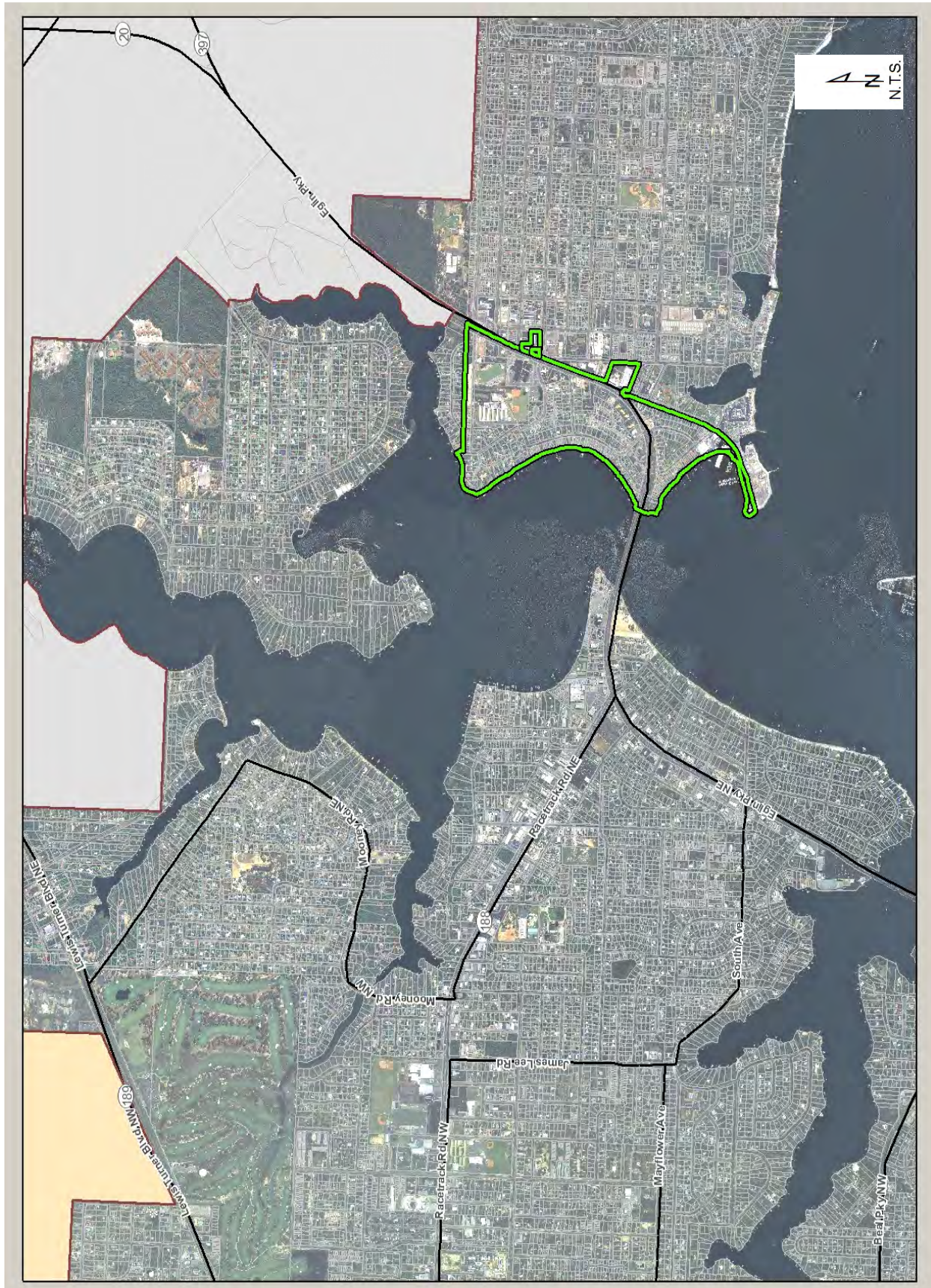


Figure 11-1: Shalimar Town Limits





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

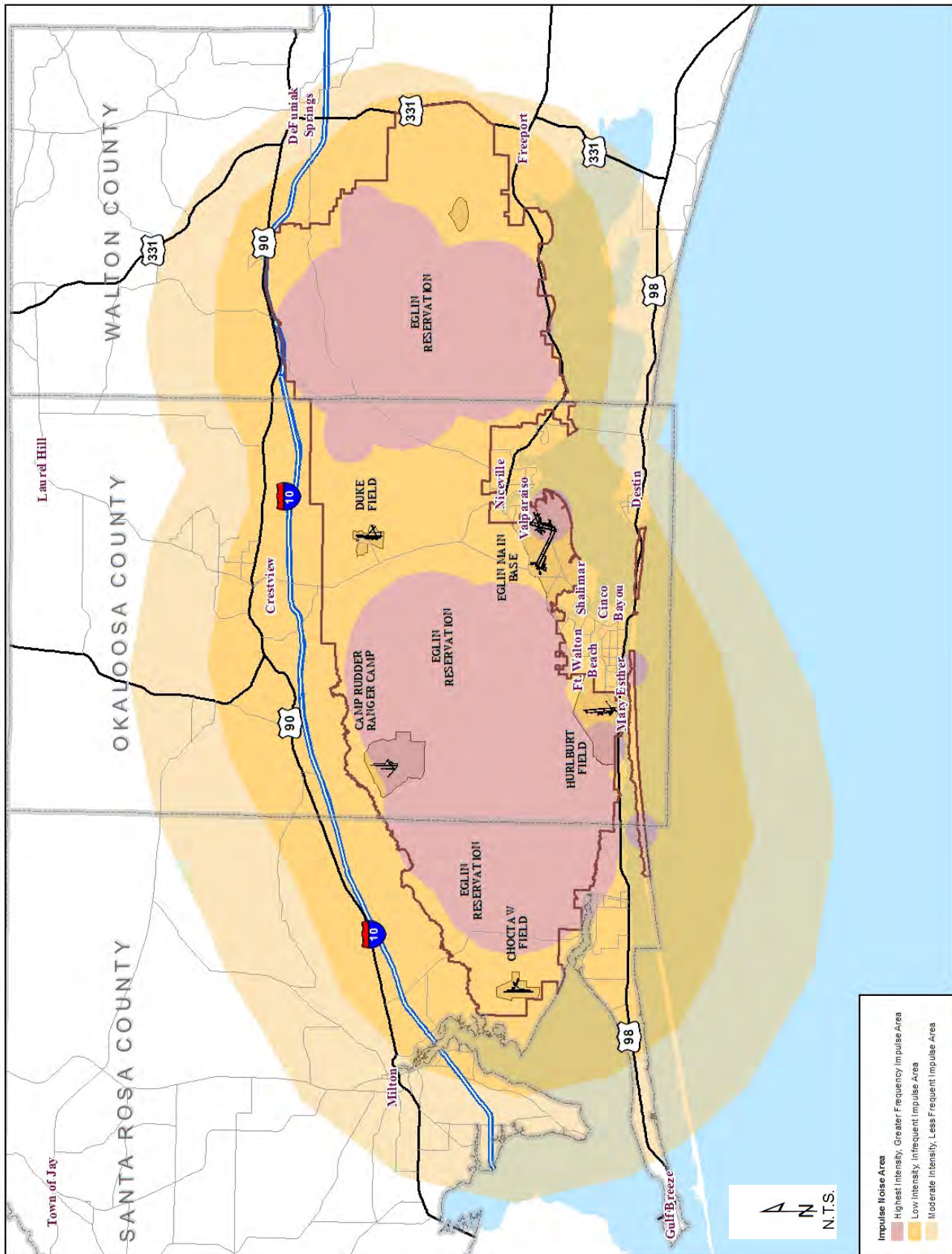


Figure 11-2: Impulse Noise Areas



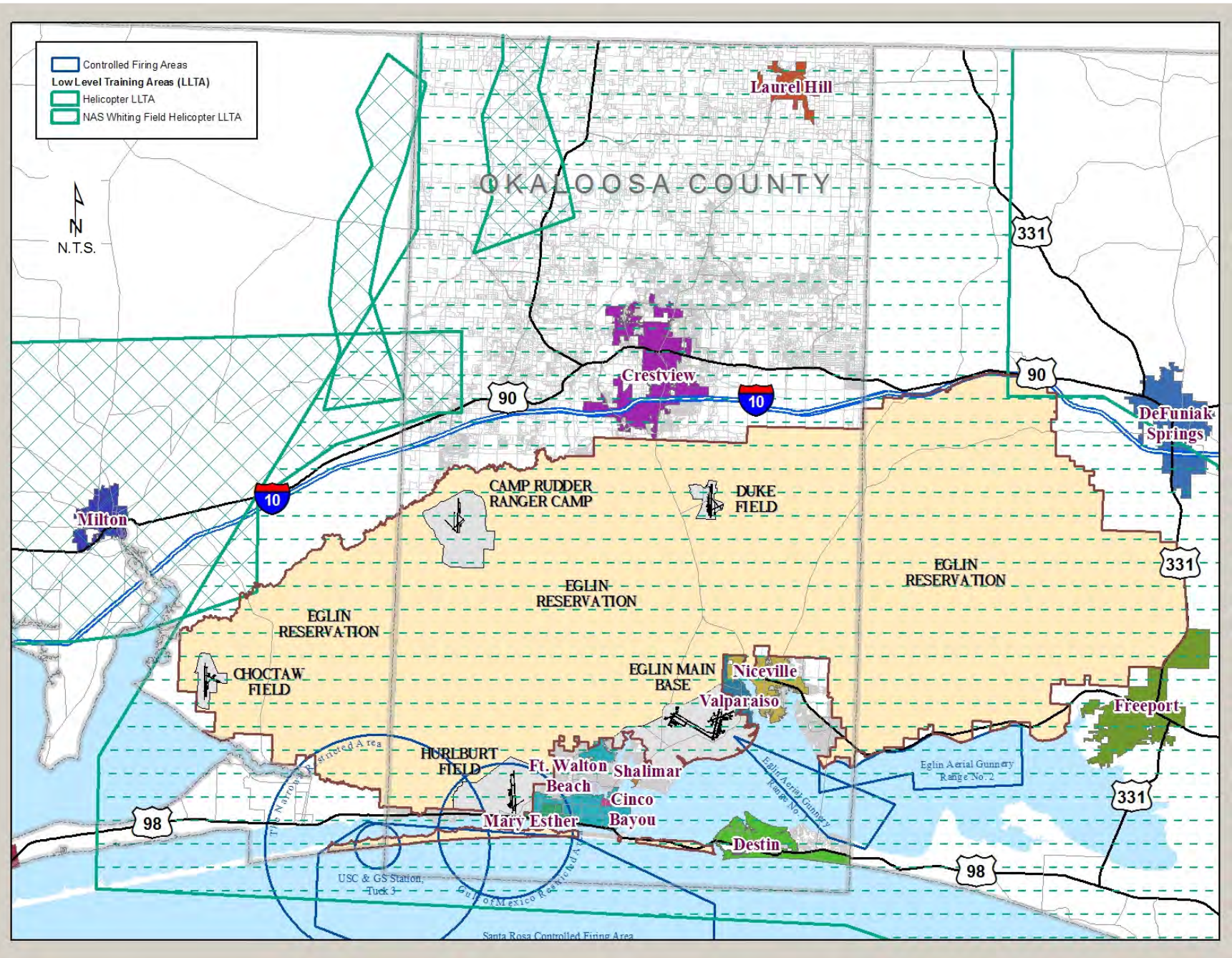


Figure 11-3: Low Level Helicopter and Tiltrotor Training Areas Across Okaloosa County





ders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPs have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure there were no navigation problems. [Figure 11-4](#) identifies the maximum building heights resulting from this study.

## 11.2.4 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns. Examples of ground lighting that can interfere with night

vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. [Figure 11-5](#) shows the increase in artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population.

## 11.2.5 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety



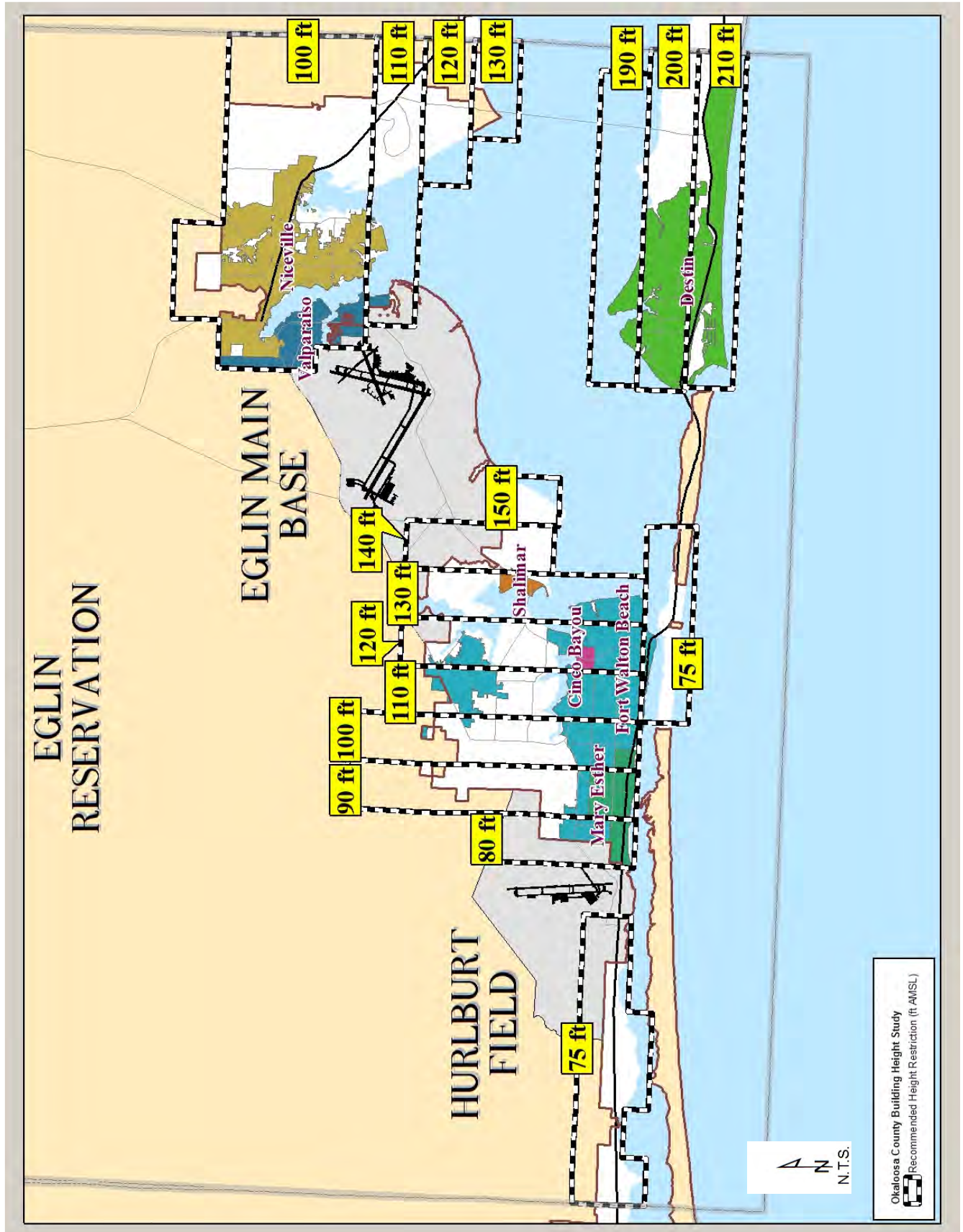


Figure 11-4: Okaloosa Maximum Building Heights (Air Force, 2006)

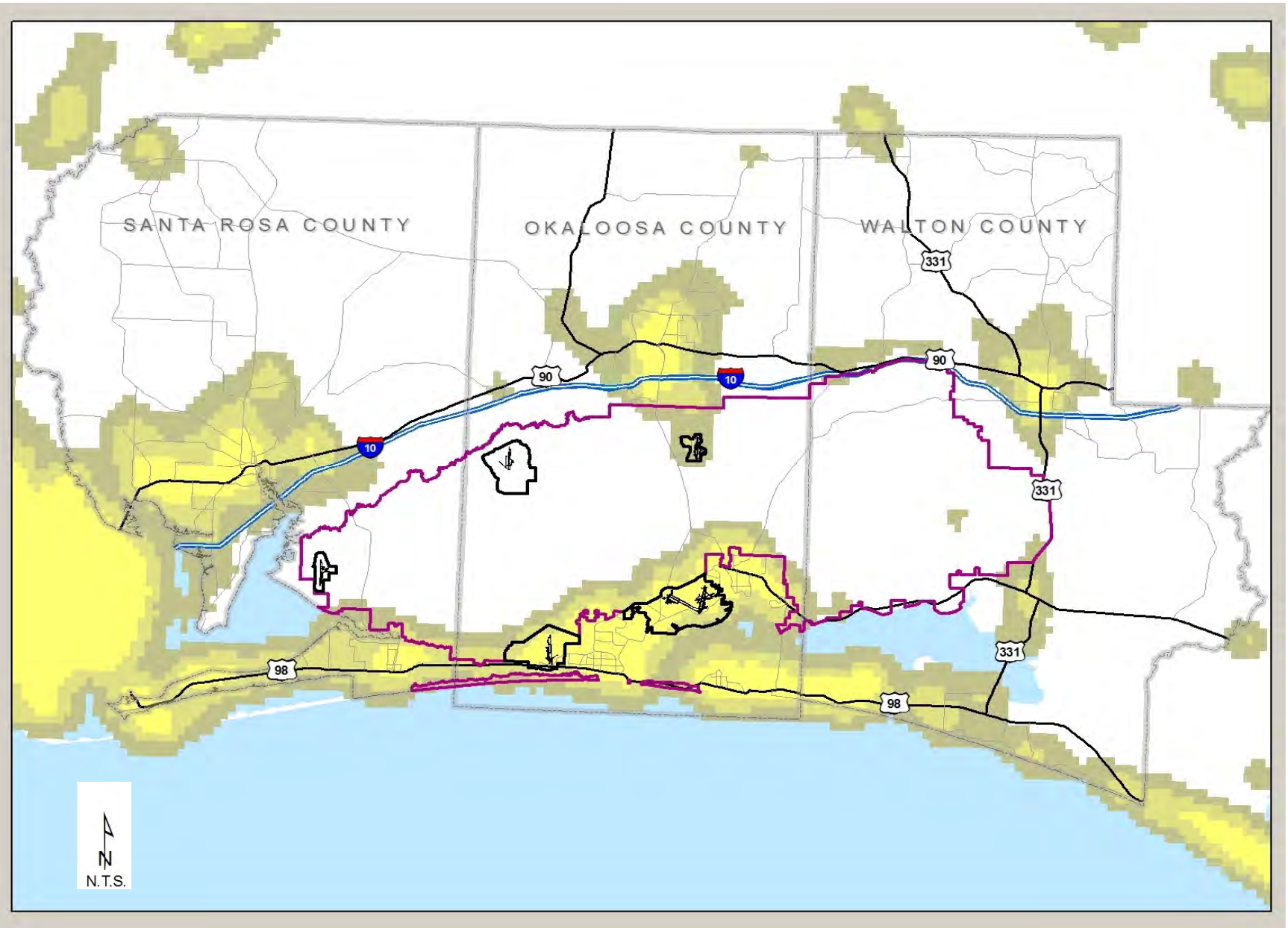


Figure 11-5: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)







of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

## 11.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the Town's Future Land Use Map is provided in *Figures 11-6*.

### 11.3.1 Impulse Noise

The nature of the impulse noise in the Town is in the low to moderate ranges as previously shown in Figure 11-2. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 11.3.2 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire Town limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with low flying helicopters and tiltrotors.

### 11.3.3 Radio Frequency Interference

The analysis for radio frequency interference in the Town is a simple one. The entire Town lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations.

Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the Town is not responsible for regulating or licensing radio frequencies, there are steps the Town can take to help minimize radio frequency interference. The Town should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

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Figure 11-6: Shalimar Future Land Use Map





## 11.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the Town on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the Town. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the Town's use:

- **SHL 1:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **SHL 2:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **SHL 3:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **SHL 4:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **SHL 5:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **SHL 6:** Update Town's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the Town's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the Town's use:

**SHL 1: Implement Lighting Ordinance.** Evaluate and update outdoor lighting standards applicable to the Town. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

Community Wide Measures:

- ◊ Turn-off un-needed lights, e.g. unused parking lots
- ◊ Use appropriate levels of illumination
- ◊ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◊ Light patterns common to military aviation
- ◊ Lights to create sky glow (except when used for safety, security, and utility)
- ◊ Luminous tube lighting on building exterior or roof
- ◊ Internally lit awnings
- ◊ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◊ Minimal illumination necessary
- ◊ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◊ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◊ within one-hour of closing and turned on no sooner than one hour prior to opening



*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

SHL 3: Implement Public Awareness Measures. Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◇ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◇ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

SHL 4: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process. Formalize a policy to include military participation in its development review and planning process. This should include a formal communication process between the Town and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with Town staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and Town Council. A key component of this recommendation is ensuring the opportunity for different jurisdictions to

communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

SHL 6: Update Town's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the Town's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests. There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◇ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◇ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◇ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◇ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◇ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◇ Clear Zone





- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels:  $\geq 65$ -69; 70-74; 75-84;  $\geq 85$
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

**Comprehensive Plan Military Influence Area Subelement Goals, Objectives, and Policies-** Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive

environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

**Identify Policies to Implement Each Objective, including:**

-Amendments to Comprehensive Plan Future Land Use Map, if any

-Amendments to Regulatory Land Use Controls:

- ◊ Possible Implementing Rezoning
- ◊ Establish Military Influenced Lands (MIPA) Zoning Overlay District:
  - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
  - ⇒ Height Regulations
  - ⇒ Outdoor Lighting Regulations
  - ⇒ Development Review Procedures:
    - + Ex-Officio Military Representation on Planning Board
    - + Early Notification
    - + Effectuating Timely Participation and Response
    - + Conflict Resolution Mechanisms
- ◊ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
- ◊ Restrict Use Of Radio Frequency Spectrum
- ◊ Bands 5.4 -5.9 Ghz
- ◊ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◊ Special Issues
- ◊ Small Area Land Use Studies
- ◊ Public Awareness
- ◊ Web-Site Public Awareness
- ◊ Public Notice Requirements In Development Review Process
- ◊ Identify When Moa Impacted
- ◊ Street Signage (Military Operations Area)
- ◊ Inform Public of Noise Zone Revisions
- ◊ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.



- ◊ Revisions to Construction Standards to Address Noise Attenuation
- ◊ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◊ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◊ Revisions to Instrumentation and/or Physical Orientation
- ◊ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◊ Funding for Implementation
- ◊ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◊ Revisions to Construction Standards to Address Noise Attenuation
- ◊ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◊ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◊ Revisions to Instrumentation and/or Physical Orientation
- ◊ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◊ Funding for Implementation

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ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementa- tion Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
SHL 1	Implement Lighting Ordinance	11-11					✓	Shalimar	Eglin AFB, Eglin JLUS Policy Committee & TAG		✓		
SHL 2	Distribute Educational Handouts on Radio Frequency	11-11				✓		Eglin AFB	Shalimar	✓			
SHL 3	Implement Public Awareness Measures	11-12				✓		Shalimar	Okaloosa County, Eglin AFB, & Others				✓
SHL 4	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	11-13				✓		Shalimar	Eglin JLUS Policy Committee & TAG	✓			
SHL 5	Limit Object Heights Regarding Potential Conflicts	11-11					✓	Shalimar	Eglin AFB	✓			
SHL 6	Update Town's Comprehensive Plan and Land Development Code	11-13					✓	Shalimar	Eglin JLUS Policy Committee & TAG	✓			

Table 11-1: Timing and Implementation Responsibilities



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## SECTION 12 - VALPARAISO



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## 12.1 INTRODUCTION

Valparaiso, the “Vale of Paradise”, incorporated in 1921 in Okaloosa County. As of the 2000 census, there were 6,408 people, 1,928 households, and 1,284 families residing in the City of Valparaiso. The population density was 536.8/mi<sup>2</sup> and there were 2,023 housing units at an average density of 169.5/mi<sup>2</sup>. There were 1,928 households out of which 30% had children under the age of 18 living with them, 52% were married couples living together, 10% had a female householder with no husband present, and 33% were non-families. 28% of all households were made up of individuals and 9% had someone living alone who was 65 years of age or older. The average household size was 2.36 and the average family size was 2.87.

In the City the population was spread out with 17% under the age of 18, 20% from 18 to 24, 32% from 25 to 44, 20% from 45 to 64, and 11% who were 65 years of age or older. The median age was 34 years.

*Figure 12-1* shows Valparaiso's city limits.

## 12.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from Valparaiso and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting, the May 8, 2008 Special Valparaiso City Council Meeting, and the June 18, 2008 Public Open House, the issues for the City were identified and explained. *Appendix D—Eglin JLUS Public Presentations* provides copies of this information plus all public presentations included with this study.

The following are the issues identified for the City with respect to land use encroachments:

- Development at Eglin AFB Boundary
- Incompatibilities in Runway Clear Zone
- Incompatibilities in Accident Potential Zones I and II
- Airfield Noise
- Impulse Noise
- Low Level Helicopter and Tiltrotor Training
- Radio Frequency Interference
- Height of Objects
- Lighting

For clarification, each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

### 12.2.1 Eglin Perimeter Boundary Development

The entire western and southern boundaries of the City border the Eglin Main Base or the Eglin Reservation. In fact, a portion of the City Limits falls within the Eglin Main Base area. With the exception of the northern section of the City and a few undeveloped parcels sprinkled throughout the City, the City is relatively built-out. Development near the boundary of a military base/reservation can create security concerns, promote excessive light during nighttime hours, and encourage other encroachments.

### 12.2.2 Incompatibilities in Runway Clear Zone (Area “A”)

Aviation history has shown that property along primary flight paths and immediately beyond the end of runways have a higher potential exposure to aircraft accidents than areas further out from an airfield or flight path. Several studies of aircraft accidents discovered that the majority of accidents occur either on or adjacent to airfields (USAF, 1999). In response to these and other studies, the Department of Defense developed the Air Installation Compatible Use Zone (AICUZ) program to specifically address compatible use of public and private lands in the vicinity of military airfields (DODI 4165.57 and AFI 32-7063) (DoD, 1997; U.S. Air Force, 2003a).

The Clear Zone “A” is an area possessing a high potential for accidents and is located just past the end of a runway.

Created as part of the AICUZ program, Clear Zones are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, Clear Zones function to heighten the general public's awareness to areas where higher risks occur. The Clear Zone is an area possessing a high potential for accidents and is located just past the end of a runway. In this report, the Clear Zone has been labeled “A” to enable easier depiction on maps and is shown in *Figure 12-2* for the City of Valparaiso. *Figure 12-3* shows the typical locations of the Clear Zone in a diagram format for a runway classification the same as Eglin Main Runway 19.





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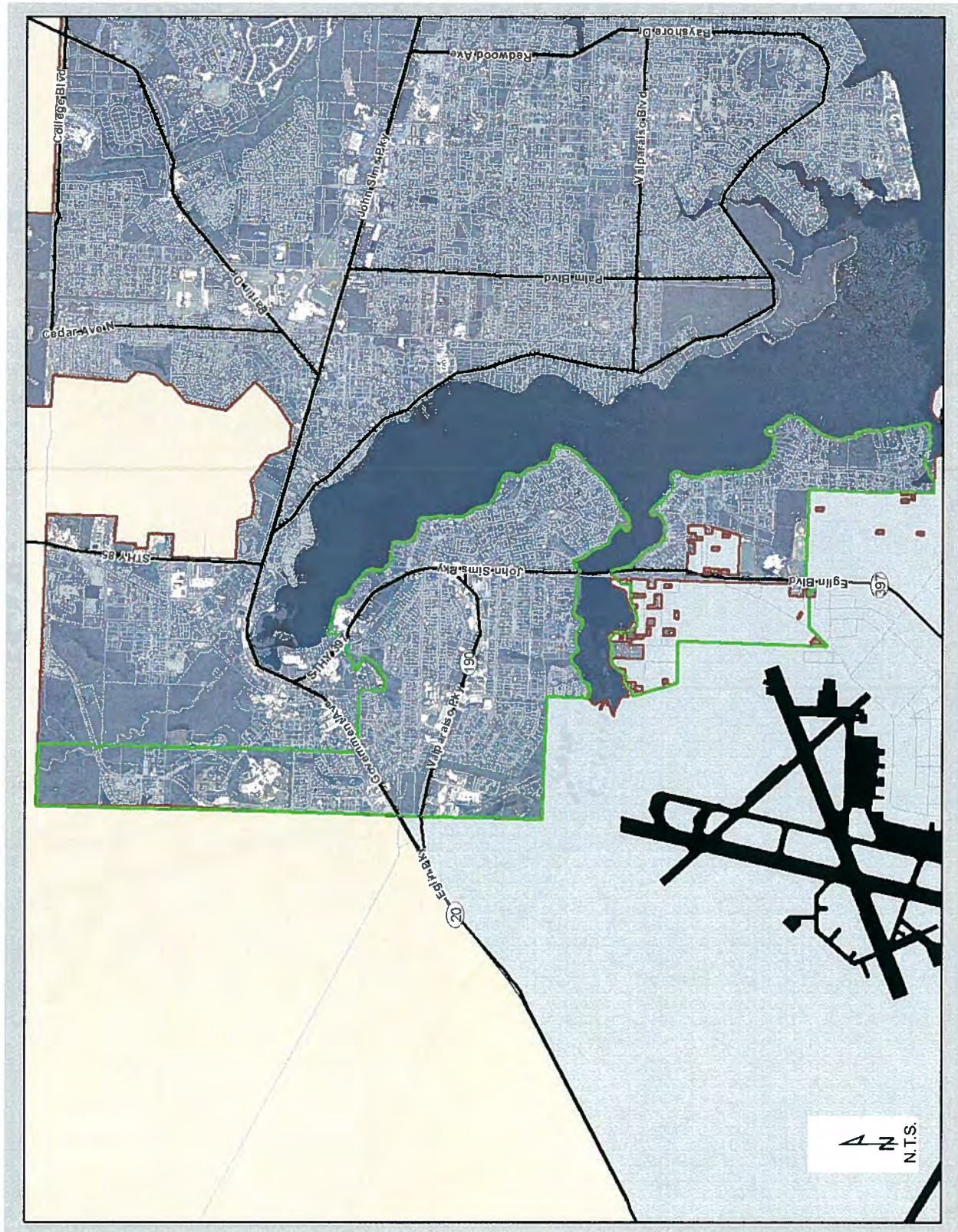


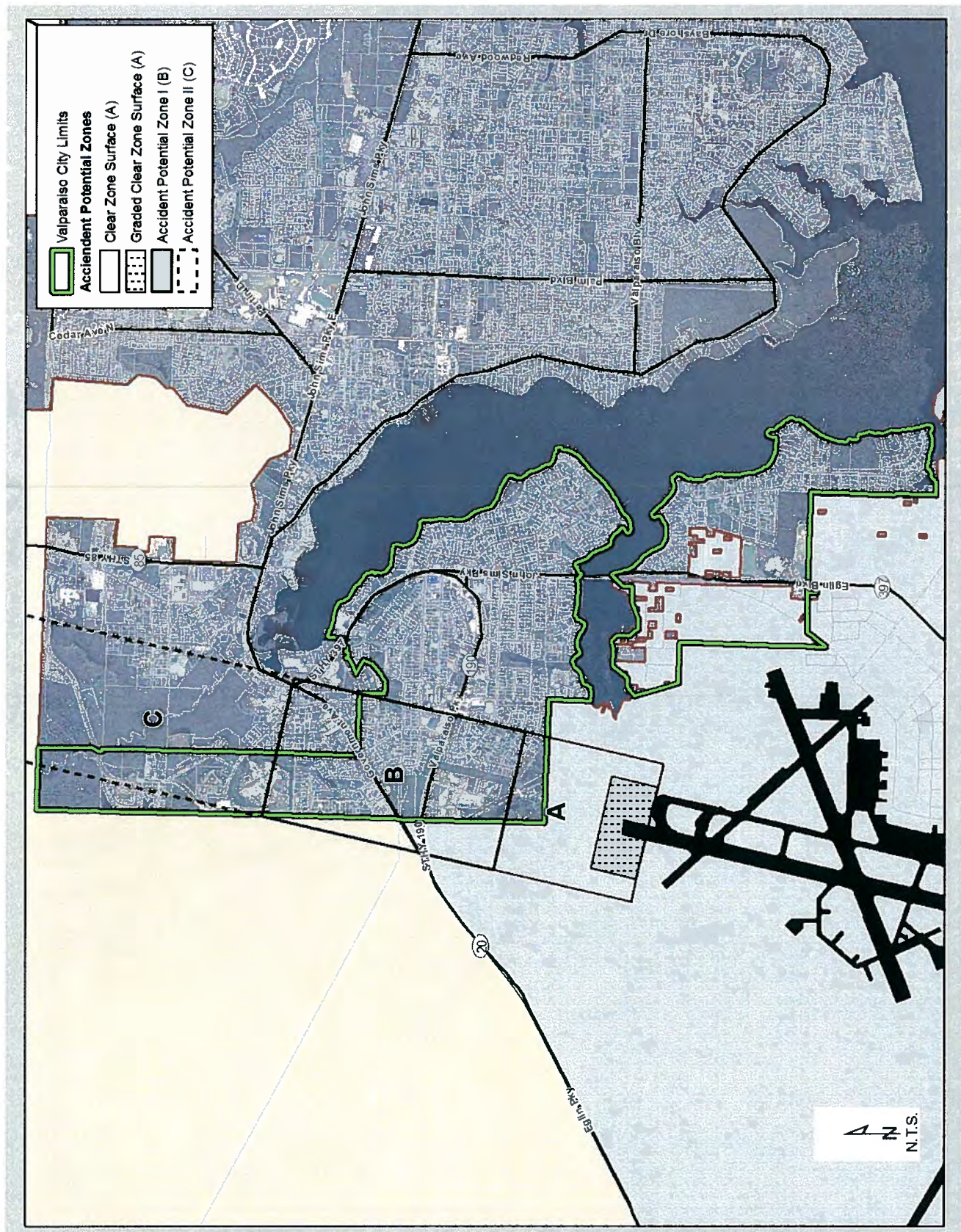
Figure 12-1: Valparaiso City Limits



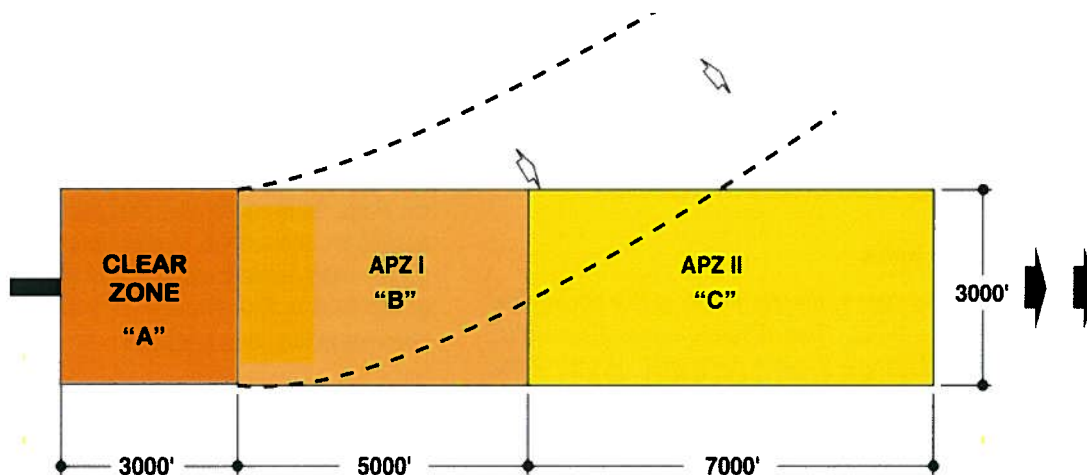


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## CLASS "B" RUNWAY

Figure 12-3: Typical Locations of Clear Zones and Accident Potential Zones (APZs I and II).

### 12.2.3 Incompatibilities in Accident Potential Zones I and II (Area "B" and "C")

Beyond the Clear Zone is an area along the flight path that possesses a significant potential for accidents. Created as part of the AICUZ program, Accident Potential Zones (APZ) are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, APZs function to heighten the general public's awareness to areas where higher risks occur. They also help local governments to identify where to direct zoning regulations and land use standards designed to reduce potential conflicts between airfield operations and civilian populations.

Accident Potential Zones (APZs) help local governments direct zoning regulations and land use standards design to reduce potential conflicts between airfield operations and civilian populations.

APZs are divided into two (2) designations based on accident potential. The zone closest to the Clear Zone is referred to as APZ-I. It has been labeled "B" for easier depiction throughout this study. APZ-II (labeled "C") is typically furthest from the runway in terms of the flight path and it has a measurable potential for accidents. Approach or departure flight paths will turn into or away from a runway. Therefore, APZ I and II may curve away from the end of a clear zone as well as leading straight out. Based on designated airport flight paths for approach and departure, some areas in a APZ-II zone may actually be closer to a runway than portion of the APZ-I. For the City of Valparaíso,

raiso, APZ I and II lead straight out from the end of the Clear Zone and are also shown in Figure 12-2. Figure 12-3 provides a diagram with typical locations of APZ I and APZ II with respect to the end of the runway for Eglin Main's Runway 19.

Fixed-wing aircraft and helicopters takeoff or land into the wind. Landing or takeoff against the wind provides optimal aerodynamic conditions to lift aircraft and gain altitude. Flight paths leading toward an airfield, called an entry pattern, frequently enter from a course not aligned with the upwind runway or landing approach. In such situations, aircraft must fly an established local pattern until aligned with the upwind direction or the runway best aligned with the upwind direction. Likewise, takeoff direction does not always align with the intended departure direction, resulting in left or right turns shortly after takeoff in order to enter the departure pattern. APZ boundaries will bend to acknowledge left and right turning movements used to align with departure or landing patterns.

Landing and takeoff patterns differ between helicopters and fixed-wing aircraft because of their separate aerodynamic requirements. Having a greater dependence on wind direction, helicopters takeoff and land facing oncoming wind. Flight paths for helicopters will vary with changes in the direction of the wind. APZ boundaries for helicopters may be aligned with prevailing or normal wind conditions. Fixed-wing aircraft are limited to a runways course, making flight path more predicate. Boundaries and size of APZ vary from airport to airport to address field conditions as well as unique and separate needs differentiating helicopters and fixed-wing aircraft. At Eglin AFB, most APZ boundaries and designations (i.e., APZ-I "B" and APZ-II "C") estab-





lished for Eglin Main runways were specifically designed for fixed-wing military needs. APZ boundaries and designations for the airfield are attributed to flight characteristics and historical experiences for fixed-wing aircraft.

## 12.2.4 Airfield Noise

At the time of this report, the Air Force is developing the curriculum for the F-35. Two different noise alternatives (Alternate 1 and Alternate 2) were developed as part of the *Base Realignment and Closure (BRAC) 2005, Environmental Impact Statement (EIS)* and this information is being utilized as part of this JLUS. It appears the noise associated with Alternate 2 provides the maximum mission noise contours in Valparaiso and, therefore, will be the contours used for analysis and form the basis for recommendations. The analysis and recommendations provided herein shall be reevaluated based on information forthcoming from the Air Force in the Supplemental BRAC EIS.

At a typical installation, the AICUZ addresses noise exposure to non-military lands near military installations with safety concerns. Noise exposure can create conflicts with public welfare and quality of life for those living or working near airfields. Noise level contours extending from the airfield are incrementally measured from the highest typical

decibel (dB) generated within a military installation to 65 dB within non-military property. For the Eglin AFB JLUS, the future aircraft (F-35) is not located at Eglin at this time so the AICUZ does not include noise levels associated with the F-35. In order for this study to be based on useful and applicable information, it was determined this study would utilize noise levels available from the Air Force for the proposed F-35 in lieu of using F-15 noise levels which will be obsolete in the coming years.

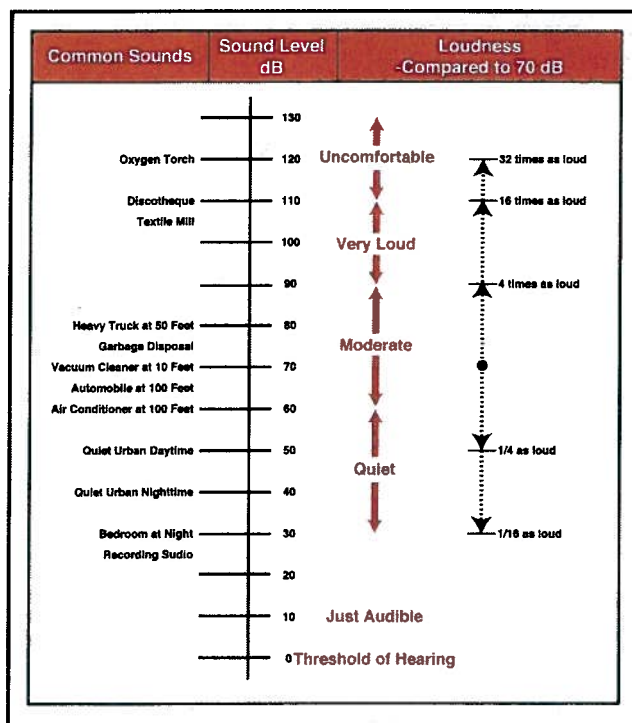
Based on numerous sociological surveys and recommendations of federal interagency councils, the most common benchmarks for assessing environmental noise impacts to people are a Day-Night Average Sound Level (DNL) of 65 dBA for A-weighted noise, and 62 dBC for C-weighted noise. When measuring single event impulse noise, the benchmark for assessing noise impacts to people is 115 dBP (unweighted scale). These noise level thresholds are often used to determine residential land use compatibility and the risk of human annoyance. In general, when exposed to less than the noise levels identified above, land uses are unrestricted. As noise levels increase above these levels, some land uses become incompatible.

Noise contours are delineated by computerized simulation of aircraft activity at each installation and integrate operational data specific to the types of aircraft using a particular airfield. The methodology used to identify noise counters takes into consideration flight paths, frequency and time of operation, as well as the type and mix of aircraft. The noise contours utilized in this study were provided by the Air Force. The scope of this study does not include manipulating the computer simulation to adjust noise contours. *Figure 12-4* provides ranges of typical A-weighted levels compared with common sounds.

*Figure 12-5* shows the Airfield Noise associated with the two F-35 alternatives with a one-half mile buffer shown. *Figure 12-6* shows the specific noise contours associated with F-35 maximum mission noise contours in Valparaiso.

## 12.2.5 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity - Infrequent Impulse Noise*, *Moderate Intensity - Less Frequent Impulse Noise*, and *Higher Intensity - Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.



Source: Handbook of Noise Control, C.M. Harris, McGraw-Hill Book Co., 1979, and Ref. E5

Figure 12-4: Typical A-weighted Levels of Common Sounds



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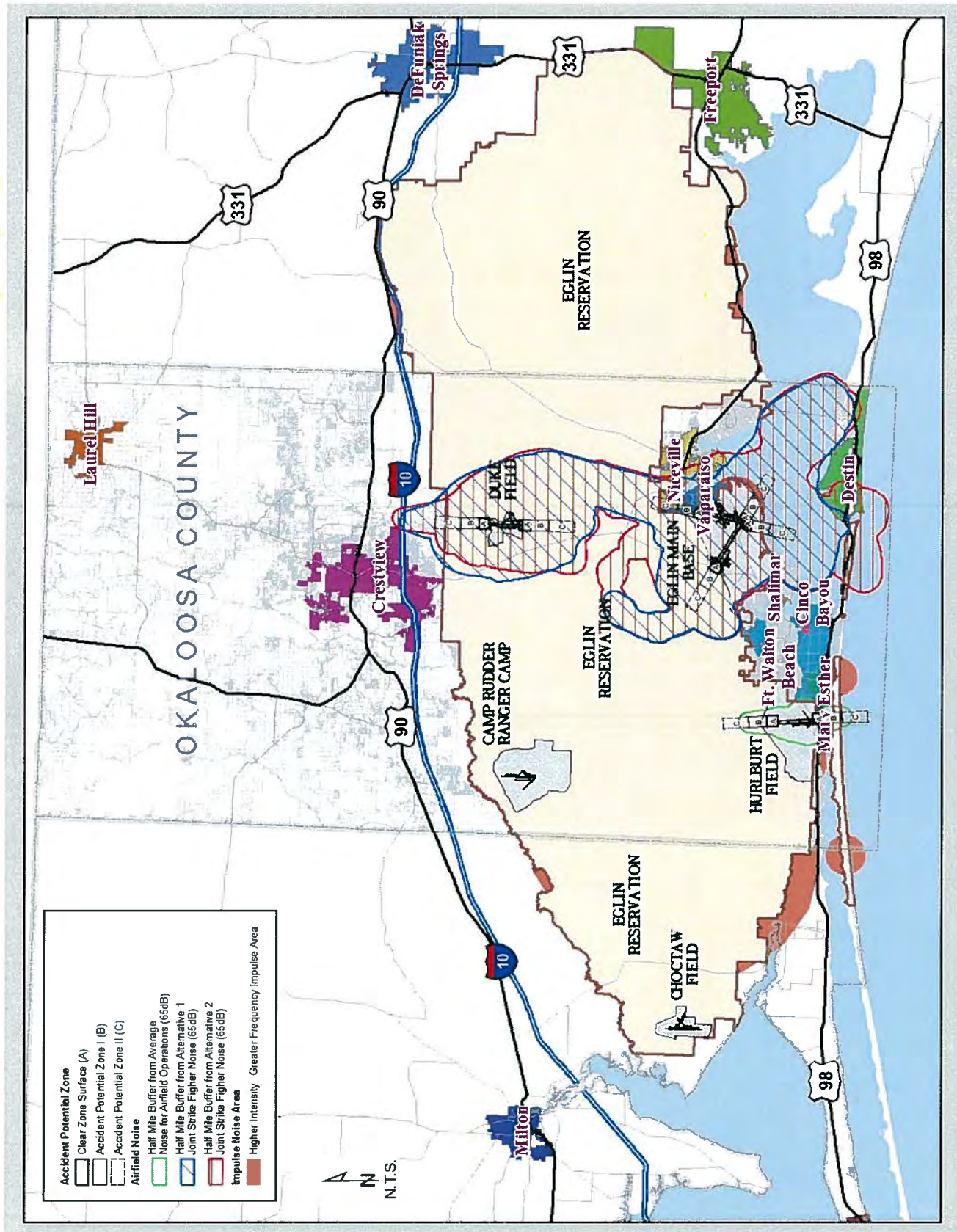


Figure 12-5: F-35 Alternates 1 and 2 High Level Noise Zones (>65 dB) With One-half Mile Buffer



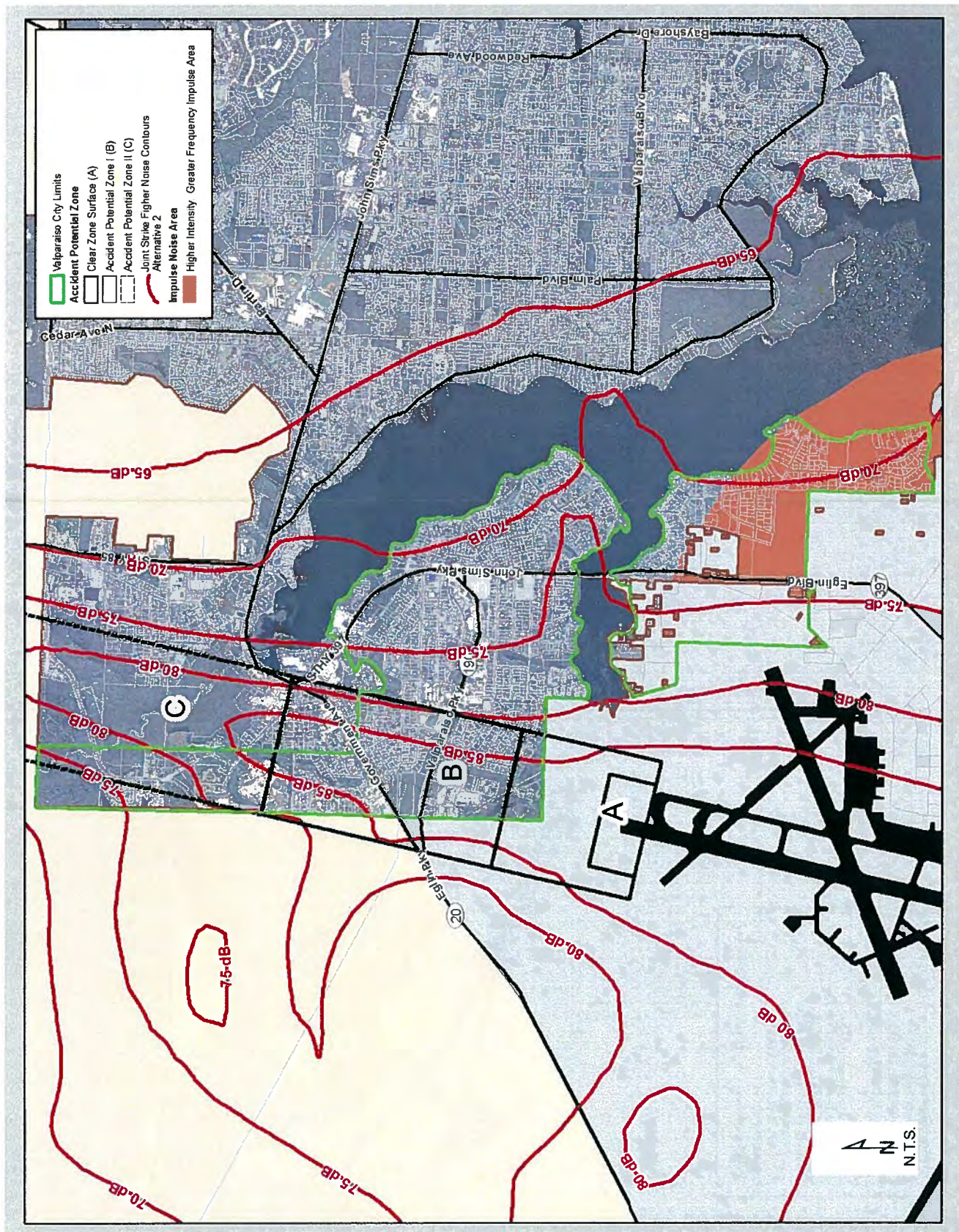


Figure 12-6: F-35 Alternate 2 Proposed Noise Contours in Valparaiso





The City is included in the *Moderate Intensity - Less Frequent Impulse Noise* area and a portion of the southern end of the City is located within the *Higher Intensity - Greater Frequency Impulse Noise* area. The extent of the two different levels of impulse noise on the City is shown in [Figure 12-7](#).

## 12.2.6 Low Level Helicopter and Tiltrotor Training

Helicopters and tiltrotors conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in [Figure 12-8](#) across Okaloosa County which includes all of Valparaiso.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of Eglin and associated fields and ranges.

## 12.2.7 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety

of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

## 12.2.8 Height of Objects

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPs have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft





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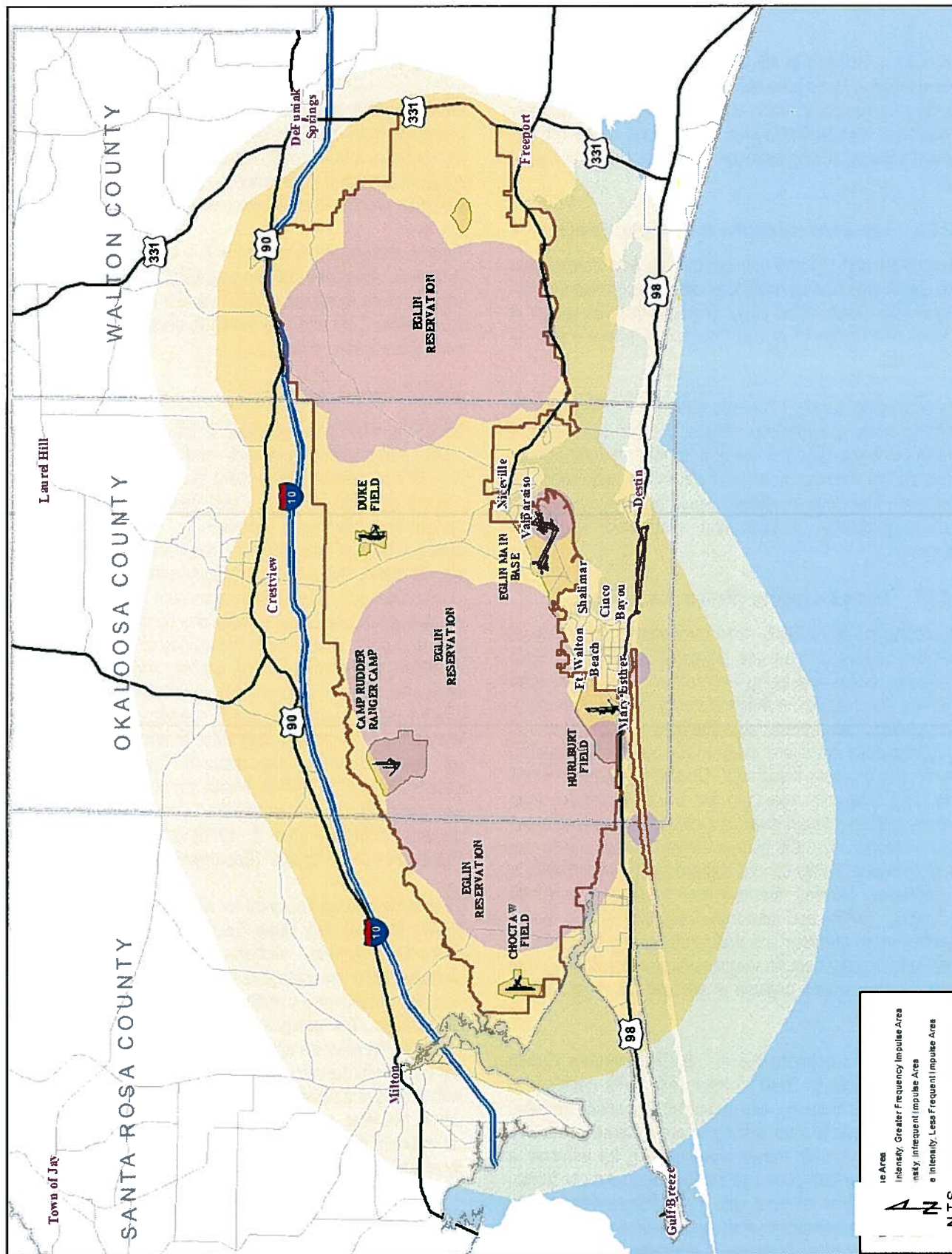


Figure 12-7: Impulse Noise Areas





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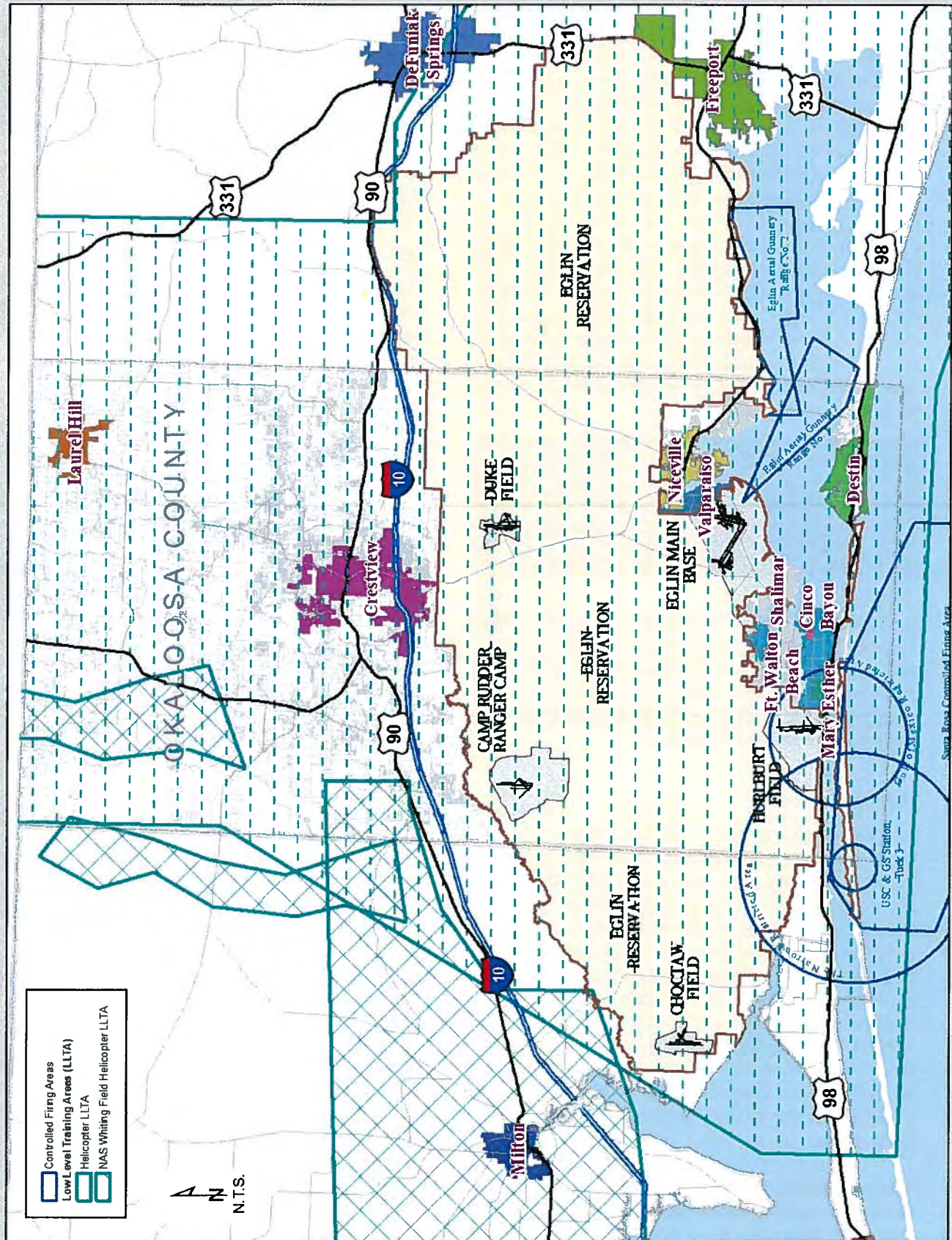


Figure 12-8: Low Level Helicopter and Tiltrotor Training Areas Across Okaloosa County





to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

The Air Force's Building Height Study in 2006 covered the southern region of Okaloosa County which included the City of Valparaiso.

In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure there were no navigation problems. *Figure 12-9* identifies the maximum building heights resulting from this study and *Figure 12-10* shows the area in this study which includes a closer view of Valparaiso.

### 12.2.9 Lighting

Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1st Special Operations Wing. Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units.

Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results

from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. *Figure 12-11* shows the increase in artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population. Based on information in the RAICUZ, the Valparaiso/Niceville area's sky glow viewed from the nearest point on the Eglin reservation is estimated to be almost 17 times what would occur naturally.

## 12.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the City's Zoning Map and Future Land Use Map are provided in *Figures 12-12* and *12-13*, respectively.

People living or working near a military installation can expect impacts such as noise, smoke, and dust generated from ground and air operations. Quality of life for those living or working near an installation can be negatively affected when these impacts reach levels creating a nuisance. A potential risk to public safety also exists from the possibility of aircraft crashing at or near an airfield. The extent and frequency of negative impacts affecting people living near airfields will vary based on the type of aircraft, airfield operating hours, airfield ground activities, frequency of flight, ground training activities, and proximity to the airfield. Future residents choosing to live near Eglin AFB and its boundary will be impacted by flight and ground activities.

### 12.3.1 Eglin Perimeter Boundary Development

The area of the City within one mile of Eglin's boundary includes the entire northern and southern portions of the City. This area currently has Future Land Use Designations of Industrial, Medium Density Residential, Low Density Residential, Commercial, Public Lands, and Conservation. It is expected that the city limits will not expand since the City is landlocked by Eglin AFB, the City of Niceville, and the water.

### 12.3.2 Runway Clear Zone (Area "A") Incompatibilities

A Clear Zone is located at the north end of Runway 19. The Clear Zone covers approximately 204 acres. Approximately 13% of the Clear Zone, or 26 acres, falls on non-military lands. As shown in *Table 12-1*, 4 parcels covering 20 acres (77%) of non-military lands inside the Clear Zone currently include Commercial uses and 14 parcels covering approximately 6 acres (23%) include Single Family Residential uses. Residential development includes 14 single family residences, housing approximately 40 residents.



# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

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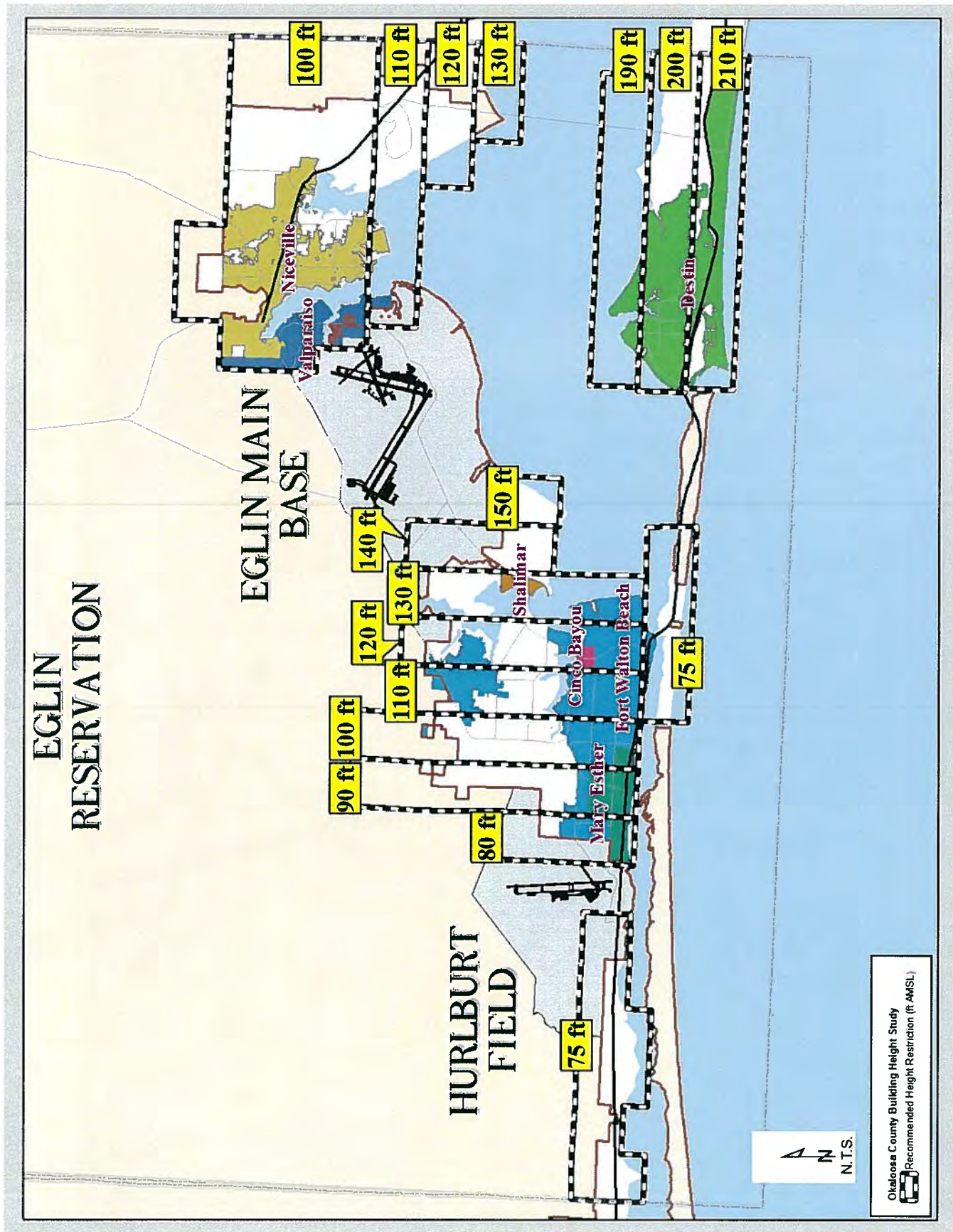


Figure 12-9: Okaloosa County (South) Building Height Study (Air Force 2006)







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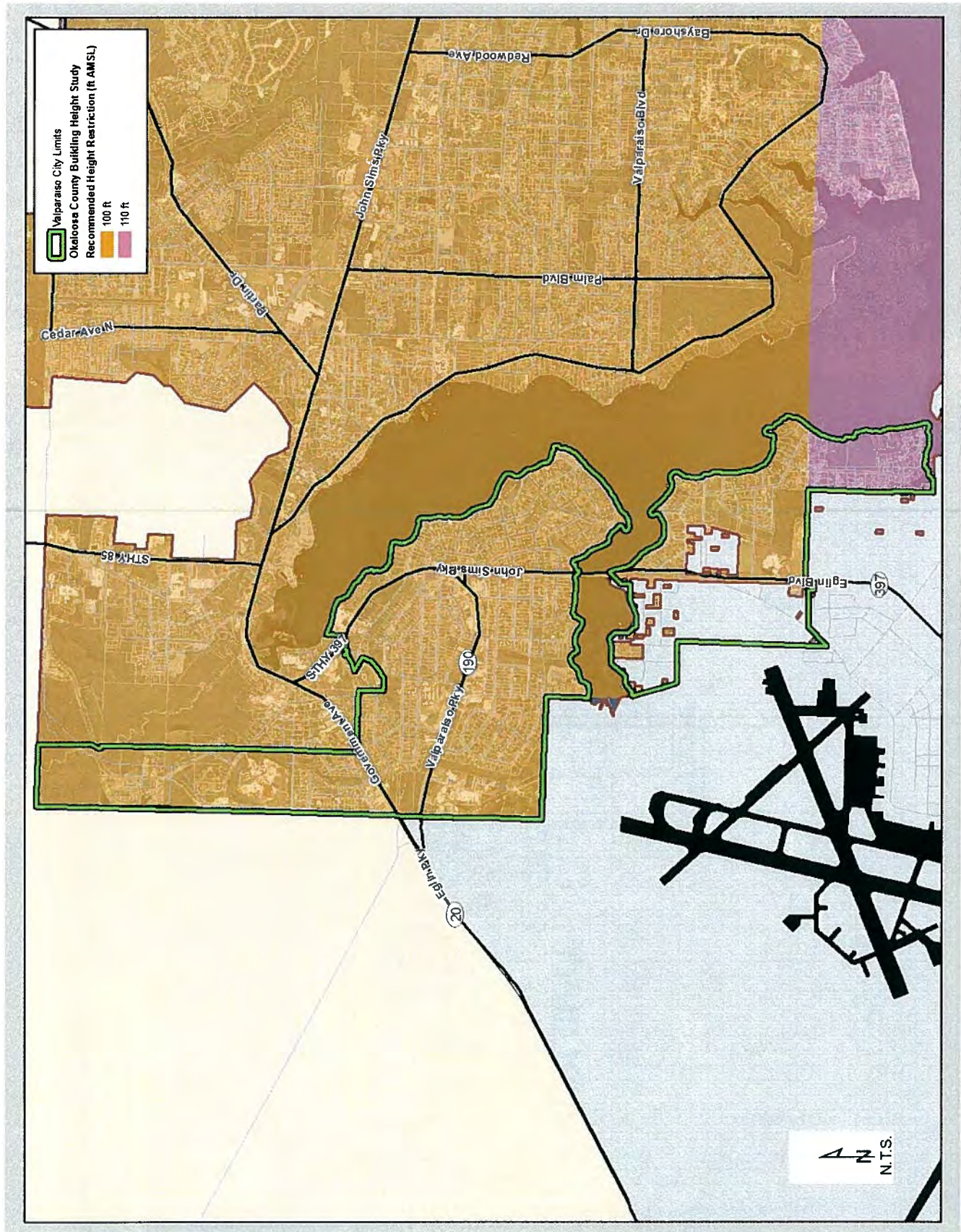


Figure 12-10: Zoom In of Valparaiso of Okaloosa County South Building Height Study (Air Force 2006)





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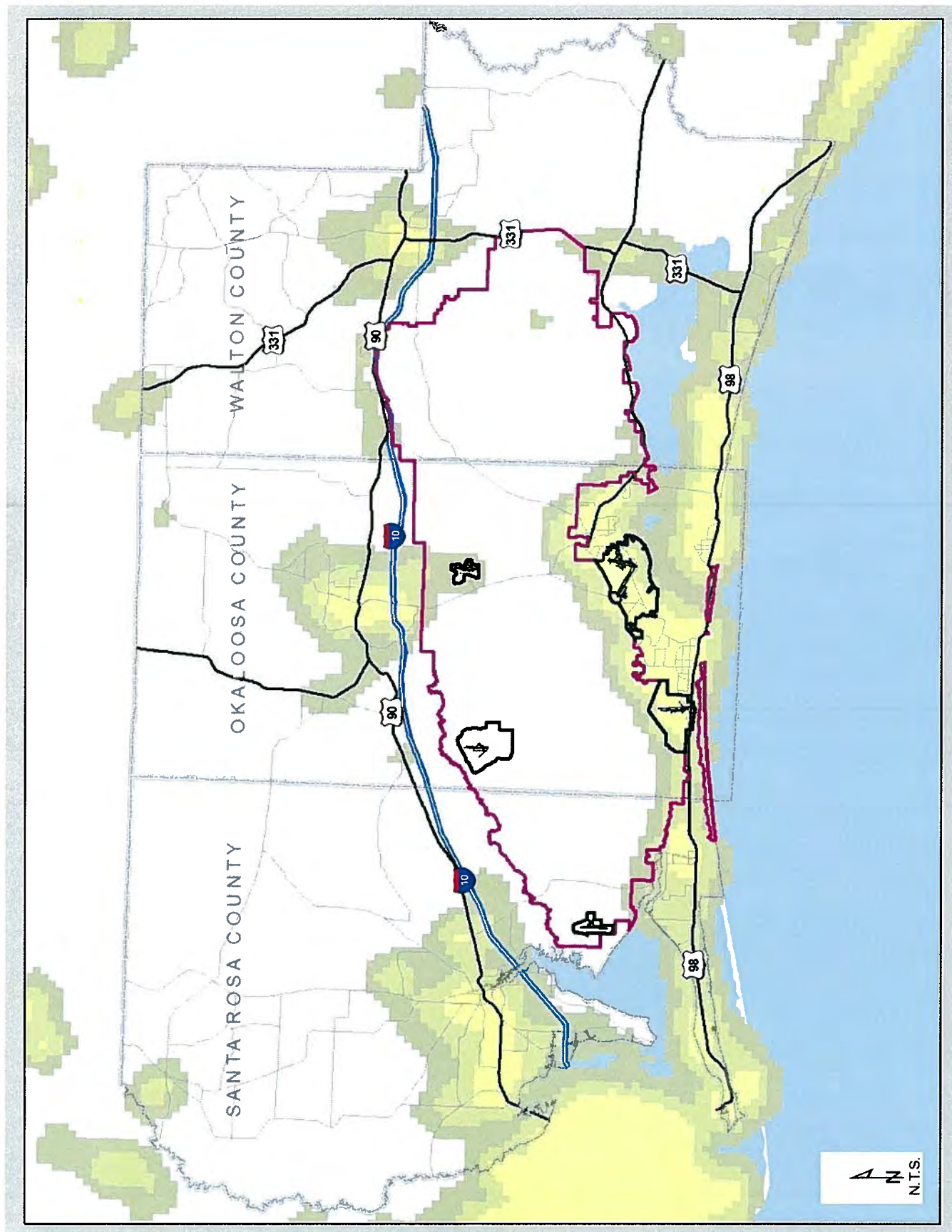


Figure 12-11: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)





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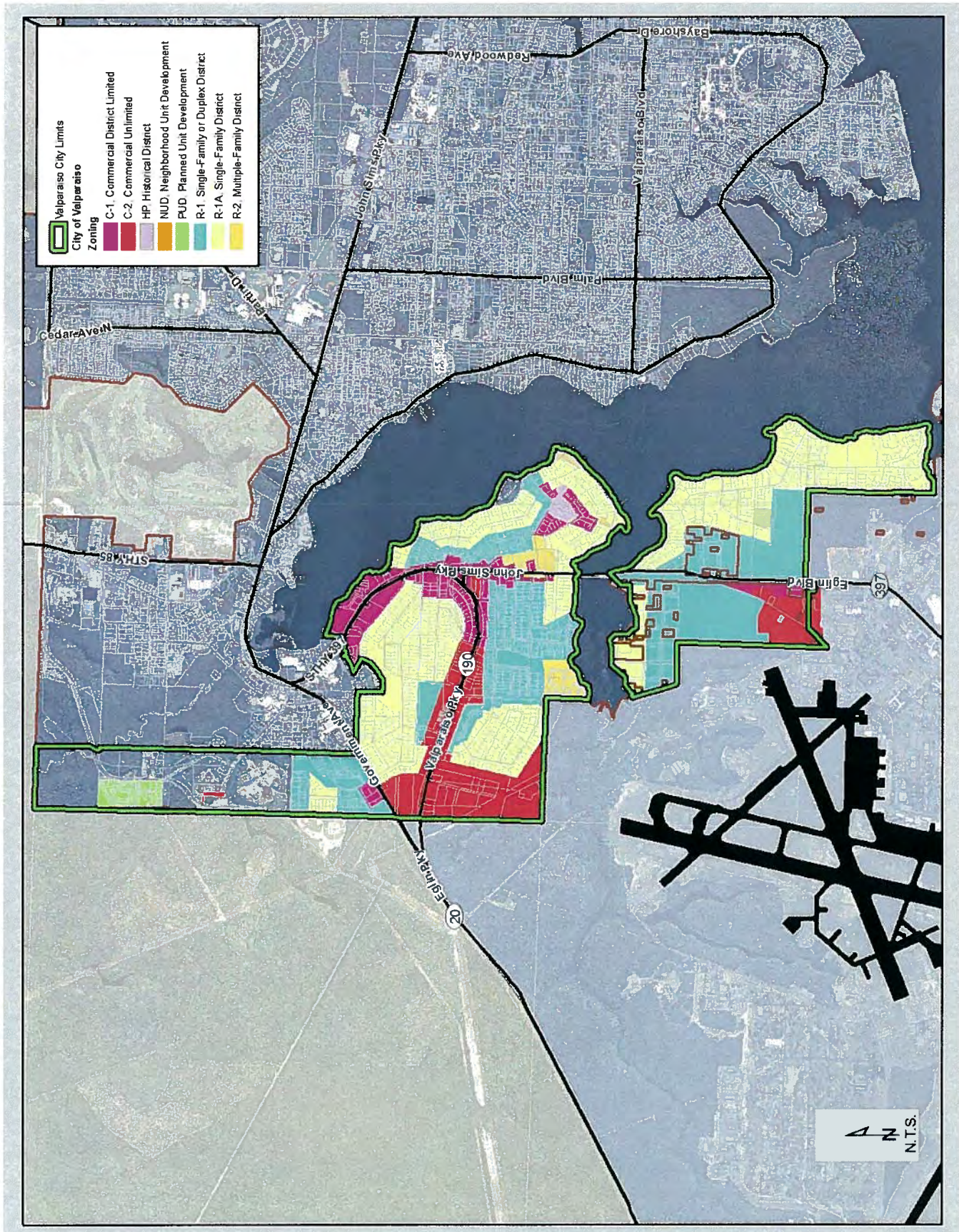


Figure 12-12: Valparaiso Zoning Map





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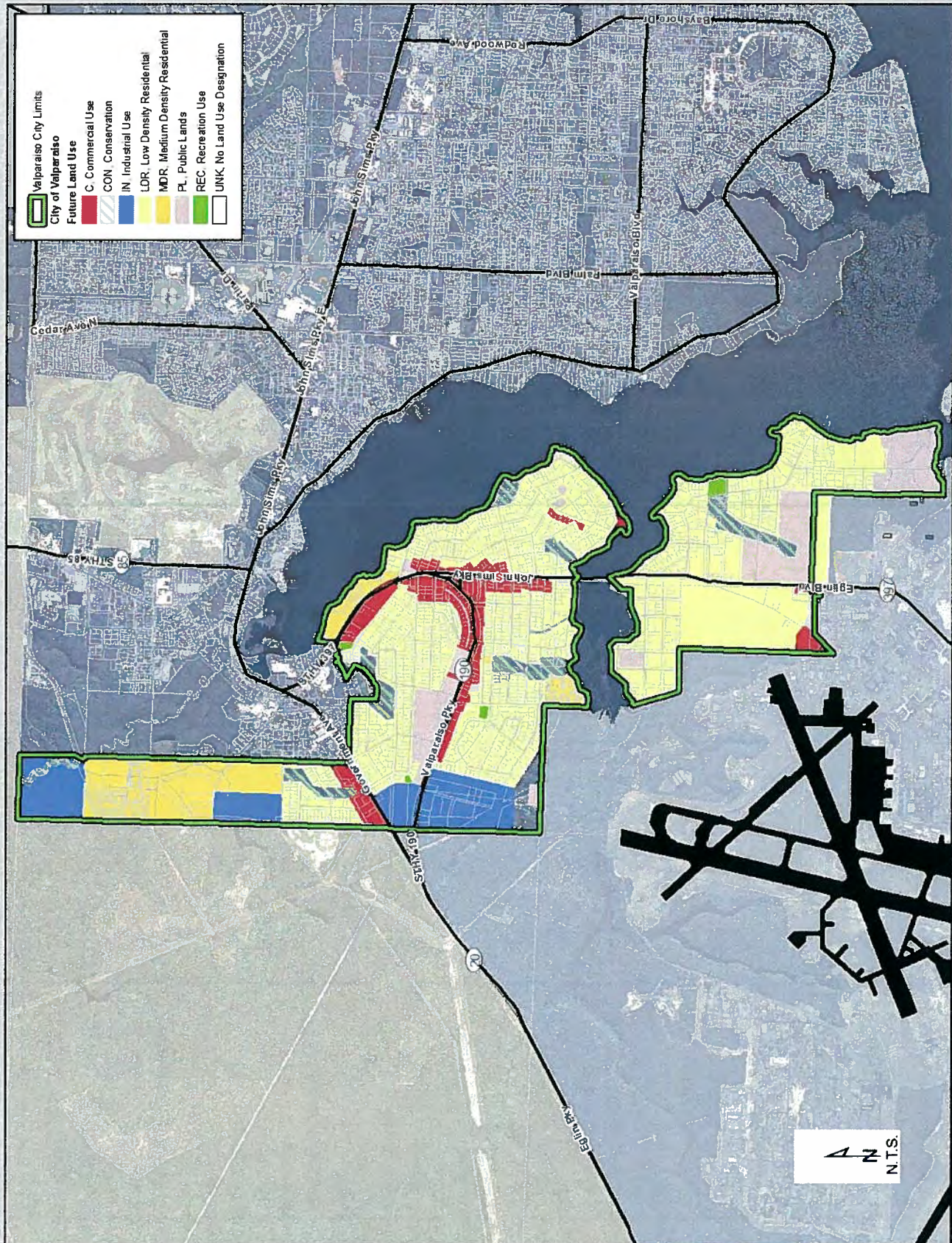


Figure 12-13: Valparaíso Future Land Use Map





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

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Existing Land Use Designation	Clear Zone and Accident Potential Zones									
	Clear Zone (Area A)			APZ I (Area B)			APZ II (Area C)			
	Total Acres	% of Total Acreage	# of Parcels	Total Acres	% of Total Acreage	# of Parcels	Total Acres	% of Total Acreage	# of Parcels	Total
Beauty Parlor	0	0%	0	0	0%	0	0	0%	0	0
Churches	0	0%	0	3.4	2%	2	0	0%	0	3.4
Clubs/Lodging	0	0%	0	0.8	0%	1	0	0%	0	0.8
College	0	0%	0	0.0	0%	0	0	0%	0	0.0
Commercial Unlimited	20.0	77%	4	0	0%	0	0	0%	0	20.0
Common Area/Community	0	0%	0	3.2	2%	2	2.8	3%	1	6.1
County	0	0%	0	0	0%	0	6.9	7%	4	6.9
Financial - Bank	0	0%	0	0	0%	0	0.0	0%	0	0.0
Hotels and Motels	0	0%	0	0	0%	0	0.0	0%	0	0.0
Light Manufacturing	0	0%	0	1.8	1%	1	0	0%	0	1.8
Military	0	0%	0	0	0%	0	0	0%	0	0.0
Mineral PR	0	0%	0	2.0	1%	1	0	0%	0	2.0
Mobile Home	0	0%	0	2.3	1%	1	0	0%	0	2.3
Multi-Family	0	0%	0	2.2	1%	8	10.0	11%	5	12.2
Municipal	0	0%	0	10.6	6%	7	0.2	0%	4	10.8
Nightclub	0	0%	0	0.0	0%	0	0.0	0%	0	0.0
No Ag Acre	0	0%	0	0	0%	0	7.8	8%	2	7.8
Office Building	0	0%	0	1.2	1%	2	0	0%	0	1.2
Post Office	0	0%	0	0.0	0%	0	0	0%	0	0.0
Kennel	0	0%	0	0.8	0%	1	0	0%	0	0.8
Repair Service Shop	0	0%	0	0.0	0%	0	0	0%	0	0.0
Restaurant	0	0%	0	0.0	0%	0	0	0%	0	0.0
Retail Stores	0	0%	0	0.0	0%	0	0	0%	0	0.0
School, Private	0	0%	0	0.6	0%	1	0	0%	0	0.6
School, Public	0	0%	0	0.9	1%	1	0	0%	0	0.9
Single Family	5.9	23%	14	80.0	47%	267	9.8	11%	15	95.8
Single Family - Townhome	0	0%	0	0.5	0%	11	1.0	1%	53	1.5
Utilities	0	0%	0	3.4	2%	4	0	0%	0	3.4
Vacant	0	0%	0	43.5	26%	21	17.4	19%	13	60.8
Vehicle Sales	0	0%	0	3.7	2%	2	36.6	40%	1	40.3
Warehouse	0	0%	0	8.8	5%	5	0	0%	0	8.8
Total	25.9	100%	18	169.6	100%	338	92.54	100%	98	288
										100%
										454

Table 12-1: Existing Land Use Development Within Clear Zone (Area A) and Accident Potential Zones I and II (Areas B and C, respectively)





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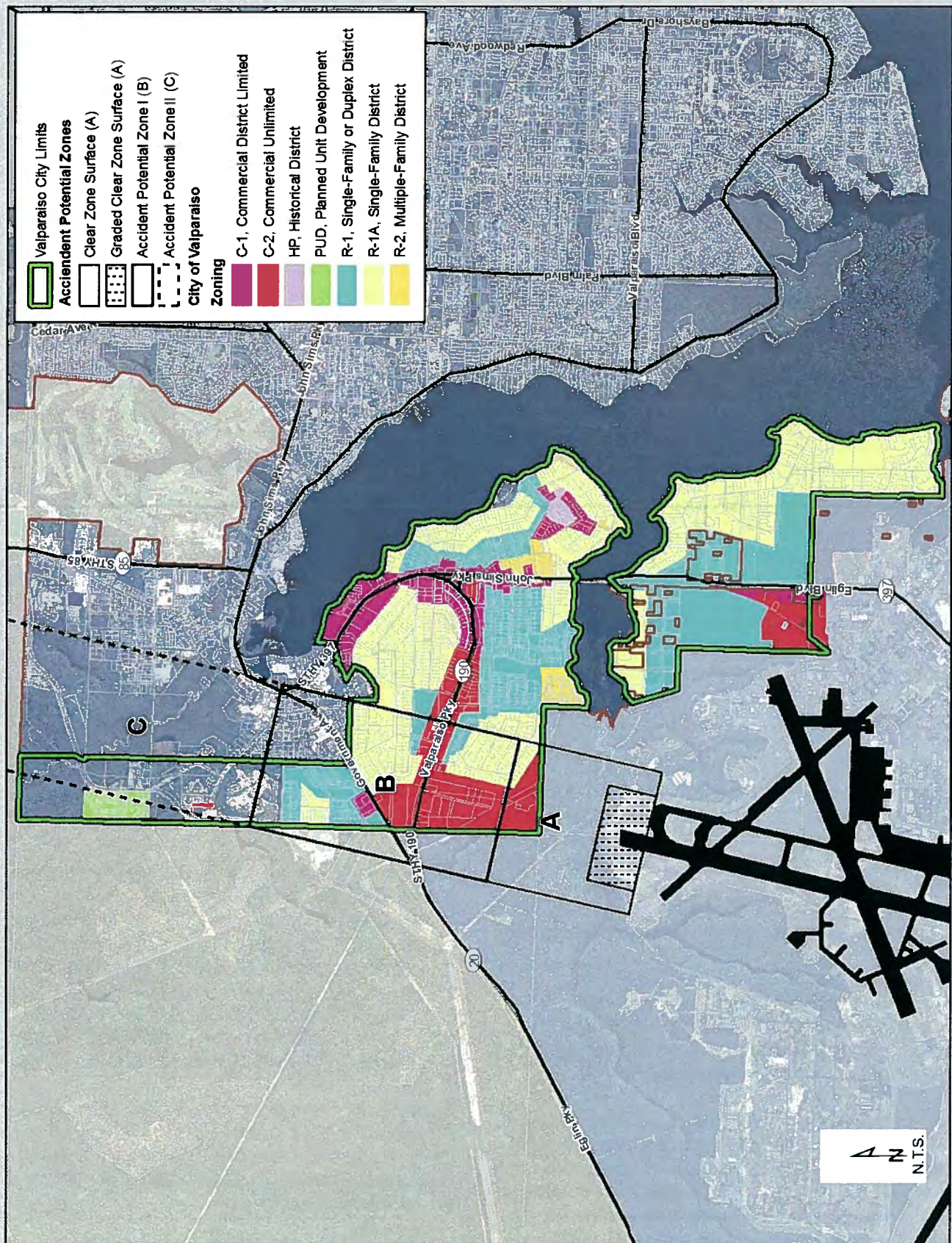


Figure 12-14: Valparaiso Zoning Map with Clear Zone (Area A) and Accident Potential Zones I & II (Areas B & C)





*Figure 12-14* shows the existing land uses based on the City's Zoning Map within the Clear Zone and *Figure 12-15* displays the City's Future Land Use Map with the Clear Zone.

Any land uses other than vacant or agricultural are incompatible with the safety criteria established for a Clear Zone. Therefore, the existing land use within the Clear Zone in Valparaiso is incompatible.

Land use in the Clear Zone other than vacant or agricultural is considered incompatible with the safety criteria established (AFH 32-0784).

### 12.3.3 Accident Potential Zones I and II (Areas "B" and "C", respectively) Incompatibilities

As shown in *Table 12-1*, approximately 61 acres (21%) of non-military lands inside the APZs are undeveloped or included in environmentally sensitive areas. 44 acres of which are in APZ I and 17 acres in APZ II. Residential development amounts to 364 single family or multi-plex residences, housing approximately 1,045 residents. Approximately 79% of the residents (or 824) reside in APZ I. Single Family Residential Land ownership within the APZ is presently established in small parcels typically 1/2 acre or less in size.

Population and housing estimates were determined by comparing land use records from Okaloosa County with statistical data from the 2000 US Census. Statistical data pertaining to the average number of persons per household for Okaloosa County were applied to the number of estimated occupied housing units. Occupancy rates for Okaloosa County were applied to the total number of residential units documented in the City to obtain occupied housing unit figures.

*Figure 12-14* shows the APZs I and II with existing zoning and *Figure 12-15* provides the APZs I and II with Future Land Use Map designations. The areas shown for APZ I and II in Valparaiso have not changed since 1976.

In general, industrial, recreational, vacant, and agricultural/open land uses are compatible with the safety criteria established for APZ I. Compatibility of commercial uses within APZ I is dependent on densities and intensity of uses. A large area of incompatible medium density residential exists in APZ I east of Wolverine Avenue and south

of Government Avenue. The two churches in the APZ I are also incompatible within APZ I along Valparaiso Parkway. For APZ II, the residential areas with densities greater than one dwelling unit per acre are incompatible.

There have been recent discussions and meetings regarding the compatible use of the City's Wolverine Park in the northern section of the City within the APZ-I area. Approximately half (6 acres) of the Park's total 12 acres is located within the APZ-I boundary. According to land use compatibility guidance provided in the AICUZ program, the type of land use designation for the Park would be "Parks" or could be considered "Other cultural, entertainment, or recreation". Further information in this guidance document states that in order for such uses to be compatible in an APZ-I requires outside events to be limited to assemblies of not more than 25 people per acre. This equates to no more than 150 people within the 6 acres of the APZ-I or an average of 25 people per field within the APZ-I.

There are opportunities for compatible use at Wolverine Park.

Considering this information allows for the continued use of Wolverine Park as part of the APZ-I with some careful considerations related to the magnitude of the events held at the Park. There is also an opportunity to adjust the configuration of the fields within the existing area of Wolverine Park by redeveloping the area of the Park within the APZ-I into parking for the Park and shifting as much of the area for the fields west out of the APZ-I as possible.

### 12.3.4 Aircraft Noise

As shown in *Table 12-2*, approximately 1,042 acres of non-military lands are located inside the high noise area (greater than 65dB). Residential development includes approximately 1,625 single family or multi-plex residences covering approximately 479 acres. Other existing incompatible land uses within the high noise areas include approximately 8 churches (10 acres), 2 public schools (Lewis Middle and Valparaiso Elementary), and 4 public buildings (City Hall, Library, Police Station, and Community Center).

Residential land ownership within the high noise areas is presently established in small parcels averaging approximately 1/3 acre in size. Current population in the high noise areas is estimated at approximately 6,300 persons or the entire population of the City.





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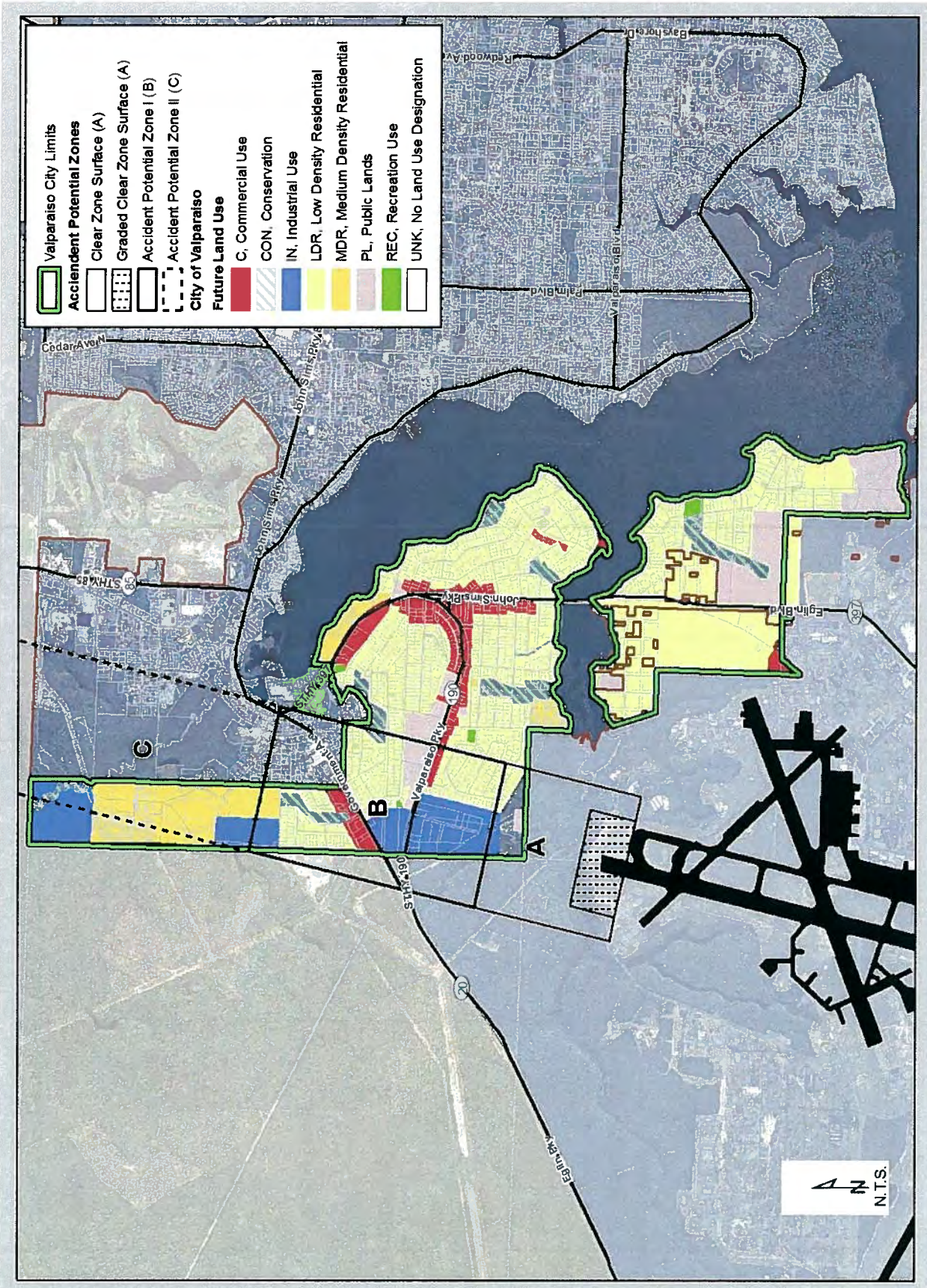


Figure 12-15: Valparaiso Future Land Use Map with Clear Zone (Area A) and Accident Potential Zones I & II (Areas B & C)





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Existing Land Use	Noise Level											
	65-69 dB			70 - 74 dB			75 - 79 dB			80 - 84 dB		
	Total Acres	# of Parcels		Total Acres	# of Parcels		Total Acres	# of Parcels		Total Acres	# of Parcels	85+ dB Total Acres
Beauty Parlor	-	-	1	0.1	1		-	-	-	-	-	-
Churches	-	-	6	3.8	6		2.6	4		3.4	2	-
Clubs/Lodging	-	-	1	0.3	1		-	-	-	-	-	0.8
College	-	-	-	-	-		0.1	1		-	-	-
Commercial Unlimited	-	-	-	-	-		-	-	-	-	-	-
Common Area/Community	-	-	9	3.6	9		9.9	9		0.8	1	2.4
County	-	-	11	3.1	11		5.3	3		1.7	1	-
Financial - Bank	-	-	1	1.5	1		-	-	-	-	-	-
Hotels and Motels	-	-	3	1.2	3		-	-	-	-	-	-
Light Manufacturing	-	-	1	0.3	1		0.5	1		-	-	1.8
Military	-	-	15	25.8	15		96.3	19		-	-	17.7
Mineral PR	-	-	-	-	-		-	-	-	-	-	2
Mobile Home	-	-	1	0.3	1		1.2	3		-	-	2.0
Multi-Family	0.7	3	33	9.1	33		5.6	10		-	-	2.3
Municipal	11.1	3	16	9.1	16		38.3	21		11.6	11	0.6
Nightclub	-	-	-	-	-		0.3	1		1.1	4	12.0
No Ag Acre	-	-	-	-	-		7.8	2		-	-	-
Office Building	-	-	23	11.7	23		1.2	2		-	-	1.2
Post Office	-	-	1	0.4	1		-	-	-	-	-	-
Kennel	-	-	-	-	-		-	-	-	-	-	0.8
Repair Service Shop	-	-	4	3.1	4		0.8	3		-	-	-
Restaurant	-	-	5	5.8	5		-	-	-	-	-	-
Retail Stores	-	-	9	4.1	9		0.7	1		-	-	-
School, Private	-	-	-	-	-		-	-	-	-	-	-
School, Public	-	-	3	42.0	3		12.6	3		0.9	1	0.6
Single Family	78.1	162	614	181.7	614		88.1	315		52.1	169	38.5
Single Family - Townhome	2.9	30	10	0.5	10		5.1	125		0.4	10	-
Utilities	-	-	-	-	-		-	-	-	0.9	1	2.5
Vacant	18.6	27	111	48.8	111		23.6	44		15.8	9	41.4
Vehicle Sales	-	-	3	5.2	3		-	-		36.6	1	3.7
Warehouse	-	-	7	4.4	7		2.5	4		1.1	1	7.7
<b>Total</b>	<b>111.4</b>	<b>225</b>	<b>888</b>	<b>365.6</b>	<b>888</b>		<b>302.2</b>	<b>571</b>		<b>126.3</b>	<b>211</b>	<b>135.9</b>
												<b>172</b>

Table 12-2: Existing Land Use Within High Noise Levels (>65dB) - Profile By Acreage and Number of Parcels



Population and housing estimates were determined by comparing land use records from Okaloosa County with statistical data from the 2000 US Census. Statistical data pertaining to the average number of persons per household for Okaloosa County were applied to the number of estimated occupied housing units. Occupancy rates for Okaloosa County were applied to the total number of residential units documented in the City to obtain occupied housing unit figures.

*Figure 12-16* and *Figure 12-17* show the proposed noise contours with the existing zoning and future land use map, respectively.

### 12.3.5 Impulse Noise

The nature of the impulse noise in the City is in the moderate to high ranges as previously shown in Figure 12-5. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 12.3.6 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a temporary nuisance resulting from low level helicopters and tiltrotors flying overhead and the temporary sound and vibration increases associated with low flying helicopters and tiltrotors.

### 12.3.7 Radio Frequency Interference

The analysis for radio frequency interference in the City is a simple one. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is

detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

### 12.3.8 Lighting

Requirements to promote the Dark Sky Initiative over Eglin Reservation would be applicable across the entire City to help minimize the impact of light encroachment over the long-term. Should the region choose not to address light encroachment over the Eglin Reservation, there will likely be negative impacts to the various branches of military being able to continue using the Reservation for training operations.

In 1994, over 30 percent of Fort Benning, Georgia was affected by city lights, and it is projected that over 50 percent will be affected by 2015. In 2005 over 50 percent of Marine Corps Base Camp Lejeune was light-encroached, with that number predicted to be 83 percent by 2015 (U.S. Army Corps of Engineers, 2005). In order to avoid light encroachment and provide adequate night training environments for both air and ground operations to continue its current missions, proactive measures to prevent light encroachment should be taken.

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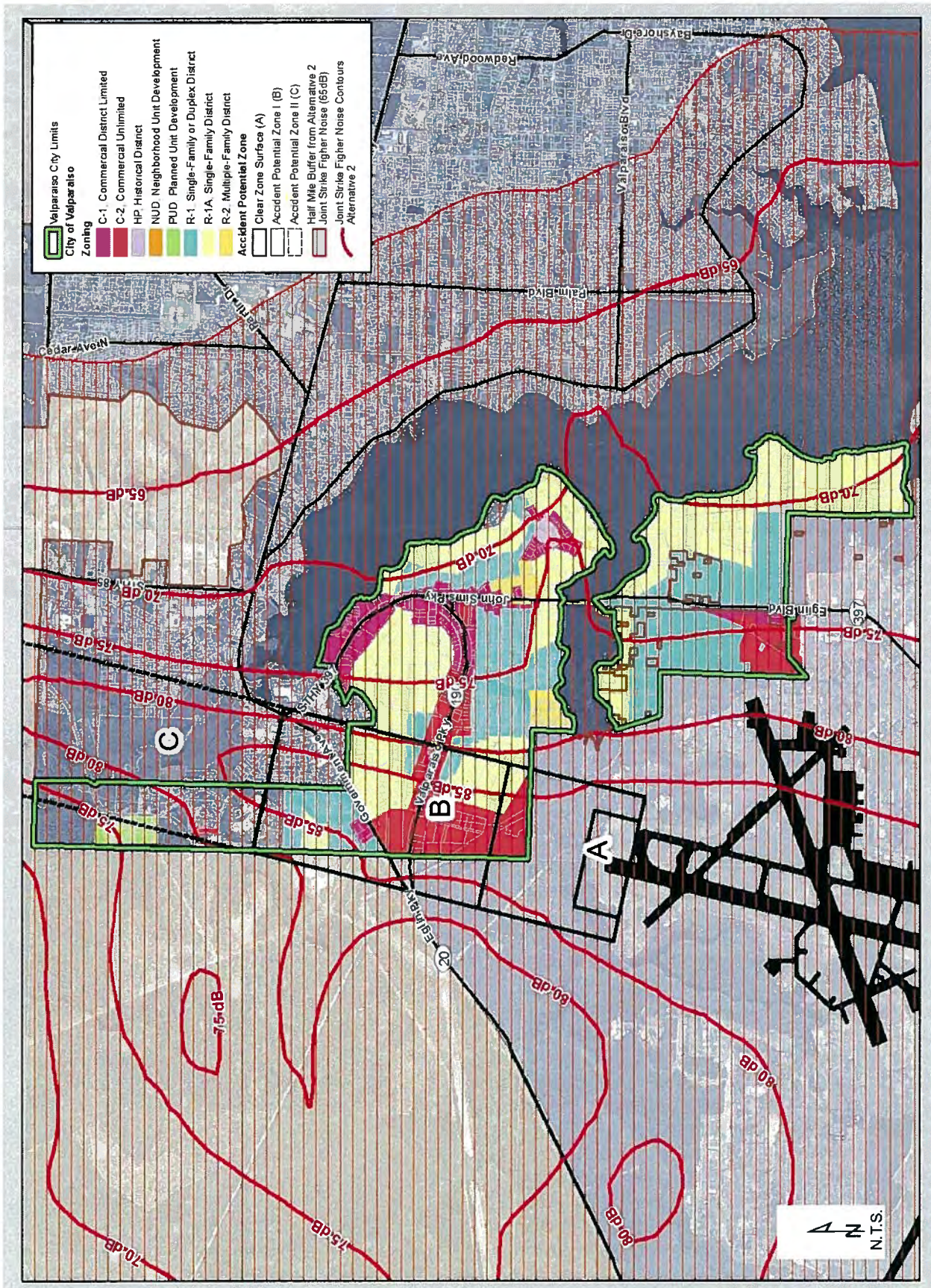


Figure 12-16: F-35 Proposed Noise Contours With Valparaiso Zoning Map





Figure 12-17: Proposed F-35 Noise Contours With Valparaiso Future Land Use Map





## 12.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues is provided herein. It is the intent of the recommendations to provide, for the City's consideration, proposed actionable guidance on land use and related land use issues, policies, and procedures with definitive direction and applicable examples successfully implemented in other communities in the US.

The City's representative on the JLUS Policy Committee voted in favor of recommendations VLP 1, VLP 2, VLP 3, VLP 4, VLP 6, VLP 7, VLP 11, VLP 12, and VLP 13. The City's JLUS Policy Committee representative was the lone vote against inclusion of recommendations VLP 5, VLP 8, VLP 9, VLP 10, VLP 14, and VLP 15. The City has indicated they may reconsider its position on these recommendations after release of the Air Force Supplemental Environmental Impact Statement (SEIS) for the F-35 training mission at Eglin AFB in the fall of 2010 and inclusion in a supplemental volume of this JLUS. Some of the recommendations require further information beyond the following summary bullets and additional detail for some of the recommendations is provided at the end of this section for the City's use.

- **VLP 1:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **VLP 2:** Identify Clear Zone and APZs I and II Based on AICUZ and High Aircraft Noise Areas Based on Supplemental EIS on All City Maps, Preliminary Plats and Public Reports and Require Developers To Identify Same Information on All Proposed Projects
- **VLP 3:** Study Required Implementation Steps to Retrofit Existing Public Buildings Within the High Noise Level Areas (>65 dB) with Sound Attenuation
- **VLP 4:** Study Required Implementation Steps to Develop Retrofit Program for Sound Attenuation for Habitable Buildings in High Noise Level Areas (>65 dB)
- **VLP 5:** Implement Land Acquisition Program
- **VLP 6:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **VLP 7:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **VLP 8:** Study the Creation of a Community Plan and Program to Help Resolve the Existing Incompatibilities in the Clear Zone, APZ I, and APZ II
- **VLP 9:** Study the Establishment of an Enterprise Zone in a Strategic Location in the City to Help Promote Development and Assist with any adopted Redevelopment Plan (*VLP 8*)
- **VLP 10:** Implement Construction Standards for New Construction Providing Noise Level Reduction Inside Structures Proposed Within Maximum Mission Noise Areas (>65 dB)
- **VLP 11:** Implement Effective Disclosure Procedures Notifying Buyers and Leasers that Property is Near a Military Installation Subject to Clear Zone, APZs I and II, Low Level Aircraft, Impulse Noises, High Aircraft Noise, and/or Other Military-Related Issues Identified
- **VLP 12:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **VLP 13:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **VLP 14:** Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA Designations (I, II, or III) Based on the Compatibility Issues Identified. The different MIPA designations proposed are shown in *Table 12-3* and are summarized as follows:
  - ◊ **MIPA-I:** Focused on addressing compatibility issues in the Clear Zone, APZ I, and APZ II (existing AICUZ). Focused on addressing compatibility is-

Military Influence Planning Area (MIPA) Designation	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach &/ or Cruise Missile Corridor Area	0.5-1.0 mi Buffer
I	■	■	■			
II				■		
III					■	■

*Table 12-3: Proposed MIPA Designations for Eglin JLUS. Note that not all MIPA Designations are recommended for each jurisdiction.*



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sues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MIPA-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.

- ◊ **MIPA-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MIPA-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF. MIPA-II's are not recommended for all jurisdictions participating in this study.
- ◊ **MIPA-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation and strategic buffer areas along the northern boundary of the Eglin Reservation. MIPA-III's are focused on limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach MIPA-III's vary but the MIPA-III areas for the buffers are approximately one mile from the Eglin boundary.

*Figure 12-18* shows the locations of the MIPA designations in Valparaiso.

- **VLP 15:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the City's use:

**VLP 1: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◊ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◊ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.

- ◊ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.
- ◊ Include media-ready materials provided by Eglin AFB or other sources describing the local military's mission and activities in public buildings where available. This could be accomplished in a playback loop on screens and/or monitors in public places.

**VLP 3: Study Required Implementation Steps to Retrofit Existing Public Buildings Within High Noise Areas (>65dB) With Sound Attenuation.** There are approximately 6 public buildings used by the public within the high noise level areas (>65dB). These buildings include City Hall, Community Center, Police Department, Library, Lewis Middle School, and Valparaiso Elementary.

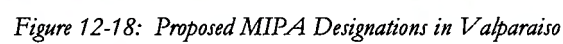
Based on the impact this noise level has within the public buildings, an acoustical study is recommended to determine the highest and best means to retrofit the buildings with noise attenuation elements such as insulation, windows, and associated items. The first step in the study

Public facilities within the maximum mission noise contours include City Hall Community Center, Police Department, Library, Lewis Middle School, and Valparaiso Elementary School.

should include the required standards and costs associated with the retrofit efforts. Specific objectives of the study should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

**VLP 4: Study Required Implementation Steps to Develop Retrofit Program for Sound Attenuation of Existing Occupied Buildings in High Noise Level (>65 dB) Areas.** In an effort to alleviate high sound levels within existing structures, an acoustical study is recommended to develop and implement an Assistance Program for sound reduction for private property owners to retrofit existing structures through efforts similar to those described in the previous









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sub-section for retrofitting existing public buildings. The first step in the study should include the required standards and costs associated with the retrofit efforts. The goal for this program would include achieving noise reductions within dwellings and other structures in areas where the maximum mission noise contours exceed 65 dB. Specific objectives should include a Noise Level Reduction (NLR) range based on the exposure of noise. The NLR is used to describe the reduction of environmental noise sources, such as aircraft and is a single-number metric based on values of A-weighted noise reduction (NR). For noise zones between 65 – 70 dB, a 25 dB NLR is recommended. In the 70 -75 dB range of noise contours, a 30 dB NLR should be achieved. Noise areas exceeding 75 dB are not compatible for residential uses so a NLR for residential use above this noise contour is not recommended. A minimum NLR of 35 for other compatible uses should be achieved for areas above the 75 dB noise contour.

The DNL noise reduction goal in habitable rooms can be supplemented by a single-event noise level criterion. This Sound Exposure Level (SEL) reflects the annoyance associated with individual flyovers because of activity interference. The SEL goal is 65 dB in general living spaces and 60 dB in bedrooms and television viewing rooms. These criteria should only be applied to homes within the maximum mission noise contours (>65 dB), not to homes outside the 65 dB DNL contour line. To use the SEL interior noise criteria, the outside noise exposure level is compared to the interior goal. For example, if a dwelling were between the SEL contour boundaries of 85 to 90 dB, then the required NLR to achieve 60 dB in a bedroom would be 30 dB with the conservative upper bound of the noise zone typically used to set NLR goals.

Approximately 20% of the single family homes and parcels in APZ I and APZ II have sold from 2006 to 2008.

The proposed NLR Assistance Program should include the creation of a grant program designed to reimburse property owners within the high noise level areas (>65 dB) of the maximum mission noise contours up to a certain dollar amount or percentage of costs for implementing acceptable sound attenuation steps. The program should be voluntary and include the execution of a Hold Harmless Agreement by the property owner. *Appendix B – Noise Reduction Standards for Insulating Structures Exposed to Aircraft Operations* contains two examples of policies and procedures available to guide the recommended NLR Assistance Program.

VLP 5: Implement Land Acquisition Program. Over the

past three years (2006-2008), 115 single family homes in the City's Clear Zone and APZs were sold including one home in the Clear Zone. *Figure 12-19* shows the homes sales in Valparaiso for 2006-2008 based on information from the Okaloosa County Property Appraisers office. This equates to approximately 25% of all of the single-family residential properties in the Clear Zone and APZs being sold. Approximately 5% of the transactions were within same families or trusts and therefore should not be considered a change in ownership from the perspective of this recommendation. However, there is an obvious opportunity to begin implementing a voluntary land acquisition program in these areas and it should be coordinated as part of the *VLP-8* recommendation and impacts to tax revenue should be included in the study. Land acquisition beyond a voluntary basis such as eminent domain or other taking is not recommended at this time.

Land Acquisition in the Clear Zone. Acquisition of the single-family residential lots in the Clear Zone is recommended. Since the single-family land use is a recognized incompatible use in the Clear Zone, acquiring these parcels and making the conditions compatible with Clear Zone uses should be made part of the Air Force's project programming. The City should coordinate this recommendation through the Deputy of the Air Force (Installations). *Figure 12-20* shows the locations of the single-family residential properties in the Clear Zone proposed for acquisition. Impacts to local tax revenue should be included in the acquisition program.

Land Acquisition for Conservation and/or Water Quality Improvements. There are undeveloped parcels in the APZ I and II that are part of the Tom's Bayou (Tom's Creek) and Boggy Bayou (Turkey Creek) watersheds. By acquiring undeveloped land within the APZs, an opportunity exists to preserve the few remaining undeveloped parcels in the City, and reduce untreated stormwater runoff from entering the creeks and bayous. Acquisition of properties for conservation and water quality treatment has been supported by the Northwest Florida Water Management District, Florida Department of Environmental Protection, The Nature Conservancy, Sierra Club, US Fish and Wildlife, US Environmental Protection Agency, Audubon Society, and Eglin AFB. Impacts to local tax revenue should be included in the acquisition program. One example acquisition program includes the possibility of Eglin AFB acquiring land as part of the ongoing Florida Forever REPI Program through the Nature Conservancy.

VLP 6: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process. Formalize a policy to include military participation in the development review and planning proc-





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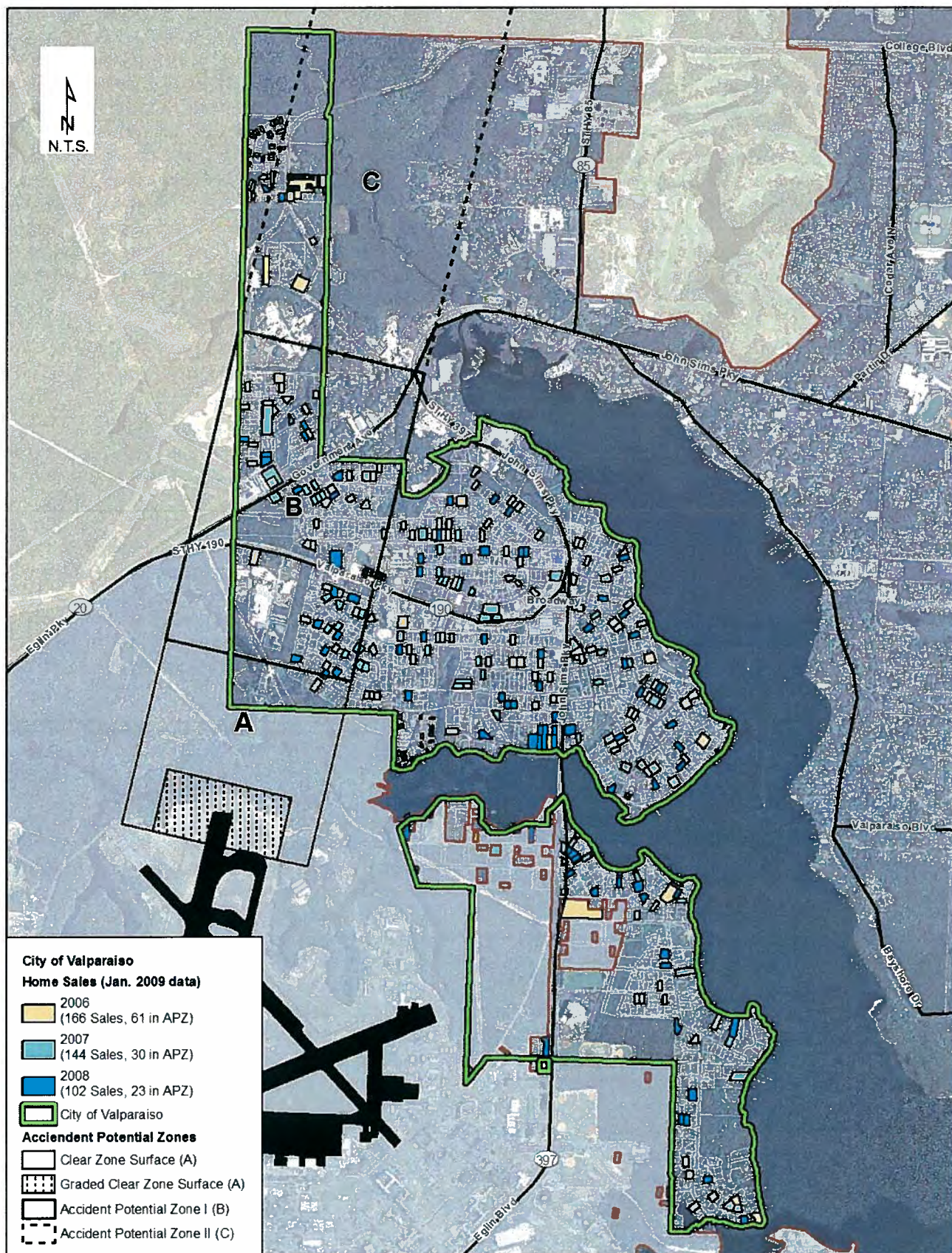


Figure 12-19: Home sales in Valparaiso for 2006-2008 with Clear Zone, APZ-I, and APZ-II shown.



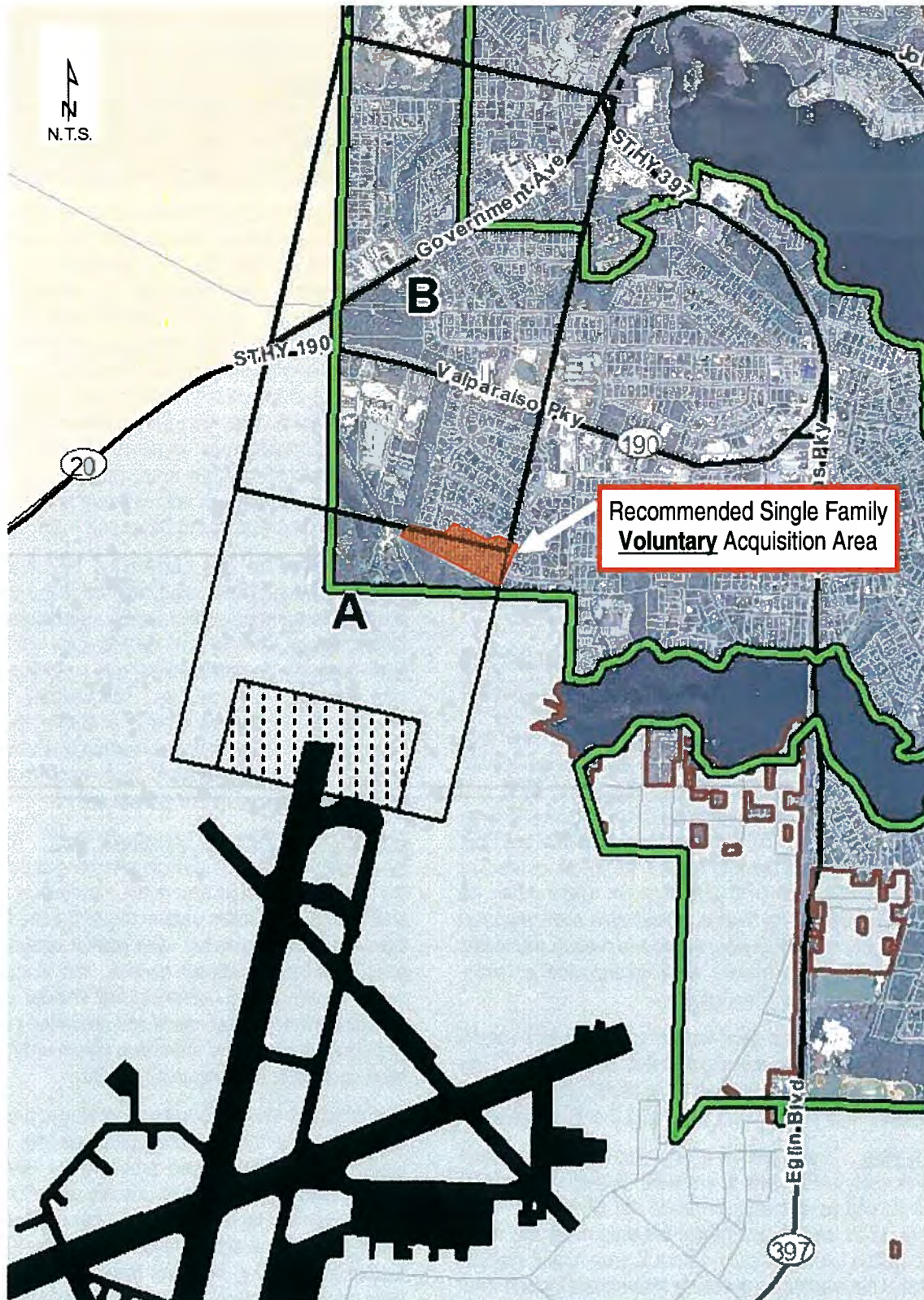


Figure 12-20: Location of Recommended Single-family Parcel Voluntary Acquisition





ess. This should include a formal communication process between the City and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with City staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and City Council. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and the Army's 7th Special Forces Group.

VLP 8: Study Creation of a Community Plan and Program to Help Resolve the Existing Incompatibilities in the Clear Zone, APZ I, and APZ II. Study the creation of a Community Plan (Plan) focused on feasibility, market, and economic analyses supporting land use changes to counter incompatible uses recognized within the Clear Zone and APZ I and II. The study would identify short-term and long-term priorities to not only implement compatible uses but support the City in striving to reach the mission of the City of Valparaiso's Economic Development Organization to *create and maintain a diverse, sustainable economy, high quality of life, high-value jobs, stable and broadly distributed tax base, business friendly environment, and a family-friendly, neighborhood atmosphere.*

The focus area for this study would include the APZ I and II areas previously shown in Figure 12-2, as "B" and "C", respectively. The existing incompatible uses in the APZ I and II are described in parts 12.3.2 and 12.3.3 of this section.

Study Area. The residential areas in the overall focus area for this study (APZ I and II) could be divided into areas or parts viewed as a means to phase the Community Plan. *Figure 12-21* shows a potential breakdown of the focus area divided into three parts – Area I, Area II, and Area III. The final boundaries for the study area should include input from the City of Valparaiso and coordinated with ongoing comprehensive planning efforts.

A Community Plan studied and adopted by the City with the public's consensus would provide a powerful tool promoting diverse, sustainable, and high quality economic development in the City of Valparaiso.

Area I is described as the area south of Valparaiso Parkway, west of Nordberg Avenue, east of Valastics Avenue, and north of the Clear Zone consisting of approximately 45 acres. There are approximately 133 existing single family parcels in Area I. Area II is located north of Government Avenue, west of Lansing Street, east of Wolverine Avenue, and south of Marquette Street consisting of approximately 58 existing single family parcels over approximately 35 acres. Area III area is in the mid-eastern portion of the study area covering approximately 50 acres with approximately 135 existing single family parcels south of Government Street and Iowa Street, east and north of Edge Avenue, west of the east end of Davenport Avenue.

Other parts of the City beyond the APZ I and II areas should be included in the study to provide the greatest flexibility in executing a beneficial study. Particularly the John Sims Parkway Corridor and the Plat One (Historic Downtown) area provide opportunities from an existing infrastructure, diversity, historical, and sustainability perspective. This area is identified as Area IV in *Figure 12-22* covering approximately 70 acres and consisting of a variety of existing uses including commercial, multi-family residential, single-family residential, and historical district.

Framework for Potential Community Plan. The intent of the Community Plan is to begin analyzing specific compatible land uses such as commerce, distribution, warehouse, and/or other compatible uses in the APZ I and II desired by the citizens of Valparaiso. The market analyses, detailed phasing strategies, impact reviews, and numerous stakeholder meetings will determine the viability of the Plan. Assumptions have been made and described in this section to begin looking at the impacts a Community Plan would have on the City over the next 10 to 20.

One option for the City is to begin looking at promoting economic diversity through an appropriate mix of business types. This would include providing for different socioeconomic levels through both upscale and affordable housing opportunities for residents and a mix of retail that including local, regional, and national businesses. Communities around the country, including many in northwest Florida, have or are currently planning and implementing strategies promoting economic diversity by reshaping and redeveloping historic commercial corridors and downtowns which



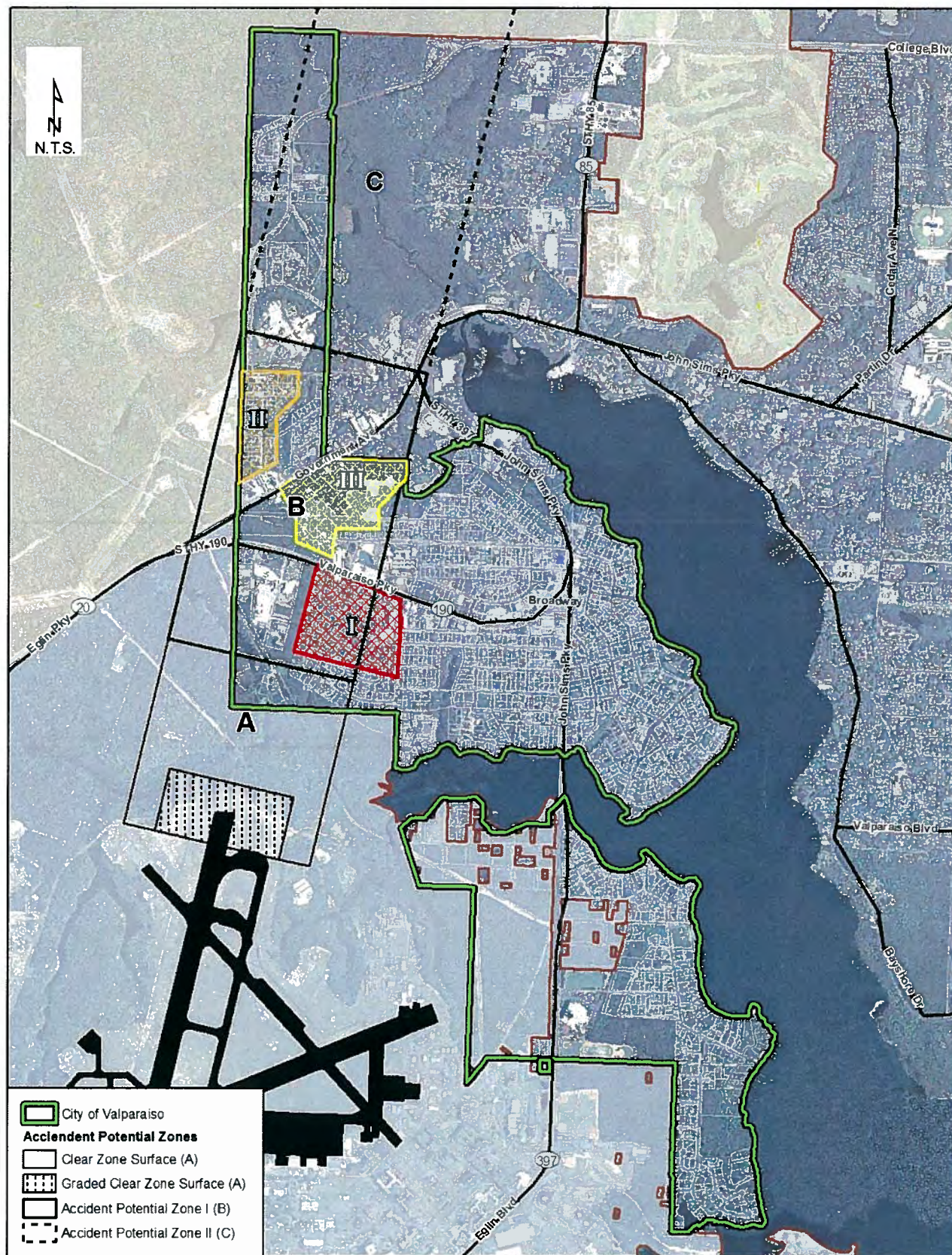


Figure 12-21: Potential Study Areas I, II, and III for a Community Plan and Program to help resolve existing incompatibilities in the Clear Zone, APZ-I, and APZ-II





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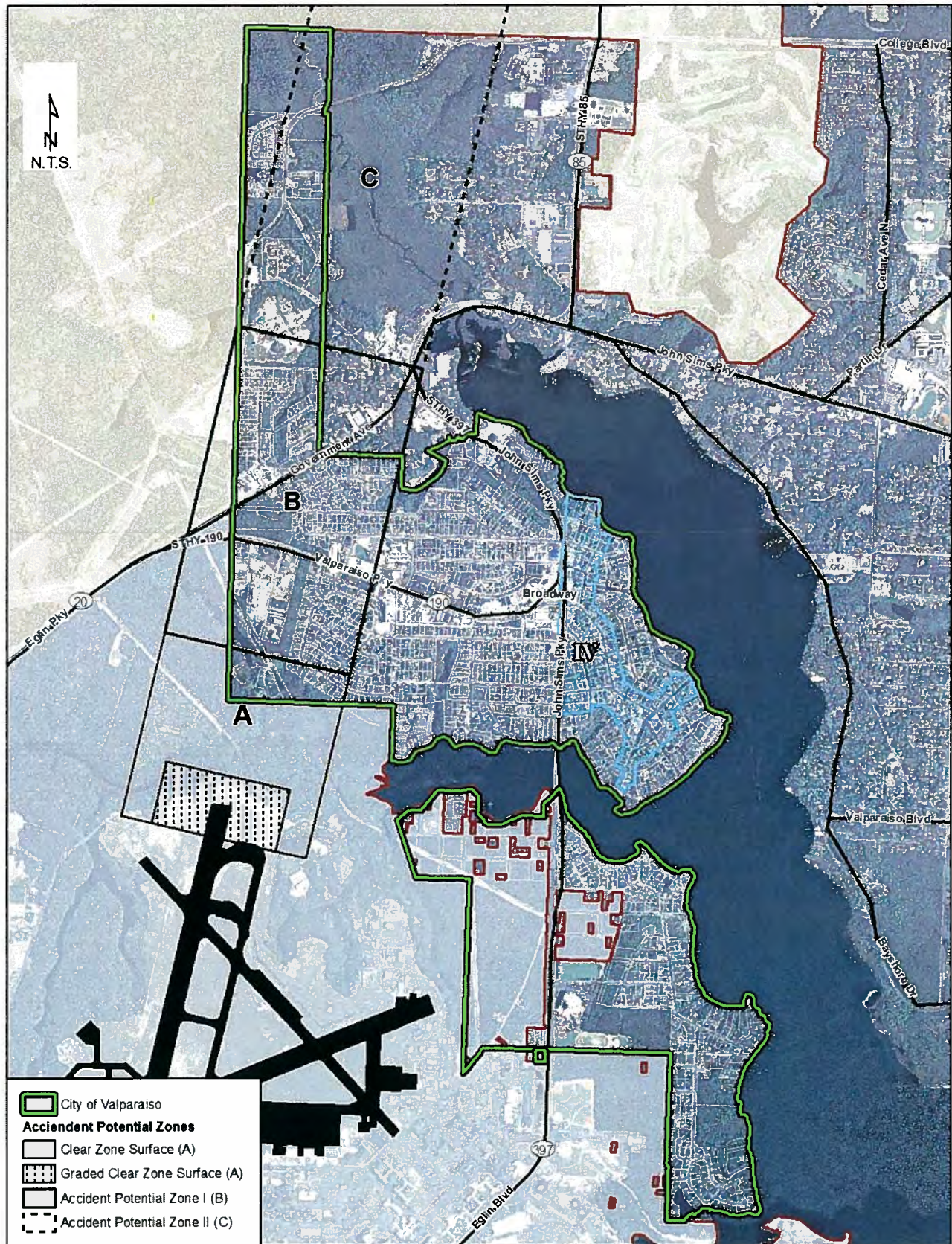


Figure 12-22: Additional Study Area IV beyond APZ I and APZ II to provide greatest flexibility for economic development in the John Sims Parkway Corridor and Plat One (Historic District) Commercial areas. The final Study Area boundaries should be determined based on input from the City and in accordance with ongoing comprehensive planning efforts.





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have become unviable from an economic and real estate market perspective but retain community value.

The results of these community efforts have been particularly successful at energizing areas at a time when many people are looking for unique places to live, work, shop, stay and be entertained. Actual results from these community plans include:

- Renewed Sense of Place in the Community
- Economic Diversity
- Tax Base and Revenues Growth
- Increased Retail Activity and Sales
- Increased Tourism
- Recreation and Leisure Opportunities
- Retirement Options for Residents and Retirees—Both Short-term and Long-term Housing
- Architectural Consistency
- Sustainable Community Reputation
- Recognized and Preserved Historical Significance of Important Areas

The Valparaiso Community Plan should include recommended land use in the study area, a market analysis study of the proposed land uses, an economic impact study, artist renderings of the proposed land uses from a street-level perspective, and recommended implementation plan describing recommended land use, funding, required Comprehensive Plan and Land Development Code revisions or changes, and infrastructure improvements. The Plan should also include public information and input meetings and consensus building sessions with the public, stakeholder groups, and City leaders.

**Effects On Tax Base .** The Plan must consider the vitality of the City through a transition phase of the study area from the existing land uses to a temporary vacant status and through to implementing compatible uses. The subsequent effects on tax base for the City resulting from this transition must be analyzed and considered in a detailed economic analysis.

To begin looking at how community redevelopment could impact the area, an analysis was conducted intending to show order of magnitude fiscal impacts and how such activities could play out; it is intended for planning/discussion purposes only, to highlight the *potential* impact upon property tax revenues. The analysis at this time is not intended to be a guarantee of property tax revenues should the Community Plan come to fruition as no market analysis has been prepared.

**Approach and Assumptions.** A complex relationship exists between land value and changes in land use and zoning. For example, a manufacturer that locates adjacent to an

Implementing a Community Plan resolving existing incompatible land uses could also add more than \$3 million annually to the Valparaiso tax base .

existing residential neighborhood may negatively impact residential land values. Conversely, a high-quality retail development located adjacent to an existing residential neighborhood may boost residential property values. Understanding these complex relationships would be part of an adopted Community Plan to provide an in-depth study looking at the associated difference in price levels attributed to changes in land use and zoning. As is always the case, however, value is only driven by a willing buyer and a willing seller and value is established as redevelopment is phased over time.

For the purposes of this analysis, several baseline assumptions were made regarding property value of the current and proposed land uses in Valparaiso. Estimates have been based upon existing assessed values per square foot for the same land uses in the local area. Based on information from the Okaloosa County Property Appraiser's Office, assessed values have been estimated as follows:

- Existing single family homes in the area has been estimated at \$165,000—the assessed value of a new single family home is estimated at \$180,000. It is assumed approximately 30% of area homeowners have elected homestead exemptions in the order of approximately \$37,500 based on information provided by the Okaloosa County Property Appraiser's Office
- Manufacturing use is estimated at \$45 to \$55 per square foot
- Retail/wholesale trade use has been estimated at \$70 to \$80 per square foot
- Service sector/office use has been estimated at \$100 to \$120 per square foot
- Current millage rate in Valparaiso is and shall remain 14.7185 for comparison purposes
- No inflation factors or future value analyses are included and calculations used are based a present value analysis

While current and future market conditions will dictate the supportable mix of land uses around Valparaiso, for the purposes of this analysis, the following assumptions have been made about land use opportunities for each area – Area I, II, III, and IV:

- Area I: 45 acres supporting approximately 780,000 sf of space: manufacturing (25%); retail/wholesale trade (25%); and service (50%) uses





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- Area II: 35 acres supporting approximately 610,000 sf of space: manufacturing (25%); retail/wholesale trade (25%); and service (50%) uses.
- Area III: 50 acres supporting approximately 871,200 sf of space: manufacturing (25%); retail/wholesale trade (25%); and service (50%) uses
- Area IV: 70 acres supporting a blend of mixed uses: 93,000 sf of office and 364,000 sf of retail uses, and 350 new residential units

**Impacts.** Table 12-4 highlights the net change in property tax revenue given proposed land use changes in Areas I through IV. In the pre-redevelopment assessment, the figure reflects only the estimated property tax generating potential from the existing land uses being replaced. In total, these land uses are estimated to generate roughly \$739,000 annually in property taxes with approximately \$18,800 for the City, \$167,800 for the County, \$383,450 for the School District, and \$168,600 for other sources.

The post-redevelopment estimate (\$4.4 million) reflects only the property tax generating potential from the new land

uses as highlighted above for all four areas—Areas I, II, III, and IV. The value does not reflect changes in property tax revenue associated with increases or decreases in the assessed value of parcels adjacent to redevelopment. Overall, the net change in property tax revenues resulting from the proposed development as highlighted above is estimated at \$3.7 million or an 83% increase—\$94,500 net change for the City; \$842,900 net change for the County; \$1,925,365 net change for the School District; and \$846,918 net change for other entities.

**VLP 9: Study Establishing an Enterprise Zone in the City to Help Promote Development and Assist With Redevelopment (VLP 8).** There will be a transition time between redeveloping the existing incompatible uses and implementing an adopted Redevelopment Plan. At this time, it is unclear exactly how parcels will transition. How attractive the redevelopment opportunities are for the private sector and how detrimental the fluctuations in tax revenue will be on the City of Valparaiso are extremely important concerns and need to be addressed. It is plausible to assume tax revenues will decrease before rising with any adopted Redevelopment Plan. The City of Valparaiso is not a city capable of withstanding significant decreases in tax revenue for periods exceeding 3-5 years which is a generous timeframe for any adopted Redevelopment Plan to begin generating increased tax revenues.

A tool available for communities' consideration at the state and federal levels is the Enterprise Zone program. An Enterprise Zone is a specific geographic area targeted for economic revitalization. Enterprise Zones encourage economic growth and investment in distressed areas by offering tax advantages and incentives to businesses locating within established zone boundaries. There are currently 56 Enterprise Zones in Florida including the Okaloosa-Crestview Enterprise Zone located in the northern section of Okaloosa County - half in the City of Crestview, half in unincorporated Okaloosa County. An Enterprise Zone is established by action of the Florida Legislature and the City of Valparaiso has not qualified for an Enterprise Zone through past inquiries. This recommendation includes a request to the JLUS Policy Committee to make a request on Valparaiso's behalf for assistance from the local Florida Legislative delegation for establishing the Enterprise Zone and assistance from the Okaloosa Economic Development Council for implementation.

Establishing an Enterprise Zone in a portion of Valparaiso will make the City more attractive to prospective businesses. At the same time, an Enterprise Zone area could create an opportunity for the City to increase tax revenues while bridging the time for an adopted Redevelopment Plan to be implemented and the results realized. This recom-

<b>Existing Condition</b>	
<u>Property Tax Portion</u>	
City Portion	\$18,824
County Portion	\$167,873
School Portion	\$383,452
Other	\$168,671
<b>Total</b>	<b>\$738,820</b>
<b>Potential Condition</b>	
<u>Property Tax Portion</u>	
City Portion	\$113,340
County Portion	\$1,010,784
School Portion	\$2,308,817
Other	\$1,015,589
<b>Total</b>	<b>\$4,448,530</b>
<b>Net Gain/Loss</b>	<b>\$3,709,710</b>

Table 12-4: Estimated Tax Revenue Impact of Implementing Eglin JLUS Recommendation VLP-8



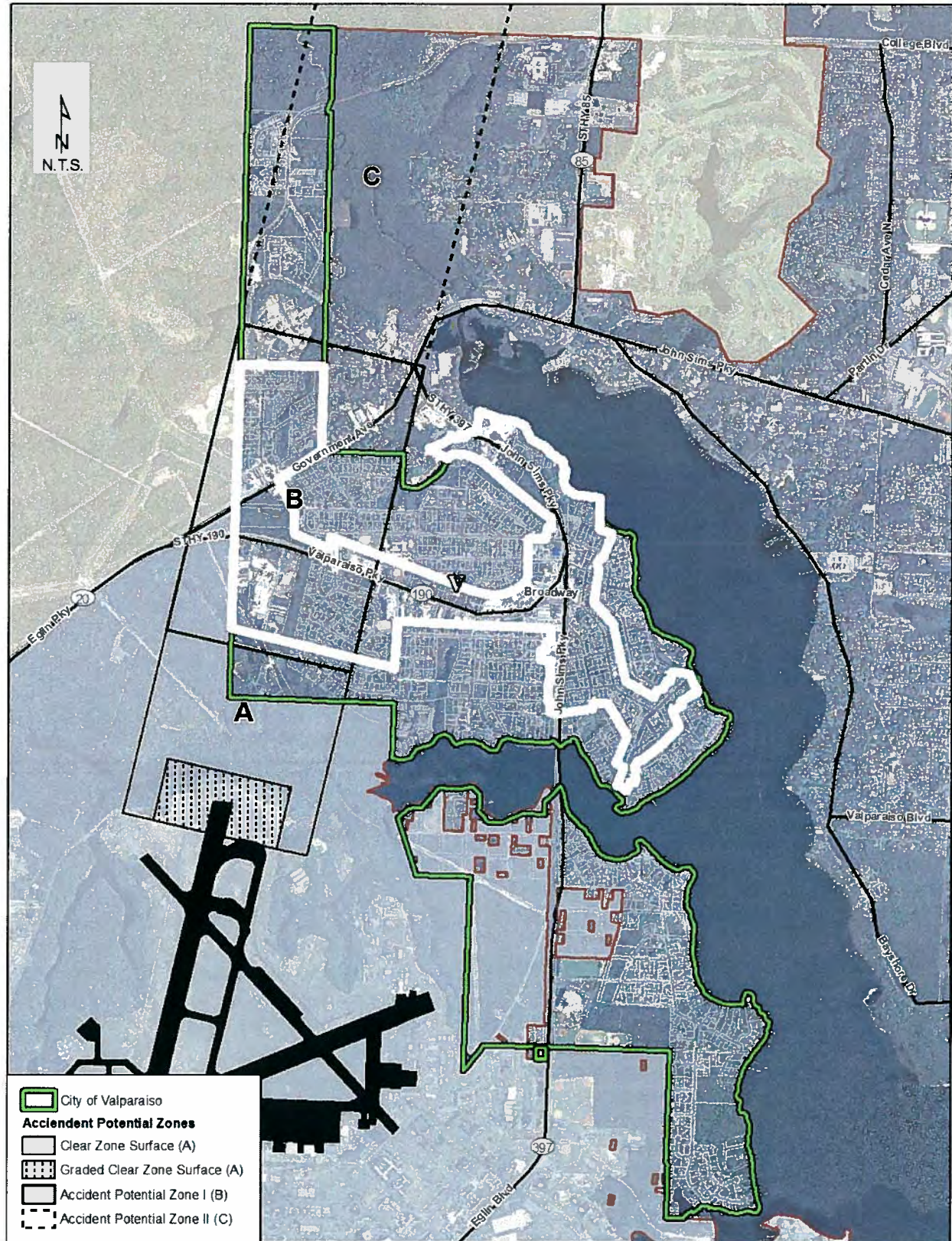


Figure 12-23: Optional Enterprise Zone Area V shown encompassing existing commercial corridors in the City of Valparaiso and proposed Redevelopment Areas I, II, III, and IV. The Enterprise Zone Study included in recommendation VLP-9 would identify the appropriate area with any required linkages to proposed benefit areas. The final Enterprise Zone Area boundaries should be determined based on input from the City and in cooperation with efforts by the local legislative delegation in establishing the Zone at the state level.





mendation is intended to assist the City during the time when the City may experience decreasing tax revenues prior to the redeveloped areas coming on line by having other areas in the City experiencing economic growth and investment. This recommendation also provides a method to promote the adopted redevelopment Areas I, II, and IV as part of an Enterprise Zone.

An area to be considered preliminarily for the Valparaiso Enterprise Zone is identified as Area V in [Figure 12-23](#). This area includes existing commercial corridors along John Sims Parkway and Valparaiso Parkway. It also includes the areas proposed to be examined in the Redevelopment Plan Study – Recommendation [VLP-8](#).

There are unanswered questions and unidentified challenges and opportunities regarding establishing the Enterprise Zone in Valparaiso. The proposed study is intended to identify the viability of establishing an Enterprise Zone with the opportunities and constraints associated with an Enterprise Zone identified.

#### VLP 10: Noise Level Reducing Construction Standards.

The City's building construction standards or requirements for development order approval through ordinance adoption or revisions should incorporate construction techniques improving noise insulation for residential and certain non-residential structures within the high noise level areas (>65dB). New construction for residential properties, public or quasi-public service buildings, or public assembly facilities proposed within the MIPA-II should be required to include sound insulation to reduce noise levels by at least 25 dB between 65 – 70 dB DNL contours and by at least 30 dB between 70 – 75 dB DNL contours.

*Appendix A – New Construction Acoustical Design Guide* includes examples of adopted guidelines for new construction to follow in an effort to insulate residences and other uses from aircraft noise. Proposed developments should be required to provide acoustical standards or studies for developments within MIPA-II showing the noise level reduction associated with the sound attenuation proposed.

VLP 11: Implement Effective Disclosure Procedures. The disclosure of aircraft Clear Zone and APZs and aircraft and high intensity impulse noise is a preventive strategy and important tool informing and forewarning prospective buyers or tenants of the expected impacts of an installation's interaction with neighboring communities. Mandatory disclosure ensures prospective homebuyers and leasers are knowledgeable about military operations and its potential impact on the community, subsequently reducing frustration and anti-military sentiment by those not adequately informed prior to entering into their purchase or rental agreement. This recommendation includes developing more

effective disclosure procedures and broadens the geographical area where disclosure will be required as part of property transactions. Disclosure requirements should include all properties (residential and non-residential) within the Clear Zone, APZ I and II, and maximum mission and higher intensity impulse noise areas.

*Appendix C – Example Noise Disclosure Statement* provides an example disclosure statement for consideration and use in implementing this recommendation.

Property owner disclosure regarding the potential for safety and noise hazards requires development and adoption of an ordinance establishing requirements for the disclosure to foster more practical implementation and enforcement. More important is establishing the effective use of the disclosure in real world situations. The following recommendations are included as part of delivering a disclosure ordinance recommendation with practical implementation in mind:

- ◇ Adopt ordinance including real estate disclosure requirements for deeds, building permits, preliminary subdivision plats (information on the final plat is dictated by Florida Statute), property purchases, renters, resort properties, and new and existing home sales including sales by owner, builder, and developer.
- ◇ Notify all existing property owners in the Clear Zone and APZ I and II by certified mail of their current situation as owners of property within one or more of the areas. Specifically identify the areas related to each parcel owner. Following completion of the Supplemental EIS, notification of all property owners by certified mail owning property in high noise level areas (>65 dB) should also be completed.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort of the Florida Association of Realtors, Santa Rosa County Association of Realtors, and Emerald Coast Okaloosa/Walton Association of Realtors to include sections concerning Safety and Noise on the standard Seller's Real Property Disclosure Statement endorsed by each respective group.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort encouraging state lawmakers to strengthen Florida Statute, Chapter 475 to require mandatory disclosure of properties within the Clear Zone, APZ I and II, and high level noise areas.
- ◇ Seek assistance from the West Florida Regional Planning Council or other professionals of participating local jurisdictions to incorporate the disclosure statement requirements into a local ordinance and lobbying efforts with other participating local jurisdictions.



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- ◇ Conduct public information meetings on the disclosure requirements. At a minimum, one meeting prior to the first reading of the ordinance and a second meeting following the adoption of the ordinance. The meetings would be in addition to the public meetings where the ordinances will be read and discussed with public comment periods.
- ◇ Require identification of the Clear Zone, APZ I, APZ II, High Noise Level Areas (>65dB), and High Intensity Impulse Noise Areas on all City maps and public reports and require developers to identify the areas on all proposed projects.
- ◇ Require sales offices used to market, sell, or lease properties, including pre-construction sales, which will be constructed or leased on lots located in a MIPA, must display a map in public view illustrating military installation property boundaries, and MIPA areas. This display requirement shall also apply to temporary realty sales offices. Pamphlets illustrating the same information appearing on the display map on paper not less than 8.5"x11" shall also be made available and placed in public view.

**VLP 12: Implement Lighting Ordinance.** Evaluate and update outdoor lighting standards applicable to MIPA areas or all unincorporated areas. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

#### Community Wide Measures:

- ◇ Turn-off un-needed lights, e.g. unused parking lots
- ◇ Use appropriate levels of illumination
- ◇ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones

(MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◇ Light patterns common to military aviation
- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary
- ◇ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◇ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◇ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

**VLP 14: Establish MIPA Designations.** Establishing Military Influence Planning Areas (MIPAs) as geographic planning areas established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIPA recognizes the existence and mission of a military installation within a





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community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the public
- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses
- More accurately identify areas affected by military operations
- Create compatible mix of land uses

VLP 15: Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests. There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels: ≥65-69; 70-74; 75-84; ≥85

- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.
- Tall structures and potential height thresholds needed within the following areas (with reference maps):
  - ◊ Clear Zone and APZ I & II
  - ◊ FAA & Military Approach/Departure Height Thresholds
  - ◊ Military Training Routes
  - ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
  - ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
  - ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

**Comprehensive Plan Military Influence Area Subelement Goals, Objectives, and Policies-** Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.



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**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

**Identify Policies to Implement Each Objective, including:**

- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◊ Possible Implementing Rezonings
  - ◊ Establish Military Influenced Lands (MIPA) Zoning Overlay District:
    - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
    - ⇒ Height Regulations
    - ⇒ Outdoor Lighting Regulations
    - ⇒ Development Review Procedures:
      - + Ex-Officio Military Representation on Planning Board
      - + Early NotificationEffectuating Timely Participation and Response
      - + Conflict Resolution Mechanisms
  - ◊ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
  - ◊ Restrict Use Of Radio Frequency Spectrum
  - ◊ Bands 5.4 -5.9 Ghz
  - ◊ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
  - ◊ Special Issues
  - ◊ Small Area Land Use Studies
  - ◊ Public Awareness
  - ◊ Web-Site Public Awareness
  - ◊ Public Notice Requirements In Development Review Process
  - ◊ Identify When Moa Impacted
  - ◊ Street Signage (Military Operations Area)
  - ◊ Inform Public of Noise Zone Revisions
  - ◊ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
  - ◊ Revisions to Construction Standards to Address Noise Attenuation
  - ◊ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
  - ◊ Collaborative Efforts to Mitigate Issues with Eglin AFB
  - ◊ Revisions to Instrumentation and/or Physical Orientation

- ◊ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◊ Funding for Implementation

*Table 12-5* has been created based on the existing issues, baseline analysis, and industry standards regarding joint land use between military installations and private lands. This table and *Table 12-6* - Implementation Plan Responsibilities and Timing, are intended to further guide implementing the recommended strategies.

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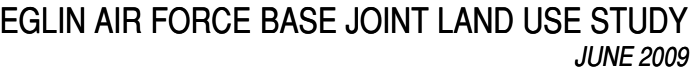







# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

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**Legend:**

	Land use and related structures are not normally compatible and should be prohibited
	Land use and related structures are generally compatible with noted restrictions
	Land uses and related structures are normally compatible without restrictions

(#.##) Indicates maximum Floor Area Ratio (FAR) for the land use identified

**Notes:**

- 1 Maximum Density: 1-2 du/acre
- 2 "Other Uses" includes apartments, group quarters, residential hotels, and transient lodging
- 3 Maximum of 25 occupants per acre and approval is subject to review.
- 4 Maximum of 50 occupants per acre and approval is subject to review.
- 5 No clubhouse
- 6 No accessory units - e.g., no passenger terminals and major above ground electrical transmission lines in APZ I
- 7 No chapels
- 8 No activity which produces smoke, glare, bird attractants, or involves explosives.
- 9 Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 10 Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 11 Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is present.
- 12 If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
- 13 No buildings.
- 14 Land use compatible provided special sound reinforcement systems are installed.
- 15 Residential buildings require a NLR of 25.
- 16 Residential buildings require a NLR of 30.
- 17 Residential buildings not permitted.
- 18 Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn by personnel.







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ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see description	Implementation Responsibility		Implementation Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
VLP 1	Implement Public Awareness Measures	12-27	✓	✓				City of Valparaiso	Okaloosa County, Eglin AFB, & Eglin JLUS Policy Committee & TAG	✓			✓
VLP 2	Identify Clear Zone & APZs I & II on Public Documents*	12-26	✓	✓				City of Valparaiso	Private Party Submittals	✓			✓
VLP 3	Study Required Implementation Steps to Retrofit Existing Public Buildings Within the High Noise Level Areas (>65 dB) with Sound Attenuation	12-27	✓	✓				City of Valparaiso	Okaloosa County, Okaloosa School District, Eglin AFB, Eglin JLUS Policy Committee & TAG	✓	✓		
VLP 4	Study Required Steps to Develop Retrofit Program for Sound Attenuation for Occupied Buildings in High Noise Level Areas (>65 dB)	12-27	✓	✓				City of Valparaiso	Okaloosa County, Okaloosa School District, Eglin AFB, Eglin JLUS Policy Committee & TAG	✓	✓		
VLP 5	Implement Land Acquisition Program	12-29	✓		✓			City of Valparaiso	Okaloosa County, Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others	✓	✓		✓
VLP 6	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review & Planning Process	12-29				✓		City of Valparaiso	Eglin JLUS Policy Committee & TAG	✓			✓
VLP 7	Limit Object Heights Regarding Potential Conflicts	12-26	✓	✓				City of Valparaiso	Eglin AFB	✓			✓
VLP 8	Study the Creation of a Community Plan and Program to Help Resolve Incompatibilities in the Clear Zone, APZ I, and APZ II	12-32	✓				✓	City of Valparaiso	Okaloosa County, Local Legislative Delegation, Okaloosa Economic Development Council, Eglin JLUS Policy Committee & TAG	✓		✓	
VLP 9	Study the Establishment of an Enterprise Zone in the City to Help Promote Development and Assist with Redevelopment	12-36					✓	City of Valparaiso	Okaloosa County, Local Legislative Delegation, Okaloosa Economic Development Council, Eglin JLUS Policy Committee & TAG	✓			
VLP 10	Implement Noise Level Reduction Construction Standards	12-38	✓	✓				City of Valparaiso	Okaloosa County, Eglin JLUS Policy Committee & TAG	✓	✓		
VLP 11	Establish and Implement Effective Disclosure Procedures	12-38	✓	✓		✓		City of Valparaiso	Eglin JLUS Policy Committee & TAG, Local Legislative Delegation, Assoc of Realtors	✓			✓
VLP 12	Implement Lighting Ordinance	12-39	✓	✓		✓		City of Valparaiso	Eglin AFB, Eglin JLUS Policy Committee & TAG		✓		
VLP 13	Distribute Educational Handouts on Radio Frequency	12-26				✓		Eglin AFB	City of Valparaiso	✓			
VLP 14	Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III)	12-39	✓	✓				City of Valparaiso	Eglin JLUS Policy Committee & TAG	✓			✓
VLP 15	Update City's Comprehensive Plan and Land Development Code	12-40	✓	✓				City of Valparaiso	Eglin JLUS Policy Committee & TAG		✓		

\* Area shown for High Aircraft Noise shall be subject to change based on the results of the Supplemental BRAC EIS.

Table 12-6: Timing and Implementation Responsibilities



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## SECTION 13 - WALTON COUNTY (UNINCORPORATED AREAS)



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## 13.1 INTRODUCTION

Walton County is surrounded by Holmes County, Washington County, and Bay County to the east, and Okaloosa County to the west. Its county seat is DeFuniak Springs. It was created in 1824, and from a 2005 estimate from the U.S. Census Bureau, the population is 50,324. The incorporated cities in Walton County are DeFuniak Springs, Freeport, and Paxton. The unincorporated areas of the County include Grayton Beach, Inlet Beach, Miramar Beach, Mossy Head, Rosemary Beach, and Seaside.

As of the census of 2000, there were 40,601 people, 16,548 households, and 11,120 families residing in the county. The population density was 38 people per square mile. There were 29,083 housing units at an average density of 28 per square mile.

There were 16,548 households out of which 26% had children under the age of 18 living with them, 53% were married couples living together, 10% had a female householder with no husband present, and 32% were non-families. 27% of all households were made up of individuals and 10% had someone living alone who was 65 years of age or older. The average household size was 2.35 and the average family size was 2.83.

In the County, the population was spread out with 22% under the age of 18, 7% from 18 to 24, 29% from 25 to 44, 27% from 45 to 64, and 16% who were 65 years of age or older. The median age was 40 years.

*Figure 13-1* shows Walton County's limits.

## 13.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from Walton County and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the County were identified and explained. The following are the issues identified for the County with respect to land use encroachments:

- Development at Eglin AFB Perimeter Boundary
- Impulse Noise
- Low Level Helicopter and Tiltrotor Training Areas
- Cruise Missile Corridors

- Radio Frequency
- Height of Objects and Low Level Training Courses
- Lighting
- Controlled Firing Areas

Each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

### 13.2.1 Development at Eglin Perimeter Boundary

As the County continues to grow, specifically in the DeFuniak Springs, Freeport, and Mossy Head areas near the boundary of the Eglin Reservation, development near the boundary can create security concerns, promote excessive light during nighttime hours, and encourage other encroachments onto the Reservation. This issue is managed easiest by recognizing and implementing necessary land use controls.

### 13.2.2 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

Walton County includes areas in each of the three categories for impulse noise (Low, Moderate, and High levels) as shown in *Figure 13-2*.

### 13.2.3 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in *Figure 13-3*. The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing

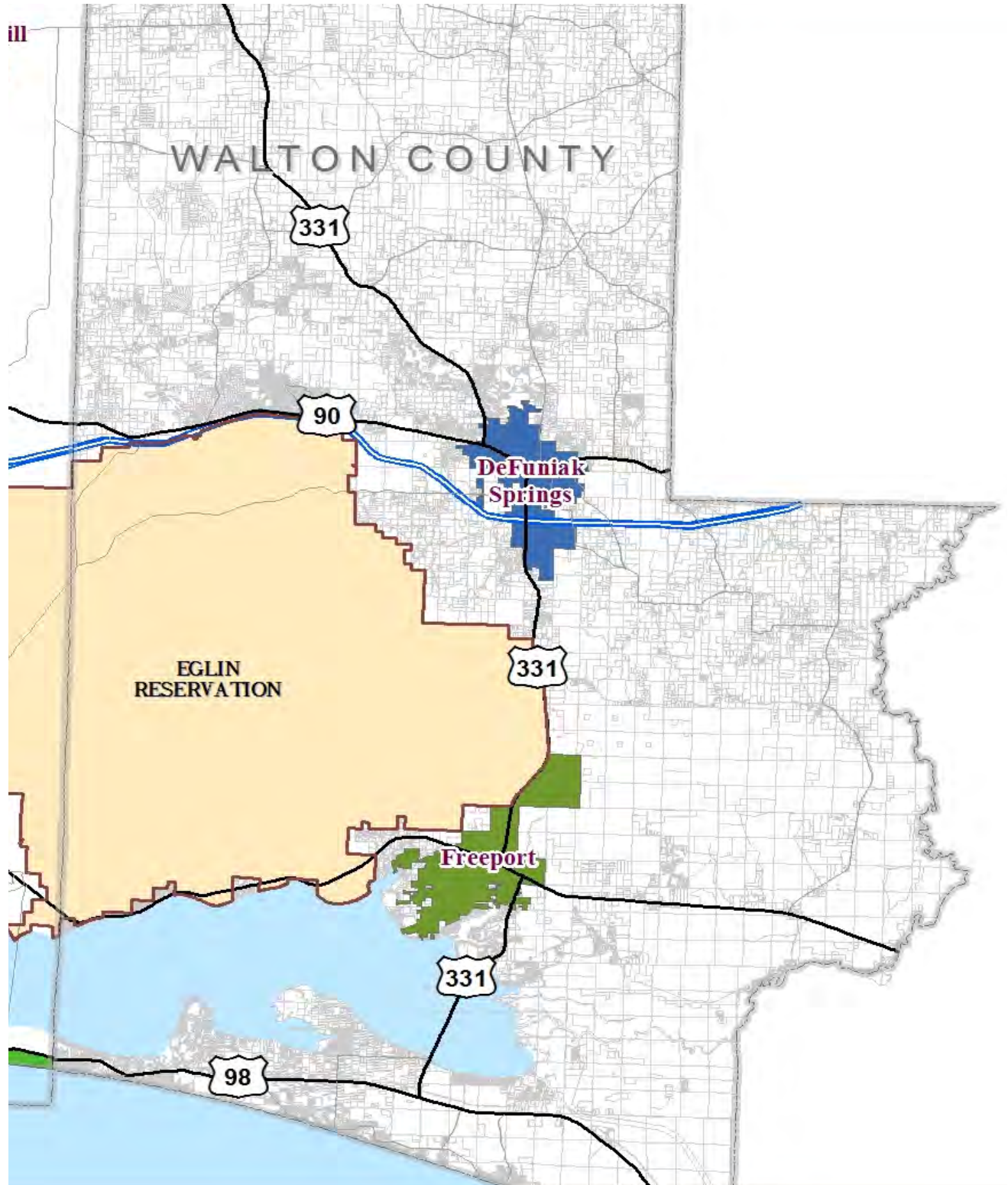
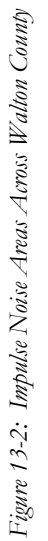


Figure 13-1: Walton County Limits









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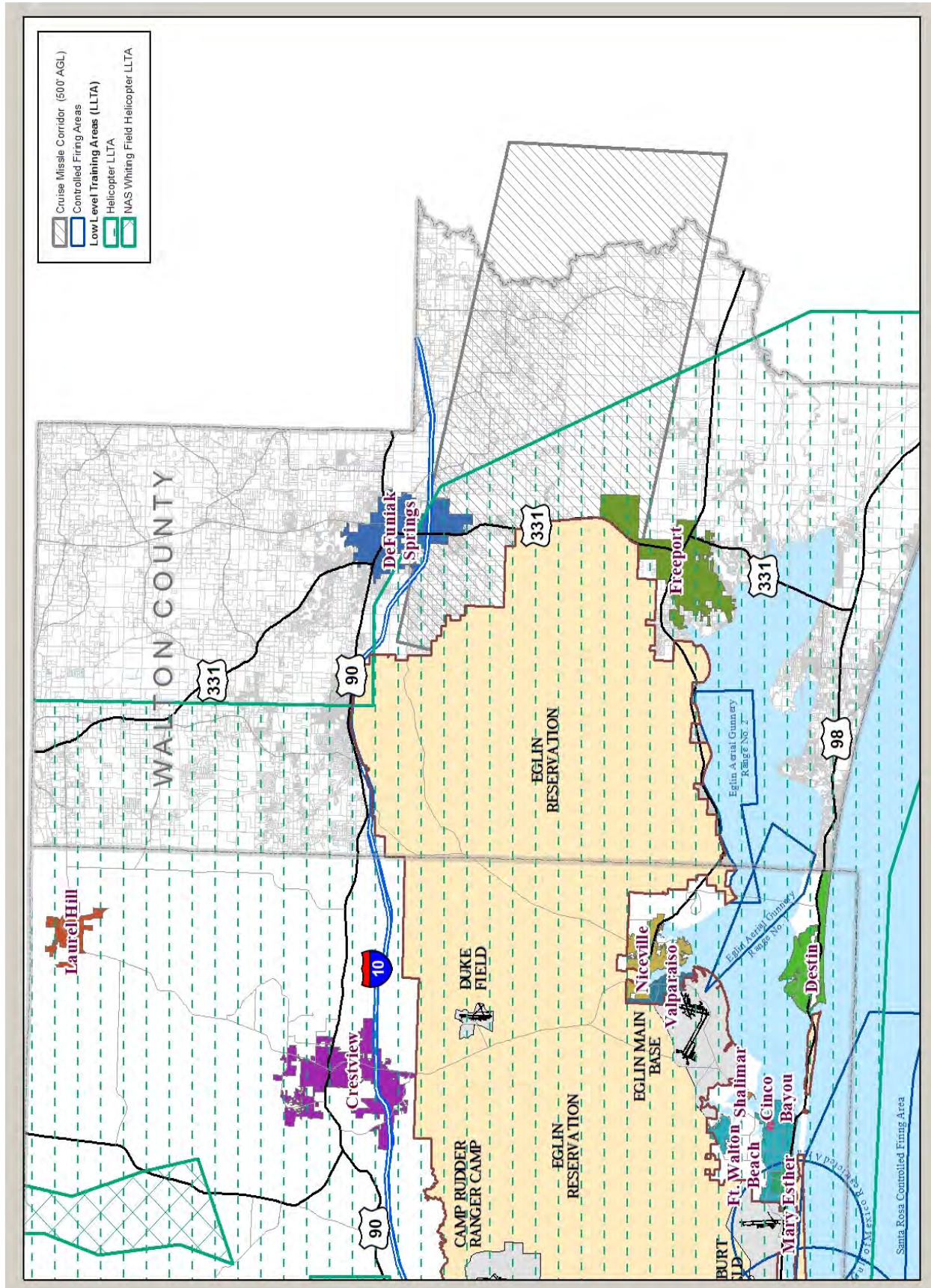


Figure 13-3: Low Level Helicopter and Tiltrotor Training Area Across Walton County





(1 SOW).

### 13.2.4 Height of Objects

According to the RAICUZ, Military Training Routes (MTR) are corridors of a defined width established and designated by the Federal Aviation Administration (FAA) specifically for military training. Within these corridors, military aircraft are permitted to conduct military training/RDT&E below 10,000 feet above mean sea level (MSL) in excess of 250 knots indicated airspeed (KIAS).

Two additional military training areas are the Slow Speed Low Altitude Training Route (SR) and the LLTA area. Flight within the SR must be below 1,500 feet above ground level (AGL) and at or below 250 KIAS. Typically SRs are flown with C-130 aircraft and helicopters as well as some slow speed training aircraft. LLTAs are large geographic areas where random low altitude operations are conducted at airspeeds below 250 KIAS. Typically A-10 aircraft and helicopters frequent LLTAs.

Within all of the MTRs, SRs, and LLTAs, low altitude navigation tactical training is currently conducted by C-130 cargo transport aircraft, CV-22 Osprey, CA-212 light transport aircraft, helicopters, fighter and attack aircraft, and training aircraft.

As population density increases underneath the MTRs and LLTAs, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1 SOW and Naval Air Station Whiting Field. Maintaining lower population densities underneath the low level MTRs along the northern boundary of Eglin, which are used by the 16 SOW, is important for safety reasons. As these routes transition into Field 6 (Camp Rudder), Duke Field, Field 1, Pino Drop Zone, and Sontay Drop Zone, the aircraft is not able to deviate from its selected approach path in an attempt to avoid more densely populated areas or noise sensitive features (e.g., hospital, school, or church). The approach path generally begins approximately 10 nautical miles (NM) from the center point of the airfield or drop zone.

Based on information provided in the RAICUZ, airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is de-

signed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPs have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

*Figure 13-4* provides height limits based on military training routes and TERPs.

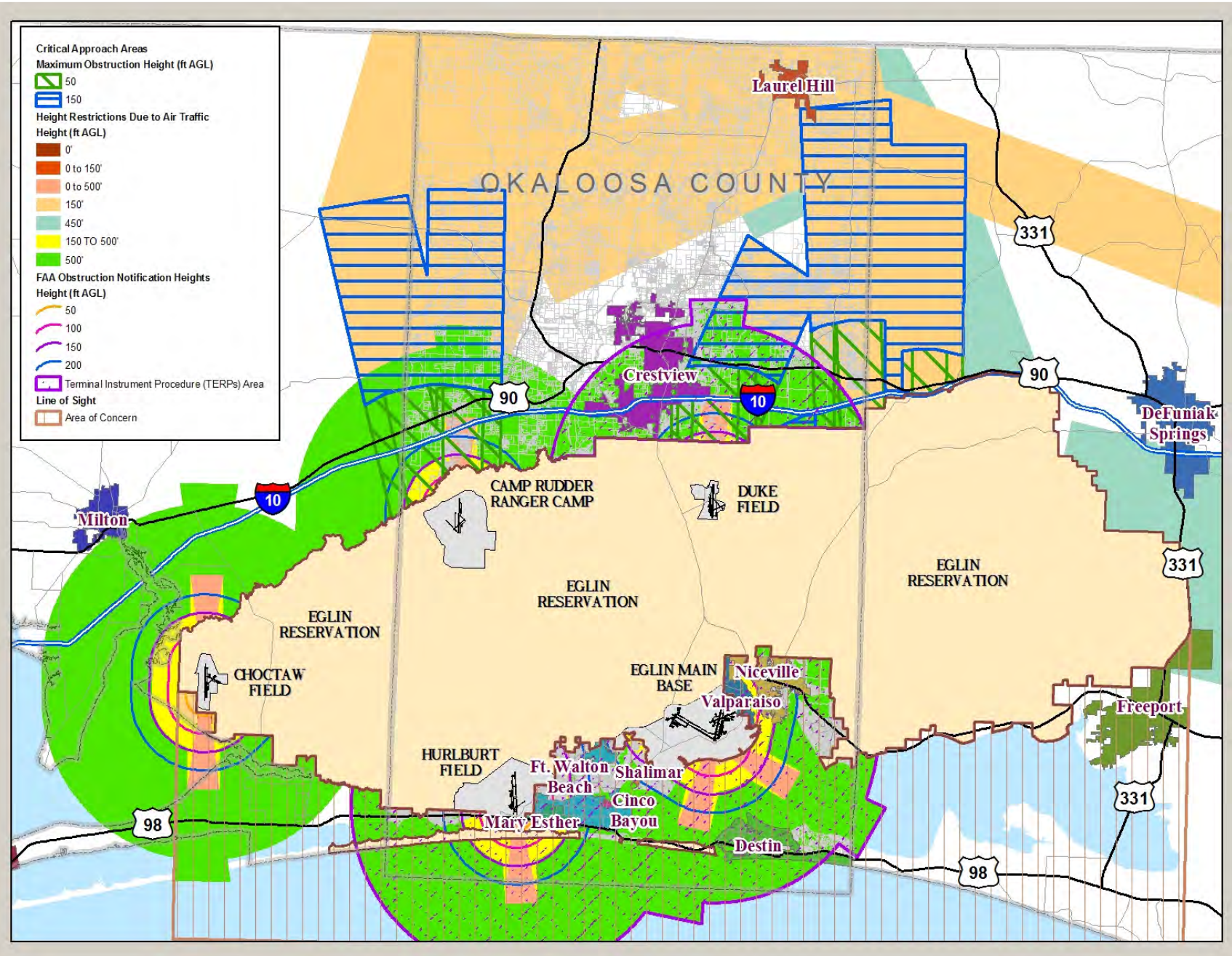


Figure 13-4: Maximum Obstruction Heights For Other Military Training Routes. Note the lowest elevation shown shall govern.





## 13.2.5 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns (Santa Rosa County Commissioners, 2003). Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. *Figure 13-5* shows the increase in artificial lighting that is visible from satellites for a portion of Walton County. It is clearly evident that the amount of lights is increasing with population.

## 13.2.6 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz band width would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

## 13.2.7 Controlled Firing Areas

According to the RAICUZ, there are test sites associated with Walton County serving to support the test and training mission at Eglin. The missions at the test sites range from Command Centers that control the activation of flight termination systems for items being tested to the launching of surface-to-air missiles such as the Air Intercept Missile and the Patriot missile. In the airspace above parts of Walton County are Controlled Firing Areas. *Figure 13-3* includes the Controlled Firing Areas in Walton County. These areas are defined airspace blocks that contain activities that would be potentially hazardous to nonparticipating aircraft.

Successful and safe completion of the mission on land and the adjacent waters requires the control of the airspace, water, and land that are part of the mission scenario. Access restriction ensures the safety of people not participating in the mission as well as maintains mission integrity. Restricting access becomes increasingly problematic as the number of residents and civilian boat traffic increase. Potential changes to the island or shoreline and surrounding area could potentially lead to more increases in civilian and commercial boat traffic. As stated in the RAICUZ, these possible changes, such as construction of a pass through the non-federally owned portions of Santa Rosa Island or establishment of artificial reefs, would attract marinas and additional boats to the area. The associated increase in

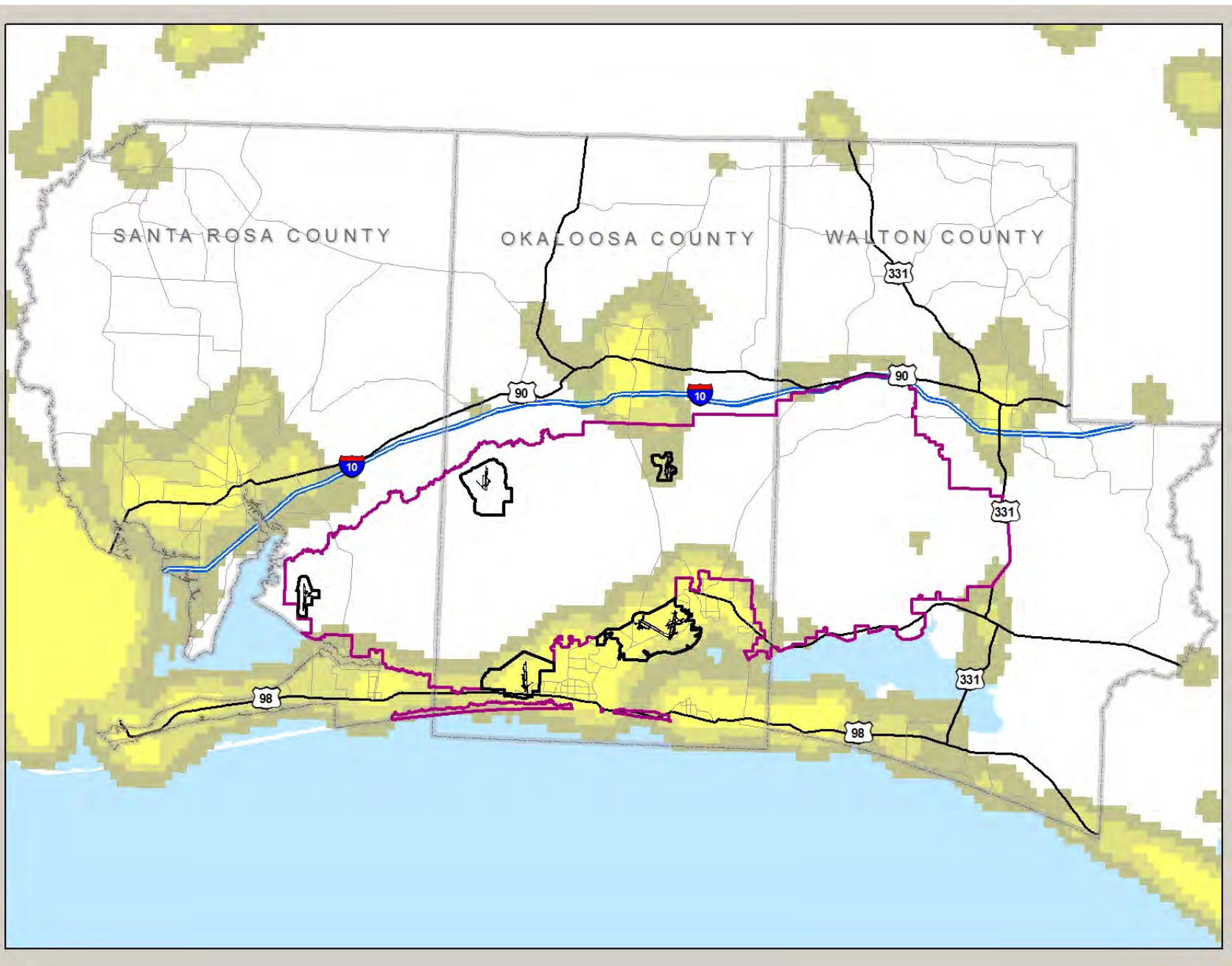


Figure 13-5: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)





boat traffic would complicate access restriction measures and potentially cause safety concerns, mission delay, or cancellation of the mission.

### 13.2.8 Cruise Missile Corridors

Tomahawk® cruise missile testing and training is conducted at Eglin AFB within existing designated IR Military Training Routes (MTRs). The Tomahawk® missile is a long-range subsonic cruise missile used for striking high value or heavily defended land targets. It is launched from U.S. Navy surface ships and submarines (U.S. Navy, 2004). Cruise missiles are self-propelled and guided through on-board global positioning systems. During test and training activities at Eglin AFB, the Tomahawk® cruise missile flies between the altitudes 500 feet above ground level (AGL) to 4,000 feet above MSL. The areas in which cruise missiles are flown are depicted as “Cruise Missile Corridor” in Figure 13-4.

The Tomahawk® cruise missile flies much like an aircraft and requires similar obstruction-free flight paths. Since the cruise missile flies between 500 feet AGL to 4,000 feet above MSL, objects or structures taller than 450 feet can cause problems and should be minimized as much as possible.

To provide safe operating conditions for missions involving the cruise missile, the Commander of AAC at Eglin AFB follows criteria established to minimize risk. The Range Commanders Council, Risk and Lethality Commonality Team of the Range Safety Group (2000), developed common risk criteria (Standard 321-000, 2000) for national test ranges and Major Range and Test Facility Bases, of which Eglin AFB is one. The criteria apply to debris generated from numerous missions including those involving cruise missiles. The criteria define the acceptable risk to the general public as a result of flying cruise missiles within the designated IR route. To effectively minimize risk to the general public, population density underneath the cruise missile corridor would remain low. This ensures that if a missile were to malfunction or break apart, the likelihood of debris coming into contact with a person on the ground would be lessened. The need to maintain low population density within the cruise missile corridor is fundamental to continuing this part of the Eglin AFB mission.

*Figure 13-6* shows the cruise missile corridors.

## 13.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the County's Future Land Use Map is provided in *Figure 13-7*.

### 13.3.1 Eglin Perimeter Boundary Development

The area of the County within one mile of Eglin's boundary includes portions of the central and southern sections of the County. The land use for the northern boundary of Eglin in Walton County is General Agriculture, Rural Residential, Commercial, and Conservation Residential. US Highway 90 and Interstate 10 provide a definitive buffer between the northern rim of the Eglin reservation and private property. The eastern boundary is under General Agriculture, Estate Residential, and Large-Scale Agriculture. The land use along the southern boundary is General Agriculture, Estate Residential, Rural Residential, and Commercial.

### 13.3.2 Controlled Firing Areas

The controlled firing areas in Walton County include the waterfront areas along the northern shore of the Choctawhatchee Bay in the Villa Tasso, Choctaw Beach, and Basin Bayou areas as previously shown in Figure 13-3.

### 13.3.3 Impulse Noise

The nature of the impulse noise in the County is in the low, moderate, and high ranges as previously shown in Figure 13-2. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 13.3.4 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers a large portion of the County and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a temporary nuisance resulting from low level helicopters and tiltrotors flying overhead and the temporary sound and vibration increases associated with a low flying helicopter or tiltrotor.

### 13.3.5 Radio Frequency Interference

The analysis for radio frequency interference in the County is based on what part of the County lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

Although the County is not responsible for regulating or licensing radio frequencies, there are steps the County can



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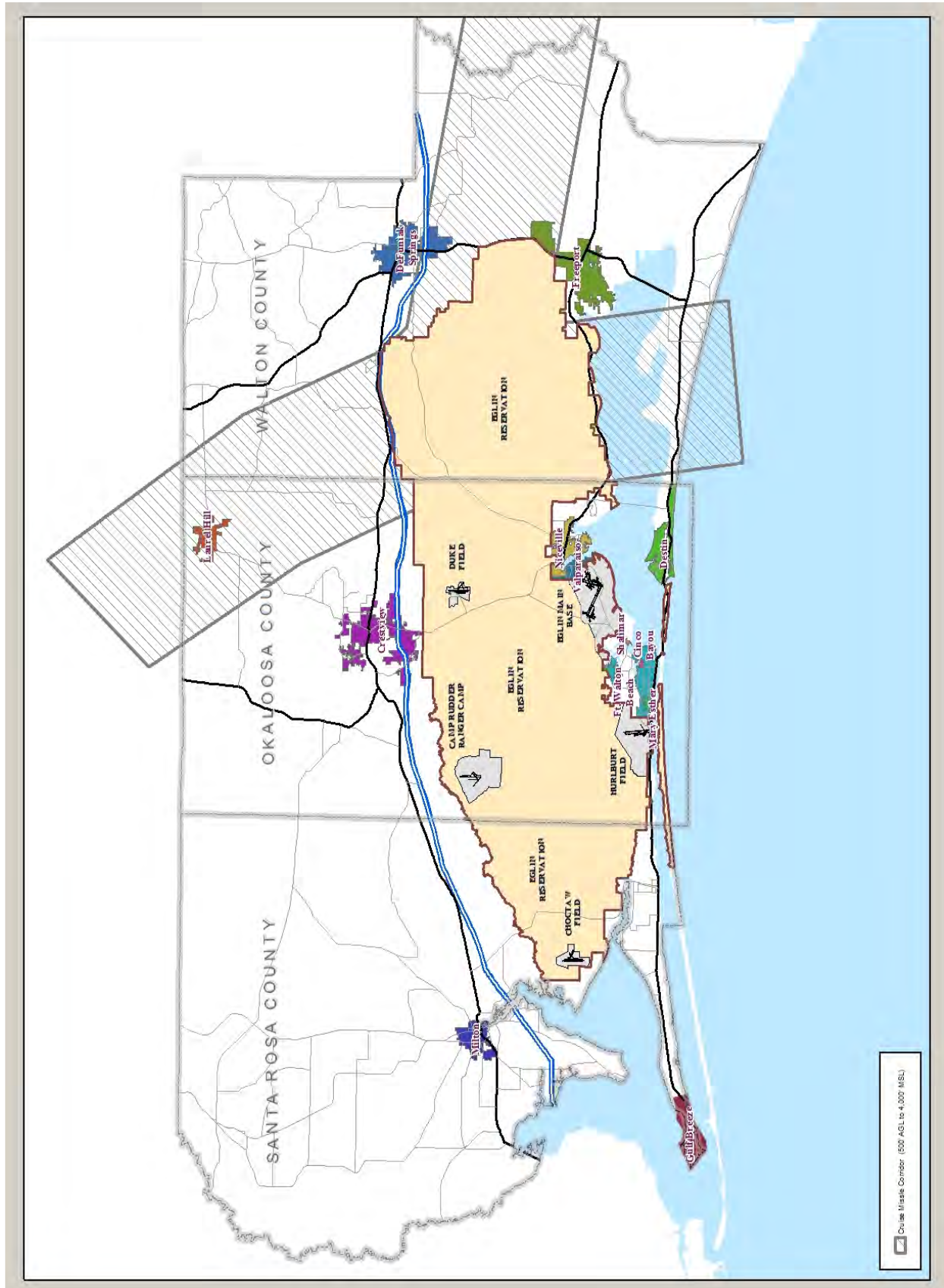


Figure 13-6: Cruise Missile Corridors





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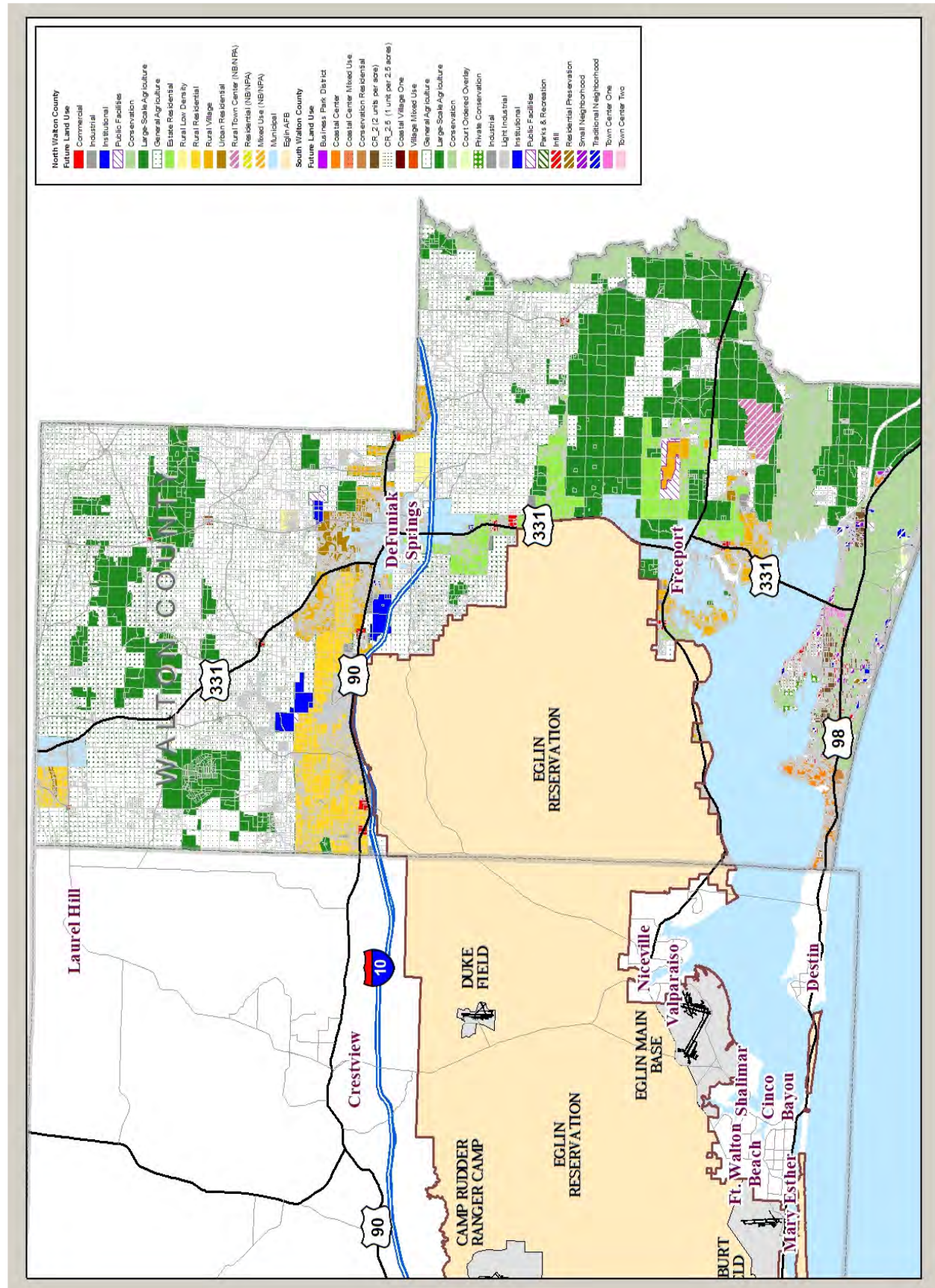


Figure 13-7: Walton County Future Land Use Map



take to help minimize radio frequency interference. The County should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

### 13.3.6 Height of Objects and Low Level Training Routes

Areas along the northern boundary of Eglin AFB currently low in population density provide ideal conditions for low level flight and low altitude night vision goggle training, a vital skill for new pilots to learn and veteran pilots to maintain. An increase in population density and development along the northern Eglin boundary would force increases in altitude and/or changes in flight paths, both critically impairing the ability to conduct training at Field 6 (Camp Rudder), Field 1, Pino Drop Zone, Sontay Drop Zone, and Duke Field. The assault landing strip at Duke Field is used for assault landing training and is the only location in the United States that offers this type of training, which is an essential part of special operations capability (U.S. Air Force, 2003b).

To identify the area in which low population densities would be ideal and where incompatible development would cause the most impact, the Northwest Florida Greenway Corridor Study Area was delineated ([Figure 13-8](#)). The goals of the corridor study area are to promote the sustainability of the military mission, to preserve the high biodiversity of the area, to enhance outdoor recreation, and to support the economic health of the area. It consists of federally and state managed lands, conservation organization lands, and private lands. By delineating the corridor and agreeing to work together, the federal agencies, state agencies, conservation organizations, and local city and county governments committed to furthering the goals of the Northwest Florida Greenway Corridor Study Area.

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# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

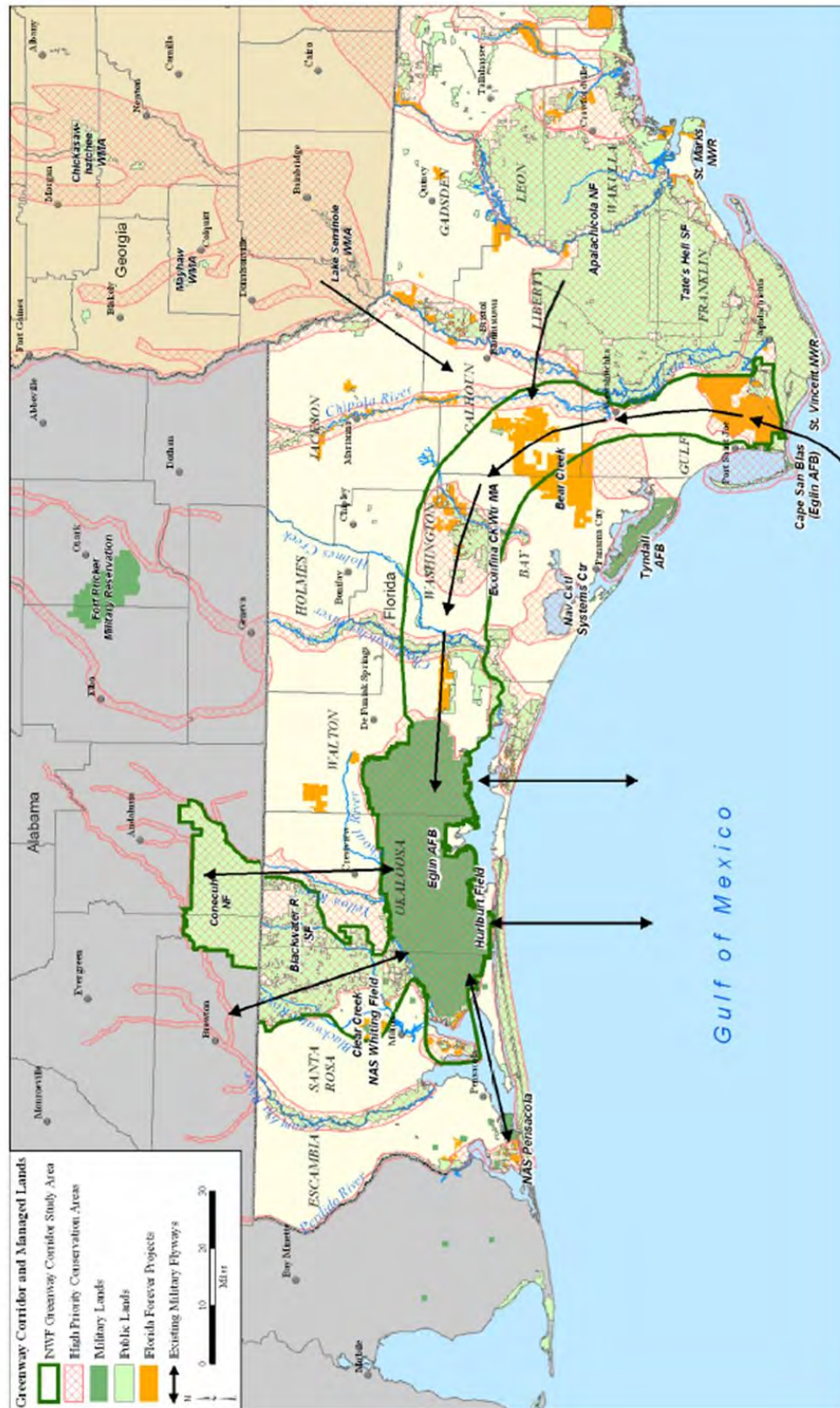


Figure 13-8: Northwest Florida Greenway Corridor



## 13.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the County on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the County. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the County's use:

- **WLT 1:** Implement Effective Disclosure Procedures Notifying Buyers and Leasers that Property is Near a Military Installation subject to Low Level Aircraft, Impulse Noises, and/or Other Military-Related Issues Identified
- **WLT 2:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **WLT 3:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **WLT 4:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **WLT 5:** Identify Low Level Approach Zones and Cruise Missile Corridors on All County Maps, Preliminary Plats and Public Reports and Require Developers To Identify Same Information on All Proposed Projects
- **WLT 6:** Implement Comprehensive Plan Amendments Discouraging Additional Marine Navigation Channels or Land Cuts, Artificial Reefs, or Other Proposed Activities Increasing Marine Traffic in Controlled Firing Areas
- **WLT 7:** Do not allow increases in Density and Intensity in Low Level Approach Zones, Cruise Missile Corridor, or Eglin AFB Boundary Buffer Until Recommendation **WLT 8** is Completed
- **WLT 8:** Conduct Small Area Studies For The Low Level Approach Zones, Cruise Missile Corridor, and Eglin Buffer
- **WLT 9:** Support and Promote State and Federal Land Acquisition in Florida Greenway Program
- **WLT 10:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **WLT 11:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **WLT 12:** Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III) based on the compatibility issues Identified. The different MIPA designations proposed are shown in [Table 13-1](#) and are summarized as follows:
  - ◊ **MIPA-I:** Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MIPA-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.
  - ◊ **MIPA-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MIPA-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF. MIPA-II's are not recommended for all jurisdictions participating in this study.

Military Influence Planning Area (MIPA) Designation	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach & or Cruise Missile Corridor	0.5-1.0 mi Buffer
I	■	■	■			
II				■		
III					■	■

Table 13-1: Proposed MIPA Designations for Eglin JLUS. Note that not every jurisdiction has a MIPA Planning Area recommended.





- ◇ **MIPA-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation and strategic buffer areas along the northern boundary of the Eglin Reservation. MIPA-III's are focused on limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach and Cruise Missile Corridors MIPA-III's vary but the MIPA-III areas for the buffers are approximately one mile from the Eglin boundary.

*Figure 13-9* shows the locations of the MIPA designations across Walton County. *Figure 13-10* represents the MIPA-III area in northwest Walton County for the Low Level Approach Areas. *Figure 13-11* provides the MIPA-III buffer area along the Eglin AFB boundary. *Figure 13-12* shows the MIPA-II areas for High Intensity Impulse Noise in the Seminole and Choctaw Beach areas. *Figure 13-13* provides the MIPA-II High Intensity Impulse Noise areas in the Basin Bayou area.

- **WLT 13:** Update County's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the County's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the County's use:

**WLT 1: Implement More Effective Disclosure Procedures.** The disclosure of low-level aircraft, high intensity impulse noise, and cruise missile corridors is a preventive strategy and important tool informing and forewarning prospective buyers or tenants of the expected impacts of an installation's interaction with neighboring communities. Mandatory disclosure ensures prospective homebuyers and leasers are knowledgeable about military operations and its potential impact on the community, subsequently reducing frustration and anti-military sentiment by those not adequately informed prior to entering into their purchase or rental agreement. This recommendation includes developing more effective disclosure procedures and broadens the geographical area where disclosure will be required as part of property transactions. Disclosure requirements should include all properties (residential and non-residential) within the higher inten-

sity impulse noise areas. The determination of disclosure requirements for the low-level approach areas and cruise missile corridors shall be part of recommendation WLT 8.

*Appendix C – Example Noise Disclosure Statement* provides an example disclosure statement for consideration and use in implementing this recommendation.

Property owner disclosure regarding the potential for safety and noise hazards requires development and adoption of an ordinance establishing requirements for the disclosure to foster more practical implementation and enforcement. More important is establishing the effective use of the disclosure in real world situations. The following recommendations are included as part of delivering a disclosure ordinance recommendation with practical implementation in mind:

- ◇ Adopt ordinance including real estate disclosure requirements for deeds, building permits, preliminary subdivision plats (information on the final plat is dictated by Florida Statute), property purchases, renters, resort properties, and new and existing home sales including sales by owner, builder, and developer.
- ◇ Notify all existing property owners in the High Intensity Impulse Noise areas by certified mail of their current situation as owners of property within one or more of the areas. Specifically identify the areas related to each parcel owner
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort of the Florida Association of Realtors, Santa Rosa County Association of Realtors, Okaloosa County Association of Realtors, and Walton County Association of Realtors to include sections concerning Safety and Noise on the standard Seller's Real Property Disclosure Statement endorsed by each respective group.
- ◇ Encourage participating local jurisdictions to join in a concerted lobbying effort encouraging state lawmakers to strengthen Florida Statute, Chapter 475 to require mandatory disclosure of properties within the Safety and Noise areas.
- ◇ Seek assistance from the West Florida Regional Planning Council or other professionals of participating local jurisdictions to incorporate the disclosure statement requirements into a local ordinance and lobbying efforts with other participating local jurisdictions.

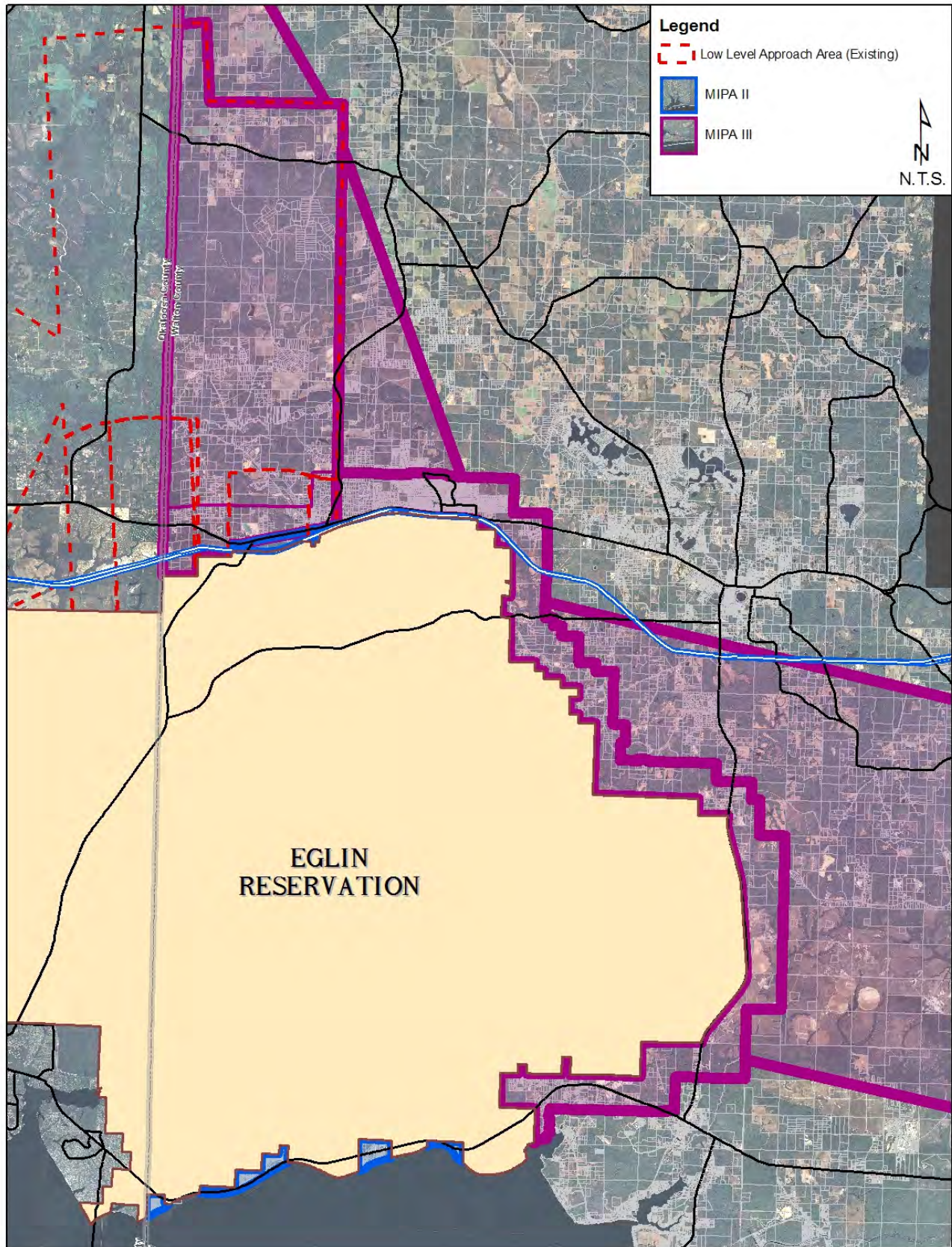


Figure 13-9: Proposed MIPA Designations For Walton County







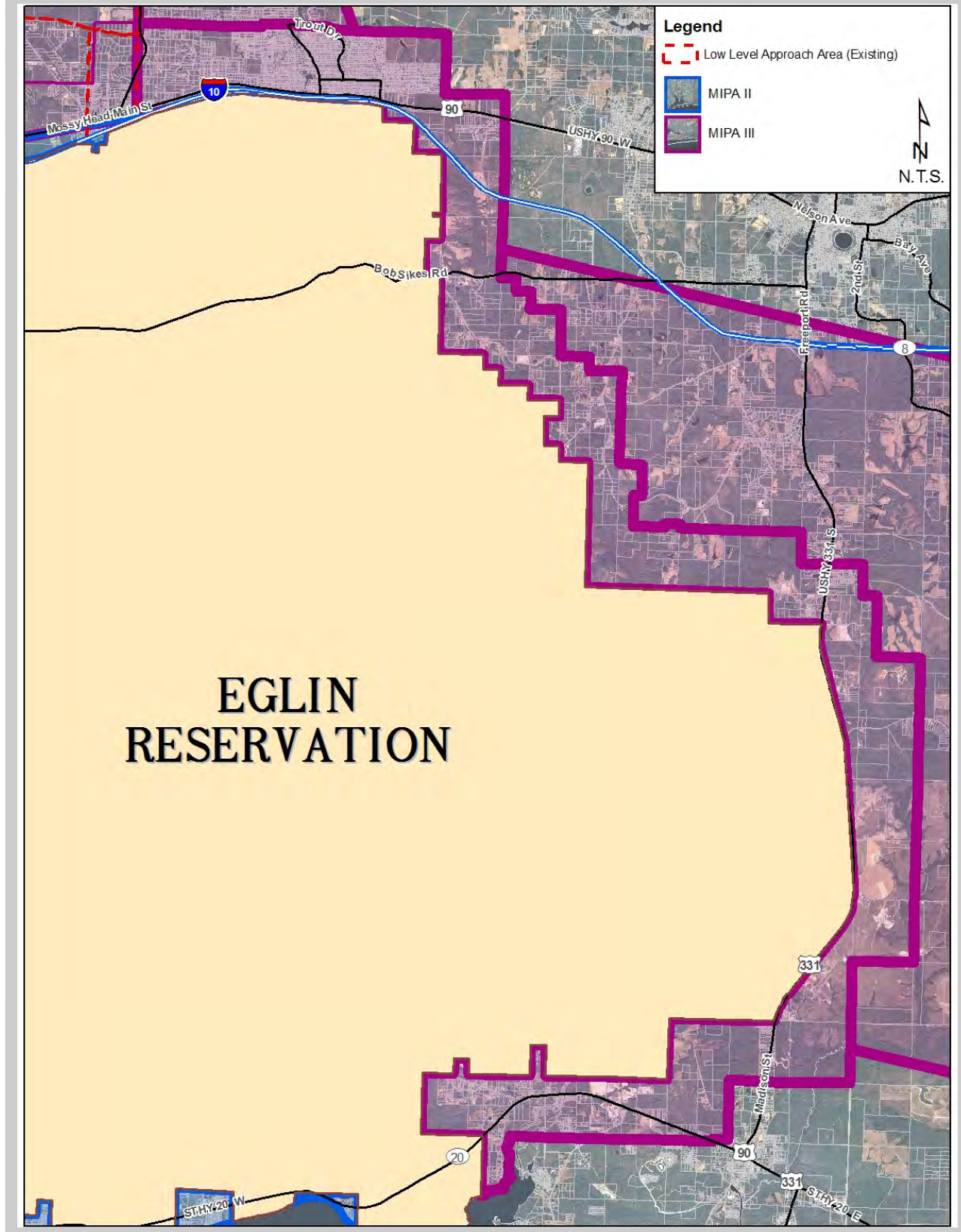


Figure 13-11: Proposed Eglin Boundary Buffer MIP-A-III Area in Walton County



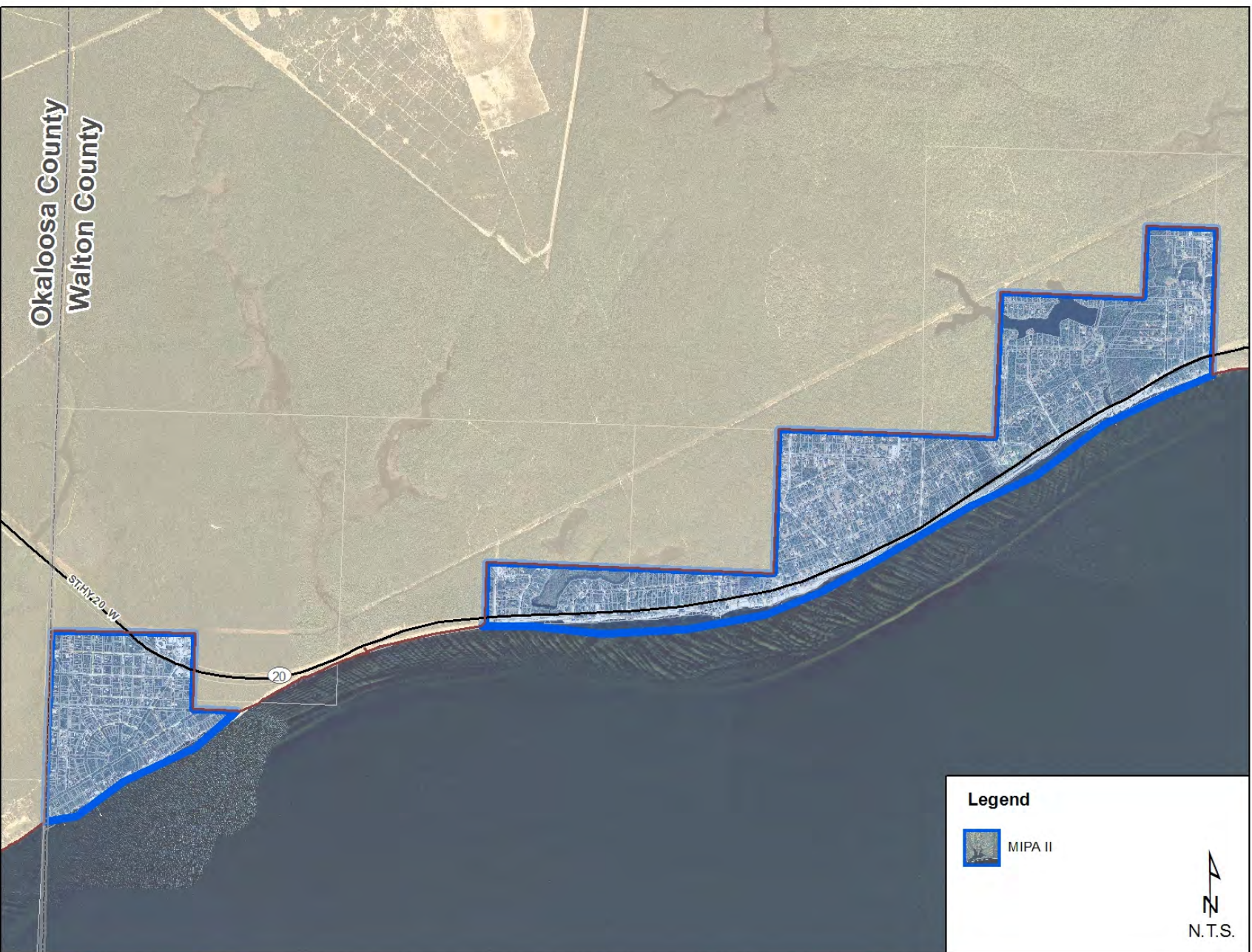


Figure 13-12: Proposed MIPA-II Areas for High Intensity Impulse Noise in Seminole and Choctaw Beach Areas



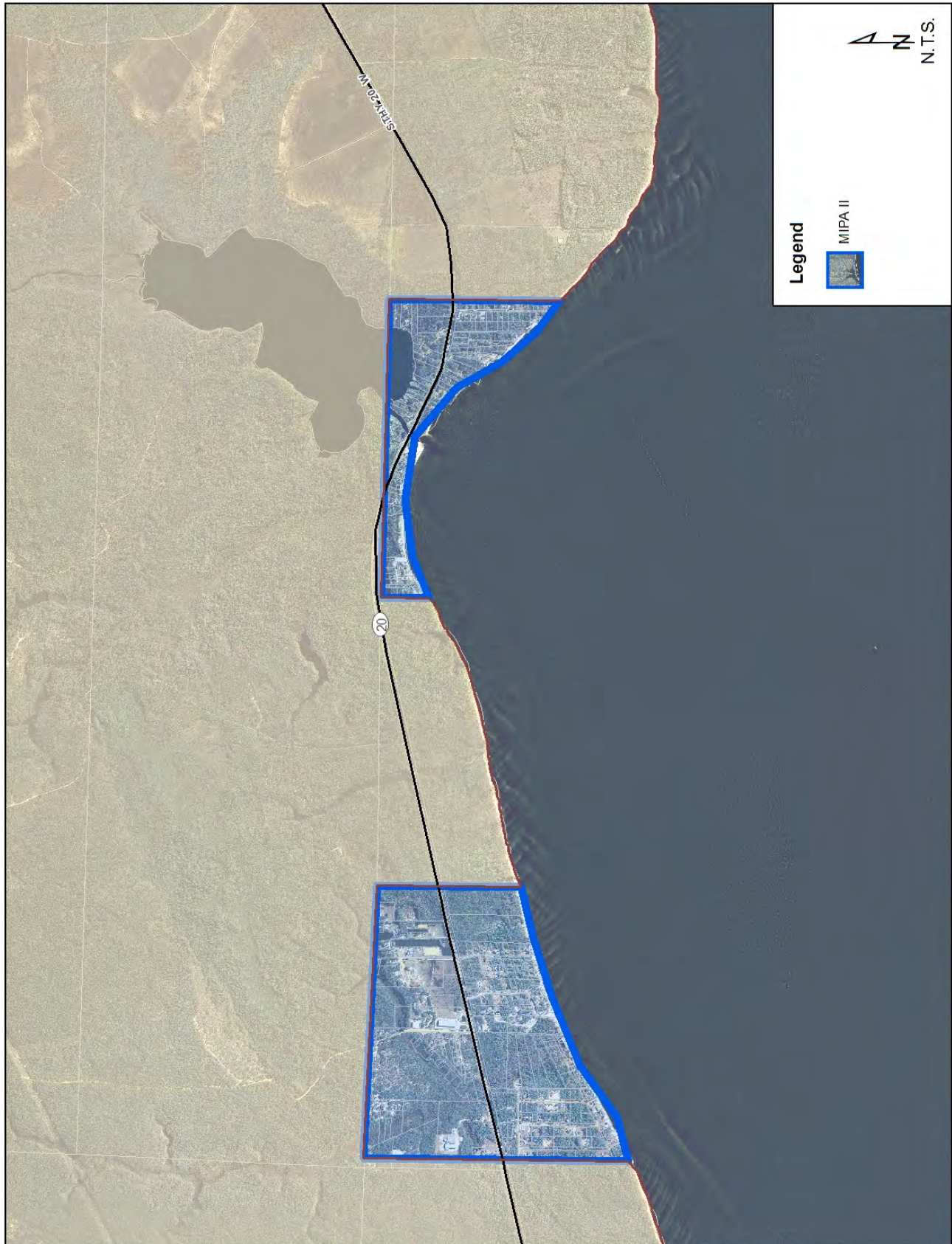


Figure 13-13: Proposed MIP A-II Areas (High Intensity Impulse Noise) in Basin Bayou Area





- ◇ Conduct public information meetings on the disclosure requirements. At a minimum, one meeting prior to the first reading of the ordinance and a second meeting following the adoption of the ordinance. The meetings would be in addition to the public meetings where the ordinances will be read and discussed with public comment periods.
- ◇ Require identification of the High Intensity Impulse Noise Areas on all County maps and public reports and require developers to identify the areas on all proposed projects.
- ◇ Require sales offices used to market, sell, or lease properties, including pre-construction sales, which will be constructed or leased on lots located in a MIPA, must display a map in public view illustrating military installation property boundaries, and MIPA areas. This display requirement shall also apply to temporary realty sales offices. Pamphlets illustrating the same information appearing on the display map on paper not less than 8.5"x11" shall also be made available and placed in public view.

WLT 3: Implement Lighting Ordinance. The County should evaluate and update outdoor lighting standards applicable to MIPA areas or all unincorporated areas. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

#### Community Wide Measures:

- ◇ Turn-off un-needed lights, e.g. unused parking lots
- ◇ Use appropriate levels of illumination
- ◇ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◇ Light patterns common to military aviation
- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary
- ◇ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◇ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◇ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.



## WLT 4: Implement Public Awareness Measures.

Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◇ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◇ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

WLT 7: Do not allow increases in Density and Intensity in Low Level Approach Zones, Cruise Missile Corridor, and Eglin AFB Boundary Buffer. Until WLT 8 is completed, it is recommended that no increases in density and intensity are allowed in the low level approach zones, cruise missile corridors, and Eglin AFB Boundary Buffer.

WLT 8: Conduct Small Area Studies in Low Level Approach Zones, Cruise Missile Corridor, and Eglin Buffer. A variety of land uses occur or are planned to occur in areas within and/or adjacent to the Low Level Approach Zones, Cruise Missile Corridor, and the Eglin Boundary, particularly where access can occur from highways or major county roads. It is recommended that small area studies be prepared for these areas to address transition of land use, plan roadway systems and access management, identify suitable locations for development, and prepare for the planned provision of public facilities. The small area studies will create strategies to transfer development rights, cluster future dwelling units, implement avigation easements, conserve environmentally sensitive areas, and/or imple-

ment tax incentive/credit policies. For a successful small area study, key stakeholders such as the County, Eglin AFB, and property owners must play an active role in the planning, analysis, and recommendations.

## WLT 10: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.

Formalize the planning policy to include military participation in the development review and planning process. This should include a formal communication process between the County and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with County staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and County Commission. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

WLT 12: Establish MIPA Designations. Establishing Military Influence Areas (MIPAs) as geographic planning areas established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIPA recognizes the existence and mission of a military installation within a community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the public
- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses





- More accurately identify areas affected by military operations
- Create compatible mix of land uses

*Table 13-2* - Implementation Plan Responsibilities and Timing, is included to further guide the County into implementing the recommended strategies.

WLT 13: Update County's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the County's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.

There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Area (MIPA) Subelement. Following is an outline of typical issues that might be described in the MIPA Subelement: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II

- ◊ Noise Contours in decibels:  $\geq 65$ -69; 70-74; 75-84;  $\geq 85$
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/ Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

## **Comprehensive Plan Military Influence Area Subelement Goals, Objectives, and Policies- Possible Goals to Consider and Adapt to Local Conditions:**

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.



- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

**Identify Policies to Implement Each Objective, including:**

- Amendments to Comprehensive Plan Future Land Use Map, if any
- Amendments to Regulatory Land Use Controls:
  - ◇ Possible Implementing Rezoning
  - ◇ Establish Military Influenced Lands (MIPA) Zoning Overlay District:
    - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
    - ⇒ Height Regulations
    - ⇒ Outdoor Lighting Regulations
    - ⇒ Development Review Procedures:
      - + Ex-Officio Military Representation on Planning Board
      - + Early Notification
      - + Effectuating Timely Participation and Response
      - + Conflict Resolution Mechanisms
  - ◇ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
  - ◇ Restrict Use Of Radio Frequency Spectrum
  - ◇ Bands 5.4 -5.9 Ghz
  - ◇ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
  - ◇ Special Issues
  - ◇ Small Area Land Use Studies
  - ◇ Public Awareness

- ◇ Web-Site Public Awareness
- ◇ Public Notice Requirements In Development Review Process
- ◇ Identify When Moa Impacted
- ◇ Street Signage (Military Operations Area)
- ◇ Inform Public of Noise Zone Revisions
- ◇ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◇ Revisions to Construction Standards to Address Noise Attenuation
- ◇ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off -Base.
- ◇ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◇ Revisions to Instrumentation and/or Physical Orientation
- ◇ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◇ Funding for Implementation

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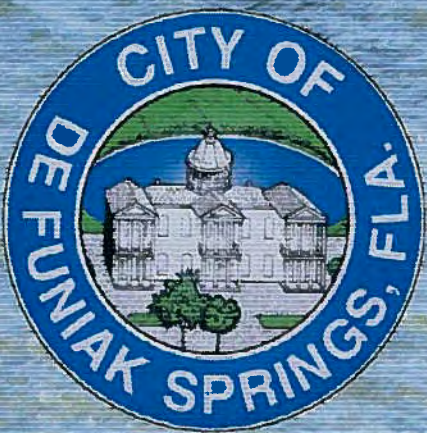


ID #	Recommended Strategy	Eglin JLUS Page No.	MIP-A-I	MIP-A-II	MIP-A-III	Tri-County Region	Other Area(s) - see descrip-	Implementation Responsibility		Implementa- tion Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
WLT 1	Establish Effective Disclosure Procedures	13-16		✓	✓	✓		Walton County	Santa Rosa & Walton Counties	✓			✓
WLT 2	Implement Lighting Ordinance	13-15			✓			Walton County	-		✓		
WLT 3	Distribute Educational Handouts on Radio Frequency	13-22				✓		Eglin AFB	Walton County	✓			
WLT 4	Implement Public Awareness Measures	13-23		✓	✓			-	Walton County & Eglin AFB				✓
WLT 5	Identify Low Level Approach Zones and Cruise Missile Corridors on Public Documents	13-15			✓			Walton County	Private Party Submittals	✓			
WLT 6	Implement Comp Plan Amendments Discouraging Additional Navigational Channels or Land Cuts, Artificial Reefs, or Other Activities	13-15					✓	Walton County	Santa Rosa & Walton Counties		✓		
WLT 7	Do Not Allow Increases in Density and Intensity in Low Level Approach Zones and Eglin AFB Boundary Buffer Until WLT 9 is Completed	13-23			✓			Walton County	-	✓			
WLT 8	Conduct Small Area Studies For The Low Level Approach Zones and Cruise Missile Corridors	13-23			✓			Eglin JLUS Policy Committee	Walton, Santa Rosa & Walton Counties	✓			
WLT 9	Support and Promote State and Federal Land Acquisition in Florida Greenway Program	13-15			✓			Walton County	Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
WLT 10	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	13-23				✓		Walton County	Eglin JLUS Policy Committee	✓			
WLT 11	Limit Object Heights Regarding Potential Conflicts	13-15			✓		✓	Walton County	Eglin AFB	✓			
WLT 12	Establish Military Influence Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III)	13-24		✓	✓			Walton County	-	✓			
WLT 13	Update County's Comprehensive Plan and Land Development Code	13-24		✓	✓			Walton County	-	✓			

Table 13-2: Implementation Plan Responsibilities and Timing











## SECTION 14 - DEFUNIAK SPRINGS



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## 14.1 INTRODUCTION

DeFuniak Springs is the county seat of Walton County. It's located in northern area of Walton County and the City is situated around Lake DeFuniak. According to the U.S. Census Bureau, as of 2004 the population was recorded at 5,171.

As of the census of 2000, there were 5,089 people, 2,105 households, and 1,324 families residing in the City. The population density was 464.0 people per square mile. There were 2,464 housing units at an average density of 224.7 per square mile.

There were 2,105 households, out of which 27% had children under the age of 18 living with them, 41% were married couples living together, 18% had a female householder with no husband present, and 37% were non-families. 34% of all households were made up of individuals and 16% had someone living alone who was 65 years of age or older. The average household size was 2.30 and the average family size was 2.91.

In the city the population was spread out with 24% under the age of 18, 9% from 18 to 24, 24% from 25 to 44, 22% from 45 to 64, and 21% who were 65 years of age or older. The median age was 40 years.

*Figure 14-1* shows DeFuniak Springs' city limits.

## 14.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from the City and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the City were identified and explained. The following are the issues identified for the City with respect to land use encroachments:

- Impulse Noise
- Radio Frequency
- Low Level Helicopter and Tiltrotor Training Area
- Lighting
- Cruise Missile Corridor

Each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

### 14.2.1 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

DeFuniak Springs includes an area in one of the three (Low and Moderate) categories for impulse noise as shown in *Figure 14-2*.

### 14.2.2 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).



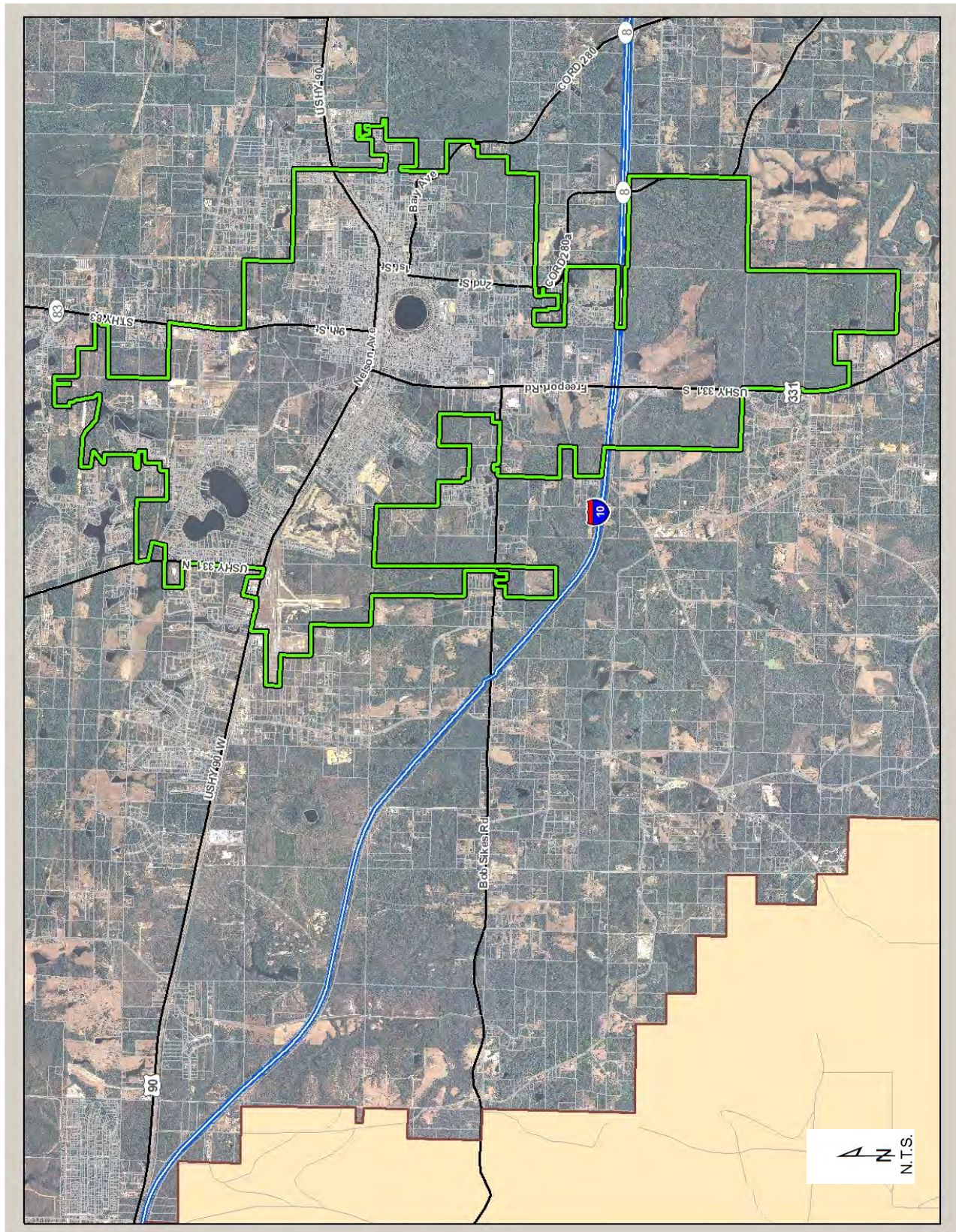


Figure 14-1: DeFuniak Springs City Limits





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

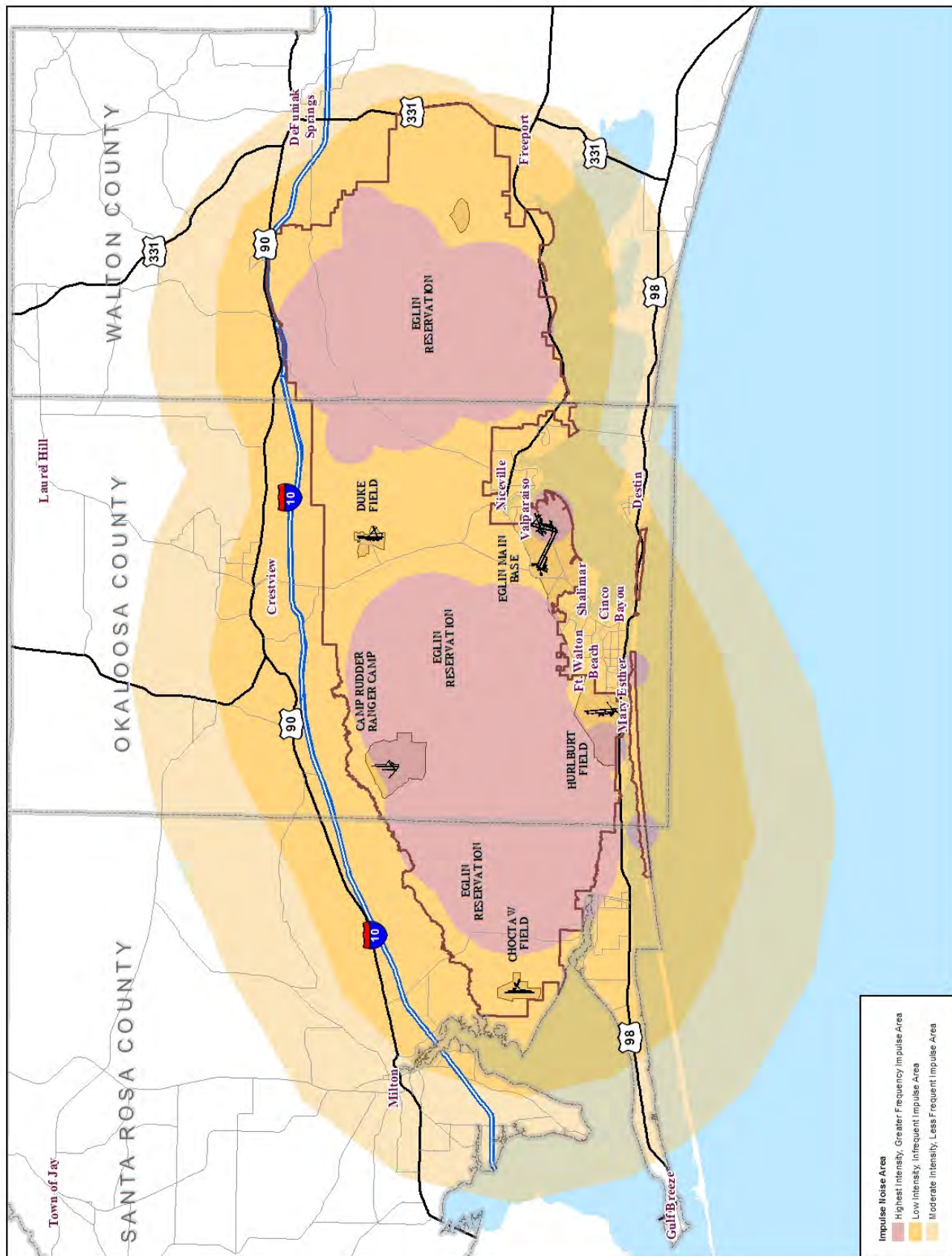


Figure 14-2: Impulse Noise Areas





Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

### 14.2.3 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in [Figure 14-3](#). The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and Naval Air Station Whiting Field.

### 14.2.4 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns. Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. [Figure 14-4](#) shows the increase in

artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population.

### 14.2.5 Cruise Missile Corridors

Tomahawk® cruise missile testing and training is conducted at Eglin AFB within existing designated IR Military Training Routes (MTRs). The Tomahawk® missile is a long-range subsonic cruise missile used for striking high value or heavily defended land targets. It is launched from U.S. Navy surface ships and submarines (U.S. Navy, 2004). Cruise missiles are self-propelled and guided through on-board global positioning systems. During test and training activities at Eglin AFB, the Tomahawk® cruise missile flies between the altitudes 500 feet above ground level (AGL) to 4000 feet above MSL. The areas in which cruise missiles are flown are depicted as "Cruise Missile Corridor" in [Figure 14-5](#).

The Tomahawk® cruise missile flies much like an aircraft and requires similar obstruction-free flight paths. Since the cruise missile flies between 500 feet AGL to 4,000 feet above MSL, objects or structures taller than 450 feet can cause problems and should be minimized as much as possible.

To provide safe operating conditions for missions involving the cruise missile, the Commander of AAC at Eglin AFB follows criteria established to minimize risk. The Range Commanders Council, Risk and Lethality Commonality Team of the Range Safety Group (200), developed common risk criteria (Standard 321-000, 200) for national test ranges and Major Range and Test Facility Bases, of which Eglin AFB is one. The criteria apply to debris generated from numerous missions including those involving cruise missiles. The criteria define the acceptable risk to the general public as a result of flying cruise missiles within the designated IR route. To effectively minimize risk to the general public, population density underneath the cruise missile corridor would remain low. This ensures that if a missile were to malfunction or break apart, the likelihood of debris coming into contact with a person on the ground would be lessened. The need to maintain low population density within the cruise missile corridor is fundamental to continuing this part of the Eglin AFB mission.

## 14.3 ANALYSIS

To facilitate the analysis of land use for the issues identified in the previous section, the City's Future Land Use Map is provided in [Figure 14-6](#).



# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

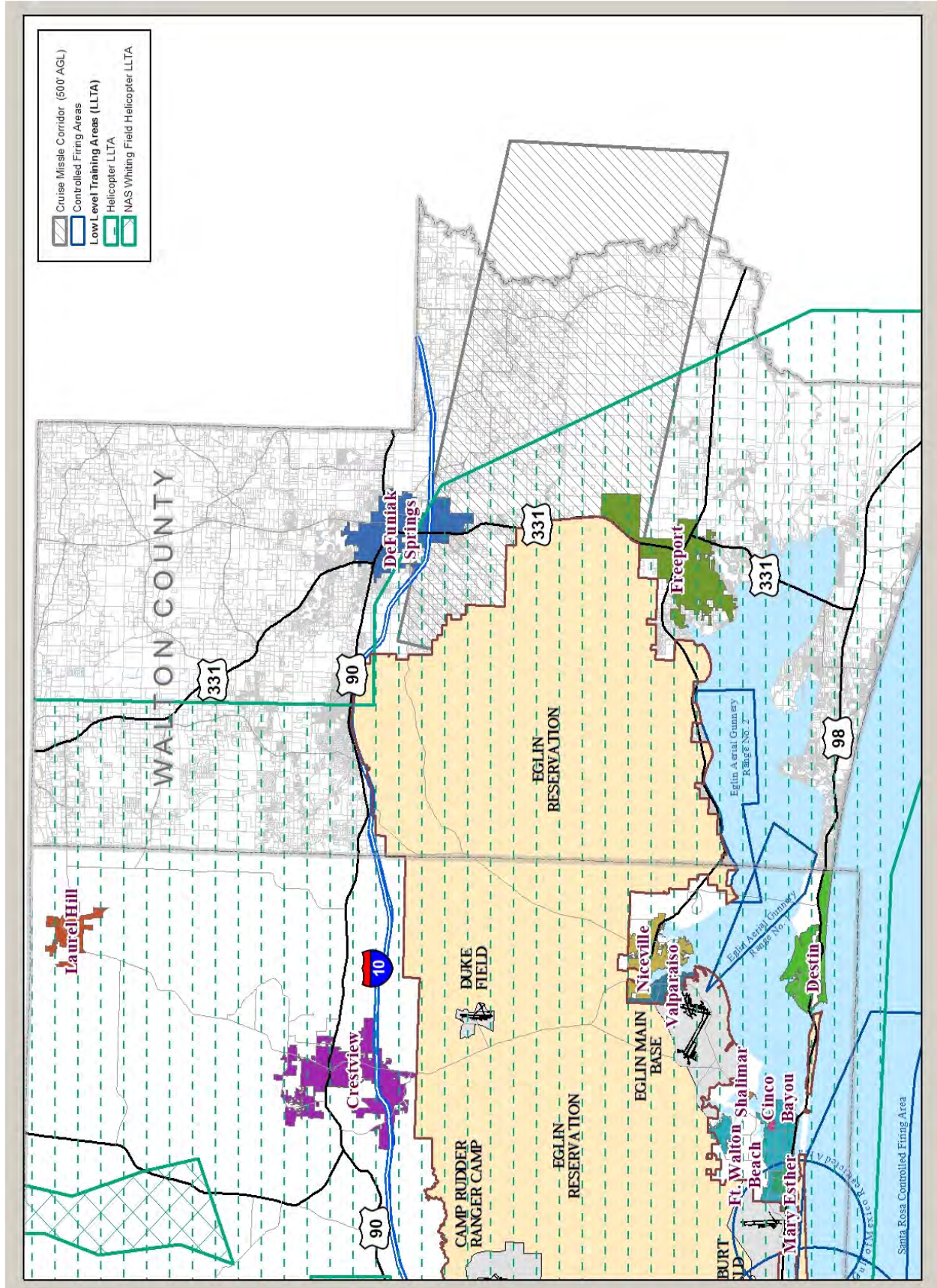


Figure 14-3: Low Level Helicopter and Tiltrotor Training Areas Across Walton County



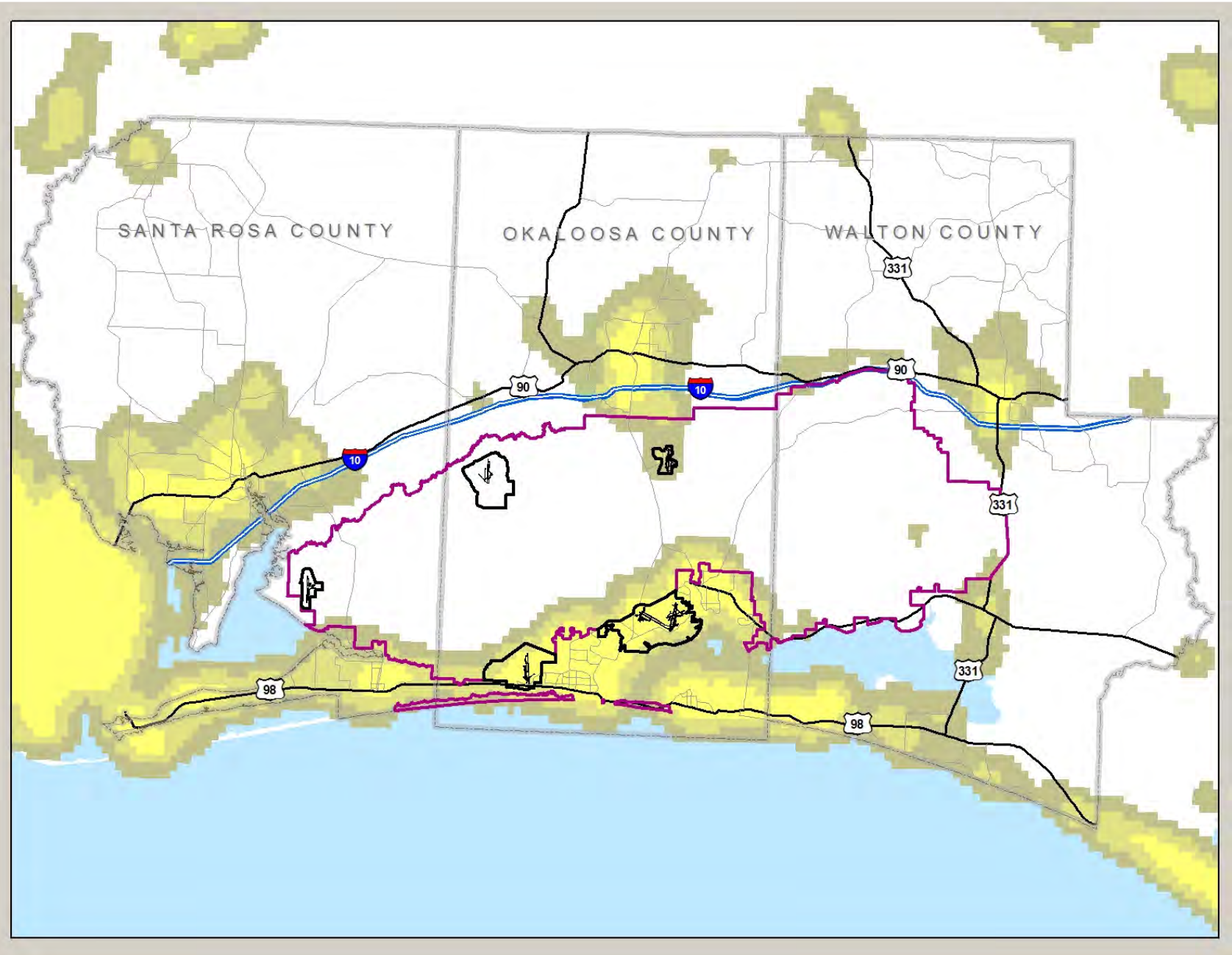


Figure 14-4: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)







# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

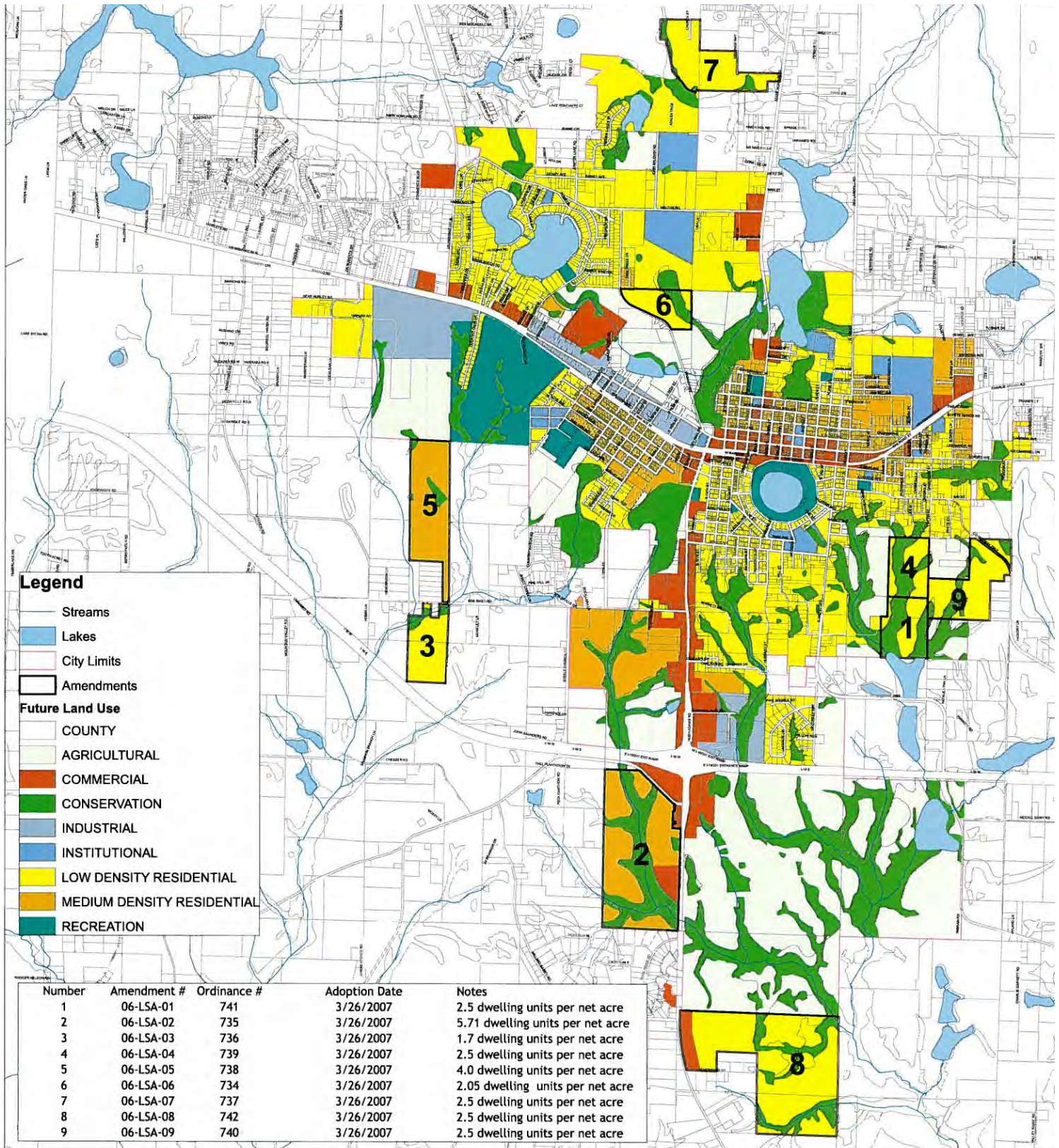


Figure 14-6: DeFuniak Springs Future Land Use Map





### 14.3.1 Impulse Noise

The nature of the impulse noise in the City is in the low to moderate ranges as previously shown in Figure 14-2. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 14.3.2 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with a low flying helicopter or tiltrotor.

### 14.3.3 Radio Frequency Interference

The analysis for radio frequency interference in the City is a simple one. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the City is not responsible for regulating or licensing radio frequencies, there are steps the City can take to help minimize radio frequency interference. The City should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave,

and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

### 14.3.4 Cruise Missile Corridor

To identify the area in which low population densities would be ideal and where incompatible development would cause the most impact, the Northwest Florida Greenway Corridor Study Area was delineated (Figure 14-7). The goals of the corridor study area are to promote the sustainability of the military mission, to preserve the high biodiversity of the area, to enhance outdoor recreation, and to support the economic health of the area. It consists of federally and state managed lands, conservation organization lands, and private lands. By delineating the corridor and agreeing to work together, the federal agencies, state agencies, conservation organizations, and local city and county governments committed to furthering the goals of the Northwest Florida Greenway Corridor Study Area.

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## 14.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the City on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the City. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the City's use:

- **DFS 1:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **DFS 2:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **DFS 3:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **DFS 4:** Identify Cruise Missile Corridors on All City Maps, Preliminary Plats and Public Reports and Require Developers To Identify Same Information on All Proposed Projects
- **DFS 5:** Conduct Small Area Study For The Cruise Missile Corridor
- **DFS 6:** Support and Promote State and Federal Land Acquisition in Florida Greenway Program
- **DFS 7:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **DFS 8:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **DFS 9:** Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III) based on the compatibility issues

Identified. The different MIPA designations proposed are shown in *Table 14-1* and are summarized as follows:

- ♦ **MIPA-I:** Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MIPA-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.
- ♦ **MIPA-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MIPA-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF. MIPA-II's are not recommended for all jurisdictions participating in this study.
- ♦ **MIPA-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation, Cruise Missile Corridors, and strategic buffer areas along the northern boundary of the Eglin Reservation. MIPA-III's are focused on limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach and Cruise Missile Corridors MIPA-III's vary but the MIPA-III areas for the buffers are approximately one mile from the Eglin boundary.

*Figure 14-8* shows the location of the MIPA-III area designations along the southern area of the City of Defuniak Springs.

- **DFS 10:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the County's use:

Military Influence Planning Area (MIPA) Designation	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach &/ or Cruise Missile Corridor Area	0.5-1.0 mi Buffer
I	■	■	■			
II				■		
III					■	■

*Table 14-1: Proposed MIPA Designations for Eglin JLUS. Note that not every jurisdiction has a MIPA Planning Area recommended.*



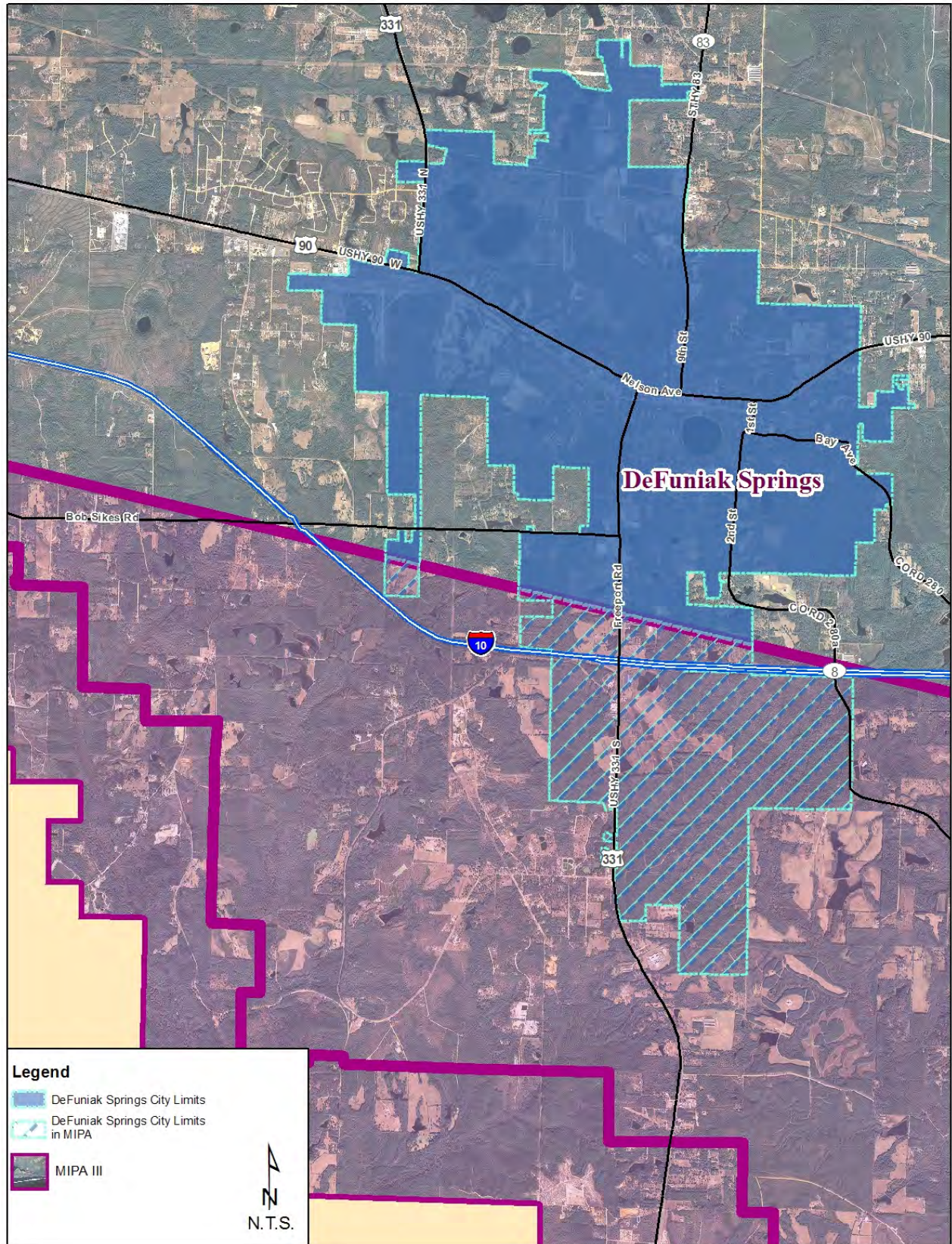


Figure 14-8: MIPA-III Designation Areas for City of DeFuniak Springs.





**DFS 1: Implement Lighting Ordinance.** Evaluate and update outdoor lighting standards applicable to MIPA areas or all unincorporated areas. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

**Community Wide Measures:**

- ◇ Turn-off un-needed lights, e.g. unused parking lots
- ◇ Use appropriate levels of illumination
- ◇ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ◇ Light patterns common to military aviation
- ◇ Lights to create sky glow (except when used for safety, security, and utility)
- ◇ Luminous tube lighting on building exterior or roof
- ◇ Internally lit awnings
- ◇ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ◇ Minimal illumination necessary
- ◇ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ◇ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ◇ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

**DFS 3: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ◇ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ◇ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ◇ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**DFS 5: Conduct Small Area Studies in Cruise Missile Corridor.** A variety of land uses occur or are planned to occur in areas within and/or adjacent to the Cruise Missile Corridor, particularly where access can occur from highways or major county roads. It is recommended that small area





studies be prepared for these areas to address transition of land use, plan roadway systems and access management, identify suitable locations for development, and prepare for the planned provision of public facilities. The small area studies will create strategies to transfer development rights, cluster future dwelling units, implement aviation easements, conserve environmentally sensitive areas, and/or implement tax incentive/credit policies. For a successful small area study, key stakeholders such as the City, County, Eglin AFB, and property owners must play an active role in the planning, analysis, and recommendations.

**DFS 7: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.** Formalize the planning policy to include military participation in the development review and planning process. This should include a formal communication process between the County and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with County staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and County Commission. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

**DFS 9: Establish MIPA Overlay Designations.** Establishing Military Influence Planning Areas (MIPAs) as geographic planning areas established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIPA recognizes the existence and mission of a military installation within a community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the pub-

lic

- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses
- More accurately identify areas affected by military operations
- Create compatible mix of land uses

*Table 14-2 - Implementation Plan Responsibilities and Timing*, is included at the end of this section to further guide the City in implementing the recommended strategies.

**DFS 10: Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.** There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Area (MIPA) Sub-element. Following is an outline of typical issues that might be described in the MIPA Sub-element: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ♦ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ♦ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ♦ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ♦ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ♦ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local discussion and interaction with the military representatives. Land uses within the following would be of consideration:



- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels: ≥65-69; 70-74; 75-84; ≥85
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

## **Comprehensive Plan Military Influence Planning Area (MIPA) Subelement Goals, Objectives, and Policies-**

Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the

Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

## **Identify Policies to Implement Each Objective, including:**

-Amendments to Comprehensive Plan Future Land Use Map, if any

-Amendments to Regulatory Land Use Controls:

- ◊ Possible Implementing Rezonings
- ◊ Establish Military Influenced Lands (MIPA) Zoning Overlay District:
  - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
  - ⇒ Height Regulations
- ⇒ Outdoor Lighting Regulations
- ⇒ Development Review Procedures:
  - + Ex-Officio Military Representation on Planning Board
  - + Early Notification
  - + Effectuating Timely Participation and Response
  - + Conflict Resolution Mechanisms
- ◊ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
- ◊ Restrict Use Of Radio Frequency Spectrum
- ◊ Bands 5.4 -5.9 Ghz
- ◊ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◊ Special Issues
- ◊ Small Area Land Use Studies
- ◊ Public Awareness
- ◊ Web-Site Public Awareness
- ◊ Public Notice Requirements In Development Review Process
- ◊ Identify When Moa Impacted
- ◊ Street Signage (Military Operations Area)
- ◊ Inform Public of Noise Zone Revisions
- ◊ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.
- ◊ Revisions to Construction Standards to Address Noise Attenuation





- ◊ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◊ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◊ Revisions to Instrumentation and/or Physical Orientation
- ◊ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◊ Funding for Implementation

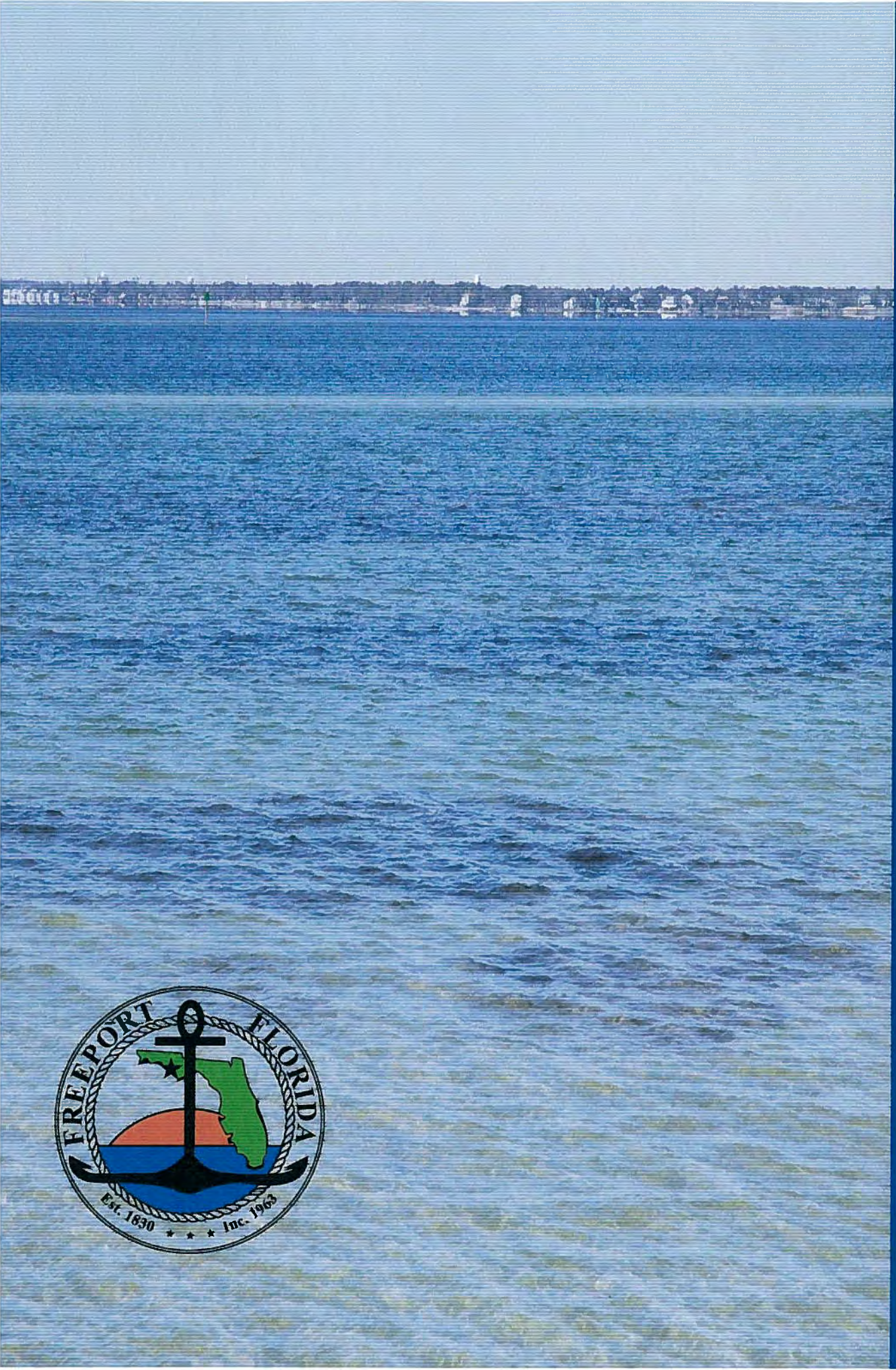
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ID #	Recommended Strategy	Eglin JLUS Page No.	MIP A-I	MIP A-II	MIP A-III	Tri-County Region	Other Area(s) - see descrip-	Implementation Responsibility		Implementation Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
DFS 1	Implement Lighting Ordinance	14-12			✓			DeFuniak Springs	Eglin AFB, Eglin JLUS Policy Committee & TAG		✓		
DFS 2	Distribute Educational Handouts on Radio Frequency	14-12				✓		Eglin AFB	DeFuniak Springs	✓			
DFS 3	Implement Public Awareness Measures	14-13			✓			-	DeFuniak Springs & Eglin AFB				✓
DFS 4	Identify Cruise Missile Corridor on Public Documents	14-12			✓			DeFuniak Springs	Private Party Submittals	✓			
DFS 5	Conduct Small Area Studies For The Cruise Missile Corridor	14-13			✓			Eglin JLUS Policy Committee & TAG	DeFuniak Springs	✓			
DFS 6	Support and Promote State and Federal Land Acquisition in Florida Greenway Program	14-12			✓			DeFuniak Springs	Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
DFS 7	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	14-13				✓		DeFuniak Springs	Eglin JLUS Policy Committee & TAG	✓			
DFS 8	Limit Object Heights Regarding Potential Conflicts	14-12			✓			DeFuniak Springs	Eglin AFB	✓			
DFS 9	Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III)	14-14			✓			DeFuniak Springs	Eglin JLUS Policy Committee & TAG	✓			
DFS 10	Update City's Comprehensive Plan and Land Development Code	14-15			✓			DeFuniak Springs	Eglin JLUS Policy Committee & TAG	✓			

Table 14-2: Implementation Plan Responsibilities and Timing









## SECTION 15 - FREEPORT



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## 15.1 INTRODUCTION

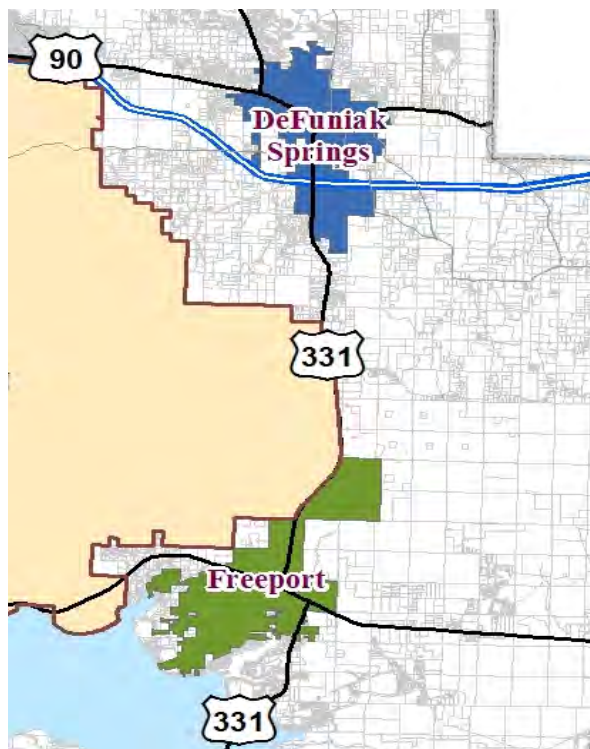
Freeport is a city in Walton County, Florida. The City was formed around 1830 with fishers and boaters settling the area. As of 2004, the population is at 1,427 as recorded by the U.S. Census Bureau.

As of the 2000 census, there were 1,190 people, 500 households, and 327 families residing in the city. The population density was 110.4 people per square mile. There were 563 housing units at an average density of 52.2 per square mile.

There were 500 households out of which 32% had children under the age of 18 living with them, 49% were married couples living together, 12% had a female householder with no husband present, and 35% were non-families. 29% of all households were made up of individuals and 12% had someone living alone who was 65 years of age or older. The average household size was 2.38 and the average family size was 2.90.

In the city the population was spread out with 26% under the age of 18, 9% from 18 to 24, 28% from 25 to 44, 24% from 45 to 64, and 14% who were 65 years of age or older. The median age was 38 years.

*Figure 15-1* shows Freeport's city limits.



*Figure 15-1: Freeport City Limits*

## 15.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Committee (TAC) which includes representatives from the City and Eglin AFB, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 Technical Advisory Committee meeting and the June 18, 2008 Public Open House, the issues for the City were identified and explained. The following are the issues identified for the City with respect to land use encroachments:

- Impulse Noise
- Radio Frequency
- Low Level Helicopter and Tiltrotor Training Area
- Lighting
- Cruise Missile Corridor
- Development Along the Eglin Boundary

Each issue listed above is described further in the following subsections with descriptions and graphics providing information on how military activities influence the public.

### 15.2.1 Impulse Noise

According to the RAICUZ, some areas on Eglin AFB and beyond the reservation boundary are subject to increased levels of impulse, or explosive, noise. There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

Freeport includes an area in one of the three (Low and Moderate) categories for impulse noise as shown in *Figure 15-2*.

### 15.2.2 Radio Frequency Interference

According to the RAICUZ, radio frequency is an additional element related to land use compatibility. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high



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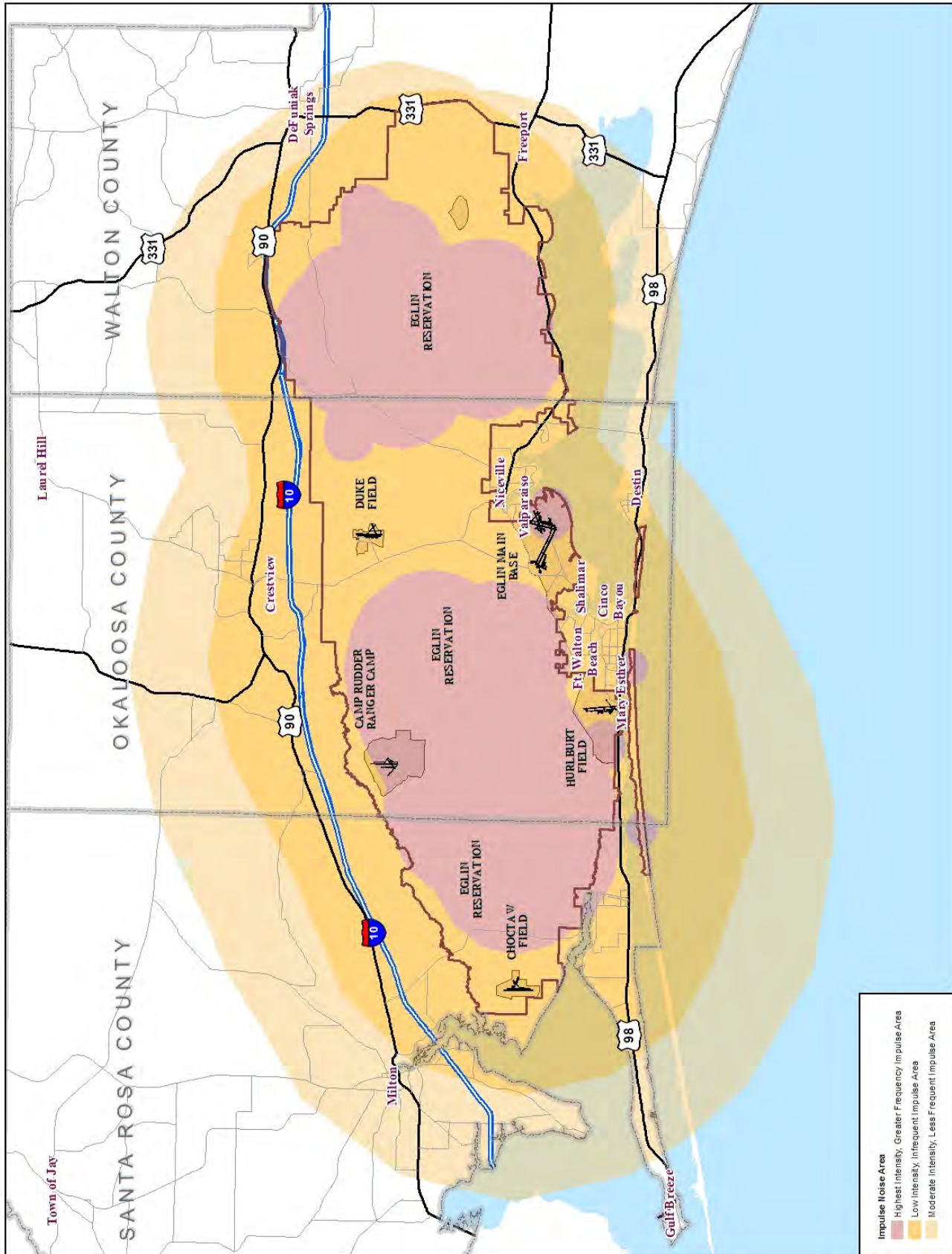


Figure 15-2: Impulse Noise Areas





frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies. The following are specific frequencies and the devices that emit the frequencies capable of causing the most serious encroachment.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended (Giangrosso, 2006).

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

### 15.2.3 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and CV-22s, UH-1s, and MI-17s from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in [Figure 15-3](#). The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and Naval Air Station Whiting Field.

### 15.2.4 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment.

Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns. Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. [Figure 15-4](#) shows the increase in artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population.

### 15.2.5 Cruise Missile Corridors

Tomahawk® cruise missile testing and training is conducted at Eglin AFB within existing designated IR Military Training Routes (MTRs). The Tomahawk® missile is a long-range subsonic cruise missile used for striking high value or heavily defended land targets. It is launched from U.S. Navy surface ships and submarines (U.S. Navy, 2004). Cruise missiles are self-propelled and guided through on-board global positioning systems. During test and training activities at Eglin AFB, the Tomahawk® cruise missile flies between the altitudes 500 feet above ground level (AGL) to 4000 feet above MSL. The areas in which cruise missiles are flown are depicted as "Cruise Missile Corridor" in [Figure 15-5](#).

The Tomahawk® cruise missile flies much like an aircraft and requires similar obstruction-free flight paths. Since the cruise missile flies between 500 feet AGL to 4000 feet above MSL, objects or structures taller than 450 feet can cause problems and should be minimized as much as possible.

To provide safe operating conditions for missions involving the cruise missile, the Commander of AAC at Eglin AFB follows criteria established to minimize risk. The Range

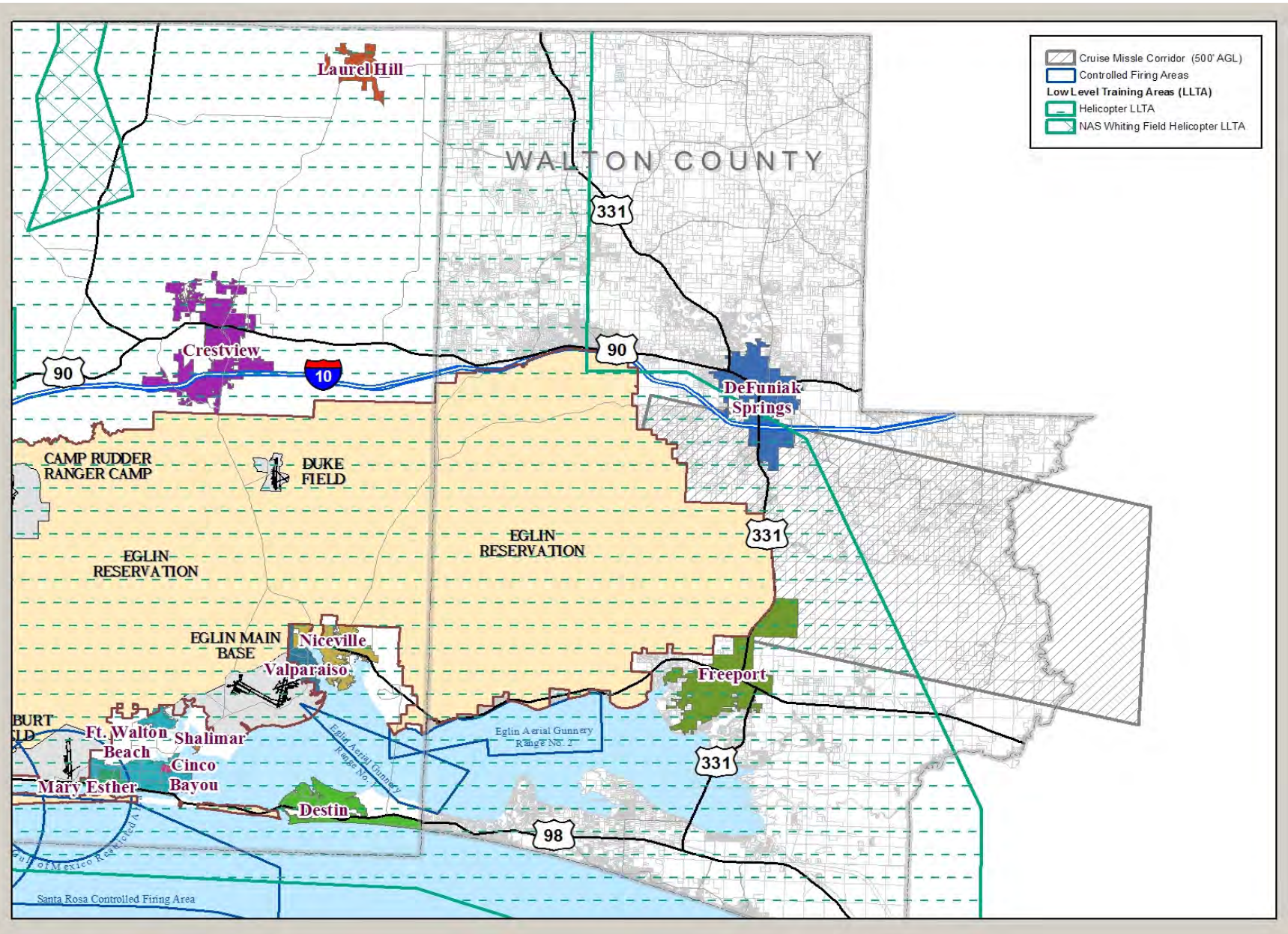


Figure 15-3: Low Level Helicopter and Tiltrotor Training Areas Across Walton County



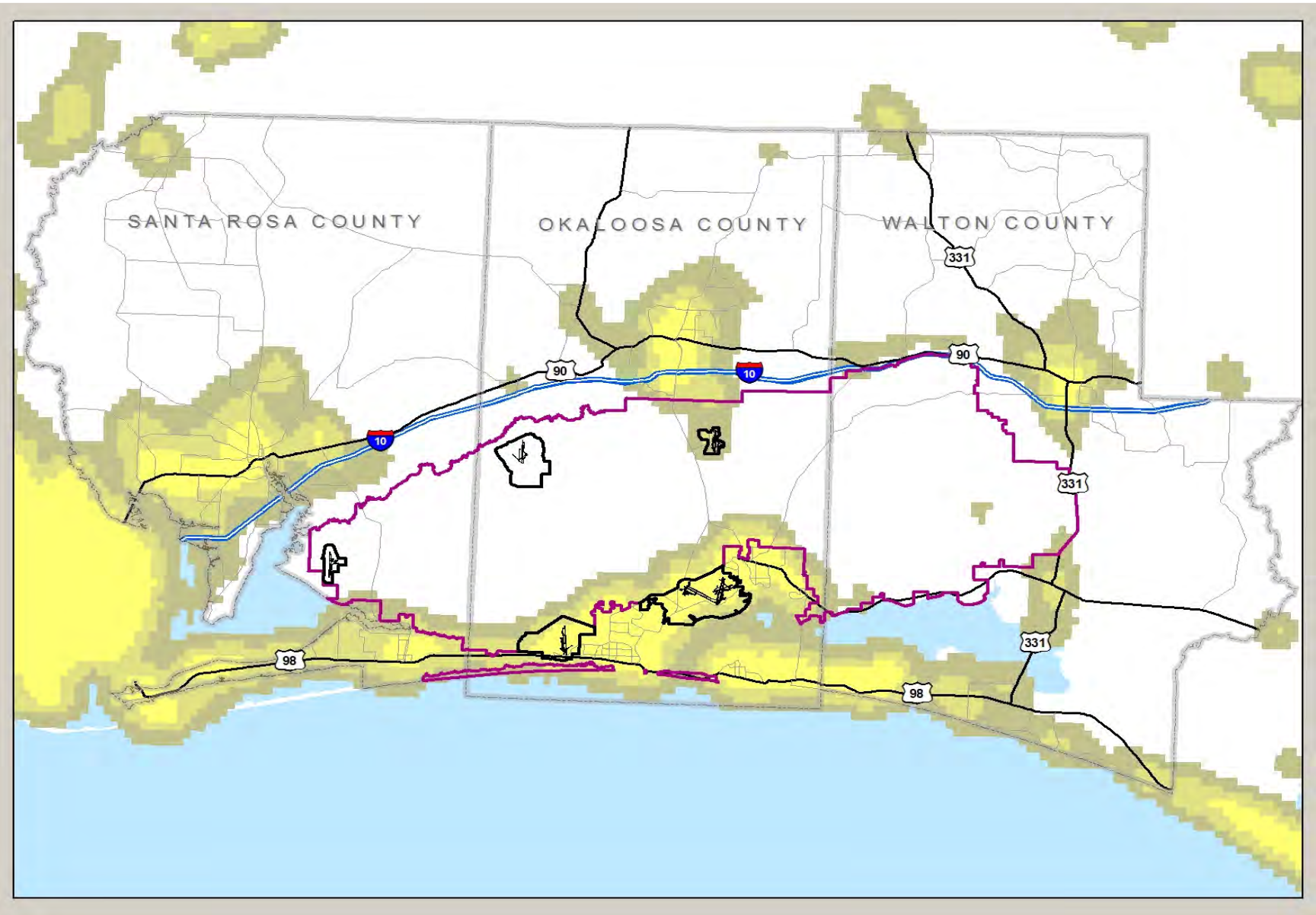


Figure 15-4: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)

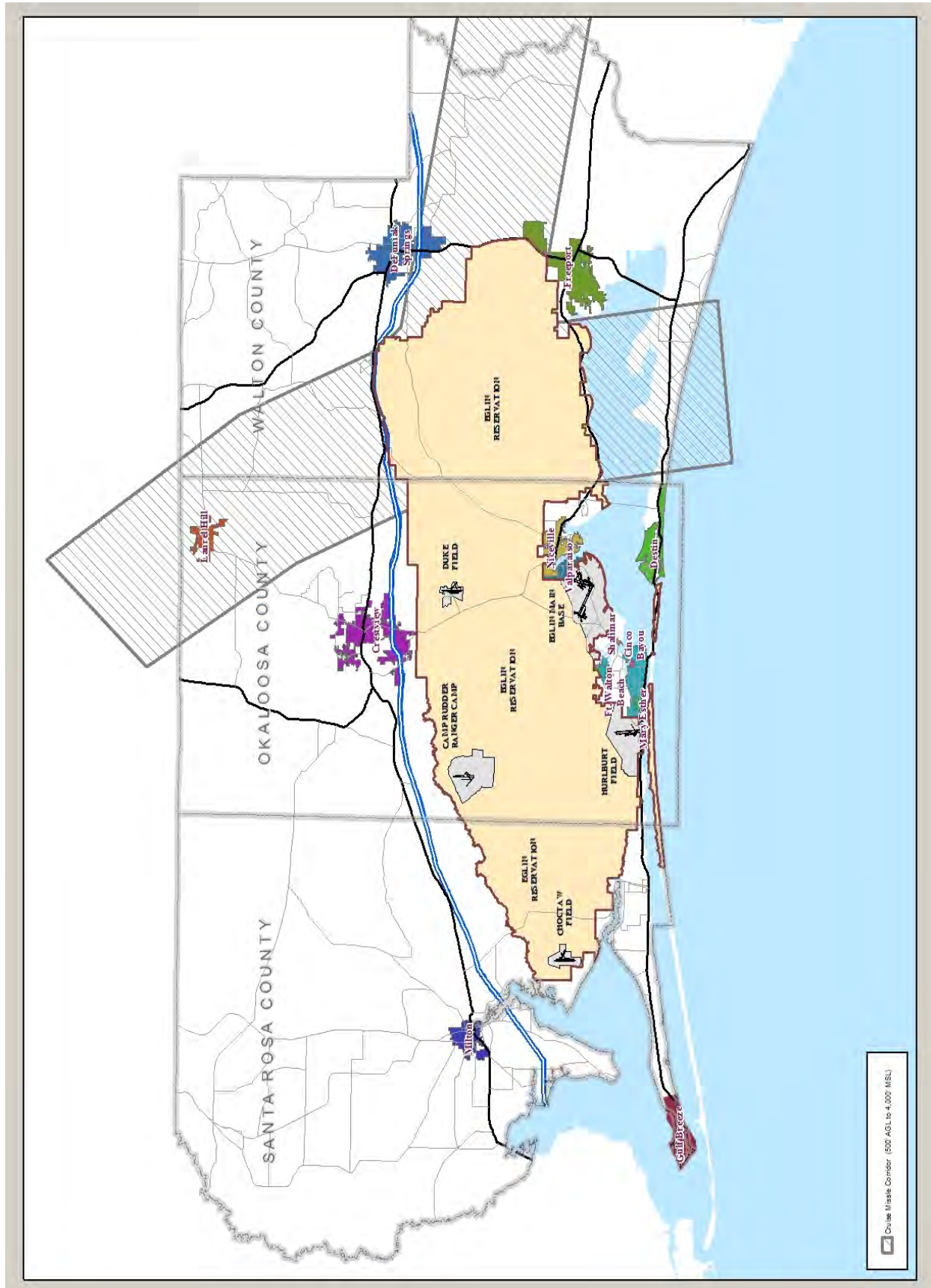


Figure 15-5: Cruise Missile Corridors





Commanders Council, Risk and Lethality Commonality Team of the Range Safety Group (200), developed common risk criteria (Standard 321-000, 200) for national test ranges and Major Range and Test Facility Bases, of which Eglin AFB is one. The criteria apply to debris generated from numerous missions including those involving cruise missiles. The criteria define the acceptable risk to the general public as a result of flying cruise missiles within the designated IR route. To effectively minimize risk to the general public, population density underneath the cruise missile corridor would remain low. This ensures that if a missile were to malfunction or break apart, the likelihood of debris coming into contact with a person on the ground would be lessened. The need to maintain low population density within the cruise missile corridor is fundamental to continuing this part of the Eglin AFB mission.

## 15.2.6 Development at Eglin Perimeter Boundary

As the City continues to grow, development near the Eglin Boundary can create security concerns, promote excessive light during nighttime hours, and encourage other encroachments. This issue is managed easiest by recognizing and implementing necessary land use controls.

## 15.3 ANALYSIS

### 15.3.1 Impulse Noise

The nature of the impulse noise in the City is in the low to moderate ranges as previously shown in Figure 15-2. The effects in these areas is minimal on property owners and therefore does not include a detailed land use analysis.

### 15.3.2 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the entire city limits and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with a low flying helicopter or tiltrotor.

### 15.3.3 Radio Frequency Interference

The analysis for radio frequency interference in the City is a simple one. The entire City lies within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations.

Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

Also according to the RAICUZ, the use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the City is not responsible for regulating or licensing radio frequencies, there are steps the City can take to help minimize radio frequency interference. The City should begin including educational material for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

### 15.3.4 Cruise Missile Corridor

To identify the area in which low population densities would be ideal and where incompatible development would cause the most impact, the Northwest Florida Greenway Corridor Study Area was delineated (Figure 15-6). The goals of the corridor study area are to promote the sustainability of the military mission, to preserve the high biodiversity of the area, to enhance outdoor recreation, and to support the economic health of the area. It consists of federally and state managed lands, conservation organization lands, and private lands. By delineating the corridor and agreeing to work together, the federal agencies, state agencies, conservation organizations, and local city and county governments committed to furthering the goals of the Northwest Florida Greenway Corridor Study Area.

### 15.3.5 Eglin Perimeter Boundary Development

The area of the City within one mile of Eglin's boundary includes portions of the northern section of the City. The land use in this area is currently agriculture and designated to be rural mixed use with predominate residential. The US Highway 331 is a primary transportation corridor prepared



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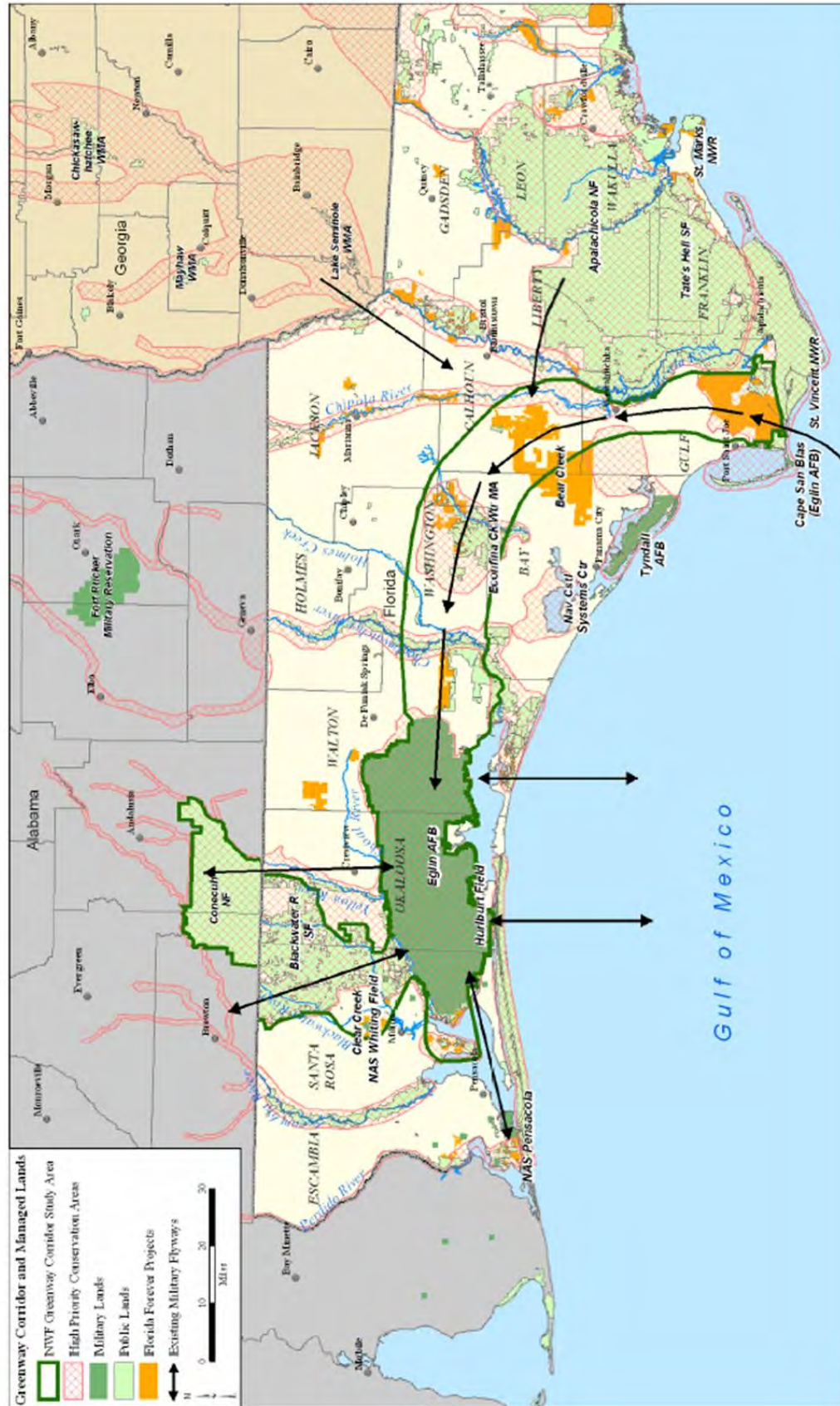


Figure 15-6: Northwest Florida Greenway Corridor





to be the focus of increased development.

## 15.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance to the City on land use and related land use policies and procedures with definitive direction and in some cases, applicable examples from across the US successfully implemented.

The following summarize the recommendations for the City. Some of the recommendations require further information beyond the following summary bullets and additional detail is provided at the end of this section for the City's use:

- **FRP 1:** Implement Lighting Ordinance to Avoid Glare and Reflection
- **FRP 2:** Distribute Education Handouts Materials Provided by Eglin AFB to Developers and Builders on Radio Frequency Interference
- **FRP 3:** Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts
- **FRP 4:** Identify Cruise Missile Corridors on All City Maps, Preliminary Plats and Public Reports and Require Developers To Identify Same Information on All Proposed Projects
- **FRP 5:** Conduct Small Area Study For The Cruise Missile Corridor and Eglin Boundary Buffer
- **FRP 6:** Support and Promote State and Federal Land Acquisition in Florida Greenway Program
- **FRP 7:** Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **FRP 8:** Limit Object Heights Regarding Potential Conflicts With Eglin AFB Missions and Operations
- **FRP 9:** Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designa-

tions (I, II, or III) based on the compatibility issues identified. The different MIPA designations proposed are shown in [Table 15-1](#) and are summarized as follows:

- ♦ **MIPA-I:** Focused on addressing compatibility issues in the clear zone, APZ I, and APZ II (existing AICUZ). The locations of MIPA-I's are at the end of runways and are not recommended for all jurisdictions participating in this study.
- ♦ **MIPA-II:** Identified to address compatibility issues related to aircraft noise and high frequency impulse noise. For this study, MIPA-II's related to aircraft noise focus on the maximum mission noise contours associated with the JSF. MIPA-II's are not recommended for all jurisdictions participating in this study.
- ♦ **MIPA-III:** Related to Low Level Approach Areas for aircraft approaching the Eglin Reservation, Cruise Missile Corridors, and strategic buffer areas along the northern boundary of the Eglin Reservation. MIPA-III's are focused on limiting density, object height, and nighttime light encroachment. The distance beyond the boundary for the Low Level Approach and Cruise Missile Corridors MIPA-III's vary but the MIPA-III areas for the buffers are approximately one mile from the Eglin boundary.

[Figure 15-7](#) shows the location of the MIPA-III area designations along the northern area of the City of Freeport and [Figure 15-8](#) represents a closer view of the same MIPA-III area.

- **FRP 10:** Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests

**Additional Implementation Information for Some of the Recommendations.** The following information provides additional details with implementation steps and/or examples for the City's use:

Military Influence Planning Area (MIPA) Designation	Geographic Vicinity					
	CZ	APZ I	APZ II	Max Mission Aircraft Noise & Impulse Noise	Low Level Approach &/ or Cruise Missile Corridor	0.5-1.0 mi Buffer
I	■	■	■			
II				■		
III					■	■

Table 15-1: Proposed MIPA Designations for Eglin JLUS. Note that not every jurisdiction has a MIPA Planning Area recommended.

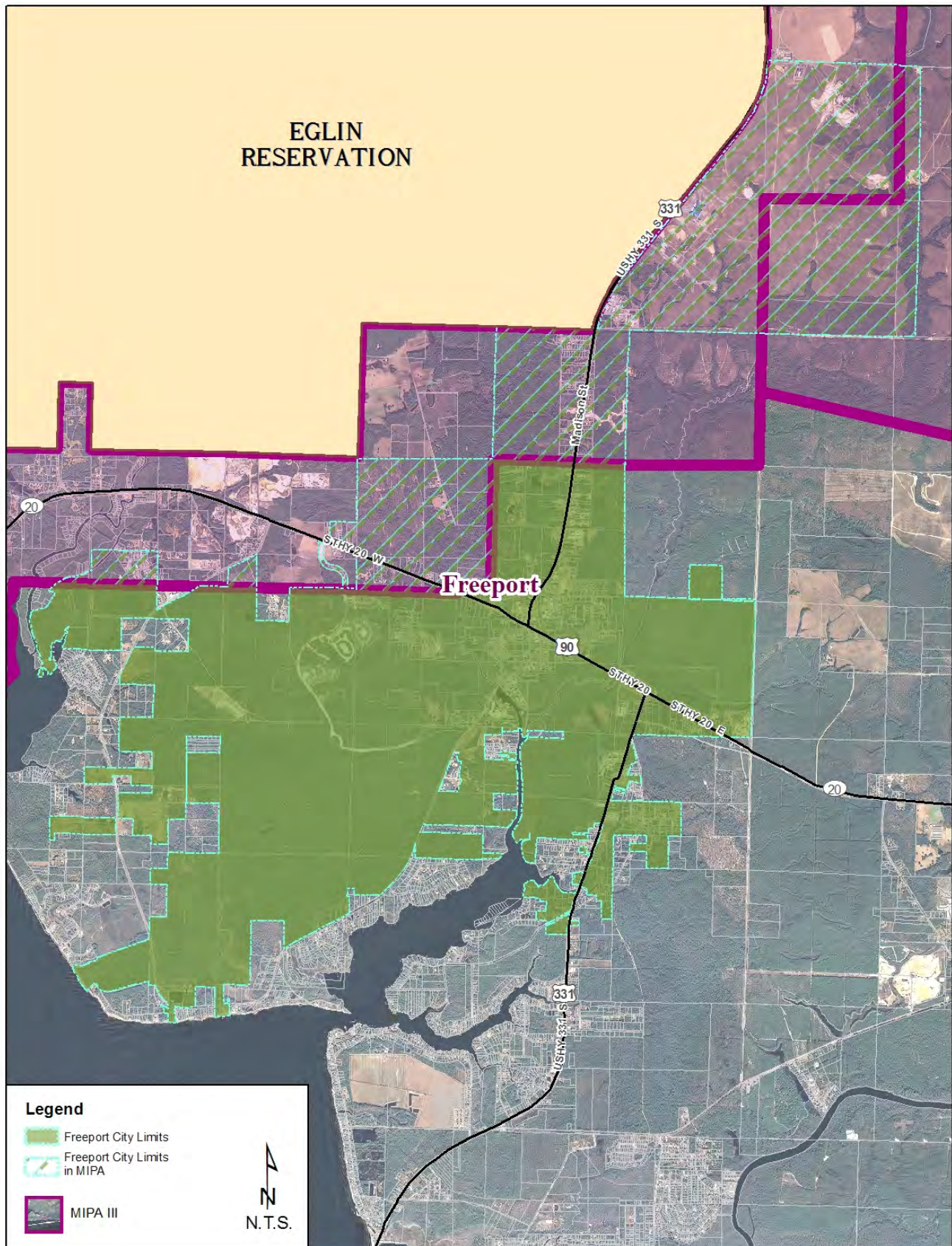


Figure 15-7: MIPA-III Designation Areas with entire City of Freeport City Limits shown.





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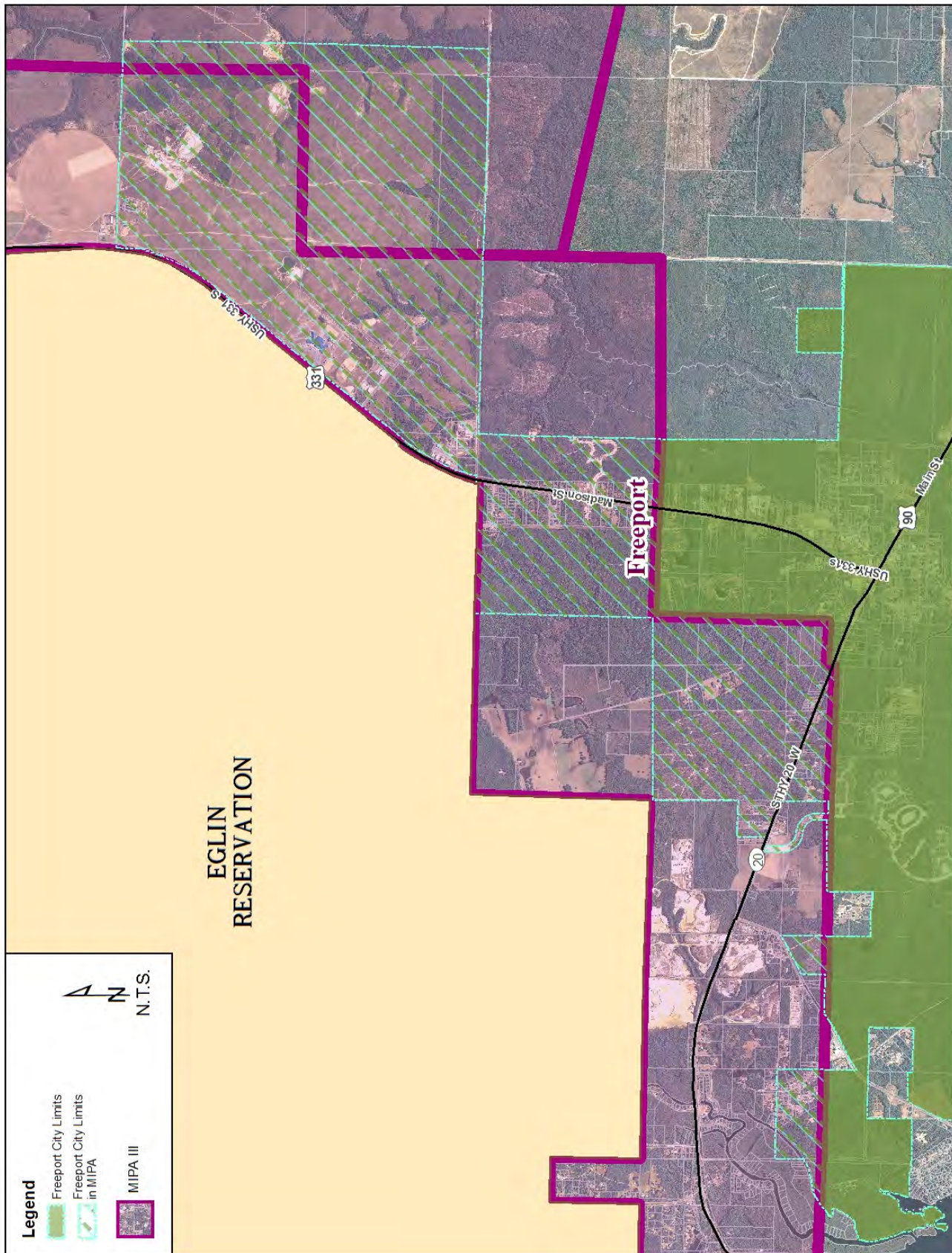


Figure 15-8: Freeport area MIP A-III areas shown in zoom-in view.



**FRP 1: Implement Lighting Ordinance.** Evaluate and update outdoor lighting standards applicable to MIPA areas or all unincorporated areas. Ground lighting, glare, and/or reflection should not interfere with an aviator's vision or with night vision instrumentation or equipment. Outdoor lighting should also not cause pilot confusion with landing approach flight patterns. Lighting standards need to promote compatibility with aircraft operations within the vicinity of airfields and night vision training areas. In addition, over time, lighting should not create a condition to impact *dark skies* over the Eglin Reservation.

Many of the following measures will not only reduce light encroachment on Eglin maneuver areas and ranges, but should also avoid light trespass on neighboring property, reduce dangerous glare to motorists, and save energy.

#### Community Wide Measures:

- ♦ Turn-off un-needed lights, e.g. unused parking lots
- ♦ Use appropriate levels of illumination
- ♦ Prevent illumination of unintended areas by using full-cutoff fixtures (luminaries which prevent illumination above the horizontal plane)

Further restrictions are warranted in the vicinity of airfields, e.g., lights that could be confused with airfield approach lighting; lights that create glare and thereby interfere with pilots' night vision.

Santa Rosa County has developed a lighting ordinance that sets additional requirements in Military Airport Zones (MAZ). The MAZ is similar to a MIPA in the form of an overlay district providing regulatory measures and zoning standards to achieve land use compatibility and protection of public health and safety in the areas exposed to impacts generated by military flight or ground activities occurring at, near, or above military airports. For Naval Air Station Whiting Field North and South, and for Naval Outlying Landing Fields (NOLFs) Spencer, Harold, Santa Rosa, Holley, and Pace, the MAZ boundaries extend one half mile from the perimeter of each airfield and encompass all Air Installation Compatible Use Zones (AICUZ) and noise zones. For NOLF Choctaw, MAZ boundaries encompass an area bounded by the Yellow River to the north, Eglin AFB to the east, East Bay to the west, and the East Bay River to the south.

Santa Rosa County prohibits the following in a MAZ:

- ♦ Light patterns common to military aviation
- ♦ Lights to create sky glow (except when used for safety, security, and utility)
- ♦ Luminous tube lighting on building exterior or roof
- ♦ Internally lit awnings
- ♦ External illumination for signs

The County sets the following guidelines inside a MAZ:

- ♦ Minimal illumination necessary
- ♦ No outdoor lighting to illuminate golf courses/driving ranges, athletic fields/courts
- ♦ Parking lot light poles cannot exceed 24 feet above the adjacent grade; they must be fully shielded and use low-pressure sodium light fixtures
- ♦ Non-residential parking lots lighting must be turned off within one-hour of closing and turned on no sooner than one hour prior to opening

*Appendix I – Example Military Area / Dark Skies Lighting Ordinances* provides two examples of implementing outdoor lighting standards. In some cases, the example lighting ordinances provided include requirements to retrofit existing lighting to comply with *dark skies* initiatives. At this time, an ordinance addressing future new development and redevelopment is recommended as a means to avoid glare and reflection. A retroactive ordinance requiring existing property owners to meet a *dark skies* ordinance is not recommended.

**FRP 3: Implement Public Awareness Measures.** Through a variety of information vehicles, the public (existing and future) can be made aware of Eglin AFB and its operations and community impacts both from physical and economic perspectives. Examples of measures to be taken include:

- ♦ Post signage in areas screened from airfields and other military operations. The intent of this recommendation serves to notify visitors or prospective homeowners or renters to the presence of aircraft and related noise, high intensity impulse noise, and/or low flying aircrafts typically found in an APZ. Trees, vegetation, or terrain screen airfields from many areas near airfields and military operations are not always in effect 24 hours a day, 7 days a week.
- ♦ Provide links on the County's website to maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs.
- ♦ Distribute maps showing Clear Zones, Accident Potential Zones, high level aircraft noise zones, high intensity impulse noise areas, and MIPAs to local libraries, real estate offices, county offices, airports, community buildings, and other locations existing and prospective residents and business owners frequent.

**FRP 5: Conduct Small Area Studies in the Cruise Missile Corridor and Eglin Buffer Areas.** A variety of land uses occur or are planned to occur in areas within and/or adja-





cent to the Cruise Missile Corridor and the Eglin Boundary, particularly where access can occur from highways or major county roads. It is recommended that small area studies be prepared for these areas to address transition of land use, plan roadway systems and access management, identify suitable locations for development, and prepare for the planned provision of public facilities. The small area studies will create strategies to transfer development rights, cluster future dwelling units, implement aviation easements, conserve environmentally sensitive areas, and/or implement tax incentive/credit policies. For a successful small area study, key stakeholders such as the City, County, Eglin AFB, and property owners must play an active role in the planning, analysis, and recommendations.

**FRP 7: Formalize Policy for Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process.** Formalize the planning policy to include military participation in the development review and planning process. This should include a formal communication process between the County and Eglin AFB to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments or planning issues upon receipt of an application, or more preferably as part of a pre-application meeting. This requires a definitive approach to working with developers from their initial contact with County staff regarding their prospective plans through to presentations to policy makers such as the Planning Commission and County Commission. A key component of this recommendation is ensuring the opportunity for different jurisdictions to communicate amongst themselves is provided as part of the coordination effort.

To facilitate the cross communication of the jurisdictions with Eglin AFB, it is recommended the JLUS Technical Advisory Group (TAG) remain and communicate development activities and planning efforts across jurisdictions to the TAG and Eglin AFB. The TAG should include active participation from each jurisdiction and appropriate representatives from Eglin AFB including those responsible for coordinating activities associated with Eglin Main, Eglin Reservation and Range (including Choctaw Field, Camp Rudder, and Duke Field), Hurlburt Field, Site C-6, and 7th Special Forces Group.

**FRP 9: Establish MIPA Overlay Designations.** Establishing Military Influence Planning Areas (MIPAs) as geographic planning areas established to help local governments integrate a local military's presence and missions with a comprehensive picture of the community's future. A MIPA recognizes the existence and mission of a military installation

within a community or region and can include, but shall not be limited to:

- Protect the health, safety, and welfare of the public
- Maintain the installation's mission(s)
- Promote an orderly transition and rational organization of land uses
- More accurately identify areas affected by military operations
- Create compatible mix of land uses

*Table 15-2* - Implementation Plan Responsibilities and Timing, is included to further guide the City into implementing the recommended strategies.

**FRP 10: Update City's Comprehensive Plan and Land Development Code to Include Specific Language Designed to Strengthen the City's Compatibility Position on Proposed Developments, Land Use Amendments and/or Other Related Change Requests.** There are potential military impacts on civilian land, facilities, and citizens. There are also potential civilian impacts on military operations. The section of the Future Land Use Element that addresses such issues could be called the Military Influenced Area (MIPA) Sub-element. Following is an outline of typical issues that might be described in the MIPA Sub-element: Data Inventory and Analysis. Only those military facilities and operations impacting the designated MIPA within the local government should be discussed.

## **Comprehensive Plan Military Encroachments Element Data Inventory and Analysis**

-Describe Military Missions and Operations Impacting Local Government:

- ◊ Facilities Impacting Community: Airfield (Eglin Main, Hurlburt, Duke, Camp Rudder, Choctaw) or Range
- ◊ Type Activity/Operation (Flights Arriving-Departing Specific Runway and Type of Aircraft)
- ◊ Drop Zone/Gunnery Range/Other operations, tests or maintenance
- ◊ Character of Impact on Civilians and Civilian Property (Noise in Flight, Impulse Noise; Public safety threatened, Limited use of land or Structure, Secondary impacts: Impacts to Health)
- ◊ Timing & severity of impacts

-Describe Civilian Land Use and Activities Encroaching on Military Operations and possible remedial actions after considering the JLUS analysis, recommendations, and local



discussion and interaction with the military representatives. Land uses within the following would be of consideration:

- ◊ Clear Zone
- ◊ Accident Potential Zone I
- ◊ Accident Potential Zone II
- ◊ Noise Contours in decibels: ≥65-69; 70-74; 75-84; ≥85
- ◊ Cruise Missile Corridors
- ◊ Supersonic Corridor SW of SW portion of AFB
- ◊ Restricted Areas and Danger Zones Off-Base: such as Drop Zones, Eglin Aerial Gunnery Ranges, etc.

-Tall structures and potential height thresholds needed within the following areas (with reference maps):

- ◊ Clear Zone and APZ I & II
- ◊ FAA & Military Approach/Departure Height Thresholds
- ◊ Military Training Routes
- ◊ Low Level Training Area Routes: Fixed Wing & Helicopters
- ◊ Restricted Areas for Controlled Firing & Drops/Danger Zones Off-Base
- ◊ Obstructions to Lines of Sight: ex: Terminal Instrument Procedures Routes (TERPS)

-Outdoor Lighting

-Electronic transmissions over the 5.4 to 5.9 GHz bandwidth of RF spectrum adversely impacts operations.

## **Comprehensive Plan Military Influence Planning Area (MIPA) Subelement Goals, Objectives, and Policies-**

Possible Goals to Consider and Adapt to Local Conditions:

- Region's Role and Function in the Nation's Defense and the Northwest Florida Economy: Promote the national defense and cultivate continuance of Eglin AFB's role and function as a major contributor to the nation's defense and the Northwest Florida economy while enhancing the economy of Santa Rosa, Okaloosa, and Walton Counties and its municipalities.
- Coordination, Partnerships, and Management Initiatives to Promote Land Use Compatibility: Enhance land use compatibility within Santa Rosa, Okaloosa, and Walton Counties and its municipalities by coordinating, forming partnerships, and management initiatives to ensure long-term viability of Eglin AFB's role, functions, and missions in the nation's defense and the Northwest Florida Region's economy while protecting the quality of life within the three-county area.
- Partnering to Preserve Quality of Life and Resource Conservation: Preserve the Northwest Florida Region's natural resources, by partnering to promote funding for land

acquisition/land easements to conserve major sensitive environmental corridors identified in the such as the Northwest Florida Greenway, land generally east of the Blackwater River floodplain west of the Yellow River, the floodplain of the Shoal River, Choctawhatchee River and other high priority conservation areas identified in the Sustainable Emerald Coast Plan.

**Identify Objectives for Resolving Encroachment Issues Described in the Data Inventory and Analysis.** This section should identify encroachment issues to be resolved and an implementation schedule.

**Identify Policies to Implement Each Objective, including:**

-Amendments to Comprehensive Plan Future Land Use Map, if any

-Amendments to Regulatory Land Use Controls:

- ◊ Possible Implementing Rezoning
- ◊ Establish Military Influence Planning Lands (MIPA) Zoning Overlay District:
  - ⇒ Permitted, Conditional, and Prohibited Land Uses ( Address Incompatible Densities, Places of Assembly, Location of More Intense Development
  - ⇒ Height Regulations
- ⇒ Outdoor Lighting Regulations
- ⇒ Development Review Procedures:
  - + Ex-Officio Military Representation on Planning Board
  - + Early Notification
  - + Effectuating Timely Participation and Response
  - + Conflict Resolution Mechanisms
- ◊ Subdivision Regulations Establishing Incentives for Clustered Development Removed from Severe Impacted Land
- ◊ Restrict Use Of Radio Frequency Spectrum
- ◊ Bands 5.4 -5.9 Ghz
- ◊ on Items Such As Wireless Lan & Microwave Cordless Devices Incl. Garage Door Openers
- ◊ Special Issues
- ◊ Small Area Land Use Studies
- ◊ Public Awareness
- ◊ Web-Site Public Awareness
- ◊ Public Notice Requirements In Development Review Process
- ◊ Identify When Moa Impacted
- ◊ Street Signage (Military Operations Area)
- ◊ Inform Public of Noise Zone Revisions
- ◊ Property Disclosure on Document Advertising or Transferring Ownership of Impacted Property Located in CZ, APZ, and Noise Influenced Areas.





- ◊ Revisions to Construction Standards to Address Noise Attenuation
- ◊ Land Acquisition, Land Swaps, Easement Acquisitions to Address Enclaves on Civilian Lands on the Eglin Reservation or Military Owned Lands Off-Base.
- ◊ Collaborative Efforts to Mitigate Issues with Eglin AFB
- ◊ Revisions to Instrumentation and/or Physical Orientation
- ◊ Procedural Efforts to Improve Advance Planning for Development & Conservation:
  - ⇒ Early Notification
  - ⇒ Effectuating Timely Participation and Response
- ◊ Funding for Implementation

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ID #	Recommended Strategy	Eglin JLUS Page No.	MIPA-I	MIPA-II	MIPA-III	Tri-County Region	Other Area(s) - see	Implementation Responsibility		Implementation Timing			
								Primary	Partner(s)	Short Term (0-2 years)	Near Term (2-5 years)	Long Term (5-15 years)	Ongoing
FRP 1	Implement Lighting Ordinance	15-10			✓			Freeport	Eglin JLUS Policy Committee & TAG, Eglin AFB		✓		
FRP 2	Distribute Educational Handouts on Radio Frequency	15-10				✓		Eglin AFB	Freeport	✓			
FRP 3	Implement Public Awareness Measures	15-11				✓		-	Freeport & Eglin AFB				✓
FRP 4	Identify Cruise Missile Corridor on Public Documents	15-10			✓			Freeport	Private Party Submittals	✓			
FRP 5	Conduct Small Area Studies For The Cruise Missile Corridor and Eglin Boundary Buffer Area	15-11			✓			Eglin JLUS Policy Committee & TAG	Freeport	✓			
FRP 6	Support and Promote State and Federal Land Acquisition in Florida Greenway Program	15-10			✓			Freeport	Northwest Florida Water Mgmt. District, FDEP, The Nature Conservancy, Eglin AFB, Private Property Owners, Others				✓
FRP 7	Formalize Policy to Include Military Participation and Cross-Jurisdiction Coordination	15-14				✓		Freeport	Eglin JLUS Policy Committee & TAG	✓			
FRP 8	Limit Object Heights Regarding Potential Conflicts	15-10			✓			Freeport	Eglin AFB	✓			
FRP 9	Establish Military Influence Planning Area (MIPA) Zoning Overlay District Creating MIPA designations (I, II, or III)	15-14			✓			Freeport	Eglin JLUS Policy Committee & TAG	✓			
FRP 10	Update City's Comprehensive Plan and Land Development Code	15-14			✓			Freeport	Eglin JLUS Policy Committee & TAG	✓			

Table 15-2: Implementation Plan Responsibilities and Timing





# EGLIN AIR FORCE BASE JOINT LAND USE STUDY

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## SECTION 16 - EGLIN AIR FORCE BASE



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## 16.1 INTRODUCTION

Eglin AFB, shown in *Figure 16-1*, is one of 19 component installations that make up the Department of Defense (DoD) Major Range Test Facility Base (MRTFB). It is situated among three counties—Santa Rosa, Okaloosa, and Walton. Eglin's primary function is to support research, development, test, and evaluation (RDT&E) of conventional weapons and electronic systems. It also provides support for joint training of operational units. Eglin AFB is composed of 724 square miles (sq. mi.) of land with 36 specific test areas, and 124,642 sq. mi. of the Eglin Gulf Test and Training Range (EGTTR), which extends south to the Florida Keys. Included as part of Eglin are 19 miles of barrier island coastline on Santa Rosa Island, of which 12 miles are closed to the public.

Eglin AFB has a total of 127,868 sq. mi. of charted airspace, of which 2.5 percent (3,226 sq. mi.) is over land and 97.5 percent (124,642 sq. mi.) is over water in what is referred to as the EGTTR. Eglin exercises daily air traffic control over a total of 26,901 square nautical miles (sq. NM), of which 9 percent (2,479 sq. NM) is over land and 91 percent (24,422 sq. NM) is over water. Eglin's charted airspace is not only above Eglin AFB land, but also extends to the east, south, and north into Alabama as shown in *Figure 16-2*.

This airspace is comprised of both restricted and warning airspace, in addition to military operating area (MOA) airspace. The airspace over the EGTTR is under the authority of the Federal Aviation Administration (FAA), but is scheduled and controlled by Eglin AFB. The EGTTR is composed of both DoD-controlled airspace and FAA-controlled airspace available on request with an established Letter of Agreement. The EGTTR is the DoD's largest water test range in the continental United States. Eglin AFB also contains the only supersonic overland test range east of the Mississippi River.

Eglin AFB is composed of many areas:

- Eglin Reservation/Range (test areas, interstitial areas, airspace, and the EGTTR)
- Eglin Main Base
- Hurlburt Field (home of the U.S. Air Force Special Operations Command)
- Duke Field (site of U.S. Air Force Reserve)
- Choctaw Field (supporting Naval aviator and Unmanned Aerial Vehicle [UAV] training)
- Site C-6 (site of Air Force Space Command Phased Array Space Surveillance Radar)
- Camp Rudder (one site of the U.S. Army Ranger School)

- Cape San Blas
- U.S. Coast Guard Station Destin

## 16.2 ISSUES

Based on information provided by Eglin AFB and meetings and discussions with the Joint Land Use Technical Advisory Group (TAG) which includes representatives from Eglin AFB and the counties and cities in the tri-county area, issues were identified with respect to encroachment around Eglin AFB. During the May 8, 2008 TAG meeting and the June 18, 2008 Public Open House, the issues were identified and explained. *Appendix D—Eglin JLUS Public Presentations* provides copies of this information plus all public presentations included with this study.

The following are the issues identified for Eglin AFB with respect to joint land use planning and encroachments:

- Impulse Noise Extending Beyond Eglin Boundary
- Radio Frequency Interference With Electronic Transmissions
- Low Level Helicopter Training Areas
- Lighting Encroachment Into Night Training Areas and Airspace
- Height of Objects
- Incompatible Development in Areas Influenced by Military Activities (Clear Zones, Accident Potential Zones (APZs), High Noise Areas, Low Level Approach Zones, and Cruise Missile Corridors)
- Additional Boat Traffic in Controlled Firing Areas
- Highest and Best Use Potential of US Government Owned Lands
- Air Traffic Control

Each issue listed above is described further in the following



Figure 16-2: Eglin AFB Water Range and Airspace



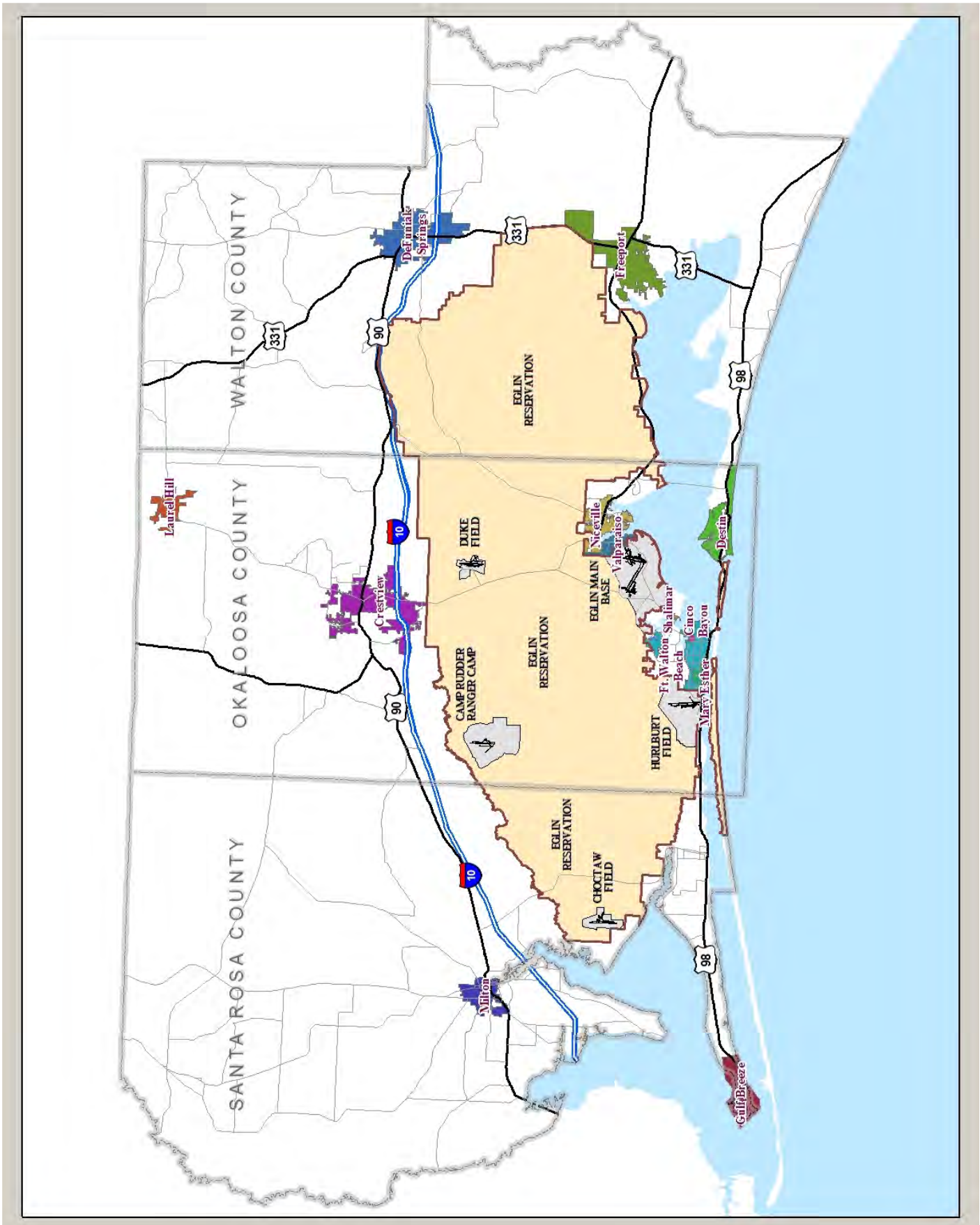


Figure 16-1: Eglin AFB Location Map

subsections with descriptions and graphics provided.

## 16.2.1 Impulse Noise

Some areas on Eglin AFB and beyond the Eglin Reservation boundary are subject to increased levels of impulse, or explosive, noise according to the Eglin Range Air Installation Compatible Use Zone (RAICUZ). There are three impulse noise intensity levels represented as *Low Intensity—Infrequent Impulse Noise*, *Moderate Intensity—Less Frequent Impulse Noise*, and *Higher Intensity—Greater Frequency Impulse Noise*. The coverage areas for each Impulse Noise level is shown in [Figure 16-3](#). Each noise intensity level indicates the potential for humans to notice the noise and/or be annoyed.

## 16.2.2 Radio Frequency Interference

Radio frequency is an additional element related to land use compatibility according to the RAICUZ. Certain Eglin frequency bands are being encroached upon by devices that are either sloppy in their frequency control (e.g., cordless phones, cell phones, radio stations, cell towers) or that leak frequency emissions even if they are not designed to transmit (e.g., radar detectors). Certain frequencies within the radio frequency spectrum are of more concern than others, since the frequencies can interfere with the safety of test missions. If a test item or aircraft is lost due to frequency issues, safety can be compromised beyond what is acceptable. Training missions tend to use the very high frequency (VHF) and ultrahigh frequency (UHF) bandwidths, which currently are dedicated military frequencies.

The bandwidth between 5.2 to 5.9 GHz contains Eglin's primary frequencies used to track test items using radio location, radar tracking, and beacon/transponder tracking. The radars used to track test items are extremely sensitive and can detect even the smallest emitter, for example a cordless phone being used on the third floor of a condominium. Devices that interfere with these frequencies include wireless LAN, microwave, and cordless devices. Since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

Generally, the interference occurs within a 50-mile area extending from the Eglin boundary. To protect against this interference, a buffer of 50 miles within which all devices or systems operating within the 5.4- to 5.9-GHz bandwidth would be prohibited is recommended in the RAICUZ.

Recent encroachment within the 5.4- to 5.9-GHz bandwidth include a developer installing wireless LAN in a high-rise condominium along the coastline and a local county installing wireless LAN and microwave to communicate between coastal and inland offices.

## 16.2.3 Low Level Helicopter and Tiltrotor Training

Training helicopters (TH-57) from NAS Whiting Field and MH-53 helicopters from Hurlburt Field conduct training operations within the low altitude tactical navigation area (designated as *Helicopter and Tiltrotor Low Level Training Area*) as shown in [Figure 16-4](#). The TH-57 helicopters utilize specific areas designated for NAS Whiting Field within the overall low altitude tactical navigation area.

As population density increases underneath the low level training areas, the required altitude for flight operations is subject to being adjusted upwards to meet federal regulations and to minimize noise and risk to the population underneath. Increases in altitude would severely impact the training capability of the 1st Special Operations Wing (1 SOW) and Naval Air Station Whiting Field.

## 16.2.4 Lighting

Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours with night vision equipment. Ground lighting can interfere with a pilot's vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns. Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment. Several airfields, drop zones, and military training routes occurring on or over Eglin AFB and adjacent lands conduct these types of training, especially those associated with Hurlburt's 1 SOW.

Also, Eglin is home to the U.S. Army 6th Ranger Training Battalion, and the future home of the 7th Special Forces Group (Airborne). Training for night operations is mission-essential to these units. Light encroachment can be light trespass, glare, sky glow or any unintended consequence from artificial lighting. Light trespass is illuminating areas not intended. Glare results from overly bright lights and interferes with vision. Sky glow is the illumination of the sky from artificial sources. [Figure 16-5](#) shows the increase in artificial lighting that is visible from satellites. It is clearly evident that the amount of lights is increasing with population.

## 16.2.5 Height of Objects

Military Training Routes (MTR) are corridors of a defined width established and designated by the Federal Aviation Administration (FAA) specifically for military training according to the Eglin RAICUZ. Within these corridors, military



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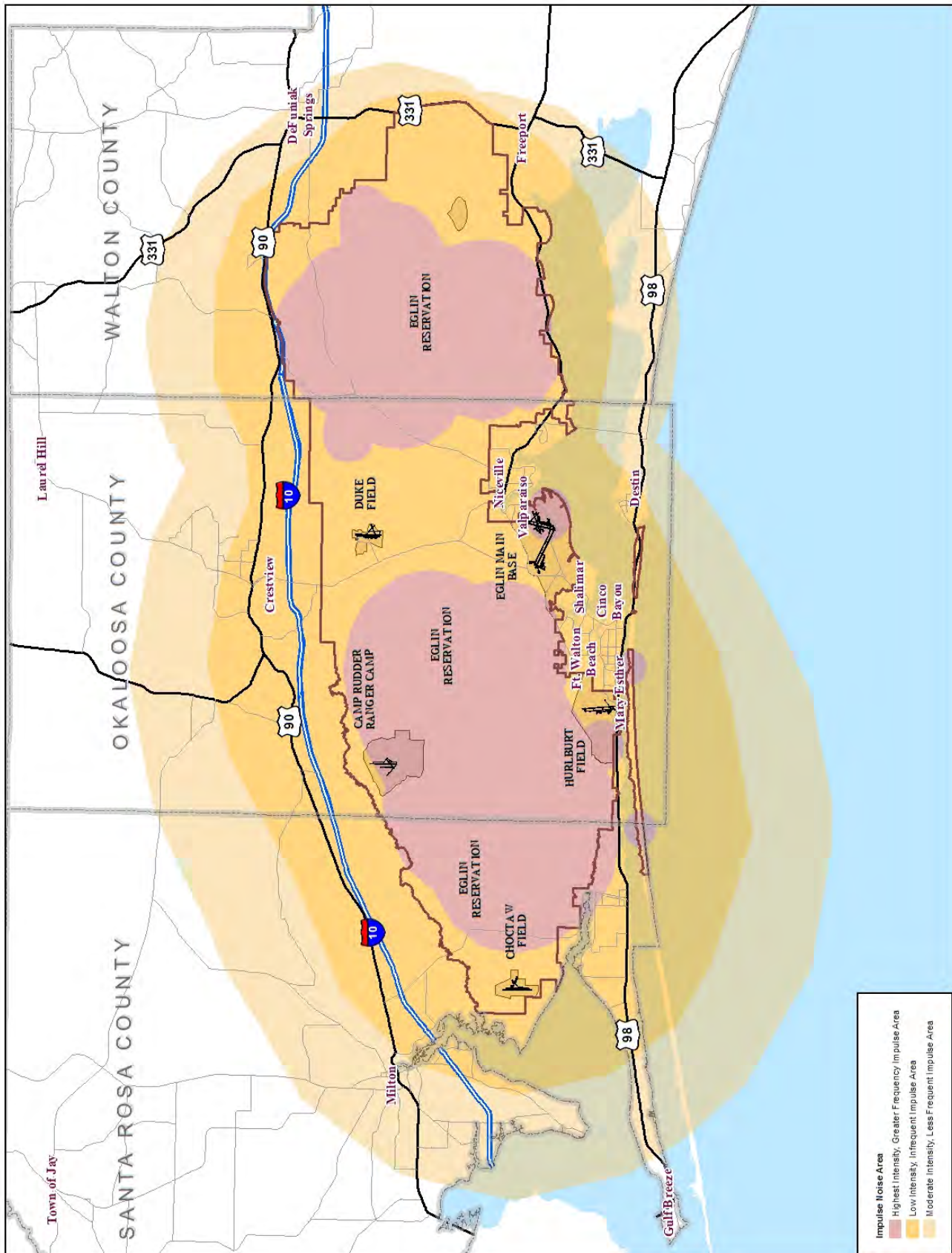


Figure 16-3: Impulse Noise Areas

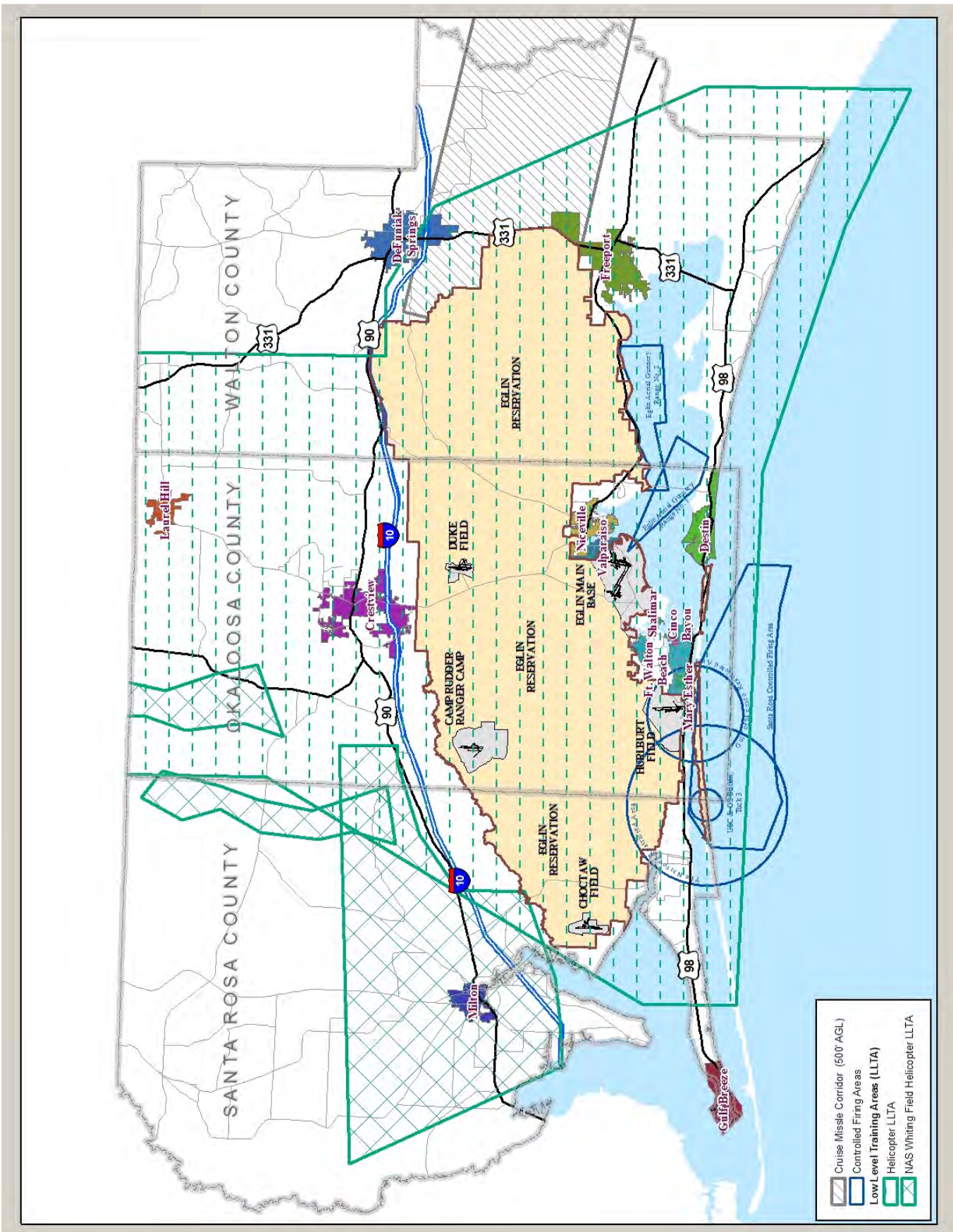


Figure 16-4: Low Level Training Areas Across



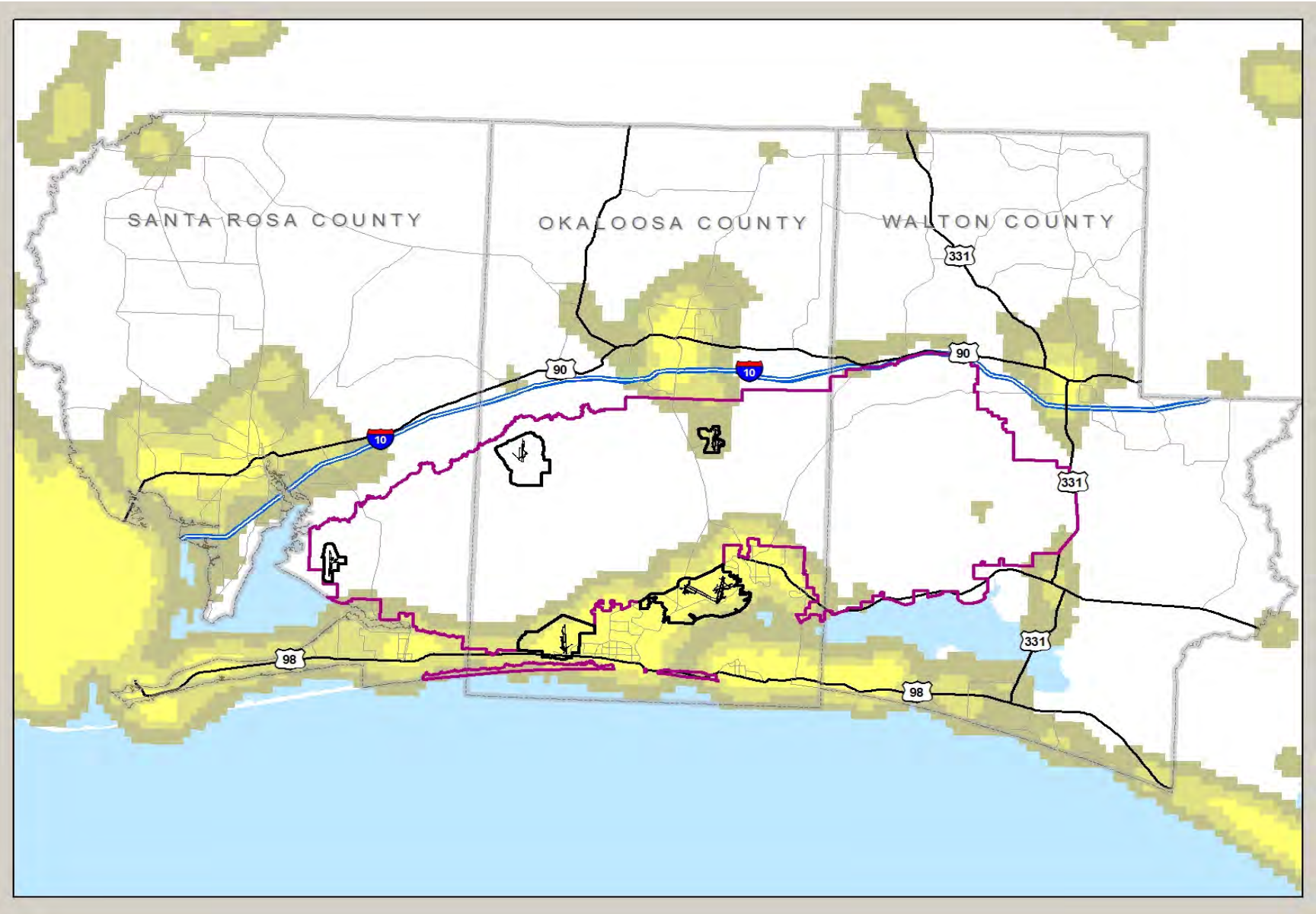


Figure 16-5: Visible Increases In Artificial Lighting From Satellite Imagery: Year 2000 (grey) Compared With 1992-93 (yellow) (Source: NOAA)

aircraft are permitted to conduct military training/RDT&E below 10,000 feet above mean sea level (MSL) in excess of 250 knots indicated airspeed (KIAS).

Two additional military training areas are the Slow Speed Low Altitude Training Route (SR) and the LLTA area. Flight within the SR must be below 1,500 feet above ground level (AGL) and at or below 250 KIAS. Typically SRs are flown with C-130 aircraft and helicopters as well as some slow speed training aircraft. LTTAs are large geographic areas where random low altitude operations are conducted at airspeeds below 250 KIAS. Typically A-10 aircraft and helicopters frequent LTTAs.

Within all of the MTRs, SRs, and LTTAs, low altitude navigation tactical training is currently conducted by C-130 cargo transport aircraft, helicopters, CV-22 Osprey, CA-212 light transport aircraft, fighter and attack aircraft, and training aircraft.

Airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions according to the RAICUZ. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999). These procedures are a complex set of specific requirements that ensure the proper clearances exist for aircraft to safely take-off, land, and circle, when required. The requirements for each surface of a TERPS airfield are specified in FAA Orders 8260.3B, "U.S. Standard for Terminal Instrument Procedures" (TERPS) (July 7, 1976) and 8260.19C, "Flight Procedures and Airspace" (September 16, 1993).

TERPS have been designed for all major airfields on Eglin: Eglin's Main Airfield, Duke Field, Choctaw Field and Hurlburt's Main Airfield. Airfields with instrumented landing systems (ILS) are categorized based on aircraft that will use the airfield and conditions available for landing with instruments. The categories provide minimum altitudes at which a pilot must be able to see the runway prior to touching down with the aircraft. For example, Category I airfields with ILS have a 200-foot above ground minimum altitude at which the pilot must see the runway. This has a trickle down effect when it comes to heights of objects in the vicinity of airfields.

An additional complicating factor in altitudes and tall structures is weather conditions. As tall structures cause aircraft

to fly higher prior to landing, conflicts can arise as a result of cloud ceiling heights and minimum altitudes prescribed by instrument approach procedures. If the cloud ceiling height changes due to weather and becomes lower than the acceptable altitude at which an aircraft can descend with instruments, the airfield is essentially unusable and no aircraft can land. The minimum ceiling height of clouds and the minimum visibility an air crew needs to plan for an instrument approach is based on the minimum descent altitude (MDA) for non-precision approaches or decision height (DH) for precision approaches. The MDA and DH are based on height of obstructions. Past a certain threshold, the higher the obstruction, the higher the MDA or DH required. The higher the MDA or DH, the higher the minimum cloud ceiling needs to be and the greater the visibility needs to be. This increase in required weather minimums reduces the availability of the airfield.

*Figure 16-6* provides height limits based on military training routes and TERPS. In May 2006, the Air Force conducted a Building Height Study for the Southern Region of Okaloosa County to help ensure that there were no aviation problems. *Figure 16-7* identifies the maximum building heights resulting from this study.

## 16.2.6 Incompatible Development in Areas Influenced by Military Activities (Clear Zones, Accident Potential Zones (APZs), High Aircraft Noise Areas, Low Level Approach Zones, and Cruise Missile Corridors)

Incompatible development in specific areas is an issue for Eglin with the potential to impact the successful completion of missions assigned to the Base's installation partners. There are areas in Santa Rosa County, Okaloosa County, Niceville, and Valparaiso that include Clear Zones and Accident Potential Zones (APZs) extending beyond the Eglin AFB boundary. The high noise areas associated with the maximum mission noise contours also extend beyond the Eglin AFB boundary in Santa Rosa County, Okaloosa County, and in the cities of Destin, Niceville, and Valparaiso. Low Level Approach areas influence areas in Santa Rosa, Okaloosa, and Walton Counties and Crestview. The Cruise Missile Corridors cover Laurel Hill and portions of Walton County, DeFuniak Springs, and Freeport.

Each section of this report for the jurisdictions listed above includes detailed information associated with the issues identified.

Clear Zones. Aviation history has shown that property along primary flight paths and immediately beyond the end of runways have a higher potential exposure to aircraft accidents than areas further out from an airfield or flight path. Several studies of aircraft accidents discovered that the majority of accidents occur either on or adjacent to airfields



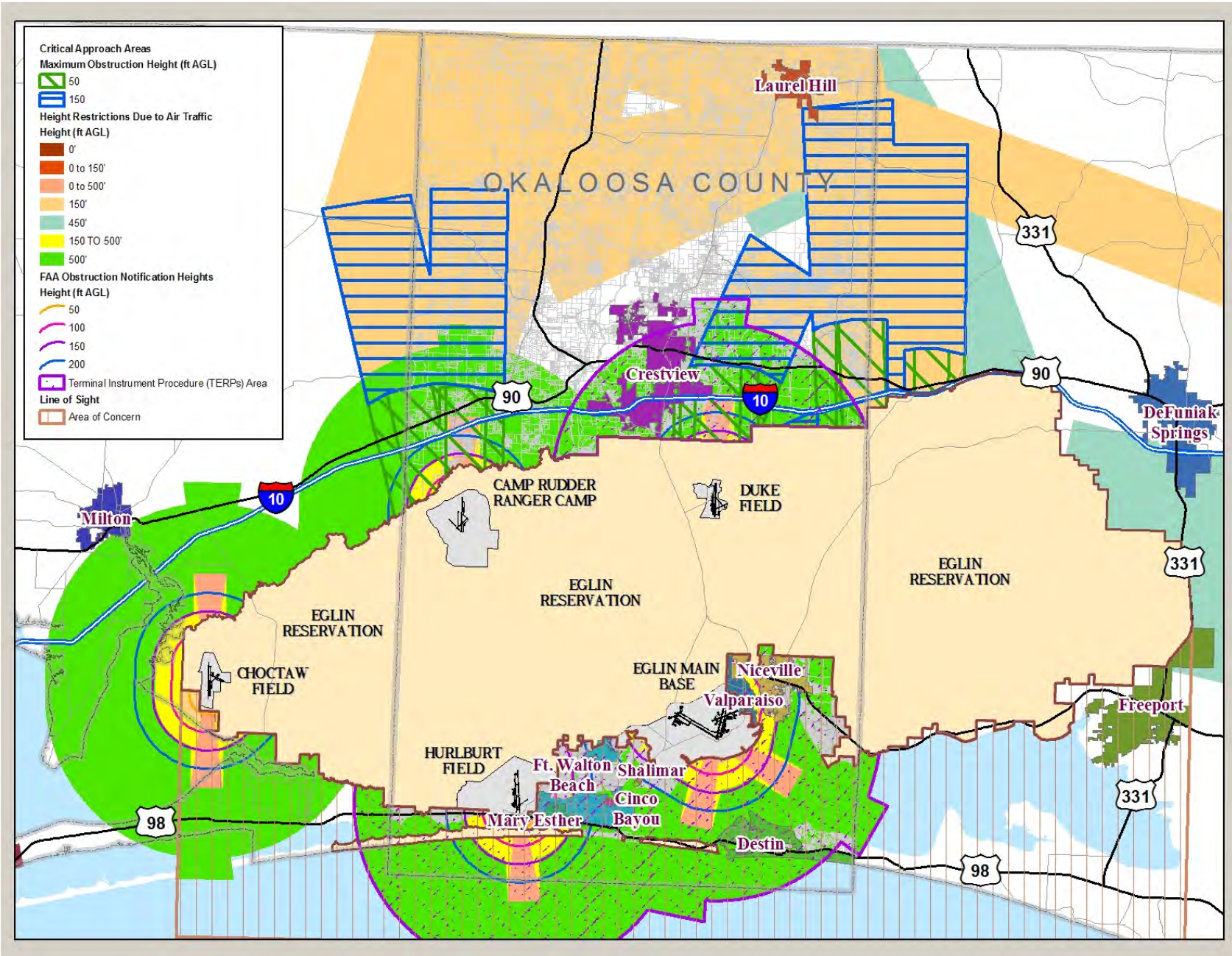


Figure 16-6: Maximum Obstruction Heights For Other Military Training Routes and Terminal Instrument Procedures (TERPS). Note the lowest elevation shown for an area governs.



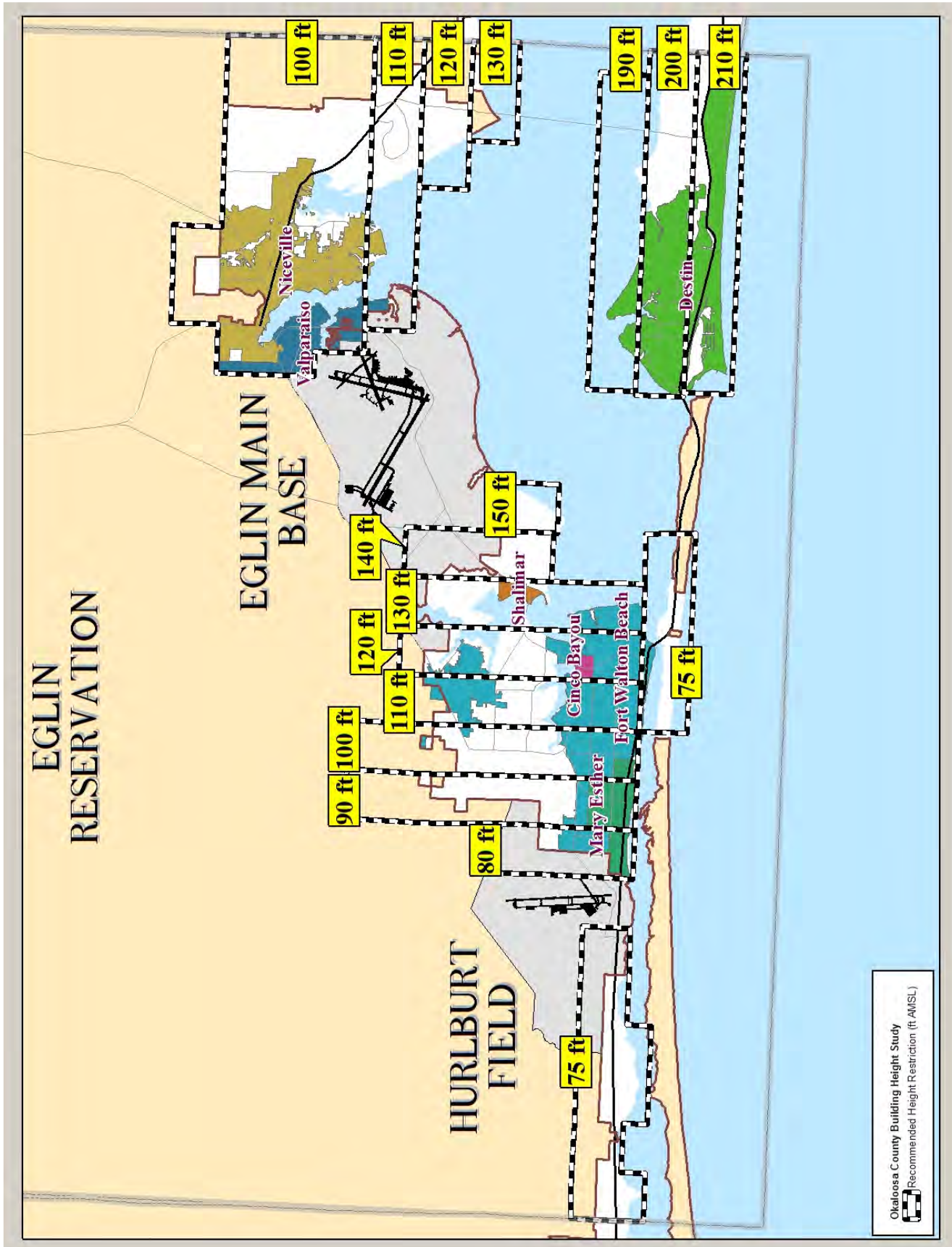


Figure 16-7: Okaloosa County Maximum Building Heights (Air Force, 2006)



(USAF, 1999). In response to these and other studies, the Department of Defense developed the Air Installation Compatible Use Zone (AICUZ) program to specifically address compatible use of public and private lands in the vicinity of military airfields (DODI 4165.57 and AFI 32-7063) (DoD, 1997; U.S. Air Force, 2003a).

Created as part of the AICUZ program, Clear Zones are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, Clear Zones function to heighten the general public's awareness to areas where higher risks occur. The Clear Zone is an area possessing a high potential for accidents and is located just past the end of a runway. In this report, the Clear Zone has been labeled "A" to enable easier depiction on maps.

There are Clear Zone areas extending beyond Eglin's boundary in the City of Valparaiso as previously shown in Figure 12-2 in the City of Valparaiso section.

Accident Potential Zones. Beyond the Clear Zone is an area along the flight path that possesses a significant potential for accidents. Created as part of the AICUZ program, Accident Potential Zones (APZ) are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, APZs function to heighten the general public's awareness to areas where higher risks occur. They also help local governments to identify where to direct zoning regulations and land use standards designed to reduce potential conflicts between airfield operations and civilian populations.

APZs are divided into two (2) designations based on accident potential. The zone closest to the Clear Zone is referred to as APZ-I. It has been labeled "B" for easier depiction throughout this study. APZ-II (labeled "C") is typically furthest from the runway in terms of the flight path and it has a measurable potential for accidents. Approach or departure flight paths will turn into or away from a runway. Therefore, APZ I and II may curve away from the end of a clear zone as well as leading straight out. Based on designated airport flight paths for approach and departure, some areas in a APZ-II zone may actually be closer to a runway than portion of the APZ-I.

APZ I areas extend beyond the Eglin boundary in Santa Rosa County and in the City of Valparaiso. APZ II areas are located beyond the Eglin boundary in Santa Rosa and Okaloosa counties and in the cities of Niceville and Valparaiso. Figures in the sections for these jurisdictions show the locations of the APZs, respectively.

High Aircraft Noise Areas. At the time of this report, the Air Force is developing the curriculum for the F-35. Two different noise alternatives (Alternate 1 and Alternate 2) were developed as part of the *Base Realignment and Closure*

(BRAC) 2005, *Environmental Impact Statement (EIS)* and this information is being utilized as part of this JLUS. It appears the noise footprint associated with Alternate 1 covers a larger area in Santa Rosa County for the maximum mission noise contours and Alternate 2 provides the maximum mission noise contours in Okaloosa County and in the cities of Destin, Niceville, and Valparaiso. Therefore, Alternate 1 in Santa Rosa County and Alternate 2 elsewhere are the contours used for analysis and form the basis for recommendations in this report. *Figure 16-8* shows the two F-35 noise alternatives (Alt 1 and Alt 2) provided in the BRAC EIS with a one-half mile buffer offset outside of the 65dB noise contour for each alternative. The analysis and recommendations provided herein shall be reevaluated based on information forthcoming from the Air Force in the Supplemental BRAC EIS.

Low Level Approach Zones. Increases in altitude would severely impact the training capability of the 1 SOW and NAS Whiting Field. Maintaining lower population densities underneath the low level MTRs along the northern boundary of Eglin, which are used by the 1 SOW, is important for safety reasons. As these routes transition into Field 6 (Camp Rudder), Duke Field, Field 1, Pino Drop Zone, and Sontay Drop Zone, the aircraft is not able to deviate from its selected approach path in an attempt to avoid more densely populated areas or noise sensitive features (e.g., hospital, school, or church). The approach path generally begins approximately 10 nautical miles (NM) from the center point of the airfield or drop zone. *Figure 16-9* shows the low level approach zones.

Cruise Missile Corridors. Tomahawk® cruise missile testing and training is conducted at Eglin AFB within existing designated IR Military Training Routes (MTRs). The Tomahawk® missile is a long-range subsonic cruise missile used for striking high value or heavily defended land targets. It is launched from U.S. Navy surface ships and submarines (U.S. Navy, 2004). Cruise missiles are self-propelled and guided through on-board global positioning systems. During test and training activities at Eglin AFB, the Tomahawk® cruise missile flies between the altitudes 500 feet above ground level (AGL) to 4000 feet above MSL. The areas in which cruise missiles are flown are depicted as "Cruise Missile Corridor" in *Figure 16-10*.

## 16.2.7 Controlled Firing Areas

There are 20 test sites associated with Santa Rosa Island, 11 of which are actively used in support of the test and training mission at Eglin according to the RAICUZ. The missions at the test sites range from Command Centers that control the activation of flight termination systems for items being tested (Test Site A-3) to the launching of surface-to-air missiles such as the Air Intercept Missile and the

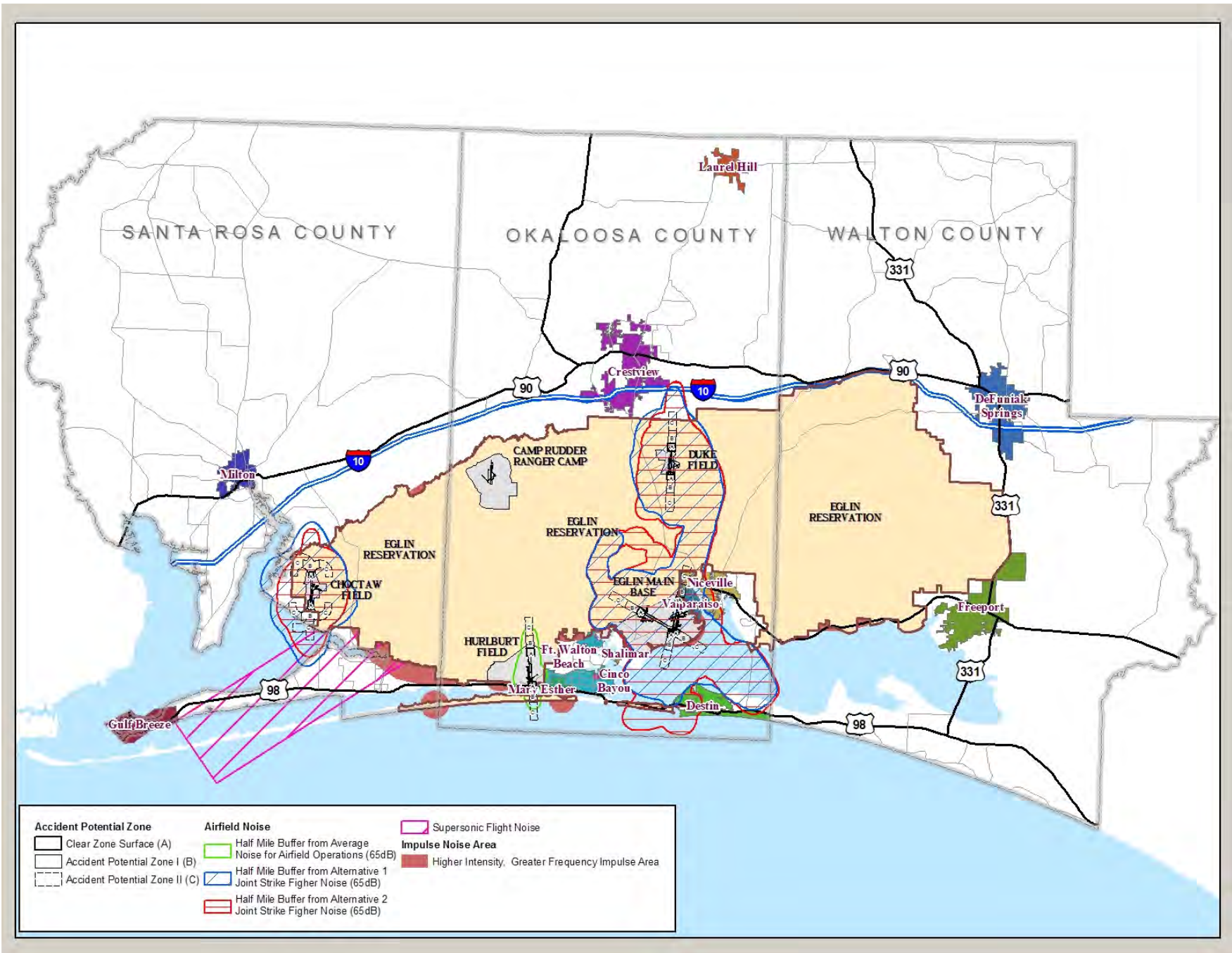


Figure 16-8: BRAC EIS Aircraft Noise Levels for Alternative 1 and Alternative 2 for the F-35 JSF



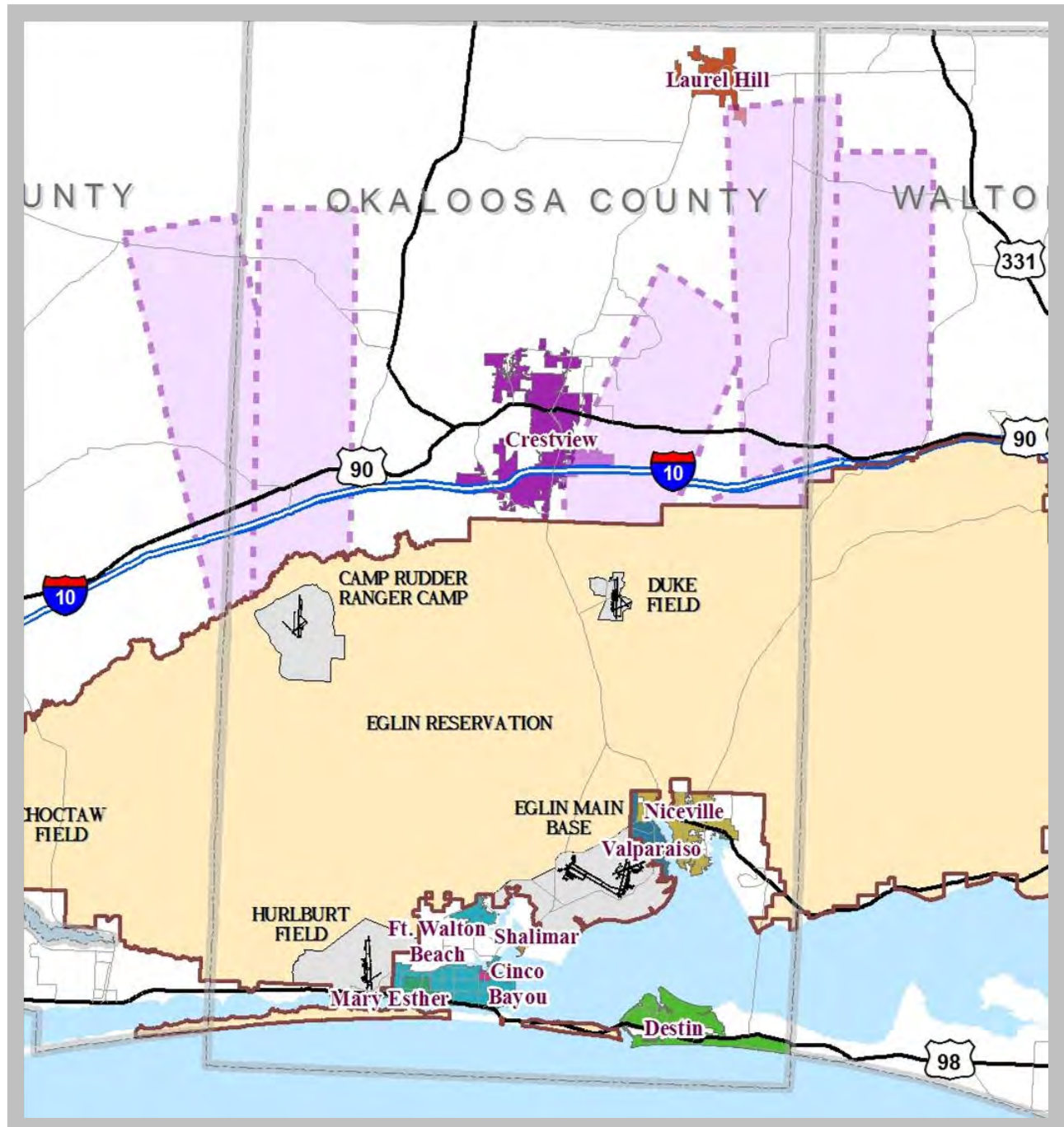


Figure 16-9: Low Level Approach Zones

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Patriot missile (Test Site A-15). In the airspace above the island and seaward for three nautical miles is a Controlled Firing Area. *Figure 16-11* shows the Controlled Firing Areas in the Fort Walton Beach Vicinity. These areas are defined air space blocks that contain activities that would be potentially hazardous to nonparticipating aircraft.

Successful and safe completion of the mission on land and the adjacent waters requires the control of the airspace, water, and land that are part of the mission scenario. Access restriction ensures the safety of people not participating in the mission as well as maintains mission integrity. The non-federally owned portions of Santa Rosa Island or establishment of artificial reefs, would attract marinas and additional boats to the area. The associated increase in boat traffic would complicate access restriction measures and potentially cause safety concerns, mission delay, or cancellation of the mission.

## 16.2.8 Highest and Best Use Potential of Government Owned Lands

Eglin's land area consists of 724 sq. mi. as described and shown in 16.1-Introduction of this section. The vast majority of this land is contiguous making up the various areas of Eglin AFB. There are areas where private property enclaves exist primarily in the area outside of Eglin's East Gate within the City of Valparaiso. This area is highlighted in *Figure 16-12*.

## 16.2.9 Air Traffic Control

Air Traffic from Eglin AFB, Northwest Florida Regional Airport, Destin Airport, and Bob Sikes Airport originates in Okaloosa County. Santa Rosa County has NAS Whiting Field and its six outlying fields, and Peter Prince Airfield, and Walton County has the DeFuniak Springs Airport. With the additional flights associated with the proposed F-35 program and the relocation of the Panama City—Bay County International Airport, air traffic control in and out of Eglin AFB as well as controlling air traffic across Northwest Florida requires additional planning and coordination.

## 16.3 ANALYSIS

### 16.3.1 Impulse Noise

The nature of the impulse noise extending beyond Eglin's boundary includes all three intensity levels—High Intensity, Moderate Intensity, and Low Intensity. The Moderate and Low Level intensity areas cover a large territory comprised of a variety of land uses in the tri-county area. However, the effects in the Moderate and Low Level Intensity areas is minimal on property owners and therefore does not include a detailed land use analysis. The High Intensity Level areas are included in the analysis for each impacted jurisdiction with a recommendation to include effective disclosure

proceedings notifying potential buyers or lease holders of the potential for the explosive noise events in these areas.

### 16.3.2 Radio Frequency Interference

The analysis for radio frequency interference in the tri-county area recognizes that all three counties and incorporated limits fall within the 50-mile buffer from Eglin which the Air Force has identified as the area of influence with respect to radio frequency interference.

An example of successful frequency mitigation involves the use of garage door openers. The military negotiated with Sears to reserve the 315-MHz frequency for use with garage door openers in homes around military installations. Previously the frequencies that Sears used interfered with military operations. Sears has committed to producing and selling openers in stores near installations that only use the agreed-upon frequency (Giangrosso, 2006).

The use of industrial, scientific, and medical (ISM) devices can encroach upon several different bandwidths utilized by Eglin for a variety of missions according to the Eglin RAICUZ. Interference from the ISM devices is handled as it is detected. A reactive approach is acceptable for these devices since the encroachment occurs less frequently and is not directly related to control of a test item (Giangrosso, 2006).

Although the Counties and Cities included in this study are not responsible for regulating or licensing radio frequencies, there are steps Eglin AFB can take to help minimize radio frequency interference through the development review process in each jurisdiction. The Counties and Cities should begin including educational material provided by Eglin for developers and builders pulling development orders and/or building permits on the importance to limit the bandwidth used in their proposed development and/or building(s). This literature should include language describing the potential negative implications from radio frequency interference and describe the region's long standing support of the military to minimize interferences such as wireless LAN, microwave, and cordless devices. As stated in the RAICUZ, since encroachment on these frequencies interferes with the safety of test missions, protection is a priority and must be proactive rather than reactive as interferences occur.

### 16.3.3 Low Level Helicopter and Tiltrotor Training

The low level helicopter and tiltrotor training area covers the majority of the tri-county area and as a result influences a broad range of land uses. The result of land use in this area may be perceived as a nuisance resulting from low level helicopters and tiltrotors flying overhead and increasing sound and having other effects associated with low

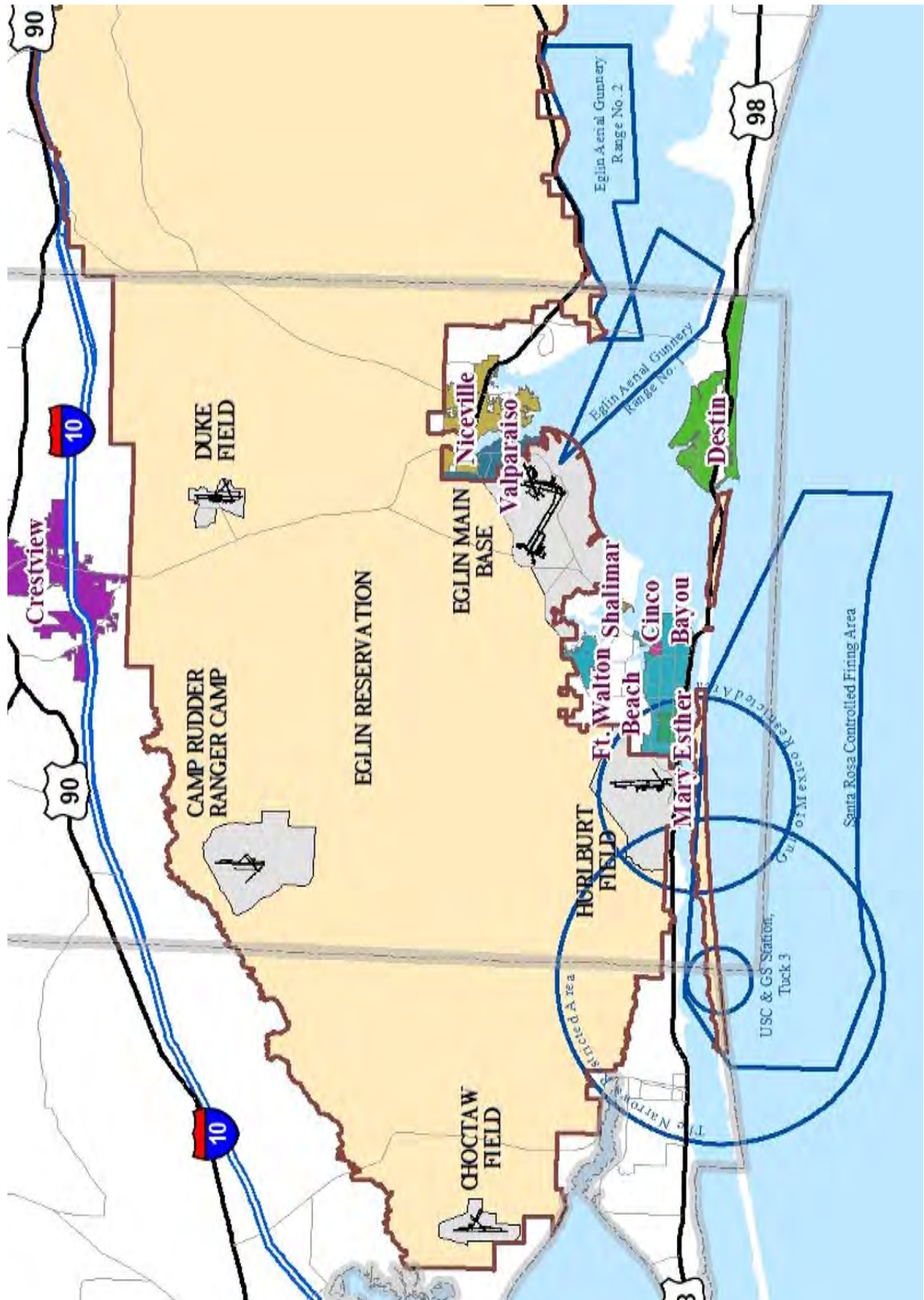
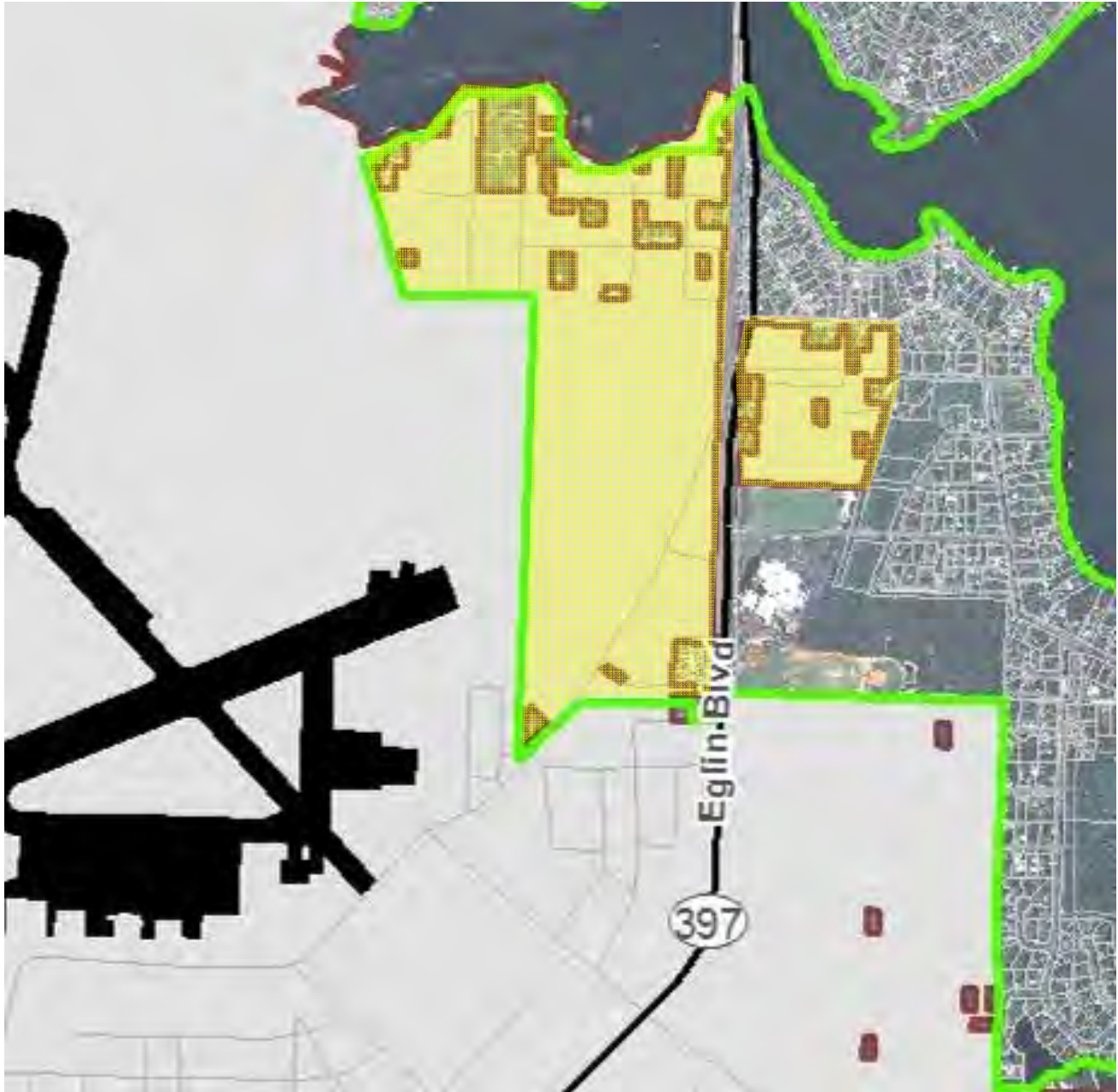


Figure 16-11: Eglin Controlled Firing Areas





*Figure 16-12: Highlighted Areas of Private Property Enclaves Outside Eglin's East Gate Within City of Valparaiso*

flying helicopters and tiltrotors. Should the frequency and number of flights in the low level helicopter training area increase, there may be a need for further analysis and recommendations.

## 16.3.4 Lighting

Requirements to avoid glare and reflection of lights across the Eglin Reservation would be applicable for the jurisdictions abutting Eglin and for lands within Eglin AFB which includes Eglin Main, Hurlburt Field, Duke Field, Camp Rudder, and Army's 7th Special Forces Group. Should the region including Eglin AFB lands choose not to address light encroachment over the Eglin Reservation, there will likely be negative impacts to the various branches of military continuing use of the Reservation for training operations.

In 1994, over 30 percent of Fort Benning, Georgia was affected by city lights, and it is projected that over 50 percent will be affected by 2015. In 2005 over 50 percent of Marine Corps Base Camp Lejeune was light-encroached, with that number predicted to be 83 percent by 2015 (U.S. Army Corps of Engineers, 2005). In order to avoid light encroachment and provide adequate night training environments for both air and ground operations to continue its current missions, proactive measures to prevent light encroachment should be taken by the local jurisdictions and on Eglin AFB.

## 16.3.5 Incompatible Development in Areas Influenced by Military Activities (Clear Zones, Accident Potential Zones (APZs), High Aircraft Noise Areas, Low Level Approach Zones, and Cruise Missile Corridors)

Clear Zone. The Clear Zone area extending beyond the Eglin boundary in the City of Valparaiso is described in Section 12 of this report and the single-family residential land use within this area identified as incompatible.

Accident Potential Zones (APZs). The APZs in Santa Rosa County, Okaloosa County, and the cities of Niceville and Valparaiso exist outside the Eglin boundary. Existing and Future Land Use in these areas was identified and analyzed in the respective sections of this report for these jurisdictions (Section 2, 3, 10 and 12).

High Aircraft Noise Areas. Noise provided in the BRAC EIS for the maximum mission contours shows noise based on the Day Night Average sound levels exceeding the 65dB level in Santa Rosa County, Okaloosa County, and the cities of Destin, Niceville, and Valparaiso. The analyses for the areas included within the maximum mission noise contours are also provided in each jurisdiction's section of this report (Section 2, 3, 6, 10, and 12).

Low Level Approach Zones and Cruise Missile Corridors. Areas along the northern boundary of Eglin AFB currently

low in population density provide ideal conditions for low level flight and low altitude night vision goggle training, a vital skill for new pilots to learn and veteran pilots to maintain. An increase in population density and development along the northern Eglin boundary would force increases in altitude and/or changes in flight paths, both critically impairing the ability to conduct training at Field 6 (Camp Rudder), Field 1, Pino Drop Zone, Sontay Drop Zone, and Duke Field. The assault landing strip at Duke Field is used for assault landing training and is the only location in the United States that offers this type of training, which is an essential part of special operations capability (U.S. Air Force, 2003b).

To identify the area in which low population densities would be ideal and where incompatible development would cause the most impact, the RAICUZ includes the Northwest Florida Greenway Corridor Study Area was delineated [Figure 16-13](#). The goals of the corridor study area are to promote the sustainability of the military mission, to preserve the high biodiversity of the area, to enhance outdoor recreation, and to support the economic health of the area. It consists of federally and state managed lands, conservation organization lands, and private lands. By delineating the corridor and agreeing to work together, the federal agencies, state agencies, conservation organizations, and local city and county governments committed to furthering the goals of the Northwest Florida Greenway Corridor Study Area.

## 16.3.6 Highest and Best Use Potential of Government Owned Lands

Government owned lands are recognized assets of the US Government and as such, the ability to maximize the value of this land based at a highest and best use is a priority. Base Master Planning and the Enhanced Use Lease (EUL) program continue to provide the Air Force and other military branches opportunities to plan and utilize underutilized assets inside and outside installations' gates. There are two areas associated with Eglin where this effort is moving forward—the REEF EUL and the Emerald Breeze EUL. These two locations include land outside of Eglin's gates.

The area outside of Eglin's East Gate was examined to see if there are opportunities associated with putting US Government owned land to its highest and best use. The area in general includes parcels south of Tom's Bayou along the John Sims Parkway corridor as shown in [Figures 16-14 and 16-15](#). This area includes approximately 78 parcels covering approximately 160 acres total. There are 58 parcels covering approximately 137 acres west of John Sims Parkway (shown as Area A) and 20 parcels comprising approximately 23 acres east of John Sims Parkway (shown as Area B). There are 19 different property owners in Area A west of John Sims Parkway including the US Government



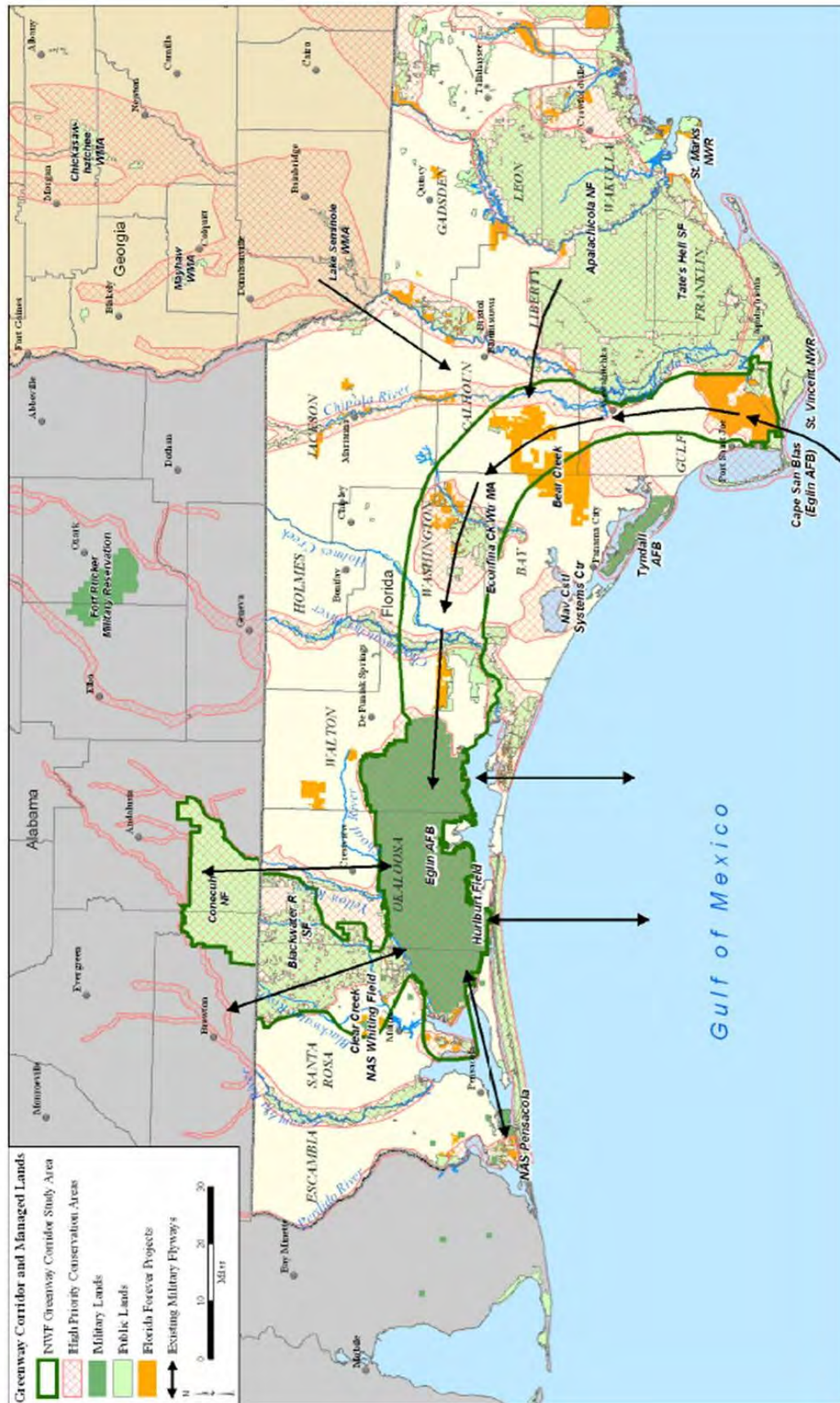


Figure 16-13: Northwest Florida Greenway Corridor



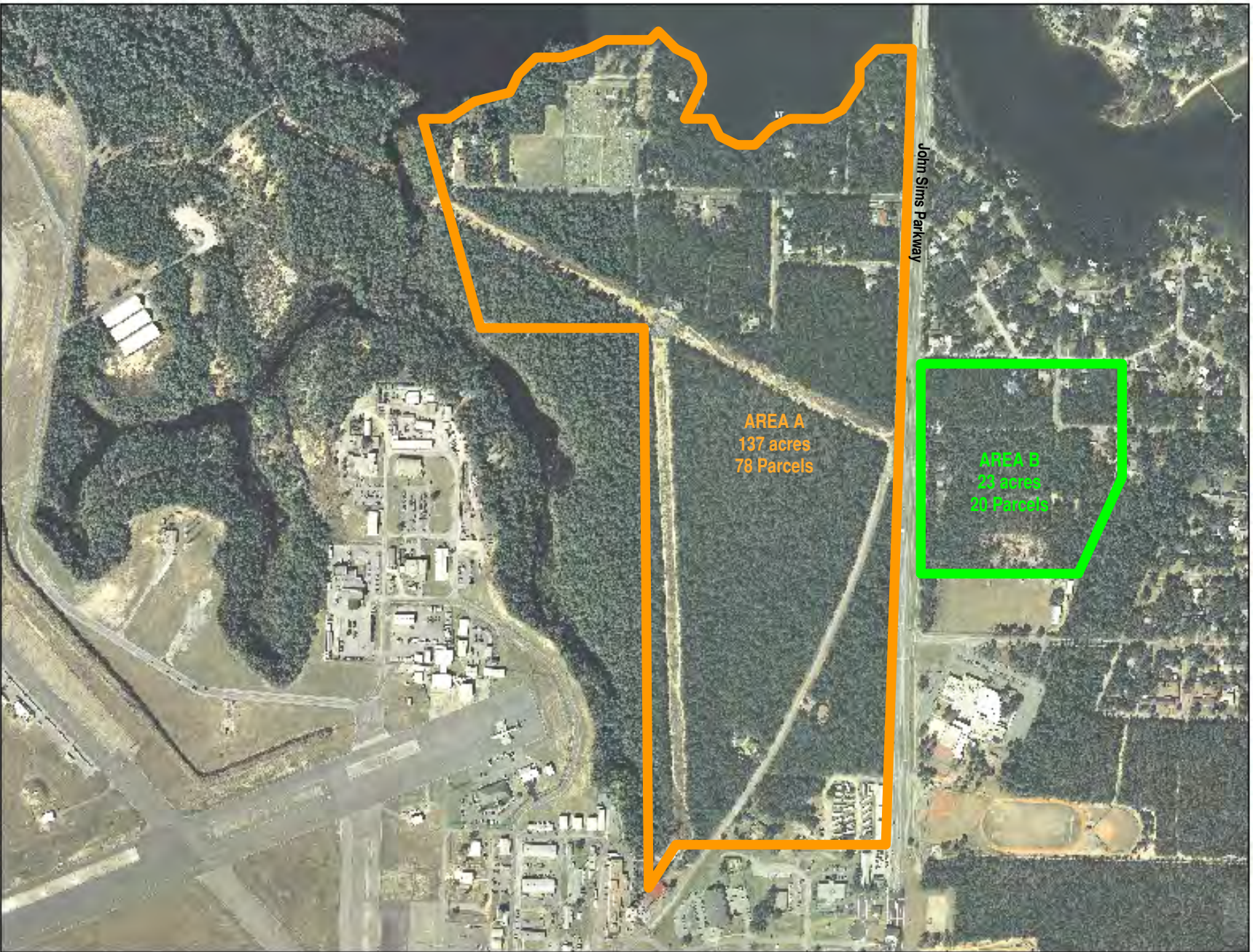


Figure 16-14: Areas of Private Property Enclaves Outside Eglin's East Gate Within City of Valparaiso





Figure 16-15: Existing Land Use and Building Count in Areas of Private Property Enclaves Outside Eglin's East Gate

which owns approximately 95% of the total 137 acres. There are 10 different property owners in Area B east of John Sims Parkway including the US Government which 85% of the total 23 acres in this area. The land use in this area includes single-family residential, commercial, institutional (Lewis Middle School and cemetery), and undeveloped.

Since the majority of ownership in this area is by the US Government (95% in Area A west of John Sims Parkway and 85% in Area B east of John Sims Parkway), there is potential opportunity to acquire adjoining parcels and create ownership and equity of a much larger area at a lower cost than the US Government attempting to purchase the same acreage of land elsewhere.

## 16.3.7 Air Traffic Control

The ongoing Air Force funded Gulf Regional Airspace Strategic Initiative (GRASI) is intended to improve the effectiveness and efficiency of airspace utilization across Northwest Florida. The work is being led by representatives from Eglin AFB with civilian aviation authorities with the goal to preserve and protect the airspace requirements of users now and for the foreseeable future. The focus is on supporting multiple military and civilian aviation purposes. The primary military users are the US Air Force and US Navy and the civilian use serves both commercial and general aviation requirements. Of primary interest is the impact of the new F-35 JSF including up to 113 new aircraft and projections that flights over Eglin airspace alone are expected to rise from 192,000 to 427,000 by 2014.

## 16.4 RECOMMENDATIONS

Based on the issues identified and the analysis associated with each issue, recommendations focused on addressing each issue or combination of issues are provided. It is the intent of the recommendations to provide guidance on land use and related land use policies and procedures with definitive direction for successful implementation.

The following summarize the recommendations for Eglin AFB:

- **EGL 1:** Complete Supplemental EIS Related to the Number and Operations of the JSF with Mitigating Measures to Lessen the Impact of the Operations on Civilian Lands
- **EGL 2:** Prepare Education Handout Materials to be Provided to Cities and Counties for Their Use Educating Developers and Builders on Radio Frequency Interference
- **EGL 3:** Partner with Local Jurisdictions to Implement Public Awareness Measures Through Environs Signage, Website Links, Educational Handouts, and/or Multi-media Productions
- **EGL 4:** Actively Participate in Small Area Studies For The Low Level Approach Zones, Cruise Missile Corridors, and Eglin Buffer
- **EGL 5:** Provide Appropriate Technical Assistance as a Partner in the Study to Determine How to Best Retrofit Existing Public Buildings Within the High Noise Level Areas (>65 dB) with Sound Attenuation
- **EGL 6:** Provide Appropriate Technical Assistance as a Partner in the Study to Develop Retrofit Program for Sound Attenuation for Occupied Buildings in High Noise Level Areas (>65 dB)
- **EGL 7:** Continue Participating in Ongoing and Proposed Voluntary Land Acquisition Programs by The Nature Conservancy, Florida Forever Program, Florida Defense Alliance Grants, and Other Related Land Conservation Programs
- **EGL 8:** Support and Promote State and Federal Land Acquisition in Yellow River and Shoal River Floodplains and Tributaries and Identified Greenway Corridors
- **EGL 9:** Participate in the Formalizing of Policy to Include Military Participation and Cross-Jurisdiction Coordination in Development Review and Planning Process
- **EGL 10:** Complete the Ongoing Air Force GRASI Airspace Study Currently Scheduled for Completion by December 2010
- **EGL 11:** Sponsor Acquisition of Properties Identified in the Clear Zone of Runway 19 to the Deputy Secretary of the Air Force (Installations)
- **EGL 12:** Support Funding and Implementation of the Air Traffic Control Tower at the Destin Airport
- **EGL 13:** Coordinate with the Escambia County Community Planning Department Regarding the Supersonic Corridor Stretching from Santa Rosa County into the Pensacola Beach Area (outside the study area of this JLUS)
- **EGL 14:** Prepare or Update the 2006 AICUZ with Applicable Information for the JSF Including Consideration of Future Events and Ramifications of Those Events on Surrounding Communities
- **EGL 15:** Implement Outdoor Lighting Requirements on Eglin Property Similar to Controls Proposed for Local Communities



- **EGL 16:** Continue *Ex-officio* Representation on the Planning Commissions for the Counties and Cities in the Tri-county Area
- **EGL 17:** Execute First Right of Refusal Legal Documents with Private Property Owners of the Enclave Parcels Outside the East Gate

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