*Final*

# ENVIRONMENTAL ASSESSMENT
# of
# Construction of the Emerald Coast Technology and Research Campus at the University of Florida Research Engineering Education Facility at Eglin Air Force Base, Florida








## 96TH AIR BASE WING

## EGLIN AFB, FLORIDA

**RCS 06-871**

**MARCH 2012**

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## COVER SHEET

## FINAL ENVIRONMENTAL ASSESSMENT OF CONSTRUCTION OF THE EMERALD COAST TECHNOLOGY AND RESEARCH CAMPUS AT THE UNIVERSITY OF FLORIDA RESEARCH ENGINEERING EDUCATION FACILITY AT EGLIN AIR FORCE BASE, FLORIDA

**Responsible Agencies:** U.S. Air Force (USAF), Air Force Materiel Command, 96th Civil Engineering Group, Eglin Air Force Base (AFB), Florida.

**Affected Location:** Eglin AFB, Florida.

**Proposed Action:** Construction of the Emerald Coast Technology and Research Campus (ECTRC) at the University of Florida Research Engineering Education Facility (UF-REEF) at Eglin AFB, Florida.

**Report Designation:** Final Environmental Assessment (EA).

**Abstract:** Eglin AFB proposes to lease approximately 118 acres to establish the ECTRC. Currently, 20 acres are associated with the UF-REEF. Approximately 98 acres of the parcel would be developed by a private developer for this purpose under the Enhanced Use Lease (EUL) program. The ECTRC is envisioned as a partnership campus between Federal and state government, including the military at Eglin AFB, the private sector, and academia. The ECTRC would be developed as a campus attractive to hi-tech companies paying premium wages to skilled professionals. With military and private sector co-use of facilities and access to University of Florida resources, the campus would create a synergistic environment benefiting current and future missions, research, development, and the communities at Eglin AFB.

This Final EA evaluates implementation of the Proposed Action at three alternative site locations (construction of the ECTRC adjacent to the UF-REEF and additional site alternatives near the UF-REEF site) and the No Action Alternative, and will aid in determining whether the preparation of an Environmental Impact Statement (EIS) is necessary. Resource categories that will be considered in the impact analysis include noise, land use, air quality, safety, water resources, geological resources, biological resources, socioeconomic resources and environmental justice, infrastructure and utilities, and hazardous materials and wastes. The Draft Final EA was made available to the public for a 30-day review and comment period. The Draft Final EA was also transmitted to the Florida Clearinghouse for review by state agencies under the Coastal Zone Management Act (CZMA) and the Florida Coastal Management Program. The Final EA was made available to the public for a 15-day review and comment period.

Technical comments and inquiries regarding this document should be directed to Mr. Larry Chavers. Public comments should be directed to Mr. Mike Spaits. Mr. Chavers and Mr. Spaits can be reached at 96 CEG/CEV, 501 DeLeon Street, Suite 101, Eglin AFB, FL 32542-5133.

## PRIVACY ADVISORY

Letters or other written comments provided on this EA might be made available to the public. Private addresses will be compiled to develop a mailing list. However, only the names of the individuals making comments and specific comments will be disclosed; personal home addresses and phone numbers will not be published in the EA.

# FINDING OF NO SIGNIFICANT IMPACT (FONSI)
# CONSTRUCTION OF THE EMERALD COAST TECHNOLOGY AND RESEARCH CAMPUS AT THE RESEARCH ENGINEERING EDUCATION FACILITY AT EGLIN AIR FORCE BASE, FLORIDA

Pursuant to the Council on Environmental Quality's regulations for implementing procedural provisions of the National Environmental Policy Act (NEPA; 40 Code of Federal Regulations [CFR] 1500-1508), Department of Defense Directive 6050.1, and Air Force Regulation 32 CFR Part 989, the U.S. Air Force (USAF) has conducted an Environmental Assessment (EA) of probable environmental consequences associated with constructing and operating the Emerald Coast Technology and Research Campus (ECTRC) at the Research Engineering Education Facility at Eglin Air Force Base (AFB), Florida. At this time, only general details are currently known about the projected development. As additional details about the development become available, the Air Force will evaluate whether additional environmental analysis is necessary.

## INTRODUCTION (EA SECTION 1.1 TO 1.2, PAGES 1-1 TO 1-2)

The University of Florida established the Graduate Engineering and Research Center (UF-GERC) to support aerospace and defense initiatives for Northwest Florida's technical community. In 1992, Eglin AFB originally leased 118 acres of underutilized land for the purpose of establishing the University of Florida Research Engineering Education Facility (UF-REEF) close to Eglin AFB. After the 1992 lease, the University of Florida moved the UF-GERC to the current location, approximately 1.5 miles northwest of the Eglin AFB west gate, on Eglin AFB and the facility was eventually renamed the UF-REEF. Many Eglin AFB active military and civilian employees are enrolled in graduate studies at the UF-REEF.

Since the establishment of the UF-REEF at the leased site on Eglin AFB, Congress amended the Military Leasing Act, which is the authority for leasing military lands. The amended law establishes the Enhanced Use Lease (EUL) program. An EUL is a lease of land, natural infrastructure, or equipment for consideration equal to the asset's fair market value. The EUL program implements Federal policies requiring efficient, businesslike management of Federal real property assets. Authority for the EUL program includes Executive Order (EO) 13327, *Federal Real Property Management*, and Title 10 United States Code (U.S.C.) § 2667.

EULs take advantage of underutilized assets to support unfunded USAF requirements by generating value (e.g., cash or services) to address USAF installations' support-related requirements. EULs provide USAF bases with increased ability to respond to mission shifts and realignments, such as with Base Realignment and Closure (BRAC) actions.

## PURPOSE OF AND NEED FOR THE PROPOSED ACTION (EA SECTION 1.2, PAGES 1-1 TO 1-2)

The purpose of the Proposed Action is to establish the ECTRC at the existing UF-REEF site on Eglin AFB under the EUL program. The Proposed Action is needed as a mechanism to create a revenue source that benefits Eglin AFB and its service members, while enhancing the educational competitiveness of Eglin AFB and the surrounding community.

## DESCRIPTION OF THE PROPOSED ACTION (EA SECTION 2.1, PAGES 2-1 TO 2-5)

Pursuant to the Secretary of the USAF initiative under the EUL program, and in anticipation of the growing research, development, and training missions at Eglin AFB, as recommended under the 2005 BRAC cycle, Eglin AFB proposes to lease a parcel of land to establish the ECTRC.

Under the preferred alternative (Alternative 1) the ECTRC will be developed on 98.65 acres of a parcel that is approximately 118 acres of land identified as being suitable for these purposes, adjacent to the UF-REEF. The

98.65 acres would be leased to a private developer for this purpose under the EUL program. The chosen lessee will be responsible for developing and operating the campus, and benefits will ultimately flow back to Eglin AFB in the form of rent payments or payments in-kind. Alternatives 2 and 3, which were carried forward for analysis, include property adjacent (Alternative 3) and property across the highway from the UF-REEF (Alternative 2).

The ECTRC is envisioned as a partnership campus between Federal and state government, including the military at Eglin AFB, the private sector, and academia. The ECTRC will be developed as a campus attractive to hi-tech companies paying premium wages to skilled professionals. With military and private sector co-use of facilities and access to University of Florida resources, the campus will create a synergistic environment benefiting current and future missions, research, and development at Eglin AFB and the surrounding communities.

**NO ACTION ALTERNATIVE (EA SECTION 2.2, PAGE 2-5)**

Under the No Action Alternative, the proposed ECTRC would not be constructed under the EUL program; there would be no change in baseline conditions. If the No Action Alternative were carried forward, there would be no change in or effects on noise, land use, air quality, safety, water resources, geological resources, biological resources, socioeconomics and environmental justice, infrastructure and utilities, or hazardous materials and wastes at Eglin AFB.

**ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD**

The ECTRC could be constructed within the gates of Eglin AFB. The nature of the missions at the Eglin main base do not lend well to having a large comprehensive campus. Security guards would be required to check hundreds of identifications of ECTRC personnel and visitors. This could create traffic congestion at the gate and allow access of nongovernment personnel onto the base. Few, if any, sites on the Eglin main base are available due to constraints caused by future expansion plans. Constructing the ECTRC on Eglin's main base would not take advantage of the potential synergistic environment that could be created with the current UF-REEF. Therefore, this alternative was not be carried forward for detailed analysis.

The ECTRC could be constructed at some other location off, but near, Eglin AFB property, or in a location away from Eglin AFB altogether. This scenario would not meet the purpose and need for the Proposed Action because the USAF could not utilize the EUL program. As no USAF land would be used, no benefits would flow back to Eglin AFB. A synergistic campus convenient to Eglin AFB personnel and attractive to the high-tech industry would not be realized. Therefore, this alternative was not carried forward for detailed analysis.

**SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION (EA CHAPTER 4, PAGES 4-1 TO 4-35)**

Based on the analyses completed as a part of the preparation of the EA, it was determined that short-term impacts to land use, geology, water, air quality, noise environment, socioeconomics, environmental justice and biological resources will not be significant. Long-term impacts on land use, biological resources, noise, air quality, safety, infrastructure, hazardous materials and wastes will not be significant. Effects associated with construction activities will be localized to the immediate area of construction and will subside following the end of construction in that area. Impacts would not be significant.

**CULTURAL RESOURCES**

For compliance with National Historic Preservation Act, Section 106, Eglin AFB determined that no historic properties (36CFR§800.16(l)) are identified within the area of potential effect for the Preferred Alternative (Site Alternative 1). The State Historic Preservation Officer concurred that no historic properties are affected by the Preferred Alternative. Due to this absence of historic properties the federally-recognized tribes which Eglin AFB routinely consults were not contacted. The risk is small for inadvertent discoveries (36CFR§800.13) of

historic properties during construction of the campus or its operation by the University of Florida. However, any such discoveries would be processed following provisions of the EUL agreement and Eglin AFB's current Integrated Cultural Resources Management Plan.

**PERMITS (EA SECTION 1.5.5, PAGES 1-6 TO 1-7)**

The following permits are required, if applicable.

- A National Pollutant Discharge Elimination System (NPDES) Generic Permit for Storm Water Discharge from Large Construction Activities from Florida Department of Environmental Protection (FDEP).
    - The NPDES must contain a site-specific Storm Water Pollution Prevention Plan (SWPPP) that identifies appropriate erosion and sediment control measures.
- An Environmental Resource Permit (ERP) for construction storm water discharges will be required from Northwest Florida Water Management District (NWFWMD).
- A Consumptive Use Permit will be required from the NWFWMD for the drilling and use of water wells, including water used for irrigation or other consumption.
- A Resource Conservation Recovery Act permit may be required due the net change in hazardous materials and wastes from the ECTRC.
- A Clean Air Act fugitive dust permit may be required because the area impacted by the Proposed Action exceeds 25 acres.

**MANAGEMENT ACTIONS (EA SECTION 4-1 TO 4-10, PAGES 4-1 TO 4-29)**

- **LAND USE (EA SECTION 4.2, PAGES 4-4 TO 4-8)**
    - Eglin AFB has imposed height restrictions of 100 feet above ground level for construction on and adjacent to the installation. Therefore, all of the proposed facilities will be constructed at a height lower than 100 feet above ground level.

- **BIOLOGICAL RESOURCES (EA SECTION 4.7, PAGES 4-19 TO 4-23 & APPENDIX E)**

  **GENERAL CONDITION (EA SECTION 4.7.2, PAGES 4-19 TO 4-22)**

    - An informal consultation with the U. S. Fish and Wildlife Service was completed 30 May 2007. Since the site was last surveyed in 2006-2007, the proponent is responsible for funding wildlife related efforts (i.e. surveys, habitat protection, monitoring, relocation, or reports) required by law.
    - Proponent must obtain their own qualified contractor and is responsible for surveying for the protected species listed in the EA and BA. Proponent must provide wildlife/plant survey results to Eglin Natural Resources. POC: Bob Miller, 96 CEG/CEVSN, 883-1153 or Kathy Gault, 96 CEG/CEVSN, 883-1145.

  **Eastern Indigo Snake (Appendix E)**

    - Construction personnel will be provided a description of the eastern indigo snake and its protection under Federal Law. They will be given instructions not to harass, injure, harm, or kill this species.
    - Should an indigo snake be sighted, construction personnel will be directed to cease any activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming such activities.

  **Gopher Tortoise (Appendix E)**

    - A gopher tortoise survey will be required prior to any construction project on this site. All surveys/relocations must be coordinated through Eglin Natural Resources Section.
    - Should a gopher tortoise burrow be identified within the proposed path of construction by construction personnel, work will cease until Natural Resources personnel have investigated the burrow and relocated any gopher tortoise or commensals to a suitable location.

- Gopher tortoise and/or commensal relocation will be performed in accordance with Eglin AFB's Gopher Tortoise Relocation Permit. Contact Eglin Natural Resources. POC: Bob Miller, 96 CEG/CEVSN, 883-1153 or Kathy Gault, 96 CEG/CEVSN, 883-1145.

**CUMULATIVE IMPACTS (EA SECTION 4.11, PAGES 4-29 TO 4-35)**

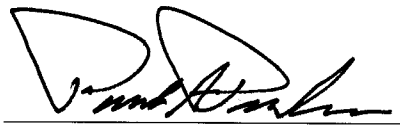
Cumulative impacts on environmental resources result from incremental effects of proposed actions, when combined with other past, present, and reasonable foreseeable future projects in the area. Projects considered in the cumulative impact analysis included the BRAC Action, the Eglin AFB Hurlburt Field Military Housing Privatization Initiative (MHPI), multiple Florida Department of Transportation improvements, and the BioMass energy project. Cumulative impacts in the following resource areas would be insignificant: construction noise impacts, construction air quality impacts, surface and groundwater impacts, soils impacts, and protected species impacts. Parcels associated with Site Alternative 1, the preferred alternative, would have insignificant cumulative noise impacts from JSF aircraft flight training operations as well as insignificant cumulative land use impacts; only parcels associated with Site Alternative 2 would have cumulative noise impacts from JSF aircraft flight training operations; Site Alternatives 2 and 3 would have potential land use conflicts. Operational air emissions associated with the ECTRC are not expected to result in adverse effects on air quality, but air emissions associated with the foreseeable future activities could result in long-term minor adverse effects. Cumulative effects on socioeconomic resources will be beneficial. Cumulative effects on infrastructure will be mitigated to insignificance through the permitting process, through transportation projects proposed by the FDOT, and through the Military Housing Privatization Initiative.

**PUBLIC COORDINATION (APPENDIX B)**

The Draft EA and Draft FONSI were made available to the public for a 30-day review period in 2007. Comments that were received as a result of the 30-day review period have been incorporated into the Final EA. The Final EA was made available to the public for a 15-day review and comment period in March 2012; no comments were received.

**FINDING OF NO SIGNIFICANT IMPACT**

Based on my review of the facts and the environmental analysis contained in the attached EA, which is hereby incorporated by reference, I conclude that the Proposed Action (Site Alternative 1, the preferred and selected alternative) will have no significant impact on the quality of the human or natural environment. An environmental impact statement is not required for this action. This analysis fulfills the requirements of the NEPA, the President's Council on Environmental Quality, and 32 CFR Part 899.



PAUL A. PARKER, SES
Director of Communications,
Installations and Mission Support

4 April 2012
Date

*Final*

# ENVIRONMENTAL ASSESSMENT

# of

# Construction of the Emerald Coast Technology and Research Campus at the University of Florida Research Engineering Education Facility at Eglin Air Force Base, Florida

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**96TH AIR BASE WING**
**EGLIN AFB, FLORIDA**

**RCS 06-871**

**MARCH 2012**

**FINAL ENVIRONMENTAL ASSESSMENT**
**OF**
**CONSTRUCTION OF THE EMERALD COAST TECHNOLOGY AND RESEARCH CAMPUS**
**AT THE UNIVERSITY OF FLORIDA RESEARCH ENGINEERING EDUCATION FACILITY**
**AT EGLIN AIR FORCE BASE, FLORIDA**

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| $\mu g/m^3$ | micrograms per cubic meter |
| AAC | Air Armament Center |
| ACM | asbestos-containing material |
| AFB | Air Force Base |
| AFI | Air Force Instruction |
| AFMC | Air Force Materiel Command |
| AFPD | Air Force Policy Directive |
| APE | Area of Potential Effect |
| AQCR | Air Quality Control Region |
| AST | aboveground storage tank |
| BMP | best management practice |
| BRAC | Base Realignment and Closure |
| CAA | Clean Air Act |
| CEQ | Council on Environmental Quality |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CHELCO | Choctawhatchee Electric Cooperative, Inc. |
| CO | carbon monoxide |
| CWA | Clean Water Act |
| CY | calendar year |
| CZMA | Coastal Zone Management Act |
| dBA | A-weighted Sound Level |
| DHR | Division of Historical Resources |
| DNL | Day-Night Average A-weighted Sound Level |
| DOD | Department of Defense |
| EA | Environmental Assessment |
| EBS | Environmental Baseline Survey |
| ECTRC | Emerald Coast Technology and Research Campus |
| EDCOC | Economic Development Council of Okaloosa County |
| EIAP | Environmental Impact Analysis Process |
| EIS | Environmental Impact Statement |
| EISA | Energy Independence and Security Act of 2007 |
| EO | Executive Order |
| EPCRA | Emergency Planning and Community Right-to-Know Act |
| ERP | Environmental Restoration Program |
| ESA | Endangered Species Act |
| ESQD | Explosive Safety Quantity Distance |
| EUL | Enhanced Use Lease |
| FAC | Florida Administrative Code |
| FDEP | Florida Department of Environmental Protection |
| FDOT | Florida Department of Transportation |
| FEMA | Federal Emergency Management Agency |
| FNAI | Florida Natural Areas Inventory |
| FONSI | Finding of No Significant Impact |
| $ft^2$ | square feet |
| FWC | Fish and Wildlife Conservation Commission |
| FY | Fiscal Year |
| GOV | Government-Owned Vehicle |
| HAP | Hazardous Air Pollutant |
| HAZWOPER | Hazardous Waste Operations and Emergency Response |
| HUD | U.S. Department of Housing and Urban Development |
| ICRMP | Integrated Cultural Resources Management Plan |
| KW | kilowatts |
| LBP | lead-based paint |
| $mg/m^3$ | milligrams per cubic meter |
| MGD | million gallons per day |
| mmcfd | million cubic feet per day |

| | |
|---|---|
| MPPCSMI AQCR | Mobile (Alabama)-Pensacola-Panama City (Florida)-Southern Mississippi Interstate Air Quality Control Region |
| MS4 | Municipal Separate Storm Sewer System |
| MSDS | Material Safety Data Sheets |
| MSL | mean sea level |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NHPA | National Historic Preservation Act |
| NLR | Noise Level Reduction |
| NM | nautical miles |
| $NO_2$ | nitrogen dioxide |
| $NO_x$ | oxides of nitrogen |
| NPDES | National Pollution Discharge Elimination System |
| NRCS | Natural Resources Conservation Service |
| NRS | Natural Resources Section |
| NSR | New Source Review |
| NWFWMD | Northwest Florida Water Management District |
| $O_3$ | ozone |
| OSHA | Occupational Safety and Health Administration |
| Pb | lead |
| pCi/L | picocuries per liter |
| $PM_{10}$ | respirable particulate matter equal to or less than 10 microns in diameter |
| $PM_{2.5}$ | particulate matter equal to or less than 2.5 microns in diameter |
| POL | petroleum, oil, and lubricants |
| POV | Privately Owned Vehicle |
| ppm | parts per million |
| PSD | Prevention of Significant Deterioration |
| QD | quantity distance |
| RCRA | Resource Conservation and Recovery Act |
| ROI | region of influence |
| SARA | Superfund Amendments and Reauthorization Act |
| SDP | Site Development Plan |
| SHPO | State Historic Preservation Office |
| SIP | State Implementation Plan |
| $SO_x$ | oxides of sulfur |
| SR | State Route |
| SWMP | Storm Water Management Program |
| SWPPP | Storm Water Pollution Prevention Plan |
| tpy | tons per year |
| TMDL | total maximum daily load |
| U.S.C. | United States Code |
| UST | underground storage tank |
| UF-GERC | University of Florida Graduate Engineering and Research Center |
| UF-REEF | University of Florida Research Engineering Education Facility |
| USACE | U.S. Army Corps of Engineers |
| USAF | U.S. Air Force |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| VOC | volatile organic compound |

# 1. Purpose, Need, and Scope

## 1.1 Background

The U.S. Air Force (USAF) is considering leasing 98.65 acres of Eglin Air Force Base (AFB) property under Enhanced Use Lease (EUL) authority for construction of the proposed Emerald Coast Technology and Research Campus (ECTRC). In September 1992, a parcel totaling 118 acres was leased by the United States to the University of Florida. In 1994–1995 the Board of Regents of the University of Florida erected a 45,000-square-foot ($ft^2$) structure on the parcel that currently houses their Research Engineering Education Facility (UF-REEF). The building and parking area for the UF-REEF occupies slightly less than 20 acres of the parcel. This action was studied in the Environmental Assessment for the Graduate Engineering Research Center at Eglin Air Force Base, Florida, for which a Finding of No Significant Impact was signed in 1993 (USAF 1993). The remaining 98.65 acres is the subject of this EA for the purpose of building an expanded campus by the UF for the EUL.

The UF-REEF is designed as an engineering education facility in cooperation with the University of Florida and Eglin AFB. The facility is focused on research that is compatible with and beneficial to the missions of Eglin AFB, offering graduate degrees in aerospace, mechanical, industrial, systems, electrical, and computer engineering. The UF-REEF provides a state-of-the-art facility to conduct technical research critical to the advancement of national defense and security capabilities. The UF-REEF provides cooperative educational benefits to the Eglin AFB community, including access to the resources of the University of Florida, Gainesville. Many Eglin AFB active military and civilian employees are enrolled in graduate studies at the UF-REEF.

Since the establishment of the UF-REEF on Eglin AFB, Congress amended the Military Leasing Act, which is the authority for leasing military lands. The amended law establishes the EUL program. An EUL is a lease of land, natural infrastructure, or equipment for consideration equal to the asset's fair market value. The EUL program implements Federal policies requiring efficient, businesslike management of Federal real property assets. Authority for the EUL program includes Executive Order (EO) 13327, *Federal Real Property Management*, and Title 10 United States Code (U.S.C.) § 2667.

EULs take advantage of underutilized assets to support unfunded USAF requirements by generating value (e.g., cash or services) to address USAF installations' support-related requirements. EULs provide USAF bases with increased ability to respond to mission shifts and realignments, such as with Base Realignment and Closure (BRAC) actions.

Under the EUL program, benefits flow back to the leasing base in the form of rent payments or payments in-kind, such as constructing new facilities for the base, or restoration or maintenance of existing facilities (AFRPA 2006a).

With the growing research and development missions at Eglin AFB, combined with the Secretary of the Air Force's initiative to seek EUL opportunities, Eglin AFB has determined that further development of the UF-REEF facility into a comprehensive research campus (in partnership with the University of Florida) is in the interest of the base and surrounding community. Therefore, Eglin AFB is proposing to establish the ECTRC at the UF-REEF on Eglin AFB property under the EUL program.

## 1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to establish the ECTRC near the UF-REEF site on Eglin AFB under the EUL program. The Proposed Action is needed as a mechanism to create a revenue source that

benefits Eglin AFB and its service members, while enhancing the educational competitiveness of Eglin AFB and the surrounding community.

Eglin AFB proposes an EUL of approximately 118 acres to establish the ECTRC. Slightly less than 20 acres of the proposed EUL parcel are currently occupied by the UF-REEF building, parking, and landscaping. Therefore, of the currently proposed EUL lease site, approximately 98 acres would be used for the ECTRC project. Eglin AFB would lease the land to a private developer under the EUL program. The land would be contiguous with the existing UF-REEF. The existing UF-REEF and its research and educational foundation would serve as the nucleus for a comprehensive engineering research and development campus on 98.65 acres, in cooperation with the University of Florida. Under the Proposed Action, all costs to develop the ECTRC including streets, utilities, sidewalks, fences, and other infrastructure would be paid for by private developers, and benefits would flow back to Eglin AFB in the form of rent or payments in-kind for use of the land in accordance with EUL guidelines.

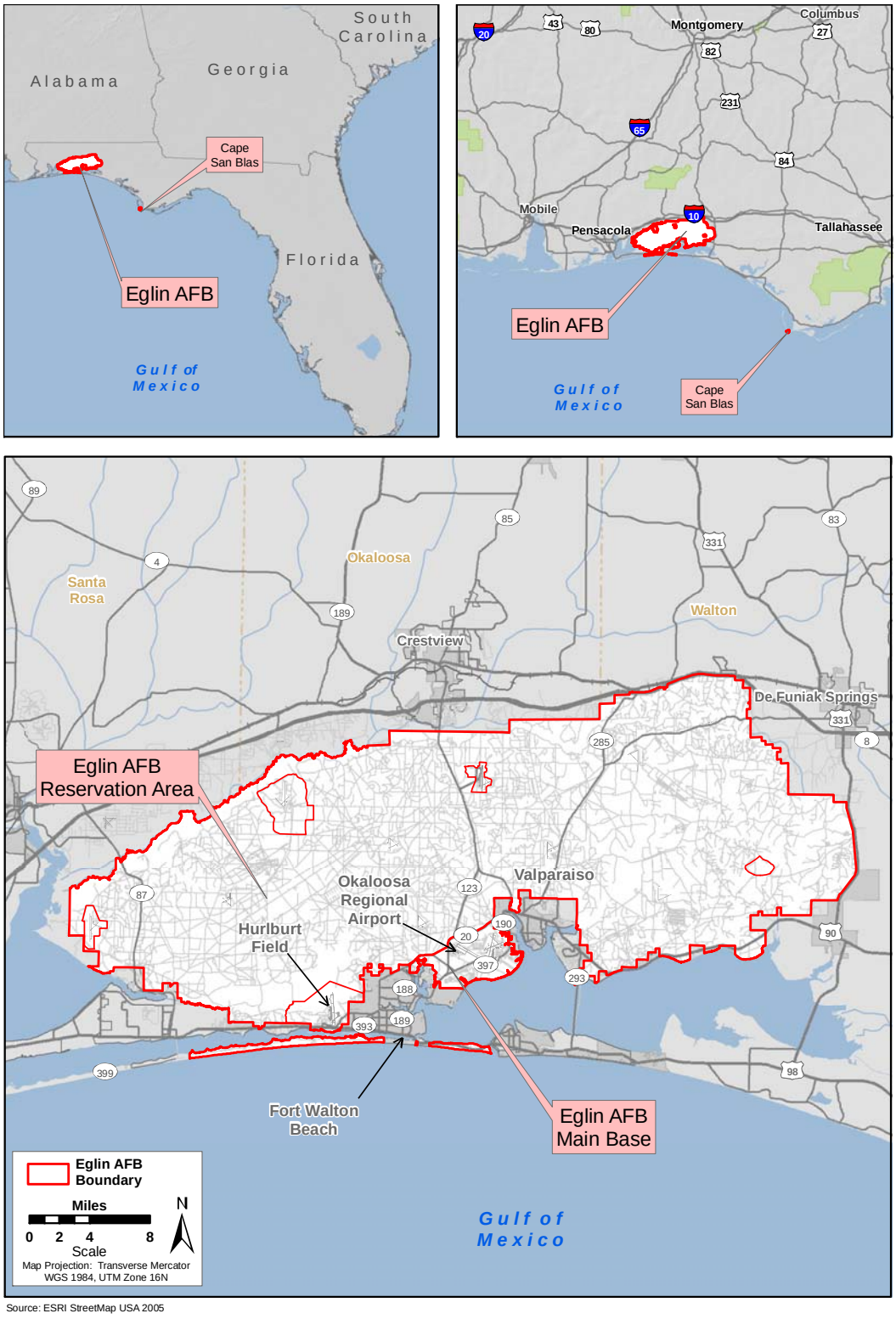
The objectives of the Proposed Action are to issue an EUL for constructing the ECTRC and accomplish the following:

- Maximize the value of the EUL subject property within the constraints and restrictions identified by the USAF
- Design and develop the EUL subject property in a manner that is compatible with adjacent USAF uses
- Execute, operate, and manage the development consistent with best commercial practices
- Deliver the in-kind payment consideration, as identified by the USAF
- Maintain positive relations with local governmental authorities and the communities adjacent to the property.

## 1.3 Selection Criteria

The following goals are used as selection criteria in keeping with the objectives of the EUL program. The selection criteria are the standards against which the alternatives are weighed. This EUL project addresses goals for enhanced research and educational needs at Eglin AFB:

- Utilize military land that is underutilized to bring benefits to Eglin AFB and the surrounding community
- Conveniently locate facilities near Eglin AFB main base for easy access for employees, military personnel, and contractors
- Provide a high-tech campus to attract business and employment opportunities
- Build on the existing University of Florida partnerships and provide opportunities with the University of West Florida and Okaloosa-Walton College
- Provide the highest economic benefit to Eglin AFB, with cost savings and efficiency
- Accommodate expansion through phased facility construction over several years
- Utilize the facilities and opportunities for the UF-REEF as a basis of expansion.




Source: ESRI StreetMap USA 2005

**Figure 1-1. Eglin AFB Location Map**

## 1.4 Location and Background at Eglin AFB

Eglin AFB is in the panhandle of Florida, comprising portions of Santa Rosa, Okaloosa, Walton, and Gulf counties (see **Figure 1-1**). These Gulf Coast counties are home to some of the most popular tourist areas in the United States. Southern Okaloosa County is the fastest growing development area in this region. Eglin AFB is in northwestern Florida and comprises 724 square miles of land area. Eglin's "Main Base" occupies 10,500 acres, (16 square miles) of the total land area, and is adjacent to Valparaiso, Florida, and is 10 miles northeast of Fort Walton Beach, Florida. The flightline at the south-southwest edge of Eglin Main Base is used for military aircraft operations at Eglin AFB. Commercial flights operate out of Okaloosa Regional Airport, which is at the southwestern edge of the Main Base, and utilize Eglin AFB's runways. Hurlburt Field, home of the USAF Special Operations Command, is 5 miles west of Fort Walton Beach, Florida. Surrounding the Main Base area is the Eglin AFB Reservation Area, which provides adjacent lands for air-to-ground ranges and facilities for other activities associated with the test and evaluation of military equipment and munitions. The Main Base area and the Reservation Area are shown on **Figure 1-1**.

Eglin AFB is under the command of the Air Force Materiel Command (AFMC). Eglin AFB is a national asset, operated and maintained by the Air Armament Center (AAC). It serves several Department of Defense (DOD) components responsible for developing, testing, and operating weapons systems. There are 8,500 military personnel and 11,000 civilians working on the base (AAC undated).

Eglin AFB supports training activities for numerous military units, military schools, and various Federal agencies. The installation houses a USAF Research Lab and, because of its leading work in this important military sector, there are many technology-based and defense contracting firms within Okaloosa, Walton, and Santa Rosa counties, Florida. Commercial development on the proposed EUL site that includes offices, research space, and a lodging facility would be compatible with operations on the installation. The Proposed Action would bring wide-ranging research and educational benefits to Eglin AFB, the employees and service members, missions, and the surrounding communities, while generating benefits for the installation that relate to the market value of the leased land.

## 1.5 Summary of Key Environmental Compliance Requirements

### 1.5.1 National Environmental Policy Act

The National Environmental Policy Act of 1969, NEPA, is a Federal statute requiring the identification and analysis of potential environmental effects of proposed Federal actions before those actions are taken. NEPA established the Council on Environmental Quality (CEQ), which is charged with the development of implementing regulations and ensuring agency compliance with NEPA. CEQ regulations mandate that all Federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that might affect the environment.

This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to allow good planning and decision making that considers the potential effects on the quality of the human environment. NEPA presumes an informed and involved citizenry.

The process for implementing NEPA is codified in Title 40 Code of Federal Regulations (CFR) 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.* The CEQ was established under NEPA to implement and oversee Federal policy in this process. To this end, the CEQ regulations specify that an Environmental Assessment (EA) be prepared to briefly provide

evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI), aid in an agency's compliance with NEPA when an EIS is unnecessary, and facilitate preparation of an EIS when one is necessary.

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is the *Environmental Impact Analysis Process (EIAP)*, 32 CFR Part 989, as amended.

## 1.5.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA shall to the fullest extent possible be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively."

## 1.5.3 Scope of the Environmental Assessment

This Final EA examines potential effects of the Proposed Action and No Action Alternative on ten resource areas: noise, land use, air quality, safety, geological resources, water resources, biological resources, socioeconomic resources and environmental justice, infrastructure (including traffic flow) and utilities, and hazardous materials and wastes. These resources were identified as being potentially affected by the Proposed Action and include applicable elements of the human environment that are prompted for review by EO, regulation, or policy. **Appendix A** contains examples of relevant laws, regulations, and other requirements that are often considered as part of the analysis. Where useful to better understanding, key provisions of the statutes and EOs described in **Appendix A** will be discussed in more detail in the text of the EA. At this time, only general details are currently known about the projected development. As additional details about the development become available, the Air Force will evaluate whether additional environmental analysis is necessary.

## 1.5.4 Issues Eliminated from Detailed Analysis

### Airspace Management

Neither the Proposed Action nor any alternatives would involve changes in current flying missions at Eglin AFB or changes in airspace use. As no effects on airspace are expected as a result of implementing the Proposed Action or alternatives, airspace management was eliminated from detailed analysis in this Final EA.

### Cultural Resources

No significant cultural resources, including archaeological sites or historic structures, are within the area of potential effect (APE) for the Preferred Alternative (Site Alternative 1). Therefore, the USAF excluded cultural resources from detailed analysis. The Florida State Historic Preservation Office (SHPO) reviewed the Draft EA via the Florida Clearinghouse review process and on May 1, 2008, indicated a finding of "No Comment/Consistent" (see **Appendix B**). This and follow-up telephone communications explained in the paragraph below demonstrate completion of the NHPA Section 106

review process specific to this project and SHPO consultation. Several cultural resource surveys were conducted at Site Alternatives 1, 2, and 3 between 1994 and 2006. These surveys concluded that no significant or potentially significant cultural resources occur within the APEs for Site Alternatives 1 (the Preferred Alternative) or 2. Resources were found on Site Alternative 3; these resources consist of two historic archaeological sites that are eligible for the National Register of Historic Places (Shreve 2007). If Site Alternative 3 were selected, the USAF would consult with the Florida SHPO to discuss means of mitigating impacts. However, Eglin AFB and the SHPO are in agreement that there are no archaeological resources of any kind in the proposed construction area of the preferred alternative. This has been documented through archaeological surveys on file with Division of Historical Resources (DHR), and Eglin AFB feels a formal consultation with the tribes is not warranted given the absence of any resources that could reasonably be construed as being of interest to them.

Eglin AFB contacted Laura Kammerer, Deputy SHPO, DHR, on 4 June 2008. Eglin AFB and the SHPO are in agreement that the area of the preferred alternative has been adequately surveyed and does not contain any historic properties, and the surveys have been adequately documented in reports of investigation on file at DHR. Therefore, the SHPO feels a formal letter between Eglin and the SHPO is not warranted in this instance.

It is important to note from the Eglin AFB Integrated Cultural Resources Management Plan (ICRMP) that any action that requires disturbance to the surface of the earth has the potential to adversely affect buried archaeological resources (EAFB 2004a). Therefore, under the Proposed Action, should any unexpected discoveries be made during the construction process, all actions in the immediate vicinity would cease and efforts would be taken to protect the archaeological resources from further effect. The 96th Civil Engineer Group, Cultural Resources Branch would be contacted to evaluate the inadvertent find, and determine what legal mandates are applicable and whether mitigation and consultations would be required (EAFB 2004a). Any archaeological resource or human burial site finds on the proposed construction site would be treated in accordance with Standard Operating Procedures listed in the Eglin AFB ICRMP and guidelines specified in Florida Statute §872.05 regarding unmarked human burial sites. Construction and operation agreements (i.e., construction contracts, the ECTRC lease) would specify appropriate coordination between the 96th Air Base Wing and non-USAF parties associated with the proposed undertaking. Although not anticipated under present plans, any creation, modification, or use of borrow pits, disposal sites, construction access roads, or other project construction impacts outside of the Preferred Alternative site would include additional coordination under Section 106 of the National Historic Preservation Act (NHPA), facilitated by the cultural resource staff at the 96th Air Base Wing.

## 1.5.5 Applicable Permits and Approvals

### Permits

**Appendix A** contains examples of relevant laws, regulations, and other requirements that are often considered part of the analysis. Only those laws, regulations, and other requirements that are relevant to the Proposed Action are included in **Appendix A**. In addition, various permits would be required for construction activities. Construction and building permits would be the responsibility of the developer. The EA is not a substitute for those permit requirements. Air Force Form 103, Base Civil Engineering Work Clearance Request, is required under Air Force Instruction (AFI) 32-1031. The permit issues associated with this Proposed Action are discussed below.

***Water-Related Permits***

Permit associated with Construction Activities. An Environmental Resource Permit (ERP) for construction storm water discharges will be required from the Northwest Florida Water Management

District (NWFWMD). Best management practices (BMPs) would be required, and could include temporary sediment basins, sediment fencing, or revegetation for ground stabilization.

Permits associated with Operating Activities. Subsequent to completion of construction, the developer of the proposed ECTRC would be required to file a transfer form with the NWFWMD, transferring the ERP from a construction phase permit to an operational phase permit (refer to **Section 3.7.1**). The purpose of the operational phase ERP is to minimize potential flooding and contamination as a result of the increase in impervious surfaces.

The ERP program will also require a permit for impacts to wetlands. A Consumptive Use Permit would be required from the NWFWMD for the drilling and use of water wells, including water used for irrigation or other consumption.

If Site Alternative 2 or 3 were chosen, coordination with the USACE and the associated permits would be required if alternations to the tributaries of waters of the U.S. resulted.

***Air-Related Permits.*** A fugitive dust permit would be required because the area impacted by the Proposed Action or an alternative exceed 25 acres. The Proposed Action and alternatives will be reviewed for a determination of whether potential new air emissions are within the limits of the Eglin AFB Clean Air Act (CAA) Title V permit. Additionally, the Proposed Action and alternatives might require a determination of the applicability of New Source Review or Prevention of Significant Deterioration requirements under the CAA

***Hazardous Waste-Related Permits.*** The net change in hazardous materials and wastes from the ECTRC would likely require a permit under RCRA. ECTRC would work with state regulators to manage all hazardous materials and wastes in accordance with state rules and regulations for Process Safety Management of Highly Hazardous Chemicals; Occupational Safety and Health Standards, Chemical Safety; Hazardous Communication; and Fire Prevention.

### Approvals

An Endangered Species Act Section 7 Consultation with the USFWS and a Biological Assessment has been completed. See **Section 4.7** and **Appendix E** for additional information.

Eglin AFB developed a Coastal Zone Management Act (CZMA) Consistency Determination for the Proposed Action. This Determination was sent to the Florida Clearinghouse for review and concurrence in accordance with the Florida Coastal Management Program. After review by applicable state agencies, the Florida Department of Environmental Protection (FDEP) replied that the proposed ECTRC is consistent with the Florida Coastal Management Program. The FDEP concurrence letter is contained in **Appendix B**. The Eglin AFB CZMA Consistency Determination is contained in **Appendix D**.

## 1.6 Organization of the Final EA

This Final EA is organized into the following sections:

- **Section 1** contains information on Eglin AFB, a statement of the purpose and need for the Proposed Action, a summary of applicable regulatory requirements, and an introduction to the organization of the EA.
- **Section 2** provides a detailed description of the Proposed Action and alternatives, including the No Action Alternative.

- **Section 3** contains a description of the affected environment and baseline conditions that could potentially be affected by the Proposed Action.
- **Section 4** contains an analysis of the direct and indirect environmental effects of the Proposed Action.
- **Section 5** contains a discussion of the cumulative effects and unavoidable adverse effects that could potentially result from implementation of the Proposed Action.
- **Section 6** contains a list of preparers of this document.
- **Section 7** contains a list of references used in preparation of this document.
- **Appendix A** includes a discussion of those laws, regulations, or EOs that are reasonably expected to be relevant to the Proposed Action and alternatives analyzed in this Final EA.
- **Appendix B** contains information related to public involvement, including state agency comments on the Draft Final EA.
- **Appendix C** contains data and calculations to support the air quality impacts analyses.
- **Appendix D** contains the CZMA Consistency Determination.
- **Appendix E** contains the Biological Assessment for the project area.
- **Appendix F** contains the equations used to calculate construction noise levels.

# 2. Description of the Proposed Action and Alternatives

**Section 2.1** describes the Proposed Action, at Site Alternatives 1, 2, and 3, and how it would be implemented at Eglin AFB and **Section 2.2** identifies the No Action Alternative. Implementation of the Proposed Action at Site Alternative 1, as described in **Section 2.1.2**, is Eglin AFB's Preferred Alternative.

## 2.1 Proposed Action

Pursuant to the Secretary of the Air Force initiative under the EUL program, and in anticipation of the growing research, development, and training missions at Eglin AFB, as recommended under the 2005 BRAC cycle, Eglin AFB proposes to lease 98.65 acres to establish the ECTRC.

The ECTRC would be developed on 98.65 acres of a parcel that is approximately 118 acres of land identified as being suitable for these purposes. The 98.65 acres would be leased to a private developer for this purpose under the EUL program. The chosen lessee would be responsible for developing and operating the campus, and benefits would ultimately flow back to Eglin AFB in the form of rent payments or payments in-kind such as constructing new facilities for the base, or restoration or maintenance of existing facilities.

The ECTRC is envisioned as a partnership campus between Federal and state government, including the military at Eglin AFB, the private sector, and academia. The ECTRC would be developed as a campus attractive to hi-tech companies paying premium wages to skilled professionals. With military and private sector co-use of facilities and access to University of Florida resources, the campus would create a synergistic environment benefiting current and future missions, research, and development at Eglin AFB and the surrounding communities.

### 2.1.1 Details of the Proposed Action

Under the Proposed Action, the USAF would execute an EUL of 98.65 acres of Eglin AFB property with a private developer for the purpose of establishing the ECTRC. Under the Proposed Action, a private developer (hereinafter "lessee") would be obligated to construct and operate the ECTRC, as envisioned by the USAF and Eglin AFB (see **Figure 2-1,** for a conceptual rendering of the ECTRC). The EUL would permit the lessee to sublease, allowing for maximum efficiency and flexibility in constructing, operating, and maintaining the site. As payment for use of the land, the lessee would be required to pay Eglin AFB in the form of rent or payments in-kind in accordance with the Federal law that establishes the EUL program. These rent payments would be structured such that they might be utilized for the benefit of Eglin AFB (AFRPA 2006a).

Under the Proposed Action, the lessee would be obligated to provide the design, construction, operation, and maintenance of a comprehensive research campus to be known as the ECTRC. The proposed ECTRC campus would be developed in four to six phases over a 5 to 7 year timeframe. The EUL would be signed in Fiscal Year (FY) 2013. The following general specifications for various building types would need to be met by the lessee:

- Office research buildings – 1,400,000 $ft^2$
- Educational buildings – 400,000 $ft^2$
- Hotel/conference center – 110,000 $ft^2$
- Residential condos – 500,000 $ft^2$
- Parking facilities – 1,200,000 $ft^2$
- Cafeteria/food court – 17,000 $ft^2$
- Restaurant – 10,000 $ft^2$

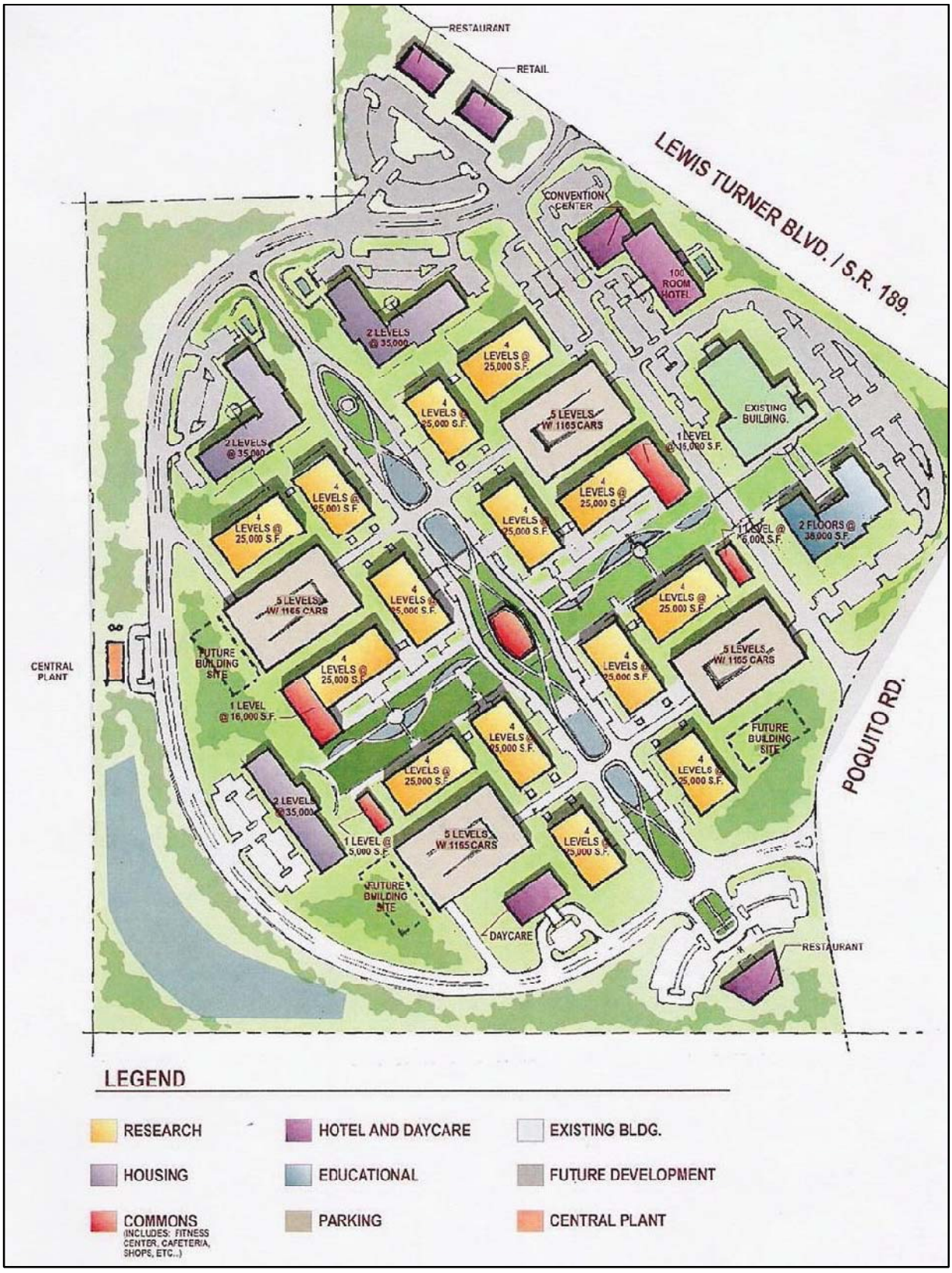



**Figure 2-1. Conceptual Design of the Proposed ECTRC**

- Day care facility – 12,000 $ft^2$
- Convenience retail space – 10,000 $ft^2$
- Fitness center – 6,000 $ft^2$
- Access roads/surface parking – 110,000 $ft^2$
- Storm water retention ponds – 190,000 $ft^2$
- Sidewalks/plaza – 400,000 $ft^2$
- Green space – 350,000 $ft^2$.

The lessee would be required to submit and follow a Development Plan for the proposed EUL and ECTRC development. The Development Plan would contain a Site Development Plan (SDP). The SDP would address the methodology for the design and development of the project site, integrate the site development design with the surrounding community, and provide for efficient vehicular and pedestrian ingress and egress. In addition, the SDP shall identify characteristics of adjacent properties that might constrain the development of the ECTRC to ensure that the activities within and surrounding the site are compatible. The site designs shall be consistent with good land use planning, practices, and economics (USAF 2007).

The SDP would also incorporate pollution prevention procedures, and energy and water conservation initiatives into all facilities and activities, where practicable, or as required by local or state regulations or guidelines. The objectives of such initiatives shall be to improve (1) waste reduction and waste management practices, (2) energy efficiency and energy conservation practices, (3) water resource conservation and management practices (e.g., xeriscaping), and (4) recycling and reuse practices (e.g., curbside recycling) (USAF 2007).

### 2.1.2 Site Alternative 1 – The Preferred Alternative

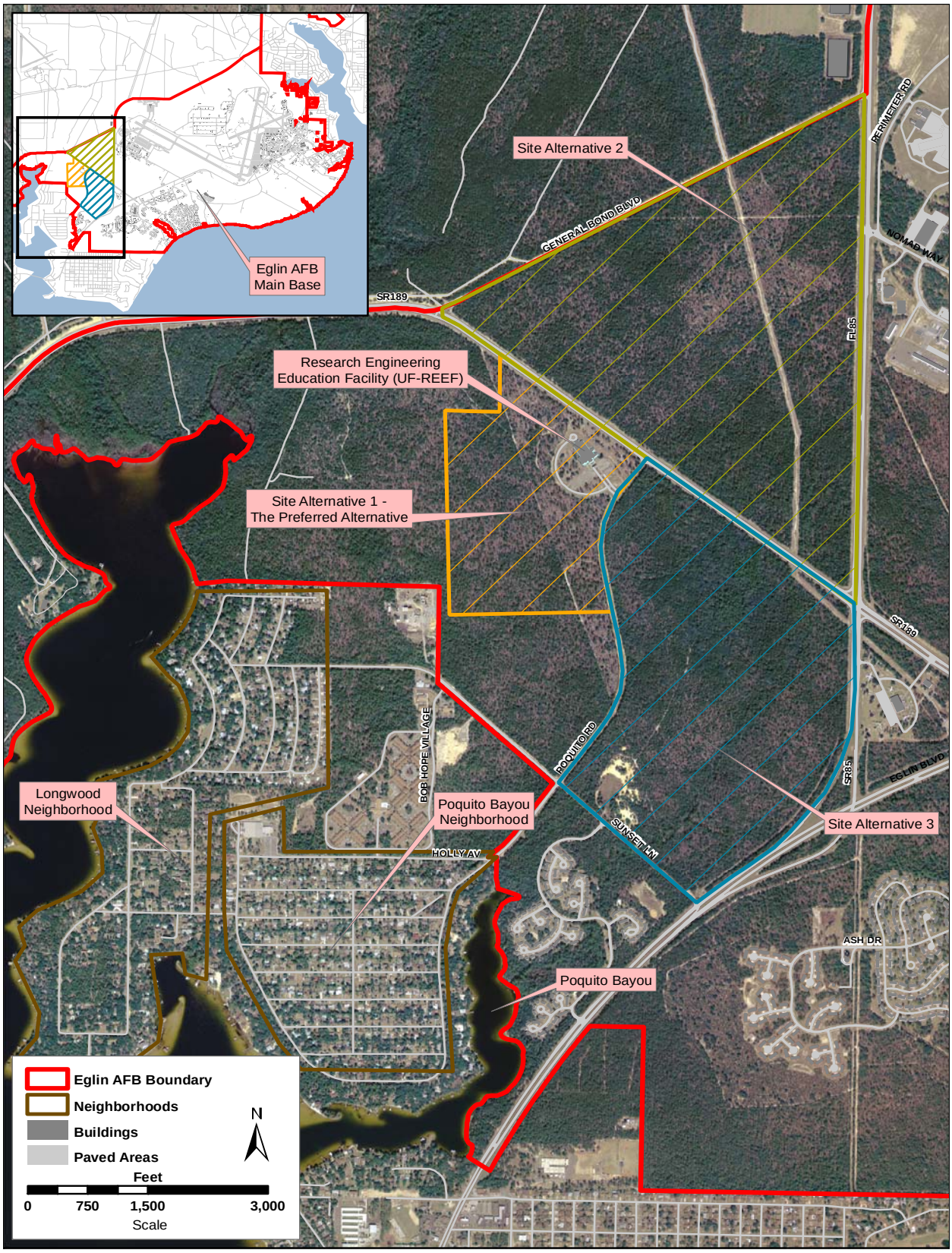
Site Alternative 1 is considered to be the Preferred Alternative for implementing the Proposed Action. Under Site Alternative 1, the Proposed Action would be implemented on 98.65 acres and collocated with the UF-REEF. Site Alternative 1 (Proposed Action) is bounded on the north by State Route (SR) 189 (Lewis Turner Boulevard) and on the east by Poquito Road in Okaloosa County. The site is on Eglin AFB, approximately 1.5 miles northwest of the Eglin AFB west gate (see **Figure 2-2**). The proposed site is directly adjacent to and surrounding the current UF-REEF, an engineering educational and research facility created by a partnership between the University of Florida and Eglin AFB that serves the local technical community.

### 2.1.3 Site Alternative 2

Site Alternative 2 is owned by Eglin AFB and is north of Site Alternative 1 (see **Figure 2-2**). Site Alternative 2 is a triangle-shaped parcel bounded by Lewis Turner Boulevard to the south (directly across the highway from the UF-REEF and Site Alternative 1), General Robert M. Bond Boulevard to the northwest, and SR 85 to the east. According to the Eglin AFB General Plan, this area is referred to as the "admin triangle," and is intended for future missions that have a relationship to aircraft operations or munitions storage, but that do not require direct access to the flight line (AAC undated). The General Plan also indicates planned future development at the "admin triangle" is intended to be a campus environment similar in design to the UF-REEF (AAC undated).

The Eglin AFB General Plan additionally states that this site should only be developed "after exploring opportunities to reuse existing facilities and to build within developed areas" (AAC undated).

current




Source of Base Data: Eglin AFB

**Figure 2-2. Proposed ECTRC Site Locations at Eglin AFB**

Due to its proximity to the UF-REEF, this parcel could be used as an alternative location for the proposed ECTRC, or for future expansion of the ECTRC beyond the scope that is contemplated by the Proposed Action. The environmental, geological, physiological, and natural conditions of this site are very similar to that of the Site Alternative 1, therefore the environmental consequences of establishing the ECRTC on this site would be very similar to those of Site Alternative 1. However, the existing REEF structure would be located across SR 189, which is a busy highway. Separate campus buildings would not maximize efficient use of resources. This alternative is a viable alternative and is carried forward for detailed analysis in this EA.

### 2.1.4 Site Alternative 3

Site Alternative 3 is owned by Eglin AFB and is east of Site Alternative 1 (see **Figure 2-2**). Site Alternative 3 is an irregular-shaped parcel bounded by Lewis Turner Boulevard to the north, Poquito Road (directly across from the UF-REEF and Site Alternative 1) and Eglin Parkway to the east, and Sunset Lane to the south. Due to its proximity to the UF-REEF, this parcel could be used as an alternative location for the proposed ECTRC, or for future expansion of the ECTRC beyond the scope that is contemplated by the current Proposed Action. The environmental, geological, physiological, and natural conditions of this site are very similar to that of the Site Alternative 1. The environmental consequences of establishing the ECRTC on this site would be very similar to the potential environmental consequences of Site Alternative 1. This alternative is a viable alternative and is carried forward for detailed analysis in the EA.

## 2.2 No Action Alternative

CEQ regulations require inclusion of the No Action Alternative. The No Action Alternative serves as a baseline against which the effects of the Proposed Action and other action alternatives can be evaluated.

Under the No Action Alternative, the USAF would not implement the Proposed Action but would continue to possess underutilized, undeveloped property with the unrealized potential to provide benefits to Eglin AFB. The UF-REEF would continue to occupy the current lease site under the terms of the current non-EUL, which does not provide the same flexibility and potential benefit to Eglin AFB. Eglin AFB would continue to maintain partnerships with the University of Florida and UF-REEF facility, but would be limited in capability to expand current research initiatives and offerings to Eglin AFB personnel.

## 2.3 Alternatives Eliminated from Detailed Analysis

### 2.3.1 Construct ECTRC on Eglin Main Base

Under this alternative, the ECTRC would be constructed within the gates of Eglin AFB, also known as the main base. However, the nature of the missions at the Eglin main base do not lend well to having a large comprehensive campus as planned under the Proposed Action. Security guards would be required to check hundreds of identifications of ECTRC personnel and visitors during the daytime and nighttime hours. This could create traffic congestion at the gate and allow access of nongovernment personnel onto the base. Additionally, few, if any, sites on the Eglin main base are available due to constraints caused by future expansion plans. Finally, constructing the ECTRC on Eglin's main base would not take advantage of the potential synergistic environment that could be created with the current UF-REEF. Therefore, this alternative will not be carried forward for detailed analysis in this EA.

### 2.3.2 Construct ECTRC on Non-Eglin AFB Property

The ECTRC could be constructed at some other location off, but near, Eglin AFB property, or in a location away from Eglin AFB altogether. However, this scenario would not meet the purpose and need for the Proposed Action because the USAF could not utilize the EUL program. As no USAF land would be used, no benefits would flow back to Eglin AFB. A synergistic campus convenient to Eglin AFB personnel and attractive to the high-tech industry would not be realized. Therefore, this alternative is not carried forward for detailed analysis in the EA.

# 3. Affected Environment

## 3.1 Introduction

In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989, the description of the affected environment focuses on those resource areas and conditions potentially subject to impacts. These resource areas and conditions include noise, land use, air quality, safety, geological resources, water resources, biological resources, socioeconomic resources and environmental justice, infrastructure, and hazardous materials and wastes. The information on existing conditions given for a resource area is considered the baseline against which potential effects of implementing either the Proposed Action or the alternatives can be evaluated.

This section provides a brief definition of each resource category analyzed in this Final EA, and briefly describes the affected environment of the alternative sites being considered under the Proposed Action. The region of influence (ROI) for this Final EA includes the portion of Eglin AFB lying within Okaloosa County, Florida.

## 3.2 Acoustical Environment

### 3.2.1 Definition of the Resource

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on the roof. Sound is measured with instruments that record instantaneous sound levels in decibels. A-weighted sound level measurements in decibels (dBA) are used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency content of a sound-producing event to represent the way in which the average human ear responds to the audible event. All sound levels analyzed in this EA are A-weighted.

Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. How an individual responds to the sound source will determine if the sound is viewed as music to one's ears or as annoying noise. Affected receptors are specific (i.e., schools, churches, or hospitals) or broad areas (e.g., nature preserves or designated districts) in which occasional or persistent sensitivity to noise above ambient levels exists.

According to the USAF, the Federal Aviation Administration, and the U. S. Department of Housing and Urban Development (HUD) criteria, residential units and other noise-sensitive land uses are "clearly unacceptable" in areas where the Day-Night Average A-weighted Sound Level (DNL) noise exposure exceeds a DNL of 75 dBA, "normally unacceptable" in regions exposed to noise between 65 and 75 dBA, and "normally acceptable" in areas exposed to noise of 65 dBA or less. The Federal Interagency Committee on Noise developed land use compatibility guidelines for noise in terms of DNL (FICON 1992). For outdoor activities, the U.S. Environmental Protection Agency (USEPA) recommends a DNL of 55 dBA as the sound level below which there is no reason to suspect that the general population would be at risk from any of the effects of noise (USEPA 1974). DNL is the metric recognized by the U.S. government for measuring noise and its effects on humans.

***Ambient Sound Levels.*** Noise levels in residential areas vary depending on the housing density and location. As shown in **Figure 3-1**, a quiet urban area in the daytime is about 50 dBA, which increases to 65 dBA for a commercial area, and 80 dBA for a noisy urban daytime area.

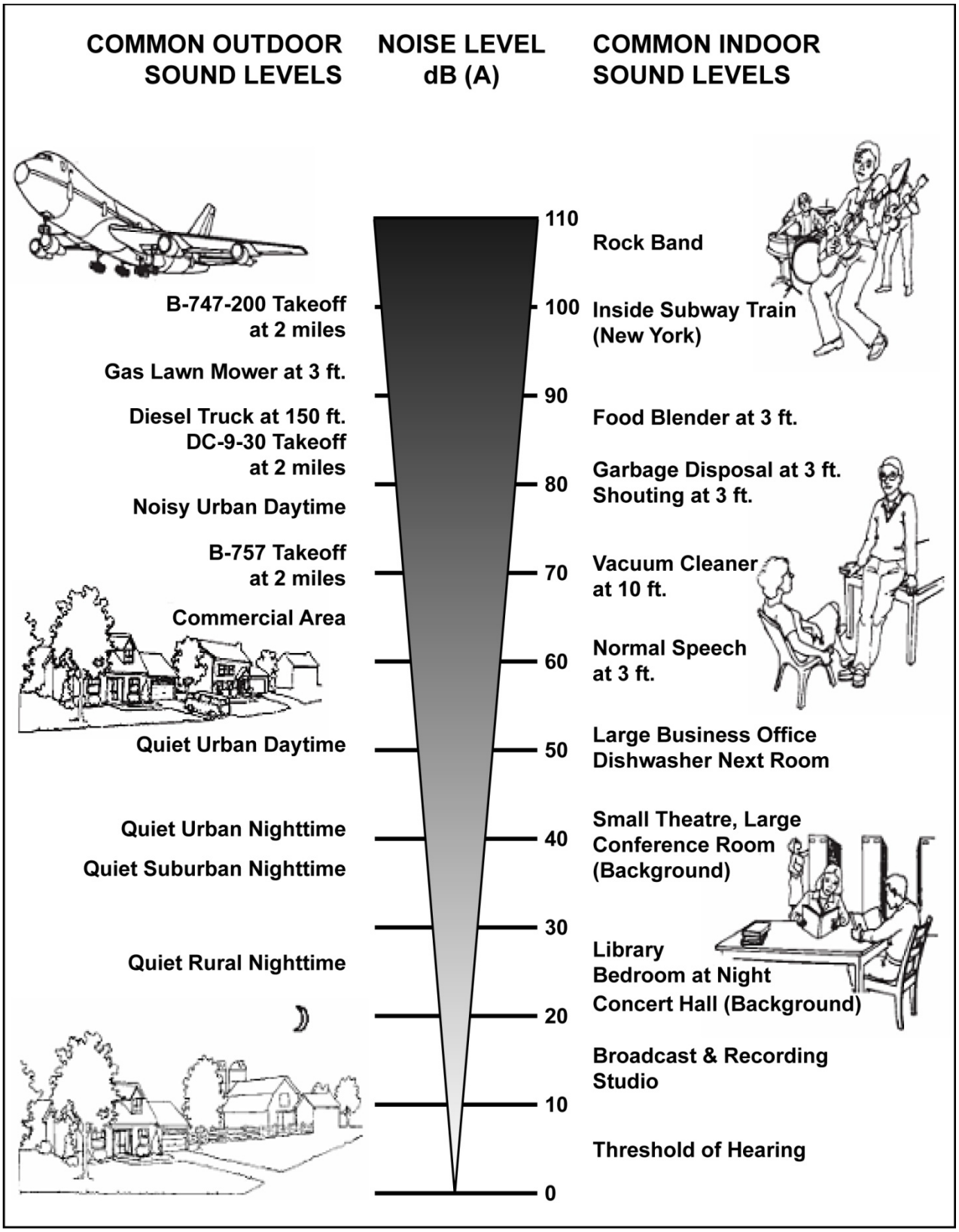
Most people are exposed to sound levels of 50 to 55 dBA or higher on a daily basis. Studies specifically conducted to determine noise effects on various human activities show that about 90 percent of the population is not significantly bothered by outdoor sound levels below a DNL of 65 dBA (USDOT 1984). Studies of community annoyance in response to numerous types of environmental noise show that DNL correlates well with effect assessments and that there is a consistent relationship between DNL and the level of annoyance.

***Construction Sound Levels.*** Building construction, modification, and demolition work can cause an increase in sound that is well above the ambient level. A variety of sounds come from graders, pavers, trucks, welders, and other work processes. **Table 3-1** lists sound levels associated with common types of construction equipment that are likely to be used under the Proposed Action. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

**Table 3-1. Predicted Noise Levels for Construction Equipment**

| Construction Category and Equipment | Predicted Noise Level at 50 feet (dBA) |
|---|---|
| **Grading** | |
| Bulldozer | 87 |
| Grader | 85 |
| Water Truck | 88 |
| **Paving** | |
| Paver | 89 |
| Roller | 74 |
| **Demolition** | |
| Loader | 85 |
| Haul Truck | 88 |
| **Building Construction** | |
| Generator Saw | 81 |
| Industrial Saw | 83 |
| Welder | 74 |
| Truck | 80 |
| Forklift | 67 |
| Crane | 83 |

Source: COL 2001




Source: Landrum & Brown 2002

**Figure 3-1. Comparisons of Common Noise Levels**

### 3.2.2 Existing Conditions

The ambient sound environment around the proposed ECTRC site alternatives is affected mainly by vehicle traffic and aircraft operations. The noise from aircraft operations dominates over noise produced by vehicle traffic.

Major transportation routes in the vicinity of the proposed alternative sites include SR 189, SR 85, Eglin Boulevard, and Poquito Road. Site Alternative 2 is northeast of SR 189 and Site Alternatives 1 and 3 are southwest of SR 189. SR 85 and Eglin Boulevard are south of Site Alternative 3. Poquito Road traverses northeast and southwest between Site Alternatives 1 and 3.

Aircraft operations at Eglin AFB (including Okaloosa Regional Airport) are the largest contributor to the noise environment around the installation. As discussed in **Section 3.2.1**, noise-sensitive land uses are "normally unacceptable" in areas that exceed a DNL of 65 dBA. Under the proposed Base Closure and Realignment (BRAC) action, a Joint Strike Fighter (JSF) Initial Joint Training Site would be established at Eglin AFB. This would result in an increase in aircraft operations at Eglin AFB. The DNL of 65–80+ dBA noise contours from aircraft operations at Eglin AFB for the JSF Supplemental EIS (SEIS) no action alternative were plotted on an aerial (see **Figure 3-2**). These noise contours extend over Choctawhatchee Bay to the south, Eglin AFB to the north and northwest, and over the town of Valparaiso to the north. Additional airports in the vicinity of Eglin AFB include the Destin-Fort Walton Beach Airport, which is 7 miles southeast; Hurlburt Field, which is 10 miles west; and Eglin Auxiliary Field 3 (i.e., Duke Field), which is 12 miles north of Eglin AFB airfield. Operations from these airports would contribute slightly to the acoustical environment around Eglin AFB.

## 3.3 Land Use

### 3.3.1 Definition of the Resource

The term "land use" refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, "labels," and definitions vary among jurisdictions.

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include written master plans/management plans and zoning regulations. In appropriate cases, the location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its "permanence."

### 3.3.2 Existing Conditions

Eglin AFB is in the Florida panhandle and occupies land in portions of Santa Rosa, Okaloosa, and Walton counties. Southern Okaloosa County is the fastest growing development area in this region. The main base at Eglin AFB is at the south-central edge of the installation and occupies 10,500 acres. The airfield

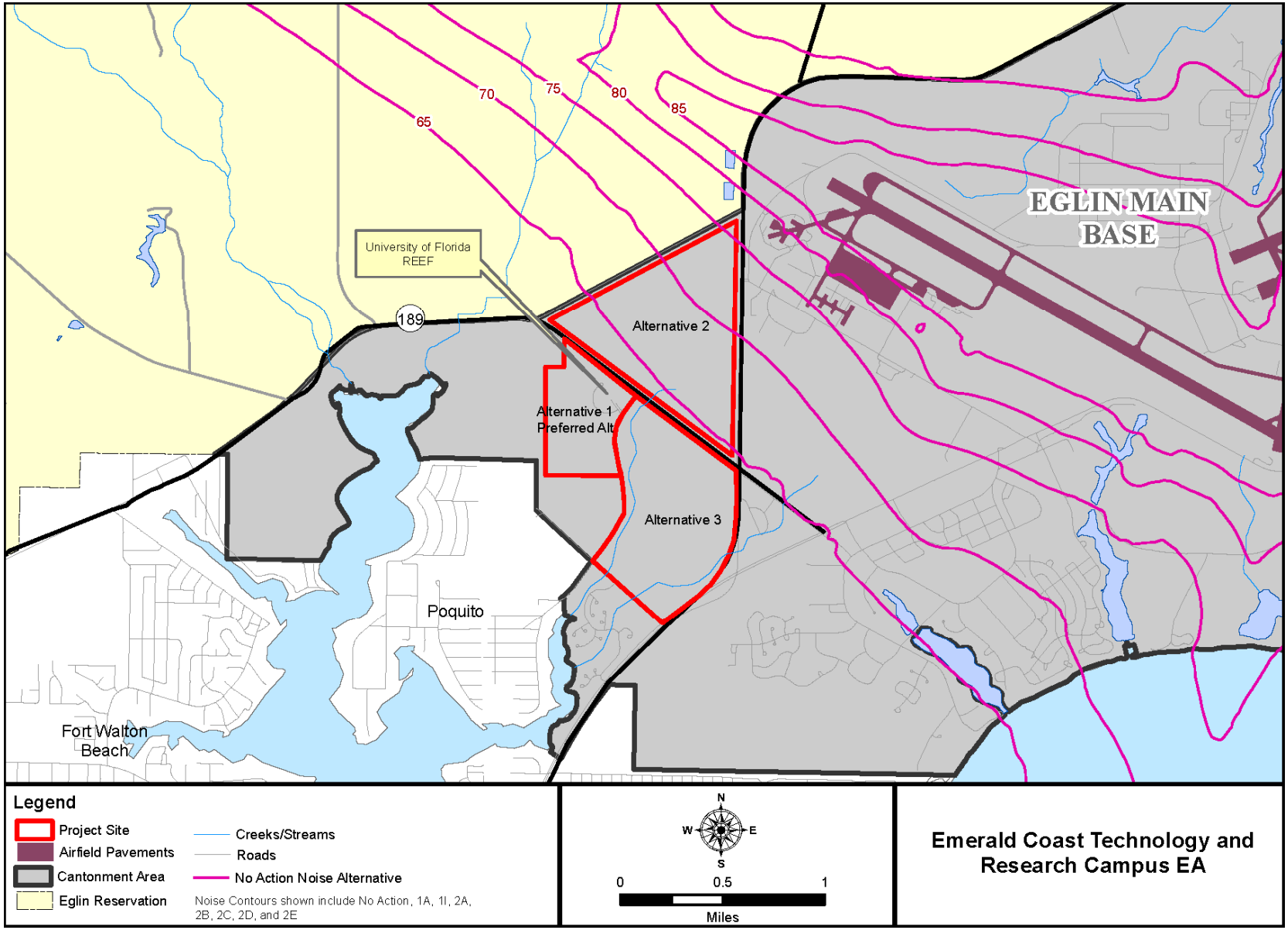



Figure 3-2. Eglin AFB Noise Contours

is on the southern side of the installation and the range areas are north of the airfield (EAFB 2006a). The airfield at Eglin AFB is also referred to as the Okaloosa Regional Airport.

The majority of off-base development is on the northeastern side of Eglin AFB and includes the towns of Valparaiso and Niceville. These towns are primarily made up of residential areas, with some commercial and industrial land uses. Land use south and southwest of Eglin AFB is also primarily residential and includes the town of Shalimar.

The proposed site alternatives are in the southern section of Eglin AFB property adjacent to the Eglin AFB airfield. Land around the proposed site alternatives consists of residential property to the south and southwest, the Eglin AFB airfield to the east, and forested areas to the northwest and north. Land use at Site Alternative 1 consists of forested land and the current UF-REEF, which is used for educational purposes. In the *General Plan, Eglin AFB Main Base and Duke Field* (AAC undated) the current land identified for the area around the UF-REEF is administrative with the remaining parcel listed as open space. Future land use is listed as administrative.

Land use at Site Alternative 2 consists of forested land on Eglin AFB property. In the *General Plan* (AAC undated) the current land use identified for this area is open space and future land use is listed as administrative. In the *General Plan*, Site Alternative 2 is intended for future development with a campus environment similar to the current UF-REEF. However, this area should only be developed after prospects to reuse existing facilities or build in developed areas have been considered. Buffering or screening measures might need to be incorporated into the design of the facilities to prevent a conflict with the airfield to the east. Land use at Site Alternative 3 also consists of forested land on Eglin AFB. In the *General Plan,* (AAC undated) the current land use identified for this area is open space and future land use is administrative.

As shown in **Figure 3-2**, the existing DNL of 65–80+ dBA noise contours from aircraft operations at Eglin AFB extend over Site Alternative 2 only. As discussed, the current land use at Site Alternative 1 consists of forested land and the existing UF-REEF. The current land use on Site Alternatives 2 and 3 consists of forested land; there are no noise-sensitive populations and no incompatible land uses at these locations.

The Coastal Zone Management Act (CZMA) of 1971 (16 U.S.C. 1451 et seq.) declares a national policy to preserve, protect, develop, and, where possible, restore or enhance the resources of the nation's coastal zones. Federal activities that have reasonably foreseeable effects on any land, water, or natural resources of the coastal zone must be consistent to the maximum extent practicable with the enforceable policies of a state's federally approved coastal zone management program in order to achieve Federal consistency with CZMA requirements. The Florida Coastal Management Program, which is administered through the Florida State Clearinghouse and overseen by the FDEP, is a federally approved program that ensures the compatible use of Florida's coastal resources (FDEP 2006b).

## 3.4 Air Quality

### 3.4.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of various pollutants in the atmosphere. The measurements of these "criteria pollutants" in ambient air are expressed in units of parts per million (ppm), milligrams per cubic meter ($mg/m^3$), or micrograms per cubic meter ($\mu g/m^3$). The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.

The CAA directed USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone ($O_3$), carbon monoxide (CO), oxides of nitrogen ($NO_x$), oxides of sulfur ($SO_x$), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [$PM_{10}$] and particulate matter equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards. **Table 3-2** presents the primary and secondary USEPA NAAQS (USEPA 2006a) and State of Florida Ambient Air Quality Standards contained in Chapter 62-204.240 of the Florida Administrative Code (FAC).

The CAA and USEPA delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. As such, each state must develop air pollutant control programs and promulgate regulations and rules that focus on meeting NAAQS and maintaining healthy ambient air quality levels. These programs are detailed in State Implementation Plans (SIPs), which are required to be developed by each state or local regulatory agency and approved by USEPA. A SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, controls) must be incorporated into the SIP and approved by USEPA. USEPA has delegated the authority for ensuring compliance with the NAAQS to the FDEP, Division of Air Resource Management. Therefore, the Proposed Action is subject to rules and regulations developed by this regulatory body.

USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the primary or secondary NAAQS. All areas within each AQCR are therefore designated as either "attainment," "nonattainment," "maintenance," or "unclassified" for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS, nonattainment indicates that criteria pollutant levels exceed NAAQS, maintenance indicates that an area was previously designated nonattainment but is now attainment, and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment.

The General Conformity Rule applies only to actions in nonattainment or maintenance areas; all the alternatives are in an area of attainment so the General Conformity Rule requirements are not applicable.

Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, base, or activity) that can emit more than 100 tons per year (tpy) of any one criteria air pollutant, 10 tpy of a hazardous air pollutant, or 25 tpy of any

**Table 3-2. National and State Ambient Air Quality Standards**

| Pollutant | Standard Value | | Standard Type |
|---|---|---|---|
| **CO** | | | |
| 8-hour Average [a] | 9 ppm [g, h] | (10 mg/m$^3$) | Primary and Secondary |
| 1-hour Average [a] | 35 ppm [g, h] | (40 mg/m$^3$) | Primary |

| | | | |
|---|---|---|---|
| **$NO_2$** | | | |
| Annual Arithmetic Mean | 0.053 ppm [g, h] | (100 µg/$m^3$) | Primary and Secondary |
| **$O_3$** | | | |
| 8-hour Average [b] | 0.08 ppm [g, h] | (157 µg/$m^3$) | Primary and Secondary |
| 1-hour Average [c] | 0.12 ppm [g, h] | (240 µg/$m^3$) | Primary and Secondary |
| **Pb** | | | |
| Quarterly Average | | 1.5 µg/$m^3$ [g, h] | Primary and Secondary |
| **$PM_{10}$** | | | |
| Annual Arithmetic Mean [d] | | 50 µg/$m^3$ [g, h] | Primary and Secondary |
| 24-hour Average [a] | | 150 µg/$m^3$ [g, h] | Primary and Secondary |
| **$PM_{2.5}$** | | | |
| Annual Arithmetic Mean [e] | | 15 µg/$m^3$ [g, h] | Primary and Secondary |
| 24-hour Average [f] | | 35 µg/$m^3$ [g, h] | Primary and Secondary |
| **$SO_2$** | | | |
| Annual Arithmetic Mean | 0.03 ppm [g]<br>0.02 ppm [h] | (80 µg/$m^3$) | Primary |
| 24-hour Average [a] | 0.14 ppm [g]<br>0.1 ppm [h] | (365 µg/$m^3$) | Primary |
| 3-hour Average [a] | 0.5 ppm [g, h] | (1,300 µg/$m^3$) | Secondary |

Sources: USEPA 2006a and Chapter 62-204.240 of the FAC

Notes: Parenthetical values are approximate equivalent concentrations.

[a] Not to be exceeded more than once per year.

[b] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

[c] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1. (b) As of June 15, 2005, USEPA revoked the 1-hour ozone standard in all areas except the 14 8-hour ozone nonattainment Early Action Compact Areas.

[d] To attain this standard, the expected annual arithmetic mean $PM_{10}$ concentration at each monitor within an area must not exceed 50 µg/$m^3$.

[e] To attain this standard, the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/$m^3$.

[f] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3.

[g] Federal Standard.

[h] State Standard.

combination of hazardous air pollutants. However, lower pollutant-specific "major source" permitting thresholds apply in nonattainment areas. For example, the Title V permitting threshold for an "extreme" $O_3$ nonattainment area is 10 tpy of potential volatile organic compound (VOC) or nitrogen oxide ($NO_x$) emissions. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their effect on air quality.

## Greenhouse Gases

Greenhouse gases (GHGs) are chemical compounds in the earth's atmosphere that trap heat. Gases exhibiting greenhouse properties come from both natural and human sources. Water vapor, carbon dioxide (CO2), methane, and nitrous oxide are examples of GHGs that have both natural and manmade sources, while other gases such as those used for aerosols are exclusively manmade. In the United States, GHG emissions come mostly from energy use. These are driven largely by economic growth, fuel used for electricity generation, and weather patterns affecting heating and cooling needs.

Transportation sources accounted for approximately 29 percent of total U.S. GHG emissions in 2006 and are the fastest-growing source of U.S. GHGs according to USEPA Transportation and Climate sources (USEPA, 2009a). The majority of CO2 emissions come from the combustion of fossil fuels based on the fuel's carbon content. To a lesser degree, transportation sources emit methane (CH4) and nitrous oxide (N2O) during fossil fuel consumption. Aircraft GHG emissions from military aircraft in 2003 made up 12 percent compared to the 72 percent produced from commercial aircraft. Commercial and military aircraft rely almost exclusively on jet fuel, while approximately one quarter of the fuel used for general aviation is aviation gas. GHG emissions from aircraft in 2003 were 99 percent CO2, about 1 percent N2O, and less than 1 percent CH4 (USEPA, 2006).

The use of construction equipment is expected to cause some increase in GHG emissions. The combustion of fossil fuels is considered the primary source of carbon dioxide emissions based on the fuel's carbon content. To a lesser degree, mobile sources emit CH4 and N2O during fossil fuel consumption. Construction equipment emits approximately 22.37 pounds of CO2 per gallon of diesel and 19.54 pounds of CO2 per gallon of gasoline (USEPA, 2009). These emission rates can be decreased with less idling and improved maintenance of equipment.

The FDEP's Preliminary Inventory of Florida Greenhouse Gas Emissions 1990–2004 shows that the total GHG emissions have increased since 1990 at an average rate of 2.5 percent per year. The primary causes for the increase are electric power generation (49 percent of total emissions) and transportation (43 percent of total GHG emissions). The increase in transportation emissions is due to more vehicle miles of travel (Florida Planning Toolbox, 2010).

### 3.4.2 Existing Conditions

Eglin AFB is within portions of Santa Rosa, Okaloosa, and Walton counties, Florida. These counties are part of the Mobile (Alabama)-Pensacola-Panama City (Florida)-Southern Mississippi Interstate Air Quality Control Region (MPPCSMI AQCR). The MPPCSMI AQCR is in attainment for all criteria pollutants. Therefore, the General Conformity Rule does not apply to the Proposed Action (USEPA 2005). Although $O_3$ is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because $O_3$ is typically not emitted directly from most emissions sources. Ozone is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or "$O_3$ precursors." These $O_3$ precursors consist primarily of $NO_x$ and VOCs that are directly emitted from a wide range of emissions sources. For this reason, regulatory agencies attempt to limit atmospheric $O_3$ concentrations by controlling VOC pollutants (also identified as reactive organic gases) and $NO_2$.

The FDEP, Division of Air Resource Management is responsible for implementation of the CAA and has adopted the Federal primary and secondary NAAQS. The FDEP has developed a USEPA-approved SIP. The FDEP works with Eglin AFB in monitoring and implementing the installation's stationary source permits and emissions inventory. As required by FDEP permitting requirements (contained in Chapter 62-3 of the FAC), Eglin AFB routinely calculates annual criteria pollutant emissions from stationary emissions sources and provides this information to the state when required. However, there is no routine requirement to calculate pollutant emissions calculations for aircraft operations, government-owned and

privately owned vehicles (GOVs and POVs), aircraft engine testing, aerospace ground equipment, and other sources not included in the state's stationary source permitting program.

Eglin AFB is classified as a major source and has been issued a Title V Operation Permit (0910031-009-AV), which is scheduled for renewal on 14 June 2009 (EAFB 2004b). There are various stationary combustion sources on the installation that have the potential to emit, including the installation's boilers and generators. VOCs are emitted primarily from handling of organic liquids (i.e., refueling activities). Miscellaneous particulate matter sources at Eglin AFB include abrasive blasting units, and woodworking equipment (EAFB 2004b). Other stationary sources at Eglin AFB include paint booths, wash racks, and a dry cleaning facility. The regulated aerospace paint booths and dry cleaners are subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements.

The FDEP requires installations that emit certain air pollutants in quantities greater than threshold levels to submit an annual emissions statement which provides information regarding the pollutants emitted. Installations that emit greater than 10 tpy of VOCs; 25 tpy of $NO_x$; or 100 tpy of CO, $PM_{10}$, or $SO_x$ are required to submit an annual emissions statement to the FDEP. The FDEP has also promulgated rules regulating the emissions of Hazardous Air Pollutants (HAPs) which are defined as those chemicals listed in 40 CFR 61 plus any other air pollutant that is considered a health hazard, as defined by Occupational Safety and Health Administration (OSHA).

Every year Eglin AFB is required to prepare and submit an emissions inventory to the FDEP. The purpose of this annual emissions inventory is to estimate and document air pollutant emissions from stationary sources. Air quality emissions inventories for Eglin AFB from the 2004 Title V Operation Permit compared against the current permitting thresholds (Chapter 62-213.300 of the FAC) are presented in **Table 3-3**.

**Table 3-3. Annual Air Quality Emissions Inventories for Stationary Sources for Year 2004**

| Calendar Year | $NO_x$ (tpy) | VOC (tpy) | CO (tpy) | $SO_x$ (tpy) | $PM_{10}$ (tpy) |
|---|---|---|---|---|---|
| Actual Stationary Sources Emissions | 35.04 | 51.04 | 21.02 | 0.25 | 3.09 |
| Threshold Stationary Sources Emissions | 5,701.61 | 786.93 | 28,027.61 | 271.70 | 3,131.68 |

Source: EAFB 2004b

## 3.5 Safety

### 3.5.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses (1) workers' health and safety during demolition activities and facilities construction, and (2) public safety during demolition and construction activities and during subsequent operations of those facilities.

Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and USAF regulations designed to comply with standards issued by the OSHA and USEPA. These standards specify the amount and type of training required for industrial workers, the use

of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of extremely noisy environments. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

## 3.5.2 Existing Conditions

***Construction Safety.*** All contractors performing construction activities are responsible for following ground safety regulations and worker compensation programs and are required to conduct construction activities in a manner that does not pose any risk to workers or personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and availability of Material Safety Data Sheets (MSDS). Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplace operations; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures.

***Explosives and Munitions Safety.*** Explosive safety clearance zones must be established around facilities used for the storage, handling, or maintenance of munitions. Air Force Manual 91-201 establishes the size of the clearance zone based upon quantity-distance (QD) criteria or the category and weight of the explosives contained within the facility.

Explosive Safety Quantity Distance (ESQD) clearance zones are the second most constraining criteria to operations and facilities development at Eglin AFB, next to airfield clearances (AAC undated). They are necessary to provide safe setback zones around the storage facilities for munitions and other explosives at the main base and Duke Field. These zones ensure appropriate separation of unrelated activities from storage facilities and explosives-related operations such as High Explosives Research and Development.

The largest ESQD area on Eglin AFB is on the north side of the runways away from the developed area. This area surrounds the facilities of the munitions storage area. A second ESQD zone surrounds the flightline operations of the 33rd Fighter Wing. ESQD zones also surround the hot gun line in the main complex and the munitions loading area at Range 22. Duke Field has two ESQD zones. The northernmost and largest surrounds the munitions storage area and is extended to the east to include ESQD areas around the arm/disarm pad at Runway End 18. The second ESQD zone surrounds the arm/disarm pad at the southern Runway End 36 (AAC undated).

Security clear zones are generally located around facilities that are deemed to be “critical mission resources.” These zones are set up to control access to facilities requiring more security than other facilities on base. Although there are some restricted areas, no designated security clear zones exist at Eglin AFB or Duke Field (AAC undated).

# 3.6 Geological Resources

## 3.6.1 Definition of the Resource

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of topography and physiography, geology, soils, and, where applicable, geologic hazards and paleontology.

Topography and physiography pertain to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features.

Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

Prime farmland is protected under the Farmland Protection Policy Act of 1981 (7 U.S.C. 4201–4209). Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The soil qualities, growing season, and moisture supply are those needed for a well-managed soil to produce a sustained high yield of crops in an economic manner. The land could be cropland, pasture, rangeland, or other land, but not urban built-up land or water. The intent of the Farmland Protection Policy Act is to minimize the extent that Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The Farmland Protection Policy Act also ensures that Federal programs are administered in a manner that, to the extent practicable, is compatible with private, state, and local government programs and policies to protect farmland. The Natural Resources Conservation Service (NRCS) is responsible for overseeing compliance with the Farmland Protection Policy Act and has developed the rules and regulations for implementation of the Act (7 CFR Part 658).

## 3.6.2 Existing Conditions

***Physiography and Topography.*** Eglin AFB occupies portions of three physiographic provinces: the Coastal Barrier Island Chain, the Coastal Lowlands, and the Western Highlands (EAFB 2002). All three site alternatives are within the Coastal Lowlands physiographic province. In recent geological times, the coastal lowlands were sea floors. Topography is generally flat except where the surface has been modified by erosion or where old dunes are present.

The local topography of Site Alternative 1 is relatively flat. The northwestern corner of the site has an elevation of approximately 70 feet above mean sea level (MSL) that slopes gently towards the southeast to an elevation of approximately 50 feet above MSL. Site Alternative 2 has similar relief, with local topography ranging from 80 feet above MSL in the northern portion of the site, sloping southeast to a low of approximately 60 feet above MSL at the intersection of Lewis Turner Boulevard and Eglin Parkway. The northern portion of Site Alternative 3, along Lewis Turner Boulevard, is approximately 60 feet above MSL; local topography slopes in a general southern direction towards the intermittent unnamed stream channels that feed into Poquito Bayou. Topography ranges from 25 to 40 feet above MSL at Sunset

Lane, the southern boundary of that site. According to the topographic map, there also appears to be a former sand pit just north of Sunset Lane (TopoZone 2007).

***Geology.*** The upland portion of Eglin AFB is generally blanketed by up to 250 feet of primarily nonmarine quartz sands with some gravel and relatively thin clay lenses of the Citronelle Formation. The Citronelle Formation is underlain by a series of Miocene-aged coarse clastic (Alum Bluff Group) and clay marine deposits (Pensacola clay) up to several hundred feet thick. These units are underlain by several hundred feet of early Miocene and Oligocene marine limestones. All of these units dip gently southwestward in the Gulf Coast geosyncline. The geology under Site Alternatives 1 and 2 and the northern portion of Alternative 3 appear to be of the Citronelle Formation; the underlying geology of the southern portion of Site Alternative 3 is undifferentiated quartz sands (EAFB 2002).

***Soils.*** Eglin AFB contains eight major soil associations. Most of the installation (i.e., 78 percent) consists of the Lakeland association (EAFB 2002). The Lakeland series consists of very deep, excessively drained, rapid to very rapidly permeable soils on uplands. They formed in thick beds of eolian or marine sands (NRCS 2007a). According to the Okaloosa County soil survey, Site Alternatives 1 and 2 are composed entirely of Lakewood sand with slopes of 0 to 5 percent (NRCS 2007b). The majority of Site Alternative 3 is also Lakewood sand with slopes of 0 to 5 percent; however, the slope increases from 5 to 12 percent near the intermittent stream channels. There are also pockets of Foxworth sand near the stream channels. The Foxworth series consists of very deep, moderately well to somewhat excessively drained, rapid to very rapid permeable soils on broad uplands and side slopes (NRCS 2007a). The Lakeland and Foxworth soils are competing series and exhibit similar characteristics, except that the Foxworth series has a shallower water table. At a slope of less than 5 percent, neither series is considered limiting for development of streets or buildings, though slopes of greater than 5 percent can be somewhat limiting (NRCS 2007b). Neither series is considered prime or unique farmland.

## 3.7 Water Resources

### 3.7.1 Definition of the Resource

Water resources include groundwater, surface water, and floodplains. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes.

Groundwater consists of subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically can be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

Surface water resources consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale.

Storm water is an important component of surface water systems because of its potential to introduce sediments and other contaminants that could degrade lakes, rivers, and streams. Storm water flows, which can be exacerbated by high proportions of impervious surfaces associated with buildings, roads, and parking lots, are important to the management of surface water. Storm water systems convey storm water runoff away from developed sites to receiving surface waters. Various systems and devices might be used to slow the movement of water. For instance, a large, sudden flow could scour a streambed and harm biological resources. Storm water systems provide the benefit of reducing sediments and other contaminants that would otherwise flow directly into surface waters. Failure to size storm water systems appropriately to hold or delay conveyance of the largest predicted precipitation event often leads to downstream flooding and the environmental and economic damages associated with flooding. Higher

densities of development, such as those found in urban areas, require greater degrees of storm water management because of the higher proportions of impervious surfaces that occur in urban areas.

The Clean Water Act (CWA) (33 U.S.C. 1251 et. seq., as amended) establishes Federal limits, through the National Pollutant Discharge Elimination System (NPDES), on the amounts of specific pollutants that are discharged to surface waters to restore and maintain the chemical, physical, and biological integrity of the water. A NPDES permit would be required for any change in the quality or quantity of wastewater discharge or storm water runoff from construction sites where 1 or more acres would be disturbed. Section 404 of the CWA regulates the discharge of fill material into waters of the United States, which includes some wetlands.

On October 1, 2007, Phase I of the State of Florida's Environmental Resource Permit (ERP) program became effective. This current phase focuses on activities that have the potential to generate storm water runoff and looks at regulating the quality of runoff for all activities, and the quantity for those activities that exceed specific parameters. The Northwest Florida Water Management District (NWFWMD) is the agency responsible for ERP permitting in Okaloosa County. The ERP program requires a single permit application for storm water management for construction through operational phases of a development project. The ECTRC developer would be required to make an application to the NWFWMD under the ERP program because the ECTRC would result in increased impervious surfaces or alterations of storm water flow. Phase II of the ERP program regulates impacts to wetlands at the state level. The rules regarding the Florida ERP program are found in the Florida Administrative Code (FAC) Chapter 62-346 (NWFWMD 2007a).

Section 438 of the Energy Independence and Security Act (EISA) of 2007 instructs federal agencies to "use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate" for any project with a footprint that exceeds 5,000 square feet (EPA 2011). In Florida, meeting the requirements of the state's Environmental Resource Permit program meets the requirements of the EISA.

Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters. Such lands might be subject to periodic or infrequent inundation due to a flood created by rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain. The 100-year floodplain is the area within which there is a 1 percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk from flooding to be located in either the 100- or 500-year floodplain, such as hospitals, schools, or storage buildings for irreplaceable records. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

EO 11988, *Floodplain Management*, requires Federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of appropriate FEMA Flood Insurance Rate Maps, which contain enough general information to determine the relationship of the project area to nearby floodplains. EO 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, a specific step-by-step process must be followed to comply with EO 11988. The process is outlined in the FEMA document *Further Advice on EO 11988 Floodplain Management*. As a planning tool, the NEPA process incorporates floodplain management through analysis and through coordination with applicable regulatory agencies that will review this EA.

## 3.7.2 Existing Conditions

***Groundwater.*** There are two prominent aquifers at Eglin AFB and in the surrounding area: the surficial Sand and Gravel Aquifer and the regional Floridan Aquifer (AFMC 2006). The Sand and Gravel Aquifer consists of the Citronelle Formation and marine terrace deposits, which thicken to the southwest. In the vicinity of Fort Walton Beach, this shallow aquifer consists of several distinct sandy units, the lowest of which is the main producing zone. Yields from wells in this zone vary considerably but are generally in the range of 200 to 400 gallons per minute. The Sand and Gravel Aquifer is an important source of drinking or irrigation water for Escambia, Okaloosa, Santa Rosa, and Walton counties. In the Coastal Lowlands physiographic province, where all three site alternatives are located, the water table is at or within a few feet of land surface (EAFB 2002).

The deep, regional Floridan Aquifer consists of a thick sequence of interbedded limestones and dolomites overlain by the Pensacola Clay confining bed. This aquifer is highly productive and provides water to large cities and rural communities in parts of Alabama, Georgia, and South Carolina and all of Florida (Miller 1990). The Bucatunna Formation separates the Floridan Aquifer into upper and lower limestone units. The lower unit is saline; the upper unit is used as potable water for Eglin AFB and the surrounding communities. Yields from wells are large, ordinarily in the range of 250 to more than 1,000 gallons per minute. The NWFWMD regulates consumptive uses of all water within in the Florida panhandle (AFMC 2006).

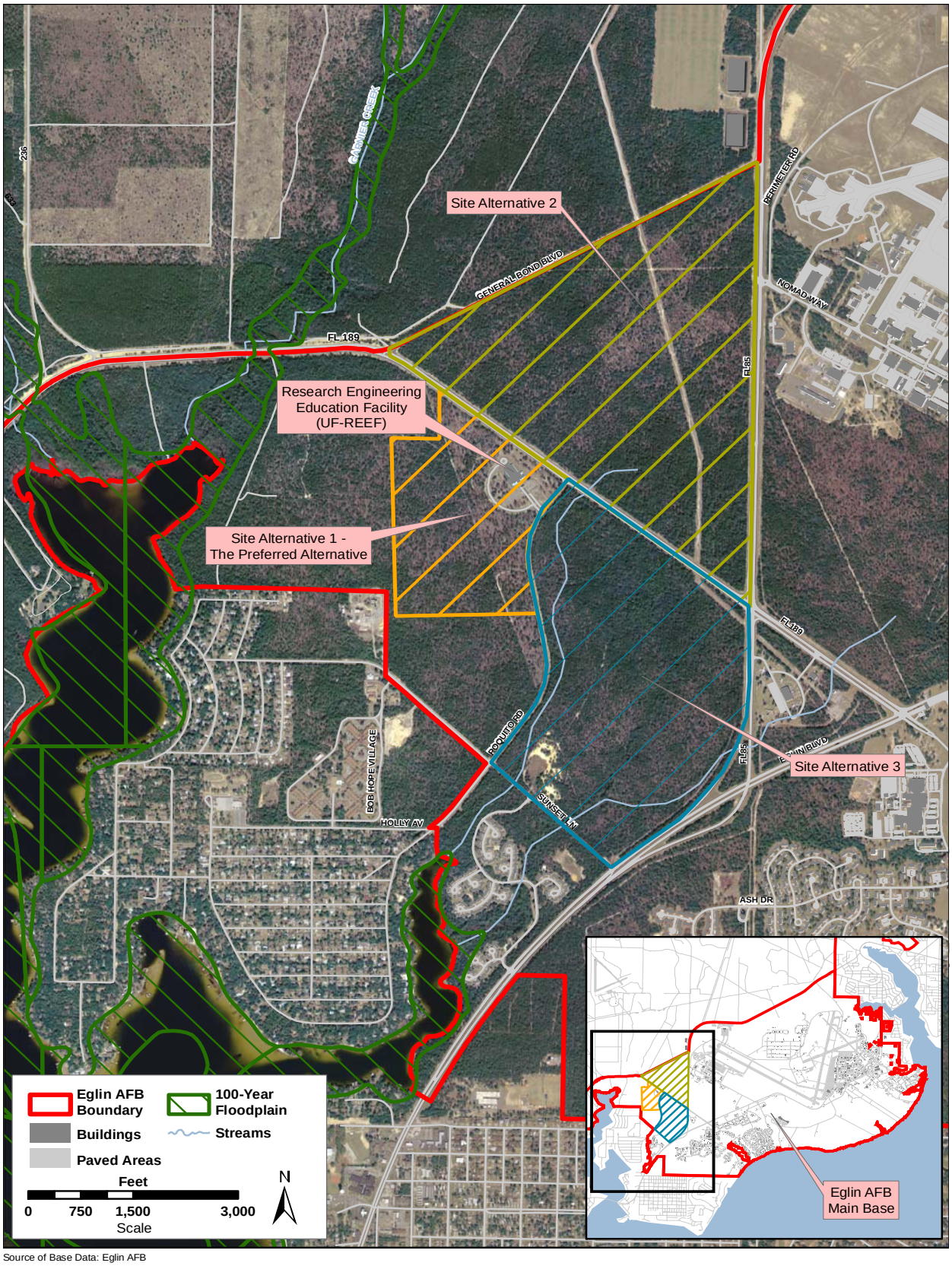
***Surface Water.*** Eglin AFB encompasses portions of three hydrologic basins: Choctawhatchee Bay, Yellow River Basin, and Pensacola Bay (of which East Bay is a portion). The northern and western portions of the installation are characterized by primary channels flowing east to west, with secondary channels flowing south to north. Most of these drainage systems are characterized by U-shaped channels and trellis-type patterns (i.e., intersecting at right angles). The eastern and southeastern portions of the installation are characterized by V-shaped primary channels flowing north to south, with tributaries oriented in a dendritic pattern (i.e., branching like tree limbs). There are numerous surface water bodies on Eglin AFB (EAFB 2002).

**Figure 3-3** shows surface water resources surrounding the site alternatives. The three site alternatives drain towards Poquito Bayou, which flows into Choctawhatchee Bay. There are no bodies of water naturally occurring at Site Alternative 1. A small unnamed tributary of Poquito Bayou is at the southern portion of Site Alternative 2, crossing Lewis-Turner Boulevard. The unnamed tributary at the southern portion of Site Alternative 2 continues flowing south through Site Alternative 3, along the western site boundary, into Poquito Bayou. Two other unnamed tributaries, one originating in the east-central portion of Site Alternative 3 and the other originating near the golf course northeast of Site Alternative 3, are also present and have a confluence just north of Sunset Lane (TopoZone 2007). Based on the topographic map, there also appears to be a sand pit at the southern portion of the site, north of Sunset Lane and between the two intermittent stream channels (TopoZone 2007).

FDEP completed a Water Quality Assessment Report in 2006 (FDEP 2006a). The purpose of this assessment report is to provide a verified list of impaired water for which a total maximum daily load (TMDL) of a given pollutant must be developed pursuant to Section 303(d) of the CWA and the Florida Watershed Restoration Act (Chapter 99-223, Law of Florida). All three site alternatives drain to Poquito Bayou (waterbody identification number 754). This waterbody segment is classified as a Class III water body, meaning that it should be used for recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife. A bacterial impairment has been identified for Poquito Bayou so that it no longer meets its designated use as a Class III waterbody, and Poquito Bayou has been placed on the verified list of impaired waters for the Choctawhatchee Basin. It is anticipated that a TMDL will be developed for Poquito Bayou in 2009.

***Floodplains.*** Flooding could occur on Eglin AFB as a result of rainfall within the installation's drainage basins, from hurricanes, or a combination of both. The majority of the installation is outside of the 100-year floodplain, though portions of the Yellow River drainage system and East Bay Swamp are flood-prone (EAFB 2002). According to FEMA's Flood Insurance Rate Map encompassing Site Alternatives 1, 2, and 3, all three sites are outside of the 100- and 500-year floodplains (FEMA 2002). Garnier and Poquito bayous do have associated 100-year floodplains, but these are more than 2,000 feet from all site alternatives. Floodplains in the vicinity of the site alternatives are shown in **Figure 3-3**.

***Coastal Zone Management.*** In Florida, coastal zone management incorporates 23 statutes that protect and enhance Florida's natural, cultural, and economic coastal resources (FDEP 2006b). Florida has limited its consistency review of federally licensed and permitted activities as identified in Florida Statutes Section 380. As identified in Section 380.23(3)(c), laws requiring licenses or permits that are potentially relevant to Eglin AFB and this Proposed Action, and would therefore include consistency review, include the Rivers and Harbors Act and the CWA. Additional information about Federal consistency and Coastal Zone Management is included in **Section 3.3**.




Source of Base Data: Eglin AFB

**Figure 3-3. Water Resources in the Vicinity of the Proposed ECTRC Site Locations**

# 3.8 Biological Resources

## 3.8.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats (e.g., wetlands, forests, and grasslands) in which they exist. Protected and sensitive biological resources include federally listed (endangered or threatened), proposed, and candidate species, and designated or proposed critical habitat; species of concern managed under Conservation Agreements or Management Plans; and state-listed species.

Under the Endangered Species Act (ESA) (16 U.S.C. § 1536), an "endangered species" is defined as any species in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. Although candidate species receive no statutory protection under the ESA, the U.S. Fish and Wildlife Service (USFWS) advises government agencies, industry, and the public that these species are at risk and might warrant protection under the ESA in the future.

Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat provision, and erosion protection. Wetlands are protected as a subset of "the waters of the United States" under Section 404 of the CWA. The term "waters of the United States" has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). The USACE defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR Part 328).

Phase II of the Florida ERP program will regulate impacts to wetlands at the state level. Phase II of the ERP program is currently under development and would not be implemented prior to January 2009. The rules regarding the Florida ERP program are found in the Florida Administrative Code (FAC) Chapter 62-346 (NWFWMD 2007a). See **Section 3.7.1** for additional details about the ERP program.

The U.S. Army Corps of Engineers (USACE) is responsible for making jurisdictional determinations and regulating wetlands under Section 404 of the CWA. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the waters of the United States, including wetlands. In addition, Section 404 of the CWA also grants states with sufficient resources the right to assume these responsibilities. The NRCS has developed procedures for identifying wetlands for compliance with the Food Security Act of 1985, and the National Wetlands Inventory has developed a classification system for identifying wetlands. Through the National Wetlands Inventory, the USFWS is the principal Federal agency that provides information to the public on the extent and status of wetlands.

EO 11990, *Protection of Wetlands*, requires that Federal agencies provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland.

## 3.8.2 Existing Conditions

***Vegetation.*** The Preferred Site's overstory is dominated by longleaf pine (*Pinus palustris*), turkey oak (*Quercus laevis*), sand pine (*Pinus clausa*), blackjack oak (*Quercus incana),* and live oak (*Quercus virginiana*). The understory contains species such as turkey oak, sparkleberry (*Vaccinium arboreum*), sand pine (*Pinus clause*), Chapman oak (*Quercus chapmanii),* saw palmetto *(Serenoa revens)*, wiregrass (*Aristida stricta)*, partridge pea *(Cassia fasciculate)*, and maple-leaf viburnum *(Viburnum acerifolium)*. The longleaf pine is being replaced by sand pine and turkey oak due to the absence of fire. There is also a decreasing abundance of longleaf pine in the understory and shrub strata. Site Alternatives 2 and 3 contain similar species of vegetation (EAFB 1992).

***Wildlife.*** Mammalian species common to the three sites include the gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor)*, bobcat (*Lynx rufus*), and the nine-banded armadillo (*Dasypus novemcinctus*). Avian species include blue jay (*Cyanocitta cristata*), English sparrow (*Passer domesticus*), common grackle *(Quiscalus quiscala),* pileated woodpecker (*Dryocopus pileatus*), and yellow-bellied sapsucker (*Sphyrapicus varius*). Other species include the green anole (*Anolis carolinensis)*, southern fence lizard (*Sceloporus undulatus undulates*), and the Southern ringneck snake (*Diadophis punctatus punctatus).*

***Protected or Sensitive Species.*** There are 11 federally listed species that are being managed on Eglin AFB because they occur on the installation either year-round or seasonally. These species include the red-cockaded woodpecker (*Picoides borealis*), bald eagle (*Haliaeetus leucocephalus)*, piping plover (*Charadrius melodus)*, Okaloosa darter *(Etheostoma okaloosae)*, Gulf sturgeon *(Acipenser oxyrinchus desotoi)*, Flatwoods salamander (*Ambystoma cingulatum)*, Eastern indigo snake (*Drymarchon corais couperi*), loggerhead sea turtle *(Caretta caretta),* green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), and perforate lichen *(Cladonia perforate)* (EAFB 2002).

There are 64 state-listed species found on Eglin AFB. Currently, 51 of these that are plants and 10 that are animal species are state-listed as species of special concern. There are 24 plant species that are listed as a Management Concern by the USFWS. In total, Eglin AFB supports 93 rare or listed terrestrial and freshwater species of plants and animals of conservation concern (EAFB 2002). **Table 3-6** provides a list of listed species potentially occurring in the Preferred Site and the site alternatives.

**Table 3-6. Listed Species Potentially Occurring in the Preferred and the Site Alternatives**

| Scientific Name | Common Name | Federal Status | State Status |
|---|---|---|---|
| *Drymarchon corais couperi* | Eastern indigo snake | T | T |
| *Falco sparverius paulus* | Southeastern American kestrel | --- | T |
| *Gopherus polyphemus* | gopher tortoise | --- | SSC |
| *Picoides borealis* | red-cockaded woodpecker | E | T |
| *Tephrosia mohrii* | Pineland hoary-pea | MC | T |
| *Ursus americanus floridanus* | Florida black bear | --- | T |

Source: Miller 2007

Notes:

E - Endangered

T - Threatened

SSC - Species of Special Concern

MC - Not currently listed, but of Management Concern to USFWS

The red-cockaded woodpecker is federally endangered and listed as threatened by the state of Florida. It requires mature longleaf pine forests, with an age of 60 years or greater, that lack a hardwood understory, such as those maintained by sporadic wildfires (EAFB 2002). The Preferred Site contains inactive cavity nests which have been screened over after the completion of Section 7 Consultation with the USFWS. Site Alternative 2 contains trees with inactive cavity nests. Site Alternative 3 does not contain inactive cavity nests. There are active cavity nests on Eglin AFB, but it is not likely that the red-cockaded woodpecker would be found foraging in any of the site alternatives due to unsuitable habitat from a lack of fire and overgrown understory.

The Eastern indigo snake is a federally and state-listed threatened species. It requires high, dry, well-drained sandy soils. During warmer months, indigos also frequent streams and swamps, and individuals are occasionally found in flatwoods. Gopher tortoise burrows and other subterranean cavities are commonly used as dens and for egg laying (USFWS 1991). Because it utilizes a variety of habitats, it could possibly be found on any of the site alternatives. A survey will be conducted prior to construction activities.

The gopher tortoise (*Gopherus polyphemus*) is listed by the state as a species of special concern. It requires sandy, open scrub habitats. The Florida Natural Areas Inventory (FNAI) performed a survey in December 2006 and found potentially six burrows in the Preferred Site Alternative (EAFB 2006b). Another survey will be conducted for gopher tortoise burrows prior to construction activities.

The Florida black bear is listed as a state threatened species except in Baker and Columbia counties and Apalachicola National Forest. Most black bears within Eglin AFB utilize the large swamps and floodplain forests in the southwestern and northern portions of the base. Black bear sightings have occurred at numerous locations throughout the base and on the three site alternatives (Seiber 2007). Information regarding sightings can be found in the Biological Assessment in **Appendix E**.

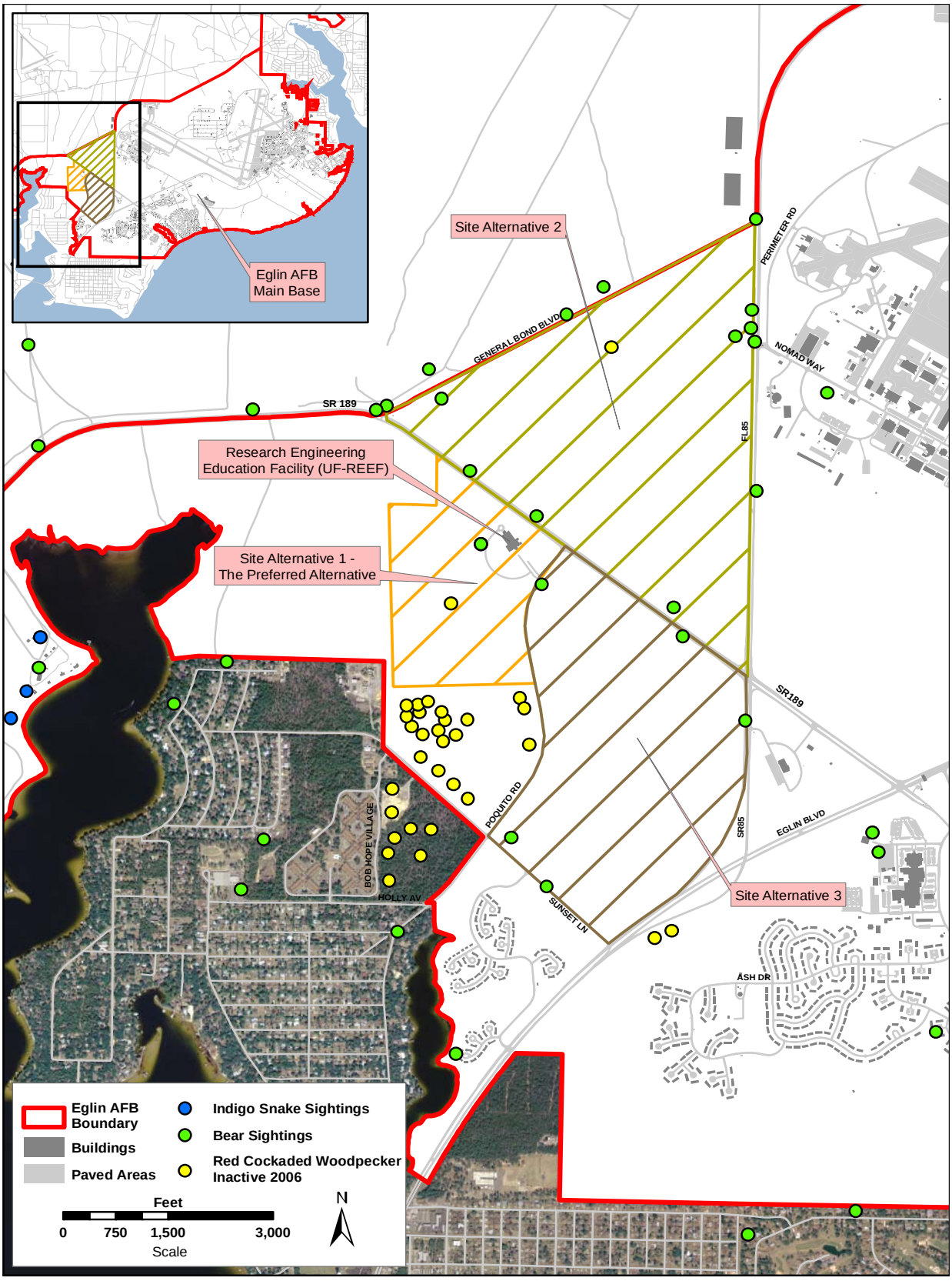
The Southeastern American kestrel, which is state-listed as threatened, can be found inhabiting abandoned red-cockaded woodpecker cavities (EAFB 2002). This species could be found utilizing the Site Alternative 1 and the Site Alternative 3 due to the presence of cavities. **Fig 3-4**

The Pineland hoary-pea (*Tephrosia mohrii*) is state-listed as threatened and has been observed in the Preferred Site and in the vicinity of the site alternatives. It requires sandhill and scrub habitat (EAFB 2006b). Another survey will be conducted for the hoary-pea prior to construction activities.

Eglin AFB has two known active bald eagle (*Haliaeetus leucocephalus*) nests. One nest is near Choctawhatchee Bay at Test Site A-22 and the second nest is in Gulf County along the Gulf of Mexico at Cape San Blas (Miller 2007). Suitable foraging habitat includes large perch trees adjacent to bodies of water. Both of these elements are critical due to the sit and watch behavior of bald eagles. This species would not be expected to forage in the vicinity of the proposed sites due to the lack of suitable aquatic and marine foraging habitat. Any occurrence of the bald eagle at the three site alternatives would be expected on a transient basis (Miller 2007).

***Wetlands.*** The Preferred Site Alternative consists entirely of upland communities, with no wetlands present on the site. The nearest wetlands are along the edge of Garnier Creek and Garnier Bayou, approximately one quarter mile west and northwest of this site (EAFB 1992).

A small unnamed tributary of Poquito Bayou is at the southern portion of Site Alternative 2, crossing Lewis Turner Boulevard. The unnamed tributary at the southern portion of Site Alternative 2 continues flowing south through Site Alternative 3, along the western site boundary, into Poquito Bayou. Two other unnamed tributaries, one originating in the east-central portion of Site Alternative 3 and the other




Source of Base Data: Eglin AFB

**Figure 3-4. Natural Resources Constraints Relative to the Proposed ECTRC Site Locations**

originating near the golf course northeast of Site Alternative 3, are also present and have a confluence just north of Sunset Lane (TopoZone 2007). A review of the National Wetlands Delineation map has determined that wetlands are associated with the unnamed tributaries at Site Alternative 3 (see **Figure 3-3**).

**Figure 3-4** provides the natural resources constraints for the proposed sites.

## 3.9 Socioeconomic Resources and Environmental Justice

### 3.9.1 Definition of the Resource

***Socioeconomic Resources.*** Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly characteristics of population and economic activity. Regional birth and death rates and immigration and emigration affect population levels. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these fundamental socioeconomic indicators are typically accompanied by changes in other components, such as housing availability and the provision of public services. Socioeconomic data at county, state, and national levels permit characterization of baseline conditions in the context of regional, state, and national trends.

Data in three areas provide key insights into socioeconomic conditions that might be affected by a Proposed Action. Data on employment identify gross numbers of employees, employment by industry or trade, and unemployment trends. Data on personal income in a region can be used to compare the "before" and "after" effects of any jobs created or lost as a result of a Proposed Action. Data on industrial or commercial growth or growth in other sectors provide baseline and trend line information about the economic health of a region.

In appropriate cases, data on an installation's expenditures in the regional economy help to identify the relative importance of an installation in terms of its purchasing power and jobs base.

Demographics identify the population levels and changes in population levels of a region. Demographics data might also be obtained to identify, as appropriate to evaluation of a Proposed Action, a region's characteristics in terms of race, ethnicity, poverty status, educational attainment level, and other broad indicators.

Socioeconomic data shown in this section are presented at metropolitan, county, and state levels to characterize baseline socioeconomic conditions in the context of regional and state trends. Data have been collected from previously published documents issued by Federal, state, and local agencies; and from state and national databases (e.g., U.S. Bureau of Economic Analysis' Regional Economic Information System).

***Environmental Justice.*** There are no Federal regulations on socioeconomics, but there is one EO that pertains to environmental justice issues. This EO is addressed in this section because it relates to various socioeconomic groups and the health effects that could be imposed on them. On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was created to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or

socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action. Such information aids in evaluating disproportionate adverse effects from the Proposed Action and alternatives.

## 3.9.2 Existing Conditions

The Eglin AFB reservation is within portions of Okaloosa, Santa Rosa, Walton, and Gulf counties, and the Main Base is approximately 1 mile southwest of Valparaiso, Florida. Okaloosa County, Santa Rosa County, and Valparaiso have populations of approximately 170,498, 117,743, and 6,408, respectively (U.S. Census Bureau 2000). The populations of Okaloosa County, Santa Rosa County, and Valparaiso increased by 18.6, 44.3, and 3.72 percent, respectively, between 1990 and 2000. Eglin AFB directly employs more than 11,000 military personnel and approximately 11,000 civilians. Eglin AFB also supports 41,000 retired military members that reside in the local area around the base in Okaloosa and Santa Rosa counties. Okaloosa County is home to more than 300 different government contractors. The direct economic effect of Eglin AFB on the local area is estimated to be $1.4 billion annually. In addition to the 22,000 jobs at Eglin AFB, it is estimated that the base indirectly creates an additional 12,900 local jobs valued at an estimated $351 million (EAFB 2006c).

The Economic Development Council of Okaloosa County (EDCOC) is a supporter of the construction of the proposed ECTRC. The EDCOC is a nonprofit organization committed to the growth and diversity of Okaloosa County. Other organizations and individuals that support the project include the Okaloosa County Commissioners, the University of West Florida President, the President of Okaloosa-Walton College, and the University of Florida (EDCOC 2007b). The Economic Development Council also sponsors a group of 45 companies from the area called the Technology Coast Manufacturing & Engineering Network. This Network includes many technology companies and government contractors, including Boeing, Lockheed Martin, BAE Systems, and General Dynamics. The research campus setting would further facilitate the integration of these activities for these companies in support of Eglin AFB (EDCOC 2007b).

For this Proposed Action, the socioeconomic baseline is presented using three levels of comparison: the ROI, the county of Okaloosa, and the state of Florida. The ROI was defined by identifying census tracts that composed Eglin AFB and areas immediately around installation property. Census tracts 108.02, 208, and 950.3 were defined as the ROI (see **Figure 3-5**). Okaloosa County is where effects from the Proposed Action would be most evident and includes the population within the ROI, along with the major residential and commercial centers within the area of the Proposed Action and Eglin AFB. Between 1990 and 2000, Florida's population increased by 11 percent. In the same period of time, Okaloosa County and the ROI grew by 19 percent and 18 percent, respectively (U.S Census Bureau 2000).

***Employment Characteristics.*** **Table 3-4** shows the type of employment by industry for residents in the Eglin AFB ROI, Okaloosa County, and Florida. A large portion of the residents in Okaloosa County and Florida are employed in education, health, social services, and retail trade. As would be expected, there is a larger portion of the population in the ROI employed in the Armed Forces (54.2 percent), compared to Okaloosa County and the state of Florida at 8.7 percent and 0.5 percent, respectively (U.S Census Bureau 2000).

***Environmental Justice.*** Minority and low-income populations were characterized within the Eglin AFB ROI, Okaloosa County, and Florida to establish a baseline for environmental justice analysis. The three

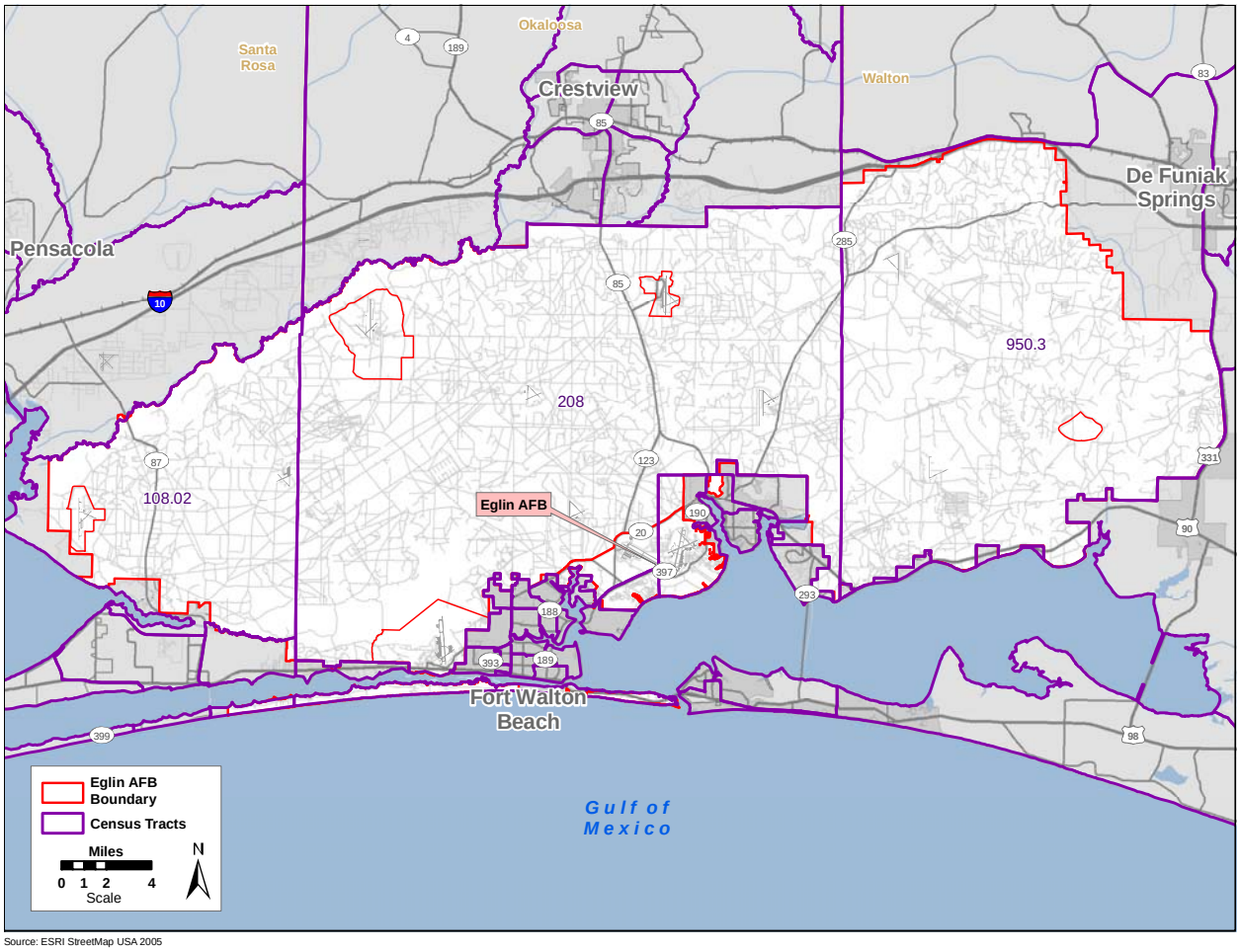



**Figure 3-5. Census Tracks in the Socioeconomic ROI**

census tracts identified as the Eglin AFB ROI (Tracts 108.02, 208, and 950.5) were evaluated for disproportionately low-income or minority populations compared to Okaloosa County and the state of Florida. The ROI has a higher percentage of African Americans (14.2 percent) as compared to Okaloosa County (9.1 percent), but slightly lower than the state of Florida (14.6 percent). The Eglin AFB ROI has a lower median household income ($37,042) than Okaloosa County ($41,470) but only slightly lower than the state of Florida ($38,819) (U.S Census Bureau 2000).

In 2000, the unemployment rate in the Eglin AFB ROI (5.0 percent) was higher than both Florida (3.2 percent) and Okaloosa County (3.4 percent). As shown in **Table 3-5**, residents within the Eglin AFB ROI have a lower median household income compared to Okaloosa County and the state of Florida. Yet fewer individuals in the Eglin ROI are below the poverty line (4.5 percent) compared to Okaloosa County (6.6 percent) or the state of Florida (9.0 percent) (U.S. Census Bureau 2000). Therefore, the ROI does not have a disproportionate number of minority or low-income populations, so there are no environmental justice issues to consider.

**Table 3-4. Overview of Employment by Industry**

| Employment by Industry | ROI* | Okaloosa County, Florida | State of Florida |
|---|---|---|---|
| Percent of Employed Persons in Armed Forces | 54.2% | 8.7% | 0.5% |
| **Industry of Civilian Labor Force** | | | |
| Agriculture, forestry, fishing and hunting, and mining | < 0.1% | 0.7% | 1.3% |
| Construction | 1.0% | 8.6% | 8.0% |
| Manufacturing | 0.8% | 5.1% | 7.3% |
| Wholesale trade | < 0.1% | 1.5% | 4.0% |
| Retail trade | 8.1% | 14.1% | 13.5% |
| Transportation and warehousing, and utilities | 2.0% | 4.0% | 5.3% |
| Information | 1.1% | 2.3% | 3.1% |
| Finance, insurance, real estate, and rental and leasing | 1.3% | 7.2% | 8.1% |
| Professional, scientific, management, administrative, and waste management services | 10.1% | 10.7% | 10.6% |
| Educational, health, and social services | 12.7% | 16.2% | 18.1% |
| Arts, entertainment, recreation, accommodation, and food services | 4.0% | 13.2% | 10.5% |
| Other services (except public administration) | 1.4% | 5.4% | 5.1% |
| Public administration | 7.4% | 10.9% | 5.2% |

Source: U.S Census Bureau 2000

Note: *The ROI consists of the U.S. Census Tracts encompassing Eglin AFB (Tracts 108.02, 208, and 950.3).

**Table 3-5. Race and Poverty Characteristics**

| | ROI* | Okaloosa County | State of Florida |
|---|---|---|---|
| Total Population | 8,082 | 170,498 | 15,982,378 |
| Percent White | 71.8% | 83.4% | 78.0 % |
| Percent Black or African American | 14.2% | 9.1% | 14.6% |
| Percent American Indian, Eskimo, or Aleut | 0.5% | 0.6% | 0.3% |
| Percent Asian | 3.0% | 2.5% | 1.7% |
| Percent Native Hawaiian and Other Pacific Islander | 0.5% | 0.1% | 0.1% |
| Percent reporting some other race | 3.0% | 1.3% | 3.0% |
| Percent reporting 2 or more races | 4.2% | 3.0% | 2.4% |
| Percent Unemployment | 5.0% | 3.4% | 3.2% |
| Percent families below poverty | 4.5% | 6.6% | 9.0% |
| Median Household Income | $37,042 | $41,470 | $38,819 |

Source: U.S. Census Bureau 2000

Note: *The ROI consists of the U.S. Census Tracts encompassing Eglin AFB (Tracts 108.02, 208, and 950.3).

# 3.10 Infrastructure and Utilities

## 3.10.1 Definition of the Resource

Infrastructure consists of the physical structures and systems that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as urban or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. The infrastructure information contained in this section provides a brief overview of each infrastructure component and comments on its existing general condition.

Solid waste management primarily concerns itself with the availability of landfills to support a population's residential, commercial, and industrial needs. Alternative means of waste disposal might involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for, and are limited to, disposal of construction and demolition debris. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduce reliance on landfills for disposal.

## 3.10.2 Existing Conditions

***Transportation.*** Transportation to Eglin AFB and the surrounding areas is provided by SRs 85, 189 (Lewis Turner Boulevard), and 397. Roads leading to the proposed ECTRC are SR 189, Sunset Lane, and Poquito Road. Public bus transportation is also available in the area. The local airport, Okaloosa Regional Airport, is located on the southwestern corner of the Main Base, approximately 2 miles northeast of the site alternatives for the Proposed Action. An analysis of the traffic pattern in and around Eglin AFB was completed in March 2005 for the *Environmental Assessment for a Veterans Administration Community Based Outpatient Clinic on Eglin AFB.* The study recommended turn lanes and lights into the complex along SR 189 and SR 397 (EAFB 2005a). Additionally, according to the Eglin AFB General Plan, it is suggested that a connector road be constructed from the intersection of

Lewis Turner Boulevard and Poquito Road to Nomad Way, which would provide access to Site Alternative 2 and provide a new access point to the area of the Proposed Action (AAC undated).

***Electrical.*** There are two companies that currently provide electric service to Okaloosa County. Choctawhatchee Electric Cooperative, Inc. (CHELCO) is a consumer-owned Touchstone Energy Electric Cooperative. It shares membership with the Alabama electric generation and Transmission Cooperative. (EDCOC 2007c). CHELCO currently has approximately 3,385 miles of transmission line through Okaloosa and Walton counties, Florida (CHELCO undated). Gulf Power Company, a subsidiary of Southern Company, also services Okaloosa County. Gulf Power's service territory spans the area from the Alabama border on the west to the Apalachicola River on the east and from the Alabama border on the north to the Gulf of Mexico on the south. Gulf Power owns, in part, seven plants in Mississippi, Florida, and Georgia which produce a total generating capacity of 2,711,900 kilowatts (KW) to serve customers in 71 towns and communities (Gulf Power 2007).

***Natural Gas.*** Natural gas is supplied to several areas in Okaloosa County, Florida, by the county gas district. The Okaloosa County Gas District buys approximately 34 million cubic feet per day (mmcfd) total gas from the Gulf South and Florida Gas transmission pipelines (AFMC 2006). The Okaloosa County Gas District is part of the economic development council working with Eglin AFB in infrastructure improvements as part of Eglin's Vision 2015 growth management plan (EDCOC 2007c).

***Liquid Fuel.*** Liquid fuels such as heating fuel and other diesel distillates are not commonly used in the warmer climates of the United States. Building heat is generally provided by natural gas because it burns cleaner than liquid fuel and is more cost-effective.

***Water Supply.*** All consumptive uses of water in Florida is regulated under FAC Chapter 40A-2. Potable water is supplied and regulated in Okaloosa County by the FDEP and the NWFWMD. FDEP regulates drinking water quality in compliance with Federal drinking water standards set forth by the Safe Drinking Water Act and the National Primary Drinking Water Regulations, whereas NWFWMD regulates consumptive use of water. Okaloosa County receives most of its water supply from the Floridan Aquifer (AFMC 2006). According to NWFWMD, there are anticipated water problems in the coastal area of Santa Rosa, Okaloosa, and Walton counties where extensive development and significant withdrawals of groundwater have occurred. This area has been designated as a Water Resource Caution Area, and NWFWMD has established a priority list for the development of minimum flows and levels for both groundwater and surface water systems for the effective future management of water resources in these areas (NWFWMD 2007b).

***Sanitary Sewer and Wastewater Systems.*** Domestic wastewater is regulated in Okaloosa County by the FDEP. FDEP regulates wastewater in accordance with the CWA and the Florida Air and Water Pollution Control Act. Both act together to establish water quality standards, regulate domestic wastewater facility management and industrial waste treatment, establish domestic wastewater treatment plant monitoring requirements, and regulate storm water discharge (AFMC 2006). In April 2007, the Okaloosa County commissioners approved a $49 million plan to replace the aging Garnier Wastewater Treatment Plant in Ocean City. A new FDEP approved plant was constructed on 255 acres north of Lewis Turner Boulevard on part of Eglin AFB. The new plant has been constructed to process approximately 10 million gallons per day (MGD), almost double the capacity of the Garnier plant (McDermott 2007).

***Communications.*** Okaloosa County and Eglin AFB are working together to develop a communications infrastructure as part of Eglin's Growth Management Plan, Eglin's Vision 2015. Communications infrastructure will be provided by Florida LambdaRail, a Florida LLC. LambdaRail will operate the fiber optic network infrastructure to deliver Internet and high-speed data transport services (EDCOC 2007b).

Other communications improvements include a new telephone cable along US 98, a new Cox Communications cable, and new cellular towers (EDCOC 2007c).

***Solid Waste Management.*** Solid waste management is provided by two companies in the Okaloosa County area. Waste Management Systems has 283 active landfill sites and currently disposes of more than 125 million tons of waste per year throughout North America. (WM 2007) BFI Emerald Coast Division of Allied Waste Company also services this area. Allied Waste Company operates a network of 304 collection companies, 161 transfer stations, 168 active landfills, and 57 recycling facilities in 37 states and Puerto Rico (AW 2006).

## 3.11 Hazardous Materials and Wastes

### 3.11.1 Definition of the Resource

Hazardous material is defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act, as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous waste is defined by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that poses a substantial present or potential hazard to human health or the environment. In general, both hazardous materials and wastes include substances that, because of their quantity; concentration; or physical, chemical, or infectious characteristics, might present substantial danger to public health or welfare or the environment when released or otherwise improperly managed.

Evaluation of hazardous materials and wastes focuses on underground storage tanks (USTs) and aboveground storage tanks (ASTs); and the storage, transport, handling, and use of pesticides and herbicides, fuels, and petroleum, oil, and lubricants (POL). Evaluation might also extend to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well being of wildlife species, botanical habitats, soil systems, and water resources. In the event of release of hazardous materials or wastes, the extent of contamination varies based on the type of soil, topography, and water resources.

Special hazards are those substances that might pose a risk to human health but are not regulated as contaminants under the hazardous wastes statutes. Potential hazards generally associated with demolition and renovation of older buildings include asbestos-containing material (ACM) and lead-based paint (LBP). Information on special hazards describing their locations, quantities, and condition assists in determining the significance of a proposed action.

To protect habitats and people from inadvertent and potentially harmful releases of hazardous substances, the DOD has dictated that all facilities develop and implement Hazardous Material Emergency Planning and Response Plans or Spill Prevention Control and Countermeasures Plans. Also, DOD has developed the Environmental Restoration Program (ERP), intended to facilitate thorough investigation and cleanup of contaminated sites on military installations. Through ERP, DOD evaluates and cleans up sites where hazardous wastes have been spilled or released to the environment. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, control the migration of contaminants, minimize potential hazards to human health and the environment, and clean up contamination. Description of ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that might be affected by contaminants. It also aids in identification of properties and their usefulness for given

purposes (e.g., activities dependent on groundwater usage might be restricted until remediation of a groundwater contaminant plume has been completed). These plans and programs, in addition to established legislation (i.e., CERCLA and RCRA), effectively form the "safety net" intended to protect the ecosystems on which most living organisms depend.

AFPD 32-70, *Environmental Quality*, establishes the policy that USAF is committed to the following:

- Cleaning up environmental damage resulting from its past activities
- Meeting all environmental standards applicable to its present operations
- Planning its future activities to minimize environmental effects
- Managing responsibly the irreplaceable natural and cultural resources it holds in public trust
- Eliminating pollution from its activities wherever possible.

AFPD 32-70 and the AFI 32-7000 series incorporate the requirements of all Federal regulations, other AFIs and DOD Directives for the management of hazardous materials, hazardous wastes, and special hazards.

## 3.11.2 Existing Conditions

***Pollution Prevention.*** AFI 32-7080, *Pollution Prevention Program*, implements pollution prevention requirements at Eglin AFB. The USAF is required to procure, to the greatest extent practical, recycled or energy-efficient goods for administrative and construction activities. AFI 32-7080 prescribes the establishment of Pollution Prevention Management Plans. Eglin AFB has a Pollution Prevention Management Plan that complies with these mandates, and would require any contractor to comply with these mandates when constructing any leased facilities associated with the ECTRC.

Okaloosa County accepts a variety of household hazardous wastes as part of their effort to responsibly divert hazardous waste from local landfills. County disposal services include paints, pesticides, used oil, oil filters, pool chemicals, batteries, gas, solvents, paint products, tar, automotive chemicals, fluorescent bulbs, smoke alarms, fire extinguishers, and computer monitors. Since October 1992, more than 2,300,000 pounds of hazardous materials have been recycled, reused, or disposed of at no charge for residents (OCPW undated).

***Hazardous Materials.*** AFI 32-7086, *Hazardous Materials Management*, established procedures and standards to govern management of hazardous materials throughout the USAF. The AFI applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials; and to those who manage, monitor, or track any of those activities. In addition, 10 U.S.C. § 2692, *Storage, treatment, and disposal of nondefense toxic and hazardous materials*, does not permit the storage, treatment, or disposal of any material that is a toxic or hazardous material and that is not owned either by the DOD or by a member of the armed forces (or a dependent of the member) assigned to or provided military housing on the installation unless an exception is granted from the Secretary of Defense.

The majority of hazardous materials procured are for aircraft operations that would not affect the ECTRC. Hazardous materials presently used at the UF-REEF consist of solvents, lubricants, composite materials, and developing solutions.

***Hazardous Wastes.*** Hazardous materials and petroleum products at the current UF-REEF are managed through the University of Florida. No hazardous materials or petroleum products are stored at the UF-REEF site. All maintenance is performed by outside contractors (Runyon 2007).

Eglin AFB produces a variety of wastes from aircraft maintenance, base transportation, and civil engineering activities. Wastes include spent solvents, contaminated fuels, stripping chemicals, waste paint, oils and lubricants, and medical biohazard waste. AFI 32-7042, Hazardous Waste Management Plan, deals with key points in implementing the complex area of hazardous waste management required by RCRA as enforced by the USEPA. The plan covers the control and management of hazardous materials from the point they become hazardous wastes at the point of generation to the point of ultimate disposal. The scope of the plan is implementation of the USEPA's philosophy of "cradle-to-grave" management and control of hazardous waste. AFI 32–7005 regulates the identification, handling, storage, and record-keeping related to hazardous waste on installations. Installation storage areas are permitted through RCRA Part B. Similar to the use and control of hazardous materials, ECTRC would establish procedures for handling, storing, and shipping of any hazardous waste in accordance with state and local regulations.

***Asbestos-Containing Material (ACM).*** Asbestos is a naturally occurring mineral found in nature. It has historically been used in building materials because asbestos is fire-resistant, has high tensile strength, has low heat and electrical conductivity, and is generally impervious to chemical attack. Asbestos can be easily broken down and breathed into the lungs and trapped there. Once trapped in the lungs, asbestos has been determined to cause lung cancer.

In accordance with USEPA guidelines for maintaining and removing ACM, USAF developed AFI 32-1052, Facility Asbestos Management in March 1994. This comprehensive plan provides the direction for asbestos management at USAF installations. AFI 32-1052 incorporates by reference the applicable requirements of 29 CFR Part 669 et seq., 29 CFR 1910.1025, 20 CFR 1926.58, 40 CFR 61.3.80, Section 112 of the CAA, and other applicable AFIs and DOD Directives. AFI 31-1052 requires each installation to develop an asbestos management plan to maintain a permanent record of the status and condition of all ACM in installation facilities, record asbestos management efforts, and detail asbestos removal plans. Asbestos has been banned from use in building materials since the late 1970s. Therefore, ACM will not be used in the construction of the new ECTRC.

***Lead-Based Paint (LBP).*** In October 1992, Congress passed The Residential Lead-Based Paint Hazard Reduction Act of 1992, as promulgated in 40 CFR Part 745, and 24 CFR Part 35 which requires disclosure by persons selling or leasing housing constructed before the phase out of residential LBP use in 1978 if known LBP or LBP hazards exist. This act, commonly called Title X, requires Federal agencies to comply with Federal, state, and local laws relating to LBP activities and hazards.

USAF policy requires that installations have specific procedures for managing facilities with LBP and protecting personnel from the hazards associated with deteriorated LBP. The LBP Management Plan focuses on protecting children from LBP and preventing facility occupants from exposure to LBP. LBPs will not be used in the construction of the ECTRC.

***Radon.*** Radon is a naturally occurring radioactive gas that develops in soils and rocks as uranium decays. Radon has the tendency to accumulate in enclosed spaces such as basements that are generally below ground and have poor ventilation. Radon is an odorless, colorless gas that has been determined to increase the risk of developing lung cancer. The average (mean) radon level in homes in the United States is approximately 1.3 picocuries per liter (pCi/L) which is three times greater than the average outdoor level of 0.4 pCi/L. Because of this risk, the USEPA recommends that Americans consider fixing their home when radon levels are between 2 pCi/L and 4 pCi/L.

USEPA developed the USEPA Map of Radon Zones using five factors to determine radon potential: indoor radon measurements, geology, aerial radioactivity, soil permeability, and foundation type. Radon potential assessment is based on geologic provinces, and is the quantitative assessment of radon potential.

According to the USEPA Radon Zone map for Okaloosa County, Florida, the radon potential at the base is in a zone of low potential. Based on this assessment, the USEPA has assessed that Okaloosa County - has a predicted average indoor radon screening level less than 2 pCi/L (USEPA 2007).

***Environmental Restoration Program (ERP).*** The ERP, formerly known as the Installation Restoration Program, is a subcomponent of the Defense ERP that became law under SARA. The ERP requires each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites. There are no ERP sites recorded on the alternative locations being considered for construction of the ECTRC.

An Environmental Baseline Survey (EBS) is being prepared for this project for potential recognizable environmental conditions associated with the Proposed Action.

# 4. Environmental Consequences

This section describes the potential environmental effects of implementing the Proposed Action at the alternative site locations. An assessment of the No Action Alternative is also included, as required by CEQ. The No Action Alternative serves as a baseline for comparison of the alternatives considered.

## 4.1 Acoustical Environment

### 4.1.1 Evaluation Criteria

An analysis of the potential impacts associated with noise typically evaluates potential changes to the existing noise environment that would result from implementation of a proposed action. Potential changes in the acoustical environment can be beneficial (i.e., they reduce the number of sensitive receptors exposed to unacceptable noise levels or reduce the ambient sound level), negligible (i.e., the total number of sensitive receptors to unacceptable noise levels is essentially unchanged), or adverse (i.e., they result in increased sound exposure to unacceptable noise levels or ultimately increase the ambient sound level). Projected noise effects were evaluated qualitatively for the alternatives considered.

### 4.1.2 Site Alternative 1

Under the Proposed Action, an increase in noise levels could originate from construction equipment, vehicular traffic, and aircraft operations.

***Construction Noise.*** Noise from construction activities varies depending on the type of construction being done, the area that the project would occur in, and the distance from the source. Construction projects under Site Alternative 1 include building and paving activities. To predict how these activities would affect populations, noise from the anticipated construction was estimated. For example, as shown in **Table 3-1**, building construction usually involves several pieces of equipment (e.g., saws and haul trucks) that can be used simultaneously. Cumulative noise from the construction equipment during the busiest day was estimated to determine the total effect of noise from building activities at a given distance. See **Appendix F** for noise level calculations. Examples of expected construction noise during daytime hours for Site Alternative 1 are as follows:

- The closest residents would be approximately 1,700 feet southwest of construction activities. Populations would experience noise levels from construction of approximately 55 dBA.
- Employees and students in the current UF-REEF building, adjacent to the construction site, would experience noise levels of approximately 85 dBA while outside the building, and an estimated exposure of 70 dBA while inside the building.

Short-term impacts on the noise environment from the use of heavy equipment during construction activities will not be significant. Noise generation would last only for the duration of construction activities and would be isolated to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.). Noise effects from increased traffic due to construction vehicles would also be temporary in nature. Therefore, no significant impacts would occur from construction noise under Site Alternative 1.

***Vehicular Noise.*** Construction, civilian, and military traffic entering the proposed site would enter from Poquito Road most likely via SR 189. There would be an increase in vehicle traffic during and after construction of the proposed project. However, the majority of this traffic would likely travel along SR 189, which is heavily utilized. It is also anticipated that the increase in long-term vehicular traffic would occur mostly on SR 189. Since this road is heavily utilized, the additional traffic from implementation of

the ECTRC at Site Alternative 1 would likely cause minor increases in noise levels on noise-sensitive populations. No significant impacts would occur from vehicular noise under Site Alternative 1.

***Aircraft Noise.*** The land, including the existing UF-REEF, at Site Alternative 1 is outside the DNL of 65–70 dBA noise level from aircraft operations at Eglin AFB (see **Figure 4-1**). Land use compatibility with respect to construction of the ECTRC complex at Site Alternative 1 is discussed in **Section 4.2.2**. Therefore, no significant impacts would occur from aircraft noise under Site Alternative 1.

### 4.1.3 Site Alternative 2

Under the Proposed Action, an increase in noise levels could originate from construction equipment, vehicular traffic, and aircraft operations.

***Construction Noise.*** The ECTRC buildings would be constructed northeast of the UF-REEF and SR 189.

As discussed in **Section 4.1.2**, the construction projects include mainly building and paving activities. An example of expected construction noise during daytime hours at Site Alternative 2 is as follows:

- The closest residents would be approximately 4,000 feet southwest of construction activity on Longwood Drive and south on Azalea Drive. Populations would experience noise levels from construction of approximately 47 dBA.

Noise impacts will not be significant. Implementation of the Proposed Action would involve the use of heavy equipment during construction activities. Noise generation would last only for the duration of construction activities and would be isolated to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.). Noise effects from increased traffic due to construction vehicles would also be temporary in nature. Therefore, no significant impacts would occur from construction noise under Site Alternative 2.

***Vehicular Noise.*** The access road to Site Alternative 2 would likely be constructed from SR 189. Construction, civilian, and military traffic would utilize the access road. SR 189 is heavily utilized, consequently, the additional short-term and long-term increase in traffic would likely cause minor increases in noise levels on noise–sensitive populations on SR 189. No significant impacts would occur from vehicular noise under Site Alternative 2.

***Aircraft Noise.*** As shown on **Figure 4-1**, Site Alternative 2 is within the DNL of 65–75+ dBA noise level from aircraft operations at Eglin AFB. The majority of the land at Site Alternative 2 (197 acres) is within the DNL of 65–69+ dBA noise level; 67 acres lie within the 70-74 dBA contour; and 2 acres and the northeast corner are within 75-79 dBA. Consequently, noise levels from the proposed aircraft operations at Eglin AFB would be higher at Site Alternative 2 than at Site Alternatives 1 or 3. This makes Alternative 2 less suitable than Alternatives 1 or 3. Land use compatibility with respect to construction of the ECTRC complex at Site Alternative 2 is discussed in **Section 4.2.3**. Therefore, no significant impacts would occur from aircraft noise under Site Alternative 2.

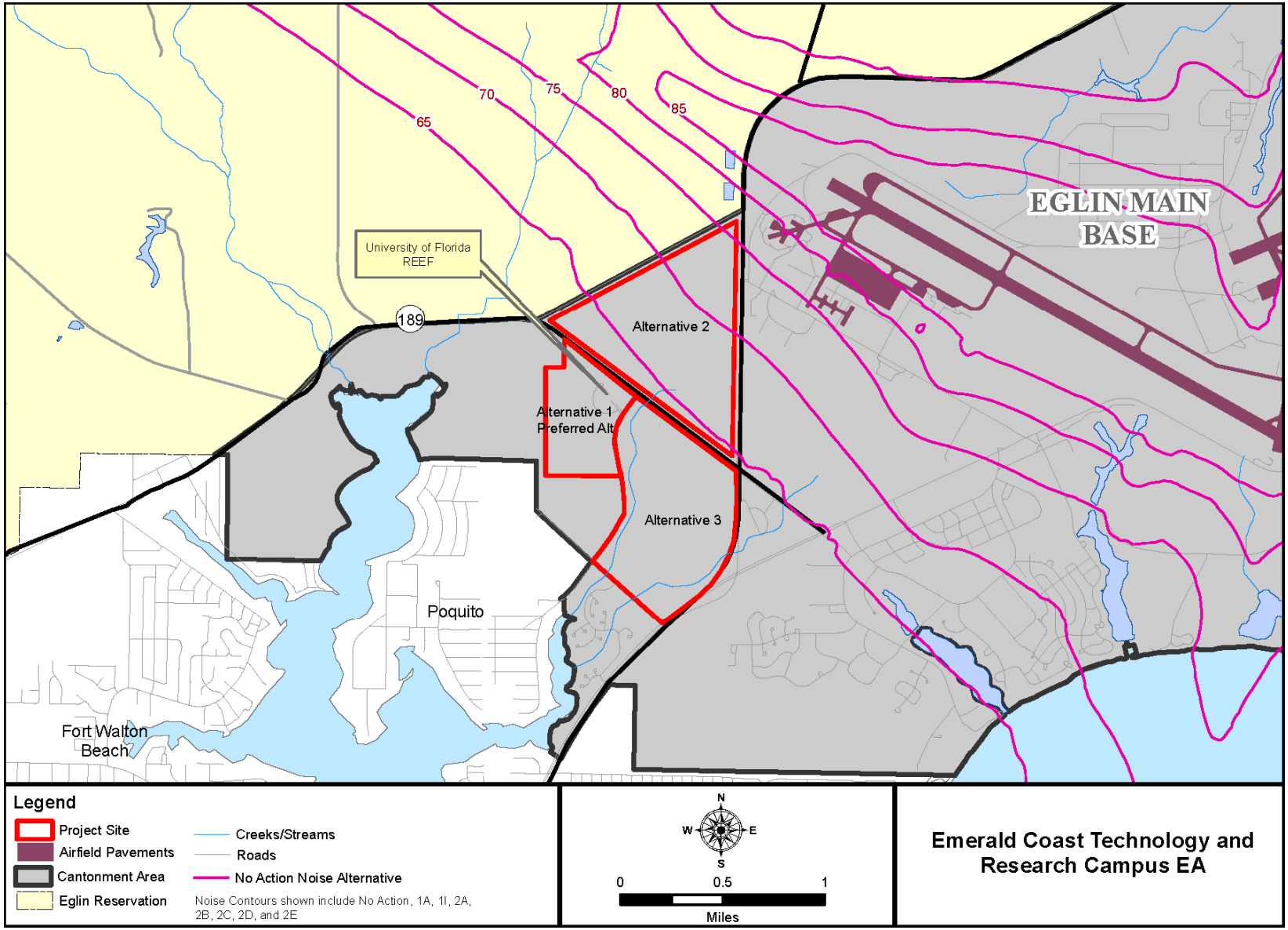



**Figure 4-1. Noise Contours in Relation to the Proposed ECTRC Site Locations**

### 4.1.4 Site Alternative 3

Under the Proposed Action, an increase in noise levels could originate from construction equipment, vehicular traffic, and aircraft operations.

***Construction Noise.*** The ECTRC would be constructed southeast of the UF-REEF. The buildings for the proposed ECTRC would be the same under all of the alternatives.

As discussed in **Section 4.1.2**, the construction projects include building and paving activities. Examples of expected construction noise during daytime hours at Site Alternative 3 are as follows:

- The closest residents would be approximately 700 feet south of construction activities on Sweet Bay Circle. Populations would experience noise levels from construction of approximately 63 dBA.
- Residents approximately 950 feet southeast of construction on Ash Drive would experience noise levels from construction of approximately 60 dBA.

Short-term impacts will not be significant. Implementation of the Proposed Action would involve the use of heavy equipment during construction activities. Noise generation would last only for the duration of construction activities and would be isolated to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.). Noise effects from increased traffic due to construction vehicles would also be temporary in nature. Therefore, no significant impacts would occur from construction noise under Site Alternative 3.

***Vehicular Noise.*** Construction, civilian, and military traffic entering Site Alternative 3 would likely enter from SR 189, SR 85, or Poquito Road. SR 189 is heavily utilized, consequently, the additional traffic would likely cause minor increases in noise levels for noise-sensitive populations on SR 189. The increase in traffic under the Proposed Action would likely occur mainly on SR 189. However, additional traffic could travel on SR 85 and Poquito Road. These roadways are not as heavily traveled as SR 189 and there are a greater number of residential homes adjacent to the roads. Long-term impacts will not be significant. Additional traffic on SR 85 or Poquito Road could cause minor noise impacts on noise-sensitive populations. No significant impacts would occur from vehicular noise under Site Alternative 3.

***Aircraft Noise.*** The land at Site Alternative 3 is outside the DNL of 65 dBA Eglin AFB noise level (see **Figure 4-1**). Land use compatibility with respect to construction of the ECTRC complex at Site Alternative 3 is discussed in **Section 4.2.4**. Potential noise impacts on fauna are discussed in **Section 4.7.2**. Therefore, no significant impacts would occur from aircraft noise under Site Alternative 3.

### 4.1.5 No Action Alternative

Under the No Action Alternative, the ECTRC would not be constructed. The affected environment described in **Section 3.2.2** would remain unchanged. No significant impacts on the ambient noise environment would occur under the No Action Alternative.

## 4.2 Land Use

### 4.2.1 Evaluation Criteria

An analysis of the effects on land use addresses the potential for impacts on residential communities to occur, as well as the potential for buildings and other obstructions to intrude into safeguarded airspace. New construction should be compatible with current land use guidelines. Land use can remain

compatible, become compatible, or become incompatible. Projected compatibility issues were measured both qualitatively and quantitatively. The level of potential land use effects is based on the degree of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions. In general, a land use effect would be significant if it met any of the following criteria:

- Was inconsistent or in noncompliance with existing land use plans or policies
- Precluded the viability of existing land use
- Precluded continued use or occupation of an area
- Was incompatible with adjacent land use to the extent that public health or safety is threatened
- Conflicted with planning criteria established to ensure the safety and protection of human life and property
- Was inconsistent with a state's coastal zone management program and adverse effects could not be mitigated through coordination with the state.

### 4.2.2 Site Alternative 1

Under the Proposed Action, land would be used for education, office, hotel, residence, daycare, and commercial purposes. Facilities at Site Alternative 1 would be constructed adjacent to the current UF-REEF, which as previously mentioned, is used for education purposes. Site Alternative 1 is surrounded by Eglin AFB property except to the southwest. Most of the non-military property southwest of Site Alternative 1 is developed and consists of residential and industrial uses. Future land use in this area is "unofficially" designated for low and medium density residential use (Okaloosa County 2007b). In addition, according to the Economic Development Council, the current zoning "will allow for" the development of the ECTRC (EDCOC 2007e). Consequently, the proposed ECTRC would not preclude the viability of existing adjacent land uses since it is compatible with the land use on the current UF-REEF site.

The closest residential houses would be approximately 0.3 mile from the proposed facilities. The area between the proposed facilities and the residential neighborhoods is forested. Consequently, residences would not be able to see the proposed facilities or activities. In addition, it is not anticipated that noise from human activities at the site would cause adverse impacts. Eglin AFB Main Base is 1 to 2 miles southeast of Site Alternative 1; consequently noise from activities at the proposed ECTRC would not impact personnel at the Main Base.

Transportation impacts are discussed in **Section 4.9** and **Section 4.11.1**. Although traffic congestion and delays could occur during rush hours, it is not anticipated that the Proposed Action would adversely impact the viability of the existing land use.

As shown in **Figure 4-1**, Site Alternative 1 is not affected by noise levels at or above a DNL value of 65 dBA from aircraft operations at Eglin AFB.

Educational land is not considered to be a compatible use in areas with predicted noise levels that are 75 dBA or higher. Educational land use in the 65–74 dBA noise level is generally considered to be compatible with noise level reduction measures. However, measures to achieve the necessary reduction need to be incorporated into the design and construction of the structures. A specific land use category does not exist for day care facilities in the AFH 32-7084. Therefore, the day care facility has been categorized as educational services.

Consequently, as far as noise is concerned, the location of each of the ECTRC facilities at Site Alternative 1 requires no additional noise level reduction measures to be incorporated into the design of the buildings to make them compatible.

Eglin AFB has imposed height restrictions of 100 feet above ground level for construction on and adjacent to the installation. Therefore, all of the proposed facilities would need to be constructed at a height lower than 100 feet above ground level.

As discussed in **Section 2.1**, the ECTRC would be constructed on property owned by Eglin AFB and leased to a private developer under the EUL program. The lessee would be responsible for developing and operating the buildings. The current UF-REEF is at Site Alternative 1 and is utilized for educational purposes. The proposed ECTRC facilities would also be utilized for educational purposes. Consequently, the proposed ECTRC would be compatible with the existing land use.

Eglin AFB has prepared a consistency determination under the CZMA **(Appendix D)**, concluding that the Proposed Action would be consistent with the enforceable policies of the Florida Coastal Management Program. It is not anticipated that the Proposed Action would have reasonably foreseeable effects on resources of the coastal zone. The CZMA consistency determination will undergo review through the Florida Coastal Management Program, and any concurrence will be included in the Final EA.

Therefore, no significant impacts would occur on land use under Site Alternative 1.

### 4.2.3 Site Alternative 2

**Table 4-1. Land Use Compatibility**

| Land Use | Noise Zones | | | |
|---|---|---|---|---|
| | 65–69 dBA | 70–74 dBA | 75–79 dBA | 80+ dBA |
| Residential Single Units, Apartments | A[a] | B[a] | N | N |
| Business or Professional Services | Y | A | B | N |
| Educational Services | A* | B* | N | N |
| Retail trade General and Food Related | Y | A | B | N |
| Highway and Street right-of-way (including applicable public facilities and office areas) | Y | Y[b] | Y[c] | Y[d] |

Source: AFH 32-7084

Notes:

Y – (Yes) – Land uses and related structures are compatible without restriction.

N – (No) – Land use and related structures are not compatible and should be prohibited.

$Y^X$ – (yes with restrictions) – Land use and related structures generally compatible; see notes indicated by the superscript.

NLR – Noise Level Reduction (NLR) (outdoor to indoor) to be achieved through incorporation of noise attenuation measures into the design and construction of the structures.

A, B, or C – Land use and related structures generally compatible; measures to achieve NLR for A (65–69 dBA), B (70–74 dBA), C (75–79 dBA), need to be incorporated into the design and construction of structures.

$A^*$, $B^*$, and $C^*$ – Land use generally compatible with NLR; however, measures to achieve an overall noise level reduction do not necessarily solve noise issues and additional evaluation is warranted. See appropriate notes below.

***** – The designation of these uses as "compatible" in this zone reflects individual Federal agencies and program considerations of general cost and feasibility factors, as well as past community experiences and program objectives. Localities, when evaluating

the application of these guidelines to specific situations, might have different concerns or goals to consider.

a. (i) Although local conditions could require residential use, it is discouraged in the 65–69 dBA noise zone and strongly discouraged in the 70–74 dBA noise zone. The absence of viable alternative development options should be determined and an evaluation indicating a demonstrated community need for residential use would not be met if development were prohibited in these zones should be conducted prior to approvals.

   (ii) Where the community determines the residential uses must be allowed, measures to achieve outdoor-to-indoor NLR for the 65–69 dBA noise zone and the 70–74 dBA noise zone should be incorporated into building codes and considered in individual approvals.

   (iii) NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers can help mitigate outdoor exposure, particularly from near ground level sources. Measures that reduce outdoor noise should be used whenever practical in preference to measures that only protect interior spaces.

b. Measures to achieve the same NLR as required for facilities in the 65–69 dBA range 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.

c. Measures to achieve the same NLR as required for facilities in the 70–74 dBA range 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.

d. Measures to achieve the same NLR as required for facilities in the 75–79 dBA range 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.

In the *General Plan, Eglin AFB Main Base and Duke Field* (AAC undated), the current land use at Site Alternative 2 is identified as open space; future land use is listed as administrative, which is compatible with the proposed ECTRC. In the *General Plan*, Site Alternative 2 is intended for future development with a campus environment similar to the current UF-REEF. However, this area should only be developed after prospects to reuse existing facilities or build in developed areas have been considered. Buffering or screening measures might need to be incorporated into the design of the facilities to prevent a conflict with the airfield to the east. In accordance with UFC 3-260-1, development in this area should not extend beyond 150 feet above runway level.

Site Alternative 2 is surrounded by Eglin AFB property. Future land use on the Eglin AFB Main Base property surrounding Site Alternative 2 is planned for administrative use, which is compatible with the Proposed Action (AAC undated). Consequently, the proposed ECTRC would not preclude the viability of existing adjacent land uses or future plans since it is consistent with the planned future land uses as outlined in the *General Plan, Eglin AFB Main Base and Duke Field*. There are no noise sensitive land uses adjacent to Site Alternative 2. Consequently, it is not anticipated that noise from human activities at the site would cause impacts on noise-sensitive populations. Eglin AFB Main Base is 1 to 2 miles southeast of Site Alternative 2; consequently noise from activities at the proposed ECTRC would not impact personnel at the Main Base.

Transportation impacts are discussed in **Section 4.9** and **Section 4.11.1**. Although traffic congestion and delays could occur during rush hours, it is not anticipated that the Proposed Action would impact the viability of the existing land use.

As shown in **Figure 4-1**, Site Alternative 2 is affected by noise levels at or above a DNL value of 65 dBA from aircraft operations at Eglin AFB. The noise levels at Site Alternative 2 range from a level under 65 dBA at the southwestern end of the site to nearly 80 dBA at the northeastern end of the site.

As shown in **Table 4-1** and discussed in **Section 4.2.2**, educational land use is not considered to be compatible in areas with predicted noise levels that are 75 dBA or higher, which includes the land in the northeastern section of the site. Educational land use in the 65–74 dBA noise levels (which includes the majority of the land in Site Alternative 2) is generally considered compatible if noise level reduction measures are incorporated into the design and construction of the structures. In addition, residential land

use is strongly discouraged in the 70–74 dBA noise levels and prohibited above 74 dBA. See **Section 4.2.2** for additional information on land use compatibility.

The noise levels from aircraft operations at Eglin AFB at Site Alternative 2 are higher than the noise levels at Site Alternatives 1 or 3. Consequently, the location of each of the ECTRC facilities at Site Alternative 2 would need to be carefully considered and noise level reduction measures would need to be incorporated into the design of the buildings to make them compatible.

Property at Site Alternative 2 is owned by Eglin AFB. The proposed ECTRC would be leased to a private developer under the EUL program. The lessee would be responsible for developing and operating the buildings. Consequently, the developer would be responsible for adhering to any required noise level reduction measures and height restriction requirements.

Therefore, no significant impacts would occur on land use under Site Alternative 2.

### 4.2.4 Site Alternative 3

In the *General Plan Eglin AFB Main Base and Duke Field* (AAC undated), the current land use identified for this area is open space; future land use is administrative, which is compatible with the proposed ECTRC. Site Alternative 3 is surrounded by Eglin AFB property. Future land use on the Eglin AFB property surrounding Site Alternative 3 is planned for administrative use, community service, and housing (accompanied) (AAC undated). Non-military property west of Site Alternative 3 is developed and consists of residential and industrial uses. Future land use in this area is "unofficially" designated for low and medium density residential use (Okaloosa County 2007b). The proposed ECTRC would not preclude the viability of existing adjacent land uses or future plans since it is compatible with the land use on the current UF-REEF site and is consistent with the planned future land uses as outlined in the *General Plan, Eglin AFB Main Base and Duke Field*.

Residential neighborhoods are south, southwest, and west from Site Alternative 3. Adjacent populations could be impacted by noise and activities under the Proposed Action depending on the location of the proposed facilities on the parcel and if the surrounding forest was left intact. Eglin AFB Main Base is about a mile southeast of Site Alternative 3; consequently noise from activities at the proposed ECTRC would not impact personnel at the Main Base.

Transportation impacts are discussed in **Section 4.9** and **Section 4.11.1**. Although traffic congestion and delays could occur during rush hours, it is not anticipated that the Proposed Action would impact the viability of the existing land use.

As shown in **Figure 4-1**, Site Alternative 3 is not affected by noise levels at or above a DNL value of 65 dBA from aircraft operations at Eglin AFB.

Property at Site Alternative 3 is owned by Eglin AFB. The proposed ECTRC would be leased to a private developer under the EUL program. The lessee would be responsible for developing and operating the buildings. In addition, the height of the buildings at Site Alternative 3 would need to be constructed lower than 100 feet above ground level to adhere to Eglin AFB's height restrictions for structures.

Therefore, no significant impacts would occur on land use under Site Alternative 3.

### 4.2.5 No Action Alternative

Under the No Action Alternative, the ECTRC would not be constructed. The affected environment described in **Section 3.3.2** would remain. No significant impacts on the land use would occur under the No Action Alternative.

## 4.3 Air Quality

### 4.3.1 Evaluation Criteria

The environmental consequences to local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions compared to existing conditions and ambient air quality. Specifically, the impacts in NAAQS "attainment" areas would be considered significant if the net increases in pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Represent an increase of 10 percent or more in an affected AQCR emissions inventory
- Exceed any Evaluation Criteria established by a SIP.

The General Conformity Rule applies only to actions in nonattainment or maintenance areas; all the alternatives are in an area of attainment, so the General Conformity Rule requirements are not applicable.

The air quality analysis focuses on emissions associated with the construction activities. The analysis does not address air quality issues associated with operational activities at Eglin AFB after the completion of construction. Carbon dioxide (CO2) emissions are approximated using available emission factors for construction equipment. On February 18, 2010, the CEQ released its Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas (GHG) Emissions, which suggests that the potential effects of GHG emissions from proposed actions are by nature global and cumulative. Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions of CO2-equivalent, or CO2(e), quantified for local actions to any specific climatological change or resulting environmental impact.

Further, the Proposed Action would include combustion of fossil fuels, which would lead to increased greenhouse gas emissions. However, the CEQ recommended that emissions equal to or greater than 25,000 metric tons annually should be included in NEPA assessments (CEQ, 2010). Project C&D emissions from fossil fuel combustion would not approach 25,000 metric tons. Thus, no significant impacts to local or regional air quality would result from activities at Eglin AFB associated with implementation of the Proposed Action under any of the alternatives.

### 4.3.2 Site Alternative 1

Site Alternative 1 would generate both temporary and long-term air pollutant emissions. The construction projects associated with Site Alternative 1 would generate air pollutant emissions as a result of grading, filling, compacting, trenching, and construction operations, but these emissions would be temporary and would not be expected to generate any off-site effects. Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with the NAAQS.

The construction projects would generate total suspended particulate and $PM_{10}$ emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Fugitive dust emissions for various construction activities were calculated using emissions factors and assumptions published in USEPA's AP-42 (USEPA 2006a). These estimates assume that 230 working days are available per year for construction (accounting for weekends, weather, and holidays).

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment, as well as evaporative emissions from architectural coatings and asphalt paving operations. These emissions would be of a temporary nature. The emissions factors and estimates were generated based on guidance provided in USEPA AP-42 (USEPA 2006a).

Operational emissions associated with the Proposed Action would not be expected to result in effects on air quality. Day-to-day operations associated with the Proposed Action would generate emissions of criteria pollutants as combustion products from the burning of natural gas by boilers used to provide comfort heating as well as the combustion of fuel oil by emergency generators to produce electrical power. All new stationary source emissions would be addressed through Federal and state permitting program requirements under New Source Review (NSR) regulations (40 CFR Parts 51 and 52).

The Proposed Action is scheduled to occur over a 5- to 7-year period and it is not known at this time which construction projects would occur in what year. Therefore, the total construction estimates were averaged over a 5-year time period to help estimate the worst-case scenario to local and regional air quality. The average proposed construction emissions estimates for calendar year (CY) 2009 compared to MPPCSMI AQCR regional emissions (USEPA 2006b) are presented in **Table 4-2**.

**Table 4-2. Average Annual Air Quality Emissions Estimates from Construction Activities Related to Site Alternative 1**

| Description | $NO_x$ (tpy) | VOC (tpy) | CO (tpy) | $SO_x$ (tpy) | $PM_{10}$ (tpy) |
|---|---|---|---|---|---|
| Proposed Construction Combustion | 30.395 | 9.562 | 68.958 | 1.770 | 2.013 |
| Proposed Construction Fugitive Dust | -- | -- | -- | -- | 24.252 |
| **Total Emissions** | **30.395** | **9.562** | **68.958** | **1.770** | **26.265** |
| MPPCSMI AQCR Regional Emissions (2001) | 393,759 | 620,543 | 1,842,768 | 384,684 | 336,547 |
| Percent of Regional Emissions Inventory | 0.0077% | 0.0015% | 0.0037% | 0.0005% | 0.0078% |

Since Eglin AFB is in attainment for all criteria pollutants, General Conformity Rule requirements are not applicable. In addition, Site Alternative 1 would generate emissions well below 10 percent of the emissions inventories for the MPPCSMI AQCR and the emissions would be short-term. Therefore, the construction activities associated with Site Alternative 1 would not have significant effects on air quality at Eglin AFB or on regional or local air quality. Emissions factors, calculations, and estimates of emissions are shown in detail in **Appendix C**.

According to 40 CFR Part 81, there are no Class I areas in the vicinity of Eglin AFB. Therefore, Federal PSD regulations would not apply to the Proposed Action.

Therefore, no significant impacts would occur to air quality under Site Alternative 1.

### 4.3.3 Site Alternative 2

Site Alternative 2 would have the same effects on regional and local air quality as Site Alternative 1. Since Eglin AFB is in attainment for all criteria pollutants, General Conformity Rule requirements are not applicable. In addition, Site Alternative 2 would generate emissions well below 10 percent of the emissions inventories for the MPPCSMI AQCR and the emissions would be short-term. Therefore, the construction activities associated with Site Alternative 2 would not have significant effects on air quality at Eglin AFB or on regional or local air quality. Emissions factors, calculations, and estimates of emissions are shown in detail in **Appendix C**.

### 4.3.4 Site Alternative 3

Site Alternative 3 would have the same effects on regional and local air quality as Site Alternative 1. Since Eglin AFB is in attainment for all criteria pollutants, General Conformity Rule requirements are not applicable. In addition, Site Alternative 3 would generate emissions well below 10 percent of the emissions inventories for the MPPCSMI AQCR and the emissions would be short-term. Therefore, the construction activities associated with Site Alternative 3 would not have significant effects on air quality at Eglin AFB or on regional or local air quality. Emissions factors, calculations, and estimates of emissions are shown in detail in **Appendix C**.

### 4.3.5 No Action Alternative

Under the No Action Alternative, Eglin AFB would not implement the development of the ECTRC, which would result in the continuation of the existing condition, as described in **Section 3**. No significant impacts would be expected on local or regional air quality from the No Action Alternative.

## 4.4 Safety

### 4.4.1 Evaluation Criteria

If implementation of the Proposed Action were to substantially increase risks associated with the safety of construction personnel, contractors, or the local community, or substantially hinder the ability to respond to an emergency, it would represent a significant impact. Impacts were assessed based on the potential effects of construction and operational activities.

### 4.4.2 Site Alternative 1

Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at the chosen project sites during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Constructing the proposed facilities and infrastructure would not pose a safety risk to other personnel or to activities at or within the vicinity of the chosen project area. Work areas surrounding construction and renovation activities would be fenced and appropriate signs posted to further reduce safety risks to outside personnel. No effects regarding fire hazards or public safety would be expected to occur within the vicinity of the chosen project areas. All construction activities would occur outside of

areas where munitions and ammunition are stored or handled and are not within any ESQD or security clear zones. Projects associated with Site Alternative 1 would have no significant safety impacts.

### 4.4.3 Site Alternative 2

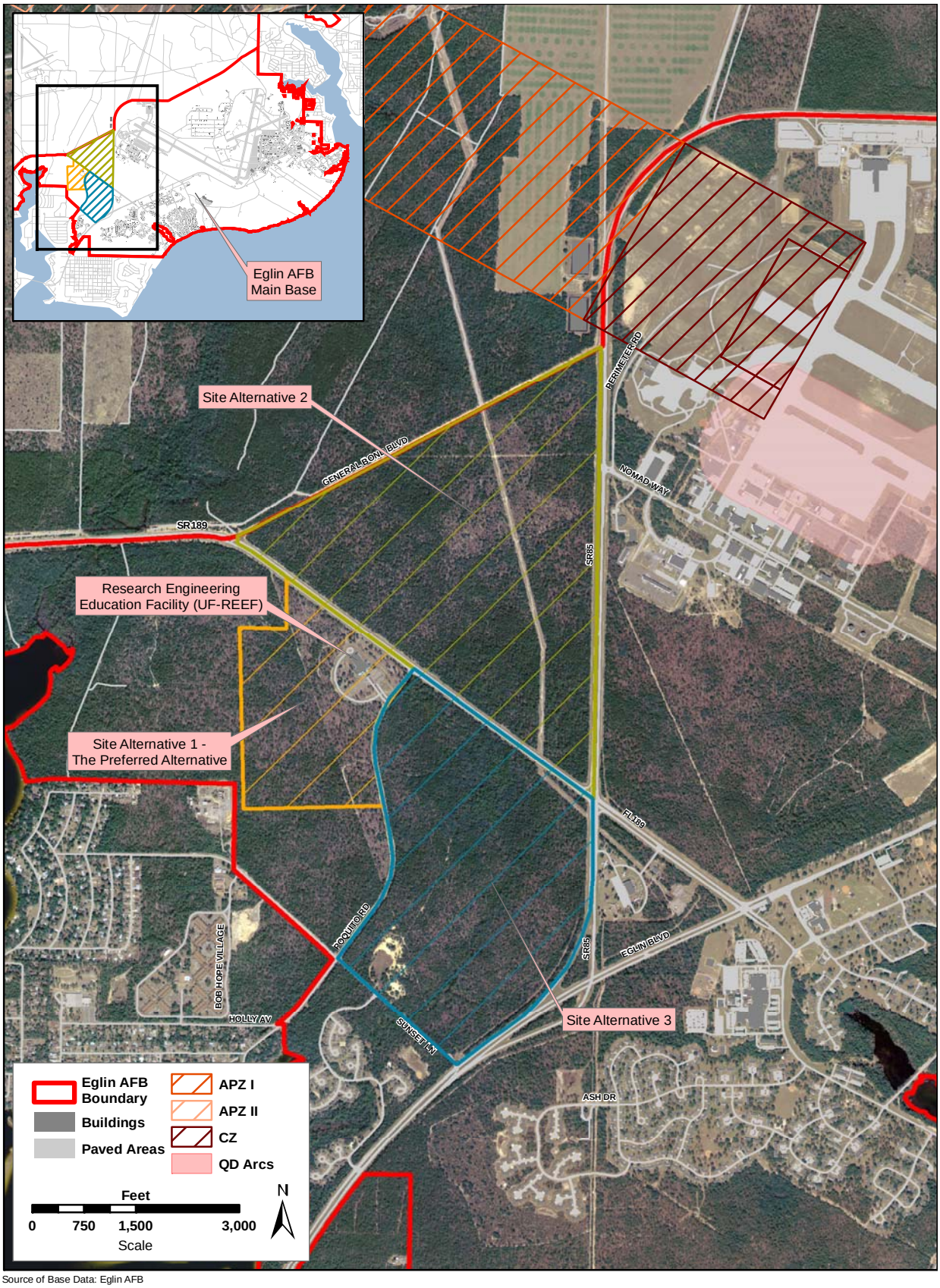
Site Alternative 2 would have the same effects on construction safety as Site Alternative 1. An ESQD arc surrounding the hot cargo area and a runway clear zone are located close to the proposed location but are not within the Site Alternative 2 project area (see **Figure 4-2**). Since the ESQD arc and clear zone are not within the Site Alternative 2 project area, these zones would have no significant safety impacts.

### 4.4.4 Site Alternative 3

Site Alternative 3 would have the same effects on construction safety as Site Alternative 1. All construction activities would occur outside of areas where munitions and ammunition are stored or handled and are not within any ESQD or security clear zones. Therefore, projects associated with Site Alternative 3 would have no significant safety impacts.

### 4.4.5 No Action Alternative

Under the No Action Alternative, the proposed facilities would not be constructed, resulting in continuation of the existing condition as described in **Section 3.5.2.** No impacts on safety would be expected.




Source of Base Data: Eglin AFB

**Figure 4-2. Safety and Clear Zones Near Site Alternative 2**

# 4.5 Geological Resources

## 4.5.1 Evaluation Criteria

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential effects of a proposed action on geological resources. Generally, effects can be avoided or minimized if proper construction techniques, erosion-control measures, and structural engineering design are incorporated into project development.

Impacts on geology and soils would be significant if they would alter the lithology, stratigraphy, and geological structures that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability; or change the soil composition, structure, or function (including prime farmland and other unique soils) within the environment.

## 4.5.2 Site Alternative 1

Very minor changes in the local topography would be expected as a result of grading and filling to level the topography for the proposed ECTRC parking, roads, and structures. Grading and filling activities would also result in soil disturbance and soil erosion. The Proposed Action would require an NPDES Generic Permit for Storm Water Discharge from Large Construction Activities from FDEP. The NPDES construction permit would require preparation of a site-specific Storm Water Pollution Prevention Plan (SWPPP) that identifies appropriate erosion and sediment control measures. Examples of erosion and sediment controls and best management practices (BMPs) could include temporary sediment basins, sediment fencing, or revegetation for ground stabilization. All construction activities would comply with the requirements of the NDPES construction permit. The Lakeland soil series at Site Alternative 1 is sandy and rapidly permeable and storm water generally infiltrates rapidly. Overall, it is anticipated that implementation of BMPs to reduce erosion and sedimentation, coupled with the inherent site-specific soil conditions, would result in no significant impact on soils under Site Alternative 1.

## 4.5.3 Site Alternative 2

The effects of implementation of the Proposed Action at Site Alternative 2 would be comparable to those described for Site Alternative 1 because the geology, local topography, and soil composition are essentially the same. An NPDES Generic Permit for Storm Water Discharge from Large Construction Activities would be required; implementation of a site-specific SWPPP would reduce the potential for effects associated with erosion and sedimentation during ground-disturbing activities. Overall, the local topography of Site Alternative 2 would be altered and grading and filling in of the soil has the potential to result in increased erosion and sedimentation. Therefore, no significant impacts would occur on geological resources under Site Alternative 2.

## 4.5.4 Site Alternative 3

The geology and soil composition are essentially the same, but Site Alternative 3 has slightly more varied local topography on the southern portion of the site because of water channels and the sand pit; there is a greater potential for effects associated with sedimentation and erosion where the topographic relief is more varied. An NPDES Generic Permit for Storm Water Discharge from Large Construction Activities would be required; implementation of a site-specific SWPPP would reduce the potential for effects associated with erosion and sedimentation during ground-disturbing activities. Overall, the local topography of Site Alternative 3 would be altered and grading and filling in of the soil has the potential to

result in increased erosion and sedimentation. Therefore, no significant impacts would occur on geological resources under Site Alternative 3.

### 4.5.5 No Action Alternative

Under the No Action Alternative, the proposed ECTRC would not be constructed under the EUL program, resulting in continuation of the existing condition as described in **Section 3.6.1**. No significant impacts on geological resources would be expected.

## 4.6 Water Resources

### 4.6.1 Evaluation Criteria

Evaluation criteria for effects on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. A proposed action would have significant impacts on water resources if it were to do one or more of the following:

- Substantially reduce water availability or supply to existing users
- Overdraft groundwater basins
- Exceed safe annual yield of water supply sources
- Substantially affect water quality
- Endanger public health by creating or worsening health hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations adopted to protect water resources.

The potential effect of flood hazards on a proposed action is important if such an action occurs in an area with a high probability of flooding.

### 4.6.2 Site Alternative 1

Implementation of BMPs during construction, appropriate management of storm water during and following construction, and adherence to all required permits would result in no significant impacts. It is not anticipated that surface water or groundwater quality or quantity would be noticeably diminished following implementation of the Proposed Action. Potential short- and long-term effects are presented in the following discussion.

***Short-Term Effects.*** Construction activities, such as grading, excavating, and recontouring of the soil, would result in soil disturbance. During storm events, overland storm flow picks up and carries contaminants (e.g., soil or leaked motor oil) directly into receiving surface water bodies or possibly into the surficial Sand and Gravel Aquifer at Eglin AFB. The construction contractor would obtain all necessary construction permits and comply with the requirements and guidelines set forth in those permits.

The Proposed Action would require an NPDES Generic Permit for Storm Water Discharge from Large Construction Activities. A site-specific SWPPP would be prepared in association with the NPDES construction permit that includes BMPs to reduce the potential for soil erosion and prevent contaminant-laden storm water from leaving the construction site. The site-specific SWPPP would be developed by the construction contractor as a bid requirement for the contract, and could include the following measures (EAFB 1999, EAFB 2003):

- Runoff control by minimizing clearing and stabilizing drainage ways
- Erosion control by stabilizing exposed soils, protecting steep slopes, protecting waterways, and phasing construction
- Sediment control by installing perimeter controls, sediment trapping devices, and inlet protection
- Good housekeeping to include general construction site waste management, spill prevention and control plan, and establishing appropriate vehicle maintenance and washing areas
- Adequate personnel training and documentation.

All construction BMPs would be approved by the Eglin AFB Civil Engineering Department to ensure they are adequate. The construction site would also be subject to onsite inspections to ensure that sediment and erosion controls are compliant with the permitting requirements and that good housekeeping measures are being employed.

Assuming proper use of BMPs to contain construction effects to the active construction site, no significant impacts would occur. There are no surface water bodies present at Site Alternative 1, so the potential to affect surface water bodies is diminished because overland storm water flow would be controlled, retained, and treated if necessary according to the site-specific SWPPP. In the event of a spill or leak of fuel or other construction-related products, there could be effects on the surficial Sand and Gravel Aquifer. This aquifer is not used for potable water supply in the immediate vicinity of Eglin AFB, but it is used in that capacity further west. All construction equipment would be maintained according to the manufacturer's specifications to ensure it is in proper working order. All fuels and other potentially hazardous materials would be contained and stored appropriately. In the event of a spill, procedures identified in the Eglin AFB Spill Prevention Control and Countermeasures Plan would be followed to quickly contain and clean up a spill. There remains the possibility that a spill or leak could occur, but implementation of the BMPs identified in the site-specific SWPPP would minimize the extent of contamination.

***Long-Term Effects.*** The Proposed Action would result in small increases of potable water for consumption and other uses. The regional Floridan Aquifer supplies water for the Eglin AFB area. The long-term use of the Floridan Aquifer as a result of the Proposed Action would be a negligible contribution to the overall use of the Floridan Aquifer. Refer to **Section 4.9** for discussion of the water capacity and infrastructure requirements associated with the Proposed Action, and measures to minimize water use.

The Proposed Action would result in an increase of impervious surfaces. As set forth in **Section 2.1.1**, the Proposed Action would require various structures that total approximately 4,175,000 $ft^2$, or 108 acres; it is anticipated that the overall increase in impervious surfaces would be 86.2 acres because some facilities would be multiple stories. The creation of impervious surfaces has the potential to decrease storm water quality and increase storm water quantity, particularly during large rain events. Overland storm flows pick up contaminants and carry them directly into receiving water bodies. Large areas of impervious pavement that once were pervious soils increase the speed at which storm water enters channels; if a stream channel cannot accommodate the increased volume of storm water, areas downstream can flood. A decrease in pervious areas can also reduce the land that is available for groundwater recharge. Approximately 8 acres of green space would be retained at Site Alternative 1, and approximately 4.4 acres of storm water retention would be constructed.

Site Alternative 1 is not in the 100-year floodplain, and construction of the ECTRC at this site would not be expected to stimulate development within the floodplain. While the development of 86.2 acres and

loss of that pervious area is an irretrievable adverse effect, this loss of recharge area for the Sand and Gravel Aquifer would be negligible when compared with the total recharge area that is available.

Long-term operational activities associated with the Proposed Action have the potential to affect surface water and groundwater quality as a result of nonpoint source pollution. There would be more cars onsite that could leak fuel or other hazardous materials, and there would be increased use of pesticides and fertilizers for landscaped areas. During rain events, storm water picks up pollutants and could discharge them to Poquito Bayou, or contaminated rainwater could infiltrate through the sandy soil into the Sand and Gravel Aquifer resulting in indirect long-term effects on water quality. Appropriate Federal and state permitting requirements would be met so no water quality violations would be expected; water quality would be maintained by using BMPs and storm water management as described in the following text.

Under the Proposed Action, a storm water management system would be designed to contain and treat storm water so that potential flooding and contamination are minimized. The Proposed Action would require an Environmental Resource Permit from NWFWMD because impervious surfaces would increase and storm water flows would be altered. The construction contractor would obtain an Environmental Resource Permit from NWFWMD.

The proposed ECTRC would require NPDES coverage as a Municipal Separate Storm Sewer System (MS4) to discharge storm water off the site. Coordination with the FDEP would determine if the proposed ECTRC could be added to an existing MS4 permit (i.e., existing Eglin AFB permit or Okaloosa County permit), or whether a separate small MS4 permit would be required. The MS4 permit program requires development, implementation, and enforcement of a Storm Water Management Program (SWMP). As discussed in **Section 3.7.2**, FDEP will begin determining the TMDL for Poquito Bayou in 2009 to reduce bacterial loads into that water body. If the Proposed Action is implemented, requirements as a result of the TMDL determination could be incorporated into the MS4 permit in the future.

Post-construction runoff control is accomplished using a variety of structural and nonstructural BMPs. Specific BMPs would be developed during the final design stage of construction and included in the appropriate permits. Structural BMPs could include combinations of the following (EAFB 2003):

- Construction of ponds (e.g., dry extended detention ponds, wet ponds)
- Infiltration practices (e.g., infiltration basin, infiltration trench, porous pavements)
- Filtration practices (e.g., bioretention, sand and organic filters)
- Vegetative practices (e.g., storm water wetland, grassed swales, grassed filter strip)
- Runoff pretreatment practices (e.g., catch basin, in-line storage, manufactured products for storm water inlets).

Nonstructural BMPs would be used in conjunction with structural BMPs. Nonstructural BMPs would be incorporated into the site design, such as retention of 8 acres of green space at Site Alternative 1. All proposed BMPs would be subject to regulatory approval during the permitting process and the approval of Eglin AFB Civil Engineering Department. Good housekeeping and pollution prevention measures would be followed to minimize potential sources of pollution during operations. Existing pollution prevention measures would be used since the kinds of operations associated with the Proposed Action would be similar to ongoing activities at Eglin AFB. Examples of nonstructural BMPs could include the following (EAFB 2003):

- Automobile maintenance restricted to specific contained areas

- Vehicle washing restricted to specific contained areas
- Landscaping and lawn care to minimize the application of fertilizers, pesticides, and herbicides
- Street and parking lot sweeping to remove small quantities of dry chemicals and solids from areas exposed to rainfall or storm water runoff
- Hazardous materials storage with spill containment.

Therefore, no significant impacts would occur on water resources under Site Alternative 1.

### 4.6.3 Site Alternative 2

Implementation of BMPs, appropriate management of storm water during and following construction, and adherence to all required permits would result in no significant impacts. See discussion of short- and long-term effects in **Section 4.6.2**. Compared with Site Alternative 1, Site Alternative 2 has a greater potential for effects on water resources and water quality because of the intermittent stream channel that is present. Site Alternative 2 is not within the 100-year floodplain.

There is one small tributary of Poquito Bayou (see **Figure 2-2**) at the southern portion of Site Alternative 2. Because there is an existing water channel, Site Alternative 2 inherently poses a greater risk than Site Alternative 1 for potential effects on surface water bodies in the event of a spill or uncontrolled erosion. BMPs and adherence to good housekeeping would reduce the potential for effects on Poquito Bayou, the receiving water body of this unnamed tributary. Any alterations to this tributary would be considered an adverse effect, and would be regulated under Section 404 of the CWA. Coordination with the USACE and the associated permits would be required. It is recommended that construction at Site Alternative 2 occur in the northern portion of the site, away from this tributary. Therefore, no significant impacts would occur on water resources under Site Alternative 1.

### 4.6.4 Site Alternative 3

Implementation of BMPs, appropriate management of storm water during and following construction, and adherence to all required permits would reduce the potential for adverse effects. Compared with Site Alternatives 1 and 2, Site Alternative 3 has a greater potential for adverse effects on water resources and water quality because of multiple intermittent stream channels that are present. Site Alternative 3 is not within the 100-year floodplain.

There are three small tributaries of Poquito Bayou along the western and at the central and southern portion of Site Alternative 3. Because there are existing water channels, Site Alternative 3 inherently poses a greater risk than Site Alternative 1 for potentially adverse effects on surface water bodies in the event of a spill or uncontrolled erosion. BMPs and adherence to good housekeeping would reduce the potential for adverse effects on Poquito Bayou, the receiving water body of these unnamed tributaries. Any alterations to these tributaries would be considered an adverse effect, and would be regulated under Section 404 of the CWA. Coordination with the USACE and the associated permits would be required. It is recommended that construction at Site Alternative 3 avoid these existing water channels. Therefore, no significant impacts would occur on water resources under Site Alternative 1.

### 4.6.5 No Action Alternative

Under the No Action Alternative, the proposed ECTRC would not be constructed under the EUL program, resulting in continuation of the existing condition as described in **Section 3.7.2**. No significant impacts on water resources would be expected.

# 4.7 Biological Resources

## 4.7.1 Evaluation Criteria

The significance of impacts on biological resources is based on (1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource, (2) the proportion of the resource that would be affected relative to its occurrence in the region, (3) the sensitivity of the resource to proposed activities, and (4) the duration of ecological effects. A habitat perspective is used to provide a framework for analysis of general classes of effects (i.e., removal of critical habitat, noise, human disturbance).

Ground disturbance and noise associated with construction activities might directly or indirectly cause potential effects on biological resources. Direct effects from ground disturbance were evaluated by identifying the types and locations of potential ground-disturbing activities in correlation to important biological resources. Mortality of individuals, habitat removal, and damage or degradation of habitats might be effects associated with ground-disturbing activities.

Noise associated with a proposed action might be of sufficient magnitude to result in the direct loss of individuals and reduce reproductive output within certain ecological settings. To evaluate effects, considerations were given to the number of individuals or critical species involved, amount of habitat affected, relationship of the APE to total available habitat within the region, type of stressors involved, and magnitude of the effects.

As a requirement under the ESA, Federal agencies are required to provide documentation that ensures that agency actions will not adversely affect the existence of any Federal threatened or endangered species. The ESA requires that all Federal agencies avoid "taking" threatened or endangered species (which includes jeopardizing threatened or endangered species habitat). Section 7 of the ESA establishes a consultation process with USFWS and National Marine Fisheries Service that ends with USFWS or National Marine Fisheries Service concurrence on a determination of the risk of jeopardy from a Federal agency project.

## 4.7.2 Site Alternative 1

***Vegetation.*** Permanent loss of 98.65 acres of long leaf pine and the associated vegetation would occur in association with construction of the proposed facilities. Additional indirect effects on adjacent vegetation can result from collision with construction equipment and root damage. BMPs such as installing temporary fences around trees would be implemented during construction activities. In addition, some of the older pines would be flagged prior to construction and incorporated into the landscape plan. The additional areas disturbed as a result of project development would be replanted with native vegetation or approved grass mixtures following construction activities.

***Wildlife.*** Under the Proposed Action, short-term negligible adverse effects would occur on wildlife as a result of temporary noise disturbances associated with construction activities. Some wildlife species in the vicinity of the proposed project area would be expected to have adapted to the variety of noise levels associated with aircraft and would likely move back into the area following site development.

Direct long-term major adverse effects would occur from the mortality of small less-mobile species as a result of collision with construction equipment. BMPs such as stopping construction activities when wildlife is encountered would be implemented to allow less-mobile species to avoid effects from construction equipment. Additional BMPs include providing educational materials and briefing construction personnel on the potential species that might be encountered. These BMPs would also be implemented to avoid effects on wildlife in the vicinity of the construction activities. Eglin AFB Natural

Resources Section (NRS) personnel will be onsite to ensure these management practices are carried out. Long-term moderate adverse effects would occur from the loss of 98.65 acres of habitat associated with construction of the proposed facilities and pavement. Most wildlife in, and in the vicinity of, the proposed project area would be expected to move to adjacent similar and undeveloped habitats during site development (Miller 2007). Similar and undeveloped habitats are located to the south and west of Site Alternative 1.

***Protected or Sensitive Species.*** ESA Section 7 Consultation with the USFWS and a Biological Assessment has been completed for the red-cockaded woodpecker, Eastern indigo snake, gopher tortoise, and the Florida black bear. A copy of the correspondence can be found in **Appendix B**. Additional field surveys would be conducted for all potential listed species prior to construction as stated in the Biological Assessment and Section 7 Consultation.

There are currently no active red-cockaded woodpecker cavities at Site Alternative 1. There are four inactive trees that would be removed due to construction activities. These trees are in degraded red-cockaded woodpecker habitat. The USFWS completed a site survey in February 2007 and determined that the trees may be removed. After the site survey, the tree cavities were screened to deter nesting of other animals (Seiber 2007). The invasion of the site by mid-story oaks and sand pines due to the exclusion of fire has degraded the habitat potential for the red-cockaded woodpecker. The site itself, while in the potential forage range of active colonies, has a low stocking rate of longleaf pines and is only marginal as foraging habitat. The proximity of this area to existing developments makes the use of fire as a management tool unfeasible. This location has a low priority for rehabilitation and would require an inordinate management effort on a long-term basis.

The potential direct long-term major adverse effects on the Eastern indigo snake would be from direct physical effects associated with construction activities. Incidental contact with personnel and equipment could result in trampling or crushing of the indigo snake. The USFWS Standard Protection Measures (USFWS 2005) for the Eastern indigo snake would be followed prior to and during construction. The protection measures are as follows:

1. The development of an Eastern indigo snake protection/education plan for all construction personnel to follow. The plan will be provided to the USFWS for review and approval at least 30 days prior to any clearing activities. The educational materials for the plan will consist of a combination of posters, videos, pamphlets, and lectures (e.g., an observer trained to identify eastern indigo snakes could use the protection/education plan to instruct construction personnel before any clearing activities occur). Informational signs will be posted throughout the construction site and contain the following information:
    a. Description of the Eastern indigo snake, its habits, and protection under Federal Law
    b. Instructions not to injure, harm, harass, or kill this species
    c. Directions to cease clearing activities and allow the Eastern indigo snake sufficient time to move away from the site on its own before resuming clearing
    d. Telephone numbers of pertinent agencies to be contacted if a dead Eastern indigo snake is encountered. The dead specimen should be thoroughly soaked in water, then frozen.
2. Only an individual who has been either authorized by a section 10(a)(1)(A) permit issued by the USFWS, or designated as an agent of the State of Florida by the Florida Fish and Wildlife Conservation Commission (FWC) for such activities, is permitted to come in contact with or relocate an Eastern indigo snake.

3. If necessary, Eastern indigo snakes shall be held in captivity only long enough to transport them to a release site; at no time shall two snakes be kept in the same container during transportation.
4. An Eastern indigo snake monitoring report must be submitted to the appropriate Florida Field Office within 60 days of the conclusion of clearing phases. The report should be submitted whether or not Eastern indigo snakes are observed. The report should contain the following information:
    a. Any sightings of Eastern indigo snakes
    b. Summaries of any relocated snakes if relocation was approved for the project (e.g., locations of where and when they were found and relocated)
    c. Other obligations required by the FWC, as stipulated in the permit.

The potential direct long-term major adverse effects on the gopher tortoise would be from direct physical effects associated with construction activities. Incidental contact with personnel and equipment could result in trampling or crushing of an individual or their burrow. If a gopher tortoise burrow is identified within the proposed path of construction, NRS personnel would investigate the burrow and relocate any gopher tortoise or commensals that might be occupying the burrow. All gopher tortoise or commensal relocation would be performed in accordance with Eglin AFB's Gopher Tortoise Relocation Permit (Seiber 2007).

BMPs would include a briefing with construction personnel, and educational materials would be provided on the gopher tortoise. In the event that construction personnel come into contact with a gopher tortoise, all activities would cease until the tortoise has moved away from the area (Seiber 2007).

Potential short-term moderate effects on the Florida black bear would be from incidental contact with the animal or disruption of its behavioral habits. In the unlikely event that construction personnel come into contact with a black bear, all activities would cease until the bear has moved away from the area (Seiber 2007).

The Southeastern American kestrel would not be expected to be found nesting on the Preferred Site since the cavity trees have been screened over. A survey for new nests would be conducted prior to construction and construction personnel would be briefed on the kestrel. If a nest is encountered, construction would cease and the FWC would be contacted.

Potential long-term major adverse effects on the Pineland hoary-pea can include removal from construction activities. Short-term minor effects can include the plant being trampled from construction activities. A survey for the hoary-pea would be conducted prior to construction. If the plant is found, the FWC would be contacted.

Since the site planned for development is approximately 98 acres and was last surveyed in 2006-2007, the proponent is responsible for funding wildlife related efforts (i.e. surveys, habitat protection, monitoring, relocation, or reports) required by law. Proponent must obtain their own qualified contractor and is responsible for surveying for the protected species listed in the EA and BA. Proponent must provide wildlife/plant survey results and tortoise relocation(s) must be coordinated through Eglin Natural Resources. POC: Bob Miller, 96 CEG/CEVSN, 883-1153 or Kathy Gault, 96 CEG/CEVSN, 883-1145.

***Wetlands.*** No direct effects on wetlands would be expected as a result of the Proposed Action at Site Alternative 1. Implementation of properly designed and maintained erosion and sediment controls and storm water management practices during construction would minimize potential for any adverse effects

on wetlands occurring in proximity of the Proposed Action. Implementation of BMPs presented in Eglin AFB's SWPPP during and after construction would minimize the potential for adverse effects associated with runoff from the ECTRC.

Therefore, no significant impacts would occur on biological resources under Site Alternative 1.

### 4.7.3 Site Alternative 2

***Vegetation.*** The same effects on vegetation would be expected on this site as Site Alternative 1 due to similar existing conditions.

***Wildlife.*** The same effects on wildlife would be expected on this site as the Site Alternative 1 due to similar existing conditions.

***Protected or Sensitive Species.*** The same effects on protected or sensitive species would be expected on this site as the Site Alternative 1 due to the similar existing conditions.

***Wetlands.*** Compared with Site Alternative 1, Site Alternative 2 has a greater potential for adverse effects on wetlands because of the small tributary of Poquito Bayou at the southern portion of Site Alternative 2 that is present. A jurisdictional wetland delineation would need to be conducted by the developer to determine the exact location of the wetland boundaries. The developer would be required to coordination with the USACE and the associated permits would also be required. This would be achieved by specifying in the contract documents that a jurisdictional wetland delineation would need to be completed before the lessee can begin work on the Proposed Action.

No direct effects on wetlands would be expected as a result of implementing the Proposed Action at Site Alternative 2. Negligible effects on wetlands associated with the tributary could occur as a result of construction activities that could result in a potential increase in surface runoff due to sheet flow over increased impervious surfaces and a potential increase in erosion and sedimentation. Implementation of properly designed and maintained erosion and sediment controls and storm water management practices during construction would minimize potential for any adverse effects on wetlands occurring in proximity to the Proposed Action. Implementation of BMPs presented in Eglin AFB's SWPPP after construction would minimize the potential for adverse effects associated with runoff from the ECTRC.

Therefore, no significant impacts would occur on biological resources under Site Alternative 2.

### 4.7.4 Site Alternative 3

***Vegetation.*** The same effects on vegetation would be expected on this site as Site Alternative 1 due to the similar existing conditions.

***Wildlife.*** The same effects on wildlife would be expected on this site as Site Alternative 1 due to the similar existing conditions.

***Protected or Sensitive Species.*** The same effects on protected or sensitive species would be expected on this site as the Site Alternative 1 due to the similar existing conditions.

***Wetlands.*** Compared with Site Alternatives 1 and 2, Site Alternative 3 has a greater potential for major adverse effects because of the wetland and the associated multiple intermittent stream channels that are present. The three small tributaries of Poquito Bayou are along the western edge and at the central and southern portion of Site Alternative 3. A review of the National Wetlands Delineation map has

determined that wetlands are associated with the unnamed tributaries at Site Alternative 3 (see **Figure 3-3**). A jurisdictional wetland delineation would need to be conducted by the developer to determine the exact location of the wetland boundaries. The developer would be required to coordinate with the USACE and the associated permits would also be required. This would be achieved by specifying in the contract documents that a jurisdictional wetland delineation would need to be completed before the lessee can begin work on the Proposed Action.

No direct effects on wetlands would be expected as a result of implementing the Proposed Action at Site Alternative 3. Negligible effects on wetlands associated with the multiple intermittent stream channels could occur as a result of construction activities that could result in a potential increase in surface runoff due to sheet flow over increased impervious surfaces and a potential increase in erosion and sedimentation. Implementation of properly designed and maintained erosion and sediment controls and storm water management practices during construction would minimize potential for any adverse effects on wetlands occurring in proximity to the Proposed Action. Implementation of BMPs presented in Eglin AFB's SWPPP after construction would minimize the potential for adverse effects associated with runoff from the ECTRC.

Therefore, no significant impacts would occur on biological resources under Site Alternative 3.

### 4.7.5 No Action Alternative

Under the No Action Alternative, Eglin AFB would not implement the Proposed Action; as a result there would be no change in baseline conditions, and the proposed project would not occur. There would be no significant impacts on biological resources under the No Action Alternative.

## 4.8 Socioeconomic Resources and Environmental Justice

### 4.8.1 Evaluation Criteria

Construction expenditures are assessed in terms of direct effects on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential effects can vary greatly, depending on the location of a Proposed Action. For example, implementation of an action that creates ten employment positions might go unnoticed in an urban area, but could have considerable effects in a rural region. If potential socioeconomic changes were to result in substantial shifts in population trends or a decrease in regional spending or earning patterns, those effects would be considered adverse. A proposed action could have a significant impact with respect to the socioeconomic conditions in the surrounding ROI if the following were to occur:

- Change the local business volume, employment, personal income, or population that exceeds the ROI's historical annual change
- Adversely affect social services or social conditions, including property values, school enrollment, county or municipal expenditures, or crime rates
- Disproportionately affect minority populations or low-income populations.

### 4.8.2 Site Alternative 1

The ECTRC would result in short- and long-term increases in civilian employment opportunities.

***Socioeconomic Resources.*** The Proposed Action would not involve a change in the number of personnel at Eglin AFB. Construction would have direct short-term beneficial effects on the local economy and local employment levels. Direct expenditures for the ECTRC, which would be paid for by the lessee, would be approximately $519,368,000 (EDCOC 2007b). Indirect expenditures from the construction activities would have additional beneficial effects on the local economy. It is estimated that construction activities would include 1 to 9 percent of the labor force in the ROI. Therefore, it is anticipated that the financial benefits would stay within the ROI and Okaloosa County.

Since the ECTRC would be constructed on Eglin AFB property, Eglin AFB personnel could benefit from the graduate degree programs. ECTRC would be developed as a high-tech campus, which would likely bring businesses with higher potential income for area employees. Eglin AFB would also receive fair market value rents for the duration of the 50-year lease term. The ECTRC could also attract local government contractors to its campus, placing support staff closer to Eglin AFB. Therefore, beneficial long-term effects on the local workforce and employment in the ROI and Okaloosa County are expected (Arnold et al. 2006).

Indirect effects from the proposed construction projects are expected to be both short- and long-term and beneficial on the local economy and employment. Indirect beneficial effects could include construction expenditures for building materials, construction workers wages and taxes, and purchases of goods and services in the area. The long-term benefits include the addition of educated civilian employees and the education facility. Therefore, no significant impacts would occur on socioeconomic resources under Site Alternative 1

As explained in Section 3.9.2, the ROI does not have a disproportionate number of minority or low-income populations, so there are no environmental justice issues to consider.

### 4.8.3 Site Alternative 2

Site Alternative 2 is in the same general area of Eglin AFB as Site Alternative 1 and the site conditions are similar. Therefore, the socioeconomic consequences of establishing the ECRTC on this site would be the same as those described for Site Alternative 1. Therefore, no significant impacts would occur on socioeconomic resources under Site Alternative 2. As explained in Section 3.9.2, the ROI does not have a disproportionate number of minority or low-income populations, so there are no environmental justice issues to consider.

### 4.8.4 Site Alternative 3

Site Alternative 3 is in the same general area of Eglin AFB as Site Alternative 1 and the site conditions are similar. Therefore, the socioeconomic consequences of establishing the ECRTC on this site would be the same as those described for Site Alternative 1. Therefore, no significant impacts would occur on socioeconomic resources under Site Alternative 3. As explained in Section 3.9.2, the ROI does not have a disproportionate number of minority or low-income populations, so there are no environmental justice issues to consider.

### 4.8.5 No Action Alternative

Under the No Action Alternative, the existing socioeconomic conditions would not be affected and the UF-REEF would continue to occupy the current lease site. Eglin AFB would continue to maintain partnerships with the University of Florida and UF-REEF facility, but would not expand current research initiatives and offerings to Eglin AFB personnel. Therefore, no significant impacts would occur on socioeconomic resources under the No Action Alternative.

# 4.9 Infrastructure and Utilities

## 4.9.1 Evaluation Criteria

Effects on infrastructure are evaluated based on their potential for disruption, excessive use, or improvement of existing levels of service and additional needs for energy and water consumption, sanitary sewer and wastewater systems, and transportation patterns and circulation. Effects might arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads or changes in daily or peak-hour traffic volumes, and energy needs created by either direct or indirect workforce and population changes related to installation activities. In considering the basis for evaluating the significance of effects on infrastructure resources, several items are considered. These items include, for example, evaluating the degree to which the proposed construction projects could affect the existing solid waste management program and capacity of the area landfill. An effect might be considered significant if a proposed action exceeded capacity of a utility.

## 4.9.2 Site Alternative 1

The USAF will maintain oversight of design and will ensure all development and planned use of the property is in accordance with all environmental rules and regulations. (AFRPA 2006b) Okaloosa County Public Works Department has determined that adequate infrastructure is available for Site Alternative 1 to be developed in its entirety for its proposed use as a technology and research campus. (AFRPA 2006b)

***Transportation.*** No significant impacts on the transportation network at and around Eglin AFB would result. The construction of the ECTRC would require delivery of materials to and removal of construction debris from the construction sites. Construction traffic would comprise a small percentage of the total existing traffic and many of the vehicles would be driven to and kept onsite for the duration of construction, resulting in relatively few additional trips. Furthermore, the proposed installation development activities would occur at different times and locations. Any potential increases in traffic volume associated with proposed construction activity would be temporary.

Long-term effects would include traffic congestion from the proposed entrances into the ECTRC. Currently only a short turn-lane from west/southbound SR 189 onto Poquito Road exists, and no lights exist that would control traffic trying to exit ECTRC. Traffic congestion and delays could occur during rush hours. The Proposed Action would provide adequate roadway systems and parking facilities within the ECTRC complex. No significant impacts would be expected on the transportation network at ECTRC, which would be developed and maintained by proactive repair and replacement projects.

***Electrical.*** No significant impacts on electricity would be expected from the construction and operation of the ECTRC. There is adequate capacity and infrastructure for electrical power in the area. It is anticipated that ECTRC would obtain power from the existing service with the UF-REEF through the proposed central plant (see **Figure 2-1**).

***Natural Gas.*** No significant impacts on natural gas supply are expected from the construction and operation of the ECTRC. There are sufficient natural gas service providers in the area. Excessive needs for natural gas are not expected.

***Liquid Fuel.*** No significant impacts on liquid fuels are expected from the construction and operation of the ECTRC.

***Water Supply.*** No significant impacts on water resources are expected as a result of the construction and operation of ECTRC. The additional infrastructure and population projected for the area would increase the county demand for potable water, but Okaloosa County has approximately 1 million gallons per day of excess potable water distribution capacity (AEP 001a). Eglin AFB and the NWFWMD are also working together to develop water conservation measures in the area by installing low-flow plumbing fixtures and converting irrigation systems to use withdraw water from the shallow sand and gravel aquifer (EAFB 2005b). Water resource needs are also being addressed through the development of alternative water supplies, creation of regional wellfields and supply systems, special permitting requirements, and long-range planning (Gulf Power 2007). The ECTRC developers would follow conservation measures recommended by the NWFWMD.

***Sanitary Sewer and Wastewater Systems.*** No significant impacts are expected on the sanitary sewer and wastewater systems from the construction and operation of the ECTRC. The existing lift station that serves the University of Florida Graduate Engineering Center has sufficient capacity to service ECTRC. Furthermore, Okaloosa County Water and Sewer has at least 1 million gallons per day of excess wastewater treatment and disposal capacity (AEP 001a). The FDEP developed a Water Supply Facilities Work Plan to coordinate water supply with projected land use planning. Estimates from the Final Report published in March 2003 indicated that 6.1 MGD of water would be needed from the Garnier Waste Water Treatment Facility to service the projected population of 64,000. A new wastewater treatment facility has been constructed by Okaloosa County Water and Sewer which can handle up to 10 MGD. Therefore, the county has an approximate 40 percent excess capacity for new wastewater customers. Consequently, the Proposed Action would not adversely affect the sanitary sewer and wastewater systems.

***Communications.*** No significant impacts on the planned communication systems would result. The planned advancements for the UF-REEF through the Eglin Vision 2015 plan are expected to meet the needs of the ECTRC.

***Solid Waste Management.*** No significant impacts are expected as a result of the generation of construction debris. Debris that is not recycled would be put in a landfill, which would be considered a long-term irreversible adverse effect. Construction debris is generally composed of clean materials, and most of this waste would be recycled or ground into gravel for reuse. Contractors hired for the various construction projects would be responsible for the removal and disposal of their construction wastes generated onsite. Waste Management Services and Allied Waste Company both operate in Okaloosa County, and together have approximately 450 active landfills that can landfill or recycle construction wastes generated from ECTRC construction. Furthermore, the proposed ECTRC campus would be developed in four to six phases over a 5- to 7-year timeframe, so that not all debris would be accumulated at once. **Table 4-3** outlines the amount of construction debris that would be anticipated.

**Table 4-3. Estimated Solid Waste Generated from Proposed Construction of the ECTRC**

| Proposed Project | Project Size ($ft^2$) | Multiplier (pounds/$ft^2$) | Total Waste Generated | |
|---|---|---|---|---|
| | | | pounds | U.S. tons |
| Office Research Buildings | 1,400,000 | 4.38 | 6,132,000 | 3066 |
| Educational Buildings | 400,000 | 4.38 | 1,752,000 | 876 |
| Hotel-Conference Center | 110,000 | 4.38 | 481,000 | 240.5 |
| Residential Condos | 500,000 | 4.38 | 2,190,000 | 1095 |
| Cafeteria/Food Court | 17,000 | 4.38 | 74,460 | 37.23 |
| Restaurant | 10,000 | 4.38 | 43,800 | 21.9 |

| | | | | |
|---|---|---|---|---|
| Day Care Facility | 12,000 | 4.38 | 52,560 | 26.28 |
| Convenience Retail Space | 10,000 | 4.38 | 43,800 | 21.9 |
| Fitness Center | 6,000 | 4.38 | 26,280 | 13.14 |
| Access Roads/Parking | 110,000 | 1 | 110,000 | 55 |
| Parking Facilities | 1,200,000 | 1 | 1,200,000 | 600 |
| Sidewalks/Plaza | 400,000 | 1 | 400,000 | 200 |
| Storm water retention ponds | 190,000 | 0 | 0 | |
| Greenspace | 350,000 | 0 | 0 | |
| **Total** | | | | **6,252.95** |

Sources: USEPA 1998, USACE 1976

### 4.9.3 Site Alternative 2

Effects on infrastructure for this site would be similar to Site Alternative 1.

### 4.9.4 Site Alternative 3

Effects on infrastructure for this site would be similar to Site Alternative 1.

### 4.9.5 No Action Alternative

Under the No Action Alternative, Eglin AFB would not construct the ECTRC, which would result in the continuation of the existing condition, as described in **Section 3.10**. No significant impacts would be expected on infrastructure.

## 4.10 Hazardous Materials and Wastes

### 4.10.1 Evaluation Criteria

Impacts on hazardous materials and waste management would be considered significant if the Federal action resulted in noncompliance with applicable Federal and state regulations or permit capabilities. Impacts on pollution prevention would be considered significant if the Federal action resulted in worker, resident, or visitor exposure to hazardous materials, or if the action generated quantities of these hazardous materials beyond the capability of management procedures. Impacts on the ERP would be considered significant if the Federal action disturbed (or created) contaminated sites resulting in adverse effects on human health or the environment. Impacts on fuels management would be significant if management policies, procedures, and handling capacities could not accommodate the proposed activities.

### 4.10.2 Site Alternative 1

***Pollution Prevention.*** The ECTRC would be required to develop pollution prevention management programs as set forth in state and local rules and regulations in accordance with the Emergency Planning and Community Right-To-Know Act (EPCRA) and the Pollution Prevention Act of 1990.

***Hazardous Materials.*** No significant impacts would be expected as a result of the use of hazardous materials during the construction process and from the operation of any laboratory spaces within ECTRC. The laboratories would store, use, and dispose of limited amounts of chemicals, solvents, and protective gear. Therefore new hazardous waste streams and storage is expected. Hazardous materials and

petroleum products would be managed through the University of Florida. Management of the materials would be consistent with the installation *Hazardous Materials Management Plan* and the Response Plans or Spill Prevention, Control, and Countermeasure Plans. The *Hazardous Waste Management Plan* provides plans and procedures for handling, storing, and disposing of hazardous materials. The Response Plans or Spill Prevention, Control, and Countermeasure Plans lists the procedures to prevent, respond to, and train for hazardous material and petroleum product spills.

***Hazardous Wastes.*** No significant impacts would be expected from the use of hazardous wastes during the construction process. The construction permits along with any necessary permits for use of hazardous wastes would be the responsibility of the development contractor. The Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) regulations that protect workers are discussed in 29 CFR 1910.120 and 29 CFR Part 1926 and would be followed.

Hazardous wastes generated at UF-REEF buildings must be managed in accordance with the USEPA (40 CFR Parts 260–282), and State of Florida FAC Rule 62-730). If hazardous or petroleum waste were generated or stored at Site Alternative 1, they would be managed according to the University of Florida's Chemical Waste Management Guide (UF 2007a), Handling Procedures for other Maintenance Related Waste (UF undated), and other University of Florida waste management documents (UF 2007b). Management of the materials would be consistent with the installation *Hazardous Materials Management Plan* and the SPCCP. The *Hazardous Waste Management Plan* provides plans and procedures for handling, storing, and disposing of hazardous materials. The Spill Prevention Control and Countermeasures Plan lists the procedures to prevent, respond to, and train for hazardous material and petroleum product spills.

The net change in hazardous materials and waste from the ECTRC would likely require a permit under RCRA. ECTRC would work with state regulators to manage all hazardous materials and wastes in accordance with state rules and regulations for Process Safety Management of Highly Hazardous Chemicals; Occupational Safety and Health Standards, Chemical Safety; Hazardous Communication; and Fire Prevention.

***Asbestos-Containing Material and Lead-Based Paint.*** USAF regulations prohibit the use of ACM and LBP for new construction. Therefore, no effects from ACM or LBP are expected from the construction of the ECTRC.

***Radon.*** Okaloosa County is within an area of low potential for radon gas (USEPA 2007). Therefore, no exposure to radon gas is anticipated from the construction of ECTRC.

***Environmental Restoration Program.*** There are no known ERP sites located within Site Alternative 1. Therefore, it is not expected that workers would encounter contamination from ERP sites during construction. However, should contamination be encountered, handling, storage, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations and procedures. HAZWOPER regulations that protect workers and the public at or near a hazardous waste cleanup site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. The FDEP, Bureau of Waste Cleanup provides the regulations for the cleanup of hazardous waste sites, and response and investigation for liability through Title 62 of the FAC.

Therefore, no significant impacts would occur in hazardous materials and wastes under Site Alternative 1.

### 4.10.3 Site Alternative 2

Effects from hazardous materials and wastes for this site would be similar to Site Alternative 1.

### 4.10.4 Site Alternative 3

Effects from hazardous materials and wastes for this site would be similar to Site Alternative 1.

***Environmental Restoration Program.*** There is a known ERP site located within Site Alternative 3. This site located at the intersection of Sunset Lane and Eglin Blvd is undergoing remediation and monitoring in cooperation with Gulf Power.

### 4.10.5 No Action Alternative

Under the No Action Alternative, Eglin AFB would not construct the ECTRC, which would result in the continuation of the existing condition, as described in **Section 3.11**. No significant impacts would be expected on hazardous materials and wastes.

## 4.11 Cumulative and Other Effects

### 4.11.1 Cumulative Effects

Cumulative effects on environmental resources result from incremental effects of proposed actions, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative effects can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision making is served by consideration of cumulative effects resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

Projects identified for evaluation in the context of the cumulative effect analysis include the following:

***BRAC Action.*** An EIS has been completed for the 2005 BRAC decision to establish the JSF Integrated Training Center (ITC) at Eglin AFB, which would establish an IJTS for joint Air Force, Navy, and Marine Corps JSF training organizations to teach aviators and maintenance technicians how to properly operate and maintain this new weapons system. As part of the plan 200 instructors are relocating to Eglin AFB. The 7th Special Forces Group (Airborne) (7SFG[A]) is currently relocating from Fort Bragg, North Carolina to Eglin AFB. Most of the aspects of the 7SFG(A) beddown are underway, and others, like training, will be implemented in the reasonably foreseeable future. Potential impacts from these programs due to changing mission and additional personnel may include noise, air quality, munitions storage concerns, transportation, and utilities concerns, among others. The 7SFG(A) cantonment and training areas would not have any overlap with the ECTRC area. A supplemental EIS for JSF runway configurations will analyze operations for new runways or reconfiguring existing Eglin runways to accommodate additional aircraft. Some of the alternatives may result in additional noise impacts to the proposed ECTRC.

***Eglin AFB Hurlburt Field Military Housing Privatization Initiative (MHPI).*** This project would include the demolition of up to 1,404 housing units and the construction of up to 1,477 new units. The USAF would convey all existing military family housing units to a private developer. Demolition and construction would occur at the Main Base and at Hurlburt Field. Demolition would also occur at Camp Rudder, in the northwestern part of the installation. The closest housing area to the site alternatives for the construction of the ECTRC is the Poquito Bayou neighborhood on Eglin AFB property, southwest of Site Alternative 3. Under the Military Housing Privatization Initiative, 150 units at Poquito Bayou would also be demolished.

***Florida Department of Transportation.*** The Florida Department of Transportation (FDOT) is constructing an overpass at the SR 85 at SR 123 intersection. The project has several phases including one that would also widen SR 85 to six lanes to Crestview, widen SR 123 by an additional two lanes and other long term improvements to improve road service levels and commuter safety. Proposed improvements along US 98 include widening, an overpass at Hurlburt and a proposal to extend the mid bay bridge toll road to tie in to US 87. US 331 to the east and SR 87 to the west are both included in long range plans for widening and other improvements.

***DoD Energy Projects***. The Department of Defense has been tasked with reducing energy needs and creating new capacity. Projects include all technologies with Eglin having been selected for BioMass energy production utilizing local wood sources as the primary renewable energy of choice. As of FY2011, the primary sites for this 60 acre facility are located near Fort Walton Beach or Crestview. No firm decisions have been made as to the nature or location of this energy project as of this date. (2008 Eglin Installation Development Committee)

This section will evaluate resource-specific effects related to the past, present, and reasonably foreseeable actions discussed above.

***Noise.*** Cumulative impacts would occur wherever noise impacts from proposed actions would overlap with noise impacts resulting from other reasonably foreseeable actions planned to occur at Eglin AFB. Many of the relevant past and present actions considered in the cumulative impacts analysis involve construction or demolition. Construction noise is temporary, lasting only for the duration of the construction project, and is typically limited to normal working hours (7:00 AM to 5:00 PM). Construction noise impacts associated with these projects are expected to be limited to within the boundaries of Eglin AFB and would be insignificant either separately or cumulatively.

The projects that would have the greatest cumulative noise impacts are the BRAC related actions at Eglin AFB, including the JSF aircraft flight training operations. At this time it is unknown which F-35 alternative would be selected. However, based on analysis in the *Eglin BRAC Supplemental EIS for F-35 Beddown at Eglin AFB* (the "F-35 SEIS"), only parcels associated with Alternative 2 would have potentially significant impacts from F-35 noise depending on the F-35 SEIS alternative selection.

Figure 4-3 visually represents the noise contours associated with each F-35 SEIS alternative and their potential impact on alternatives. Revised F-35 operational data and noise modeling in the future may change the resulting noise contours, but the Air Force anticipates that any change will be overall beneficial, not detrimental. Under any of the JSF flight training action alternatives, time-averaged aircraft noise levels at several known noise-sensitive locations would increase to a level that may be considered by the public to be significant. Alternative 2 would be located in areas exposed to sound levels ranging from 65 to 80 dB DNL for the 59 aircraft scenario where Eglin Main Base is the primary airfield used by the JSF.

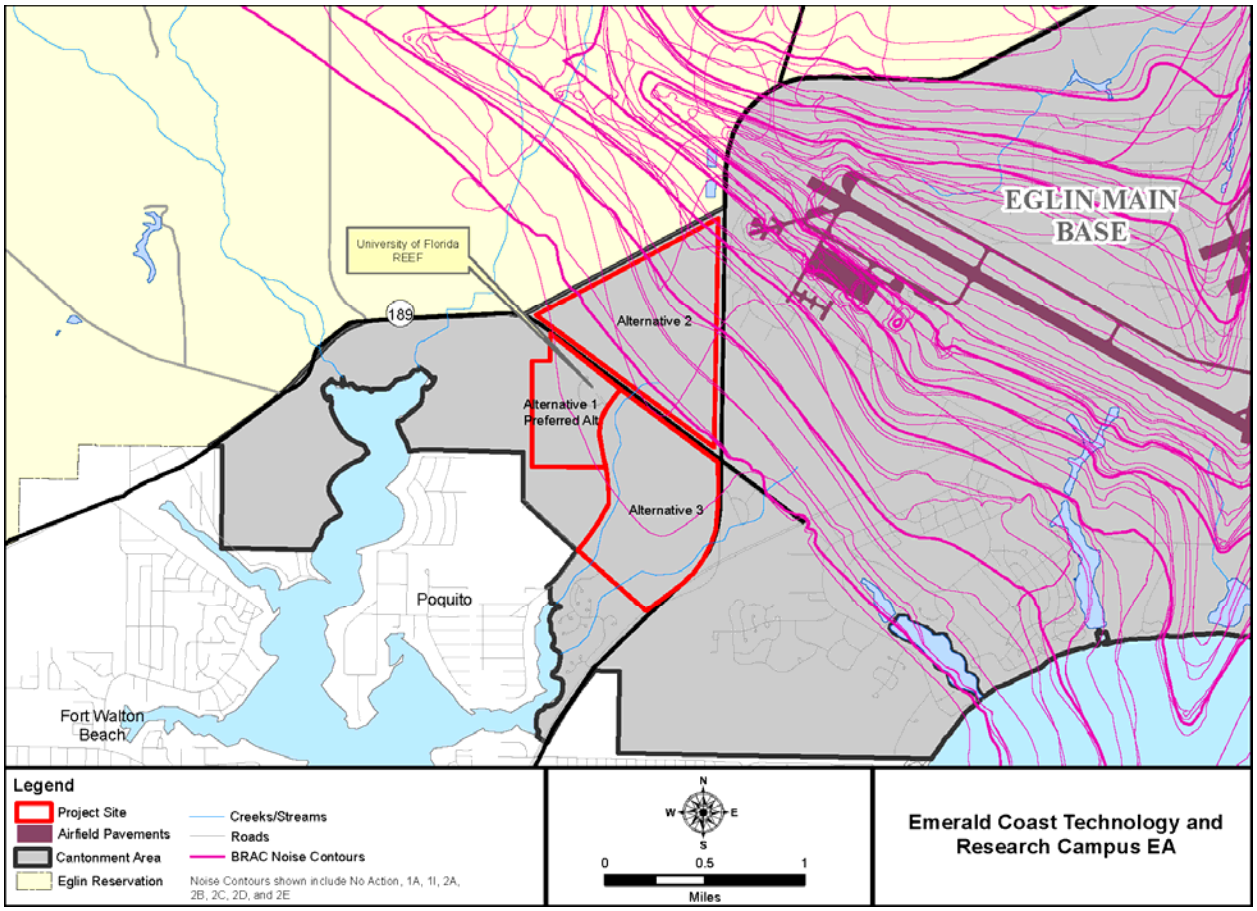



**Figure 4-3. Noise Contours from F-35 SEIS Alternatives**

The developer would be required to construct facilities in the affected areas with proper noise abatement. Whenever possible, educational land use should be located below 65 dB DNL according to Air Force land use recommendations (Air Force Handbook [AFH] 32-7084). Where practicable, structures should incorporate noise attenuation measures in accordance with the Air Force noise guidelines published in the U.S. Air Force Family Housing Guide and AFH 32-7084, *AICUZ Program Managers Guide.*

***Land Use.*** The surrounding projects would be constructed on property that is zoned for the proposed use and are in accordance with assigned land use. However, as discussed in the previous paragraph, increased aircraft operations from the BRAC Action could result in land use compatibility issues. **Section 4.2** discusses the land use compatibility impacts as a result of the increase in aircraft operations under the BRAC Action. Furthermore, as Figure 4-4 below shows, F-35 SEIS alternative 1-I presents a land use conflict for alternatives 2 and 3, as educational services are an incompatible use for accident potential zones (APZs) 2 and 3, as shown in Table 4-5, also below.

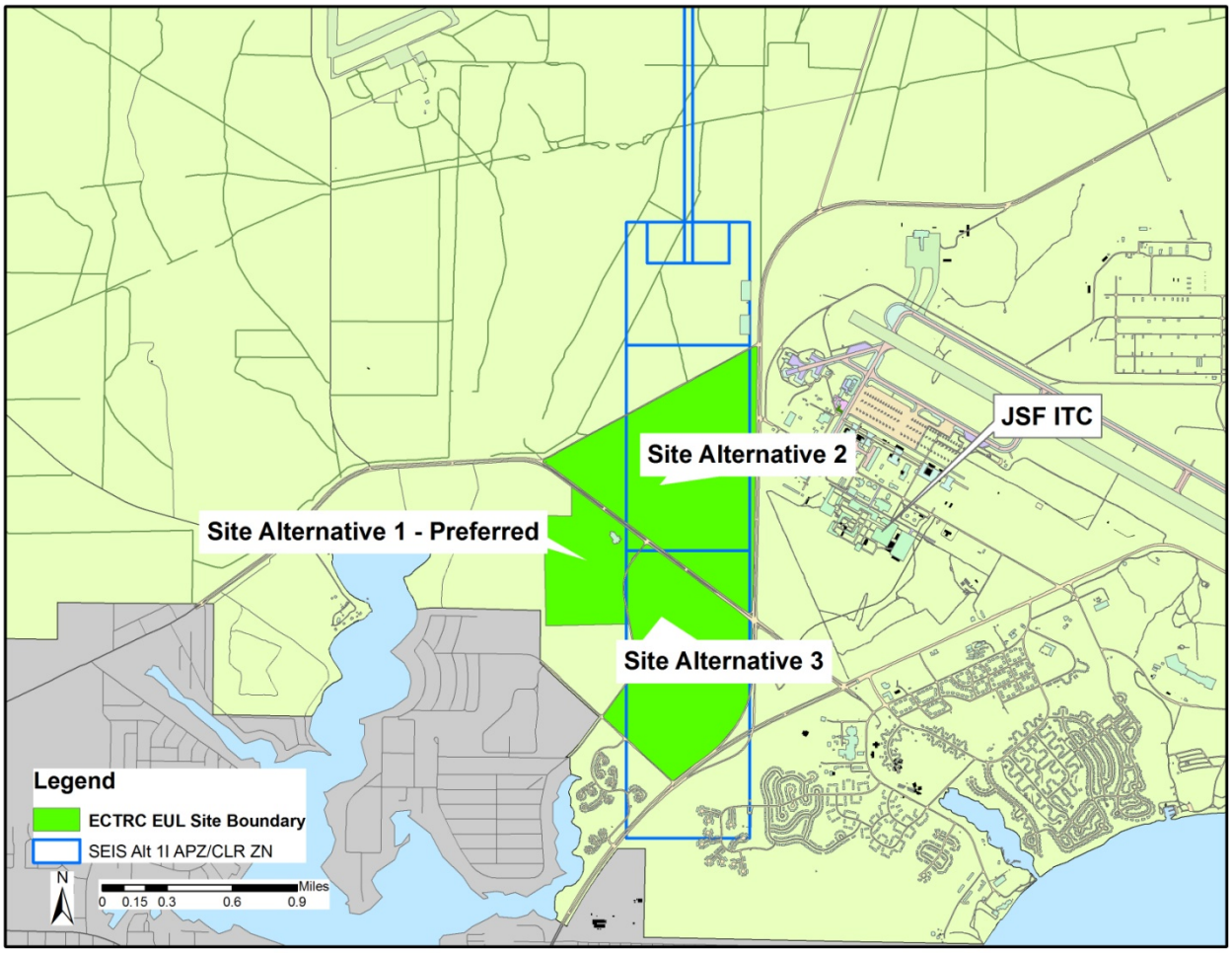



**Figure 4-4. F-35 SEIS Alternative 1-I**

**Table 4-4. Land Use Compatibility**

| Land Use | Accident Potential Zones | | | |
|---|---|---|---|---|
| | Clear Zone | APZ I | APZ II | |
| Residential Single Units, Apartments | N | N | N | |
| Business or Professional Services | N | Y[8] | Y[8] | |
| Educational Services | N | N | N | |
| Retail trade General and Food Related | N | N[2] | Y[2] | |
| Highway and Street right-of-way (including applicable public facilities and office areas) | N[3] | Y | Y | |

***Air Quality.*** No significant impacts would result from the cumulative effects of the construction projects; these effects would be short-term and localized. Although operational emissions associated with the ECTRC are not expected to result in adverse effects on air quality, air emissions associated with the foreseeable future activities could result in long-term minor adverse effects. Emissions from the increase in aircraft operations from the BRAC Action and the increase in vehicle operations from the combined

projects could have long-term adverse effects on air quality. Also, the construction activities occurring around the base would cause a temporary net increase in greenhouse gas (GHG) emissions from construction vehicles and worker commutes. Overall these projects are expected to cause temporary increases in regional air emissions. However, based on the analysis presented in Chapter 4 of GHG and other air emissions associated with the MHPI, when considered with the MHPI Proposed Action, there would not be a significant adverse impact to regional air quality or GHG emissions from a cumulative perspective.

***Water Resources.*** As development throughout Eglin AFB and the surrounding regions continues, both surface and groundwater quality will continue to be degraded. The Proposed Action would require increased use of potable water. However, water resource conservation and management would be included in the SDP for the Proposed Action and would likely be included in the SDPs for other foreseeable future actions. In addition, a permit would be required for any project that would increase water consumption.

Under the Proposed Action and other foreseeable future actions, vehicle operations would increase, which would increase the potential for fuel spills and leaks. This effect can be mitigated through improved BMPs and storm water retention ponds. Consequently, the cumulative effect of these activities would not have a significant impact on surface and groundwater.

***Geological Resources.*** Short-term cumulative effects on soil through disturbance will not be significant. The Proposed Action would require an NPDES permit. As such, the Proposed Action would be subject to the requirements of a SWPPP and BMPs to reduce soil loss. Given the size of the other foreseeable projects, it can be assumed that an NPDES permit would be required for those projects as well. Consequently, the cumulative effects from the construction projects should be minimal.

***Biological Resources.*** The Proposed Action, when considered in conjunction with the other foreseeable projects, could have an effect on protected species such as the gopher tortoise and the Eastern indigo snake. However, a gopher tortoise survey would be completed prior to construction activities. If the gopher tortoise or the Eastern indigo snake were sighted during construction activities, all activities would cease until the species had been moved from the area. Therefore, it is not anticipated that the projects would have a significant impact on the protected species.

The Preferred Site Alternative consists entirely of upland communities; there is no evidence of the direct effects in other foreseeable actions. Implementation of BMPs during and after construction would minimize impacts on wetlands.

***Socioeconomic Resources.*** It is estimated that the new missions and staffing changes at Eglin AFB will result in an additional 7,749 jobs during 2015 and an increase in the gross regional product of $558.9 million during the same time period (Okaloosa County 2007). This effect, when considered in conjunction with the other foreseeable projects, will result in a beneficial effect on Okaloosa County and the surrounding regions.

***Infrastructure.*** Cumulative effects on infrastructure have the potential to cause long-term effects on water supply, sanitary sewers, traffic, and electrical and gas services. However, each project will have an individual plan for the required infrastructure and will obtain the required permits.

The estimated population increase in Okaloosa County and the surrounding areas, from the new missions at Eglin AFB, will be approximately 12,000 personnel. The cumulative effect will increase traffic on the local roads. However, measures to minimize adverse traffic effects have been discussed or recommended

in each of the EAs or EISs for the individual projects. The transportation projects proposed by the FDOT should mitigate the traffic increase expected.

Under the Military Housing Privatization Initiative, older housing units at Eglin AFB will be replaced with upgraded houses. Consequently, these housing units should accommodate some of the new military personnel at Eglin AFB. This should limit some of the traffic on the local roads outside of Eglin AFB during high-volume hours.

### 4.11.2 Unavoidable Adverse Effects

Unavoidable adverse effects would result from implementation of the Proposed Action. None of these effects would be significant.

***Geological Resources.*** Under the Proposed Action, construction activities, such as grading, excavating, and trenching of the ground, would result in some minor soil disturbance. Implementation of BMPs during construction would limit environmental consequences resulting from construction activities. Standard erosion-control means would also reduce environmental consequences related to these characteristics. Although unavoidable, effects on soils at the installation are not considered significant.

***Solid Waste.*** Roughly 6,253 tons of solid waste would be generated from construction debris. This is not a significant impact and can be mitigated to a certain extent by possible recycling opportunities.

***Hazardous Materials and Waste.*** Long- and short-term impacts from the use of hazardous materials and wastes from the construction process and the operation of the facility will not be significant. The required permits would be obtained before construction would begin. In addition, the University of Florida has procedures in place to effectively and safely handle these materials.

***Energy Resources.*** The Proposed Action would require the use of fossil fuels, a nonrenewable natural resource. The use of nonrenewable resources in construction activities, and subsequently with the operations of facilities and additional traffic, would be unavoidable. Relatively small amounts of energy resources would be committed to the Proposed Action and are not considered significant.

### 4.11.3 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

The Proposed Action would occur entirely within the boundaries of Eglin AFB. The Proposed Action would occur under the EUL program, which would maximize the value of the property within the constraints and restrictions identified by the USAF. The construction activities would not result in any significant or incompatible land use changes on or off the installation. The Proposed Action would not conflict with any applicable off-installation land use ordinances or designated clear zones.

### 4.11.4 Relationship Between Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Short-term uses of the biophysical components of the human environment include direct construction-related disturbances and direct effects associated with an increase in population and activity that occurs over a period of less than 5 years. Long-term uses of the human environment include those effects occurring over a period of more than 5 years, including permanent resource loss.

Several kinds of activities could result in short-term resource uses that compromise long-term productivity. Filling of wetlands or loss of other especially important habitats and consumptive use of high-quality water at nonrenewable rates are examples of actions that affect long-term productivity.

The Proposed Action would not result in significant intensification of land use at Eglin AFB or in the surrounding area.

### 4.11.5 Irreversible or Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable timeframe (e.g., energy and minerals). The irreversible and irretrievable commitments of resources that would result from implementation of the Proposed Action involve the consumption of material resources used for construction, energy resources, land, and human labor resources. The use of these resources is considered to be permanent.

***Material Resources.*** Material resources utilized for the Proposed Action include building materials (for construction of facilities), concrete and asphalt (for roads), and various material supplies (for infrastructure). Most of the materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

***Energy Resources.*** Energy resources used for the Proposed Action would be irretrievably lost. These include petroleum-based products (such as gasoline and diesel), natural gas, and electricity. During construction, gasoline and diesel would be used for the operation of construction vehicles. During operation, gasoline would be used by the additional traffic. Natural gas and electricity would be used by operational activities. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant effects would be expected.

***Biological Habitat.*** The Proposed Action would result in loss of vegetation and wildlife habitat. However, the loss would be minimal and not considered significant on a regional basis.

***Human Resources.*** The use of human resources for construction and operation is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities and is considered beneficial.

## 4.12 Summary of Predicted Environmental Impacts

Considering all of the resource areas evaluated, no significant impacts on the environment are anticipated as a result of implementation of the Proposed Action or Alternatives.

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# APPENDIX A

## APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANNING CRITERIA

# Appendix A
# Applicable Laws, Regulations, Policies, and Planning Criteria

When considering the affected environment, the various physical, biological, economic, and social environmental factors must be considered. In addition to the National Environmental Policy Act (NEPA), there are other environmental laws as well as Executive Orders (EOs) to be considered when preparing environmental analyses. These laws are summarized below.

NOTE: This is not a complete list of all applicable laws, regulations, policies, and planning criteria potentially applicable to documents, however, it does provide a general summary for use as a reference.

### Noise

The Air Installation Compatible Use Zone (AICUZ) Program, (AFI 32-7063), provides guidance to air bases and local communities in planning land uses compatible with airfield operations. The AICUZ program describes existing aircraft noise and flight safety zones on and near U.S. Air Force (USAF) installations.

### Land Use

Land use planning in the USAF is guided by *Land Use Planning Bulletin, Base Comprehensive Planning* (HQ USAF/LEEVX, August 1, 1986). This document provides for the use of 12 basic land use types found on a USAF installation. In addition, land use guidelines established by the U.S. Department of Housing and Urban Development (HUD) and based on findings of the Federal Interagency Committee on Noise (FICON) are used to recommend acceptable levels of noise exposure for land use.

### Air Quality

The Clean Air Act (CAA) of 1970, and Amendments of 1977 and 1990, recognizes that increases in air pollution result in danger to public health and welfare. To protect and enhance the quality of the Nation's air resources, the CAA authorizes the U.S. Environmental Protection Agency (USEPA) to set six National Ambient Air Quality Standards (NAAQSs) which regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source, and designates this responsibility to state and local governments. States are directed to utilize financial and technical assistance as well as leadership from the Federal government to develop implementation plans to achieve NAAQS. Geographic areas are officially designated by the USEPA as being in attainment or nonattainment to pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCR). Pollutant concentration levels are measured at designated monitoring stations within the AQCR. An area with insufficient monitoring data is designated as unclassifiable. Section 309 of the CAA authorizes USEPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action might have on NAAQS due to short-term increases in air pollution during construction as well as long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a Federal agency could also be subject to USEPA's Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in

pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives Federal immunity from complying with the CAA and states all Federal agencies will comply with all Federal- and state-approved requirements.

The General Conformity Rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS, contribute to an increase in the frequency or severity of violations of NAAQS, or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

The General Conformity Rule applies only to actions in nonattainment or maintenance areas and considers both direct and indirect emissions. The rule applies only to Federal actions that are considered "regionally significant" or where the total emissions from the action meet or exceed the *de minimis* thresholds presented in 40 CFR 93.153. An action is regionally significant when the total nonattainment pollutant emissions exceed 10 percent of the AQCR's total emissions inventory for that nonattainment pollutant. If a Federal action does not meet or exceed the *de mimimis* thresholds and is not considered regionally significant, then a full Conformity Determination is not required.

### Safety

AFI 91-202, *USAF Mishap Prevention Program*, implements Air Force Policy Directive (AFPD) 91-2, *Safety Programs*. It establishes mishap prevention program requirements (including the Bird/Wildlife Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information. It also establishes the Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. These standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF personnel.

### Geological Resources

Recognizing that millions of acres per year of prime farmland are lost to development, Congress passed the Farmland Protection Policy Act to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland (7 CFR Part 658). Prime farmland are soils that have a combination of soil and landscape properties that make them highly suitable for cropland, such as high inherent fertility, good water-holding capacity, deep or thick effective rooting zones, and are not subject to periodic flooding. Under the Farmland Protection Policy Act, agencies are encouraged to conserve prime or unique farmlands when alternatives are practicable. Some activities that are not subject to the Farmland Protection Policy Act include Federal permitting and licensing, projects on land already in urban development or used for water storage, construction for national defense purposes, or construction of new minor secondary structures such as a garage or storage shed.

### Water Resources

The Clean Water Act (CWA) of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, is administered by USEPA, and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires USEPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by USEPA or the appropriate state if it has assumed responsibility. Section 404 of the CWA establishes a Federal program to regulate the discharge of dredge and fill material into waters of the United States.

Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands that are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into U.S. waters from construction, or the discharge of pollutants as a result of facility occupation.

Section 438 of the Energy Independence and Security Act (EISA) of 2007 instructs federal agencies to "use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate" for any project with a footprint that exceeds 5,000 square feet (EPA 2011). In Florida, meeting the requirements of the state's Environmental Resource Permit program meets the requirements of the EISA.

Section 303(d) of the CWA requires states and USEPA to identify waters not meeting state water-quality standards and to develop Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a pollutant that a waterbody can receive and still be in compliance with state water-quality standards. After determining TMDLs for impaired waters, states are required to identify all point and nonpoint sources of pollution in a watershed that are contributing to the impairment and to develop an implementation plan that will allocate reductions to each source to meet the state standards. The TMDL program is currently the Nation's most comprehensive attempt to restore and improve water quality. The TMDL program does not explicitly require the protection of riparian areas. However, implementation of the TMDL plans typically calls for restoration of riparian areas as one of the required management measures for achieving reductions in nonpoint source pollutant loadings.

The Coastal Zone Management Act (CZMA) of 1972 declares a national policy to preserve, protect, and develop, and, where possible, restore or enhance the resources of the Nation's coastal zone. The coastal zone refers to the coastal waters and the adjacent shorelines including islands, transitional and intertidal areas, salt marshes, wetlands, and beaches, and includes the Great Lakes. The CZMA encourages states to exercise their full authority over the coastal zone, through the development of land and water use programs in cooperation with Federal and local governments. States may apply for grants to help develop and implement management programs to achieve wise use of the land and water resources of the coastal zone. Development projects affecting land or water use or natural resources of a coastal zone, must ensure the project is, to the maximum extent practicable, consistent with the state's coastal zone management program.

The Safe Drinking Water Act (SDWA) of 1974 establishes a Federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. Congress amended the SDWA in 1986, mandating dramatic changes in nationwide safeguards for drinking water and establishing new Federal enforcement responsibility on the part of USEPA. The 1986 amendments to the SDWA require USEPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs), and Best Available Technology (BAT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants; and turbidity. MCLGs are maximum concentrations below which no negative human health effects are known to exist. The 1996 amendments set current Federal MCLs, MCLGs, and BATs for organic, inorganic, microbiological, and radiological contaminants in public drinking water supplies.

The Wild and Scenic Rivers Act of 1968 provides for a wild and scenic river system by recognizing the remarkable values of specific rivers of the Nation. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for the enjoyment of present and future generations. Any river in a free-flowing condition is eligible for inclusion, and can be authorized as such

by an Act of Congress, an act of state legislature, or by the Secretary of the Interior upon the recommendation of the governor of the state(s) through which the river flows.

EO 11988, *Floodplain Management* (May 24, 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains. An agency may locate a facility in a floodplain if the head of the agency finds there is no practicable alternative. If it is found there is no practicable alternative, the agency must minimize potential harm to the floodplain, and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted floodproofing and flood protection to include elevating structures above the base flood level rather than filling in land.

### Biological Resources

The Endangered Species Act (ESA) of 1973 establishes a Federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charges Federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All Federal agencies must ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the U.S. Fish and Wildlife Service (USFWS) maintains the list. A list of Federal endangered species can be obtained from the Endangered Species Division, USFWS (703-358-2171). States might also have their own lists of threatened and endangered species which can be obtained by calling the appropriate State Fish and Wildlife office. Some species, such as the bald eagle, also have laws specifically for their protection (e.g., Bald Eagle Protection Act).

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties and conventions between the United States, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless otherwise permitted by regulations, the MBTA makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The MBTA also makes it unlawful to ship, transport or carry from one state, territory, or district to another, or through a foreign country, any bird, part, nest, or egg that was captured, killed, taken, shipped, transported, or carried contrary to the laws from where it was obtained; and import from Canada any bird, part, nest, or egg obtained contrary to the laws of the province from which it was obtained. The U.S. Department of the Interior has authority to arrest, with or without a warrant, a person violating the MBTA.

EO 11514, *Protection and Enhancement of Environmental Quality* (March 5, 1970), states that the President, with assistance from the Council on Environmental Quality (CEQ), will lead a national effort to provide leadership in protecting and enhancing the environment for the purpose of sustaining and enriching human life. Federal agencies are directed to meet national environmental goals through their policies, programs, and plans. Agencies should also continually monitor and evaluate their activities to protect and enhance the quality of the environment. Consistent with NEPA, agencies are directed to share information about existing or potential environmental problems with all interested parties, including the public, in order to obtain their views.

EO 11990, *Protection of Wetlands* (May 24, 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland.

Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

EO 13186, *Conservation of Migratory Birds* (January 10, 2001), creates a more comprehensive strategy for the conservation of migratory birds by the Federal government. EO 13186 provides a specific framework for the Federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan. EO 13186 provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in a Memorandum of Understanding (MOU). EO 13186 will be coordinated and implemented by the USFWS. The MOU will outline how Federal agencies will promote conservation of migratory birds. EO 13186 requires the support of various conservation planning efforts already in progress; incorporation of bird conservation considerations into agency planning, including NEPA analyses; and reporting annually on the level of take of migratory birds.

### Cultural Resources

The American Indian Religious Freedom Act of 1978 and Amendments of 1994 recognize that freedom of religion for all people is an inherent right, and traditional American Indian religions are an indispensable and irreplaceable part of Indian life. It also recognized the lack of Federal policy on this issue and made it the policy of the United States to protect and preserve the inherent right of religious freedom for Native Americans. The 1994 Amendments provide clear legal protection for the religious use of peyote cactus as a religious sacrament. Federal agencies are responsible for evaluating their actions and policies to determine if changes should be made to protect and preserve the religious cultural rights and practices of Native Americans. These evaluations must be made in consultation with native traditional religious leaders.

The Archaeological Resource Protection Act (ARPA) of 1979 protects archaeological resources on public and American Indian lands. It provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, or defacement of any archaeological resource, defined as material remains of past human life or activities which are at least 100 years old. Before archaeological resources are excavated or removed from public lands, the Federal land manager must issue a permit detailing the time, scope, location, and specific purpose of the proposed work. ARPA also fosters the exchange of information about archaeological resources between governmental agencies, the professional archaeological community, and private individuals. ARPA is implemented by regulations found in 43 CFR Part 7.

The National Historic Preservation Act (NHPA) of 1966 sets forth national policy to identify and preserve properties of state, local, and national significance. The NHPA establishes the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers (SHPOs), and the National Register of Historic Places (NRHP). ACHP advises the President, Congress, and Federal agencies on historic preservation issues. Section 106 of the NHPA directs Federal agencies to take into account effects of their undertakings (actions and authorizations) on properties included in or eligible for the NRHP. Section 110 sets inventory, nomination, protection, and preservation responsibilities for federally owned cultural properties. Section 106 of the act is implemented by regulations of the ACHP, 36 CFR Part 800. Agencies should coordinate studies and documents prepared under Section 106 with NEPA where appropriate. However, NEPA and NHPA are separate statutes and compliance with one does not constitute compliance with the other. For example, actions which qualify for a categorical exclusion under NEPA might still require Section 106 review under NHPA. It is the responsibility of the agency official to identify properties in the area of potential effects, and whether they are included or eligible for inclusion in the NRHP. Section 110 of the NHPA requires Federal agencies to identify, evaluate, and nominate historic property under agency control to the NRHP.

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 establishes rights of American Indian tribes to claim ownership of certain "cultural items," defined as Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, held or controlled by Federal agencies. Cultural items discovered on Federal or tribal lands are, in order of primacy, the property of lineal descendants, if these can be determined, and then the tribe owning the land where the items were discovered or the tribe with the closest cultural affiliation with the items. Discoveries of cultural items on Federal or tribal land must be reported to the appropriate American Indian tribe and the Federal agency with jurisdiction over the land. If the discovery is made as a result of a land use, activity in the area must stop and the items must be protected pending the outcome of consultation with the affiliated tribe.

EO 11593, *Protection and Enhancement of the Cultural Environment* (May 13, 1971), directs the Federal government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all Federal sites under their jurisdiction or control which might qualify for listing on the NRHP. Agencies must allow the ACHP to comment on the alteration, demolition, sale, or transfer of property which is likely to meet the criteria for listing as determined by the Secretary of the Interior in consultation with the SHPO. Agencies must also initiate procedures to maintain federally owned sites listed on the NRHP.

EO 13007, *Indian Sacred Sites* (May 24, 1996), provides that agencies managing Federal lands, to the extent practicable, permitted by law, and not inconsistent with agency functions, shall accommodate American Indian religious practitioners' access to and ceremonial use of American Indian sacred sites, shall avoid adversely affecting the physical integrity of such sites, and shall maintain the confidentiality of such sites. Federal agencies are responsible for informing tribes of proposed actions that could restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites.

EO 13287, *Preserve America* (March 3, 2003), orders Federal agencies to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the Federal government, and promote intergovernmental cooperation and partnerships for preservation and use of historic properties. EO 13287 established new accountability for agencies with respect to inventories and stewardship.

### Socioeconomics and Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994), directs Federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address the adverse human health or environmental effects that its activities have on minority and low-income populations, and develop agencywide environmental justice strategies. The strategy must list "programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health of and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations." A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. Responsibility for compliance with EO 12898 is with each Federal agency.

### Hazardous Materials and Waste

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes USEPA to respond to spills and other releases of hazardous substances to the environment, and

authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA also provides a Federal "Superfund" to respond to emergencies immediately. Although the "Superfund" provides funds for cleanup of sites where potentially responsible parties cannot be identified, USEPA is authorized to recover funds through damages collected from responsible parties. This funding process places the economic burden for cleanup on polluters.

The Pollution Prevention Act (PPA) of 1990 encourages manufacturers to avoid the generation of pollution by modifying equipment and processes, redesigning products, substituting raw materials, and making improvements in management techniques, training, and inventory control. Consistent with pollution prevention principles, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007 [revoking EO 13148]) sets a goal for all Federal agencies that promotes environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products, and use of paper of at least 30 percent post-consumer fiber content. In addition, EO 13423 sets a goal that requires Federal agencies to ensure that they reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of, increase diversion of solid waste as appropriate, and maintain cost effective waste prevention and recycling programs in their facilities. Additionally, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to Federal agencies on how to "incorporate pollution prevention principles, techniques, and mechanisms into their planning and decision making processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA."

The Resource Conservation and Recovery Act (RCRA) of 1976 is an amendment to the Solid Waste Disposal Act. RCRA authorizes USEPA to provide for "cradle-to-grave" management of hazardous waste and sets a framework for the management of nonhazardous municipal solid waste. Under RCRA, hazardous waste is controlled from generation to disposal through tracking and permitting systems, and restrictions and controls on the placement of waste on or into the land. Under RCRA, a waste is defined as hazardous if it is ignitable, corrosive, reactive, toxic, or listed by USEPA as being hazardous. With the Hazardous and Solid Waste Amendments (HSWA) of 1984, Congress targeted stricter standards for waste disposal and encouraged pollution prevention by prohibiting the land disposal of particular wastes. The HSWA amendments strengthen control of both hazardous and nonhazardous waste and emphasize the prevention of pollution of groundwater.

The Superfund Amendments and Reauthorization Act (SARA) of 1986 mandates strong clean-up standards and authorizes USEPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which requires facility operators with "hazardous substances" or "extremely hazardous substances" to prepare comprehensive emergency plans and to report accidental releases. If a Federal agency acquires a contaminated site, it can be held liable for cleanup as the property owner/operator. A Federal agency can also incur liability if it leases a property, as the courts have found lessees liable as "owners." However, if the agency exercises due diligence by conducting a Phase I Environmental Site Assessment, it can claim the "innocent purchaser" defense under CERCLA. According to Title 42 United States Code (U.S.C.) 9601(35), the current owner/operator must show it undertook "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" before buying the property to use this defense.

The Toxic Substance Control Act (TSCA) of 1976 consists of four titles. Title I established requirements and authorities to identify and control toxic chemical hazards to human health and the environment. TSCA authorized USEPA to gather information on chemical risks, require companies to test chemicals for toxic effects, and regulate chemicals with unreasonable risk. TSCA also singled out polychlorinated biphenyls (PCBs) for regulation, and, as a result, PCBs are being phased out. PCBs are persistent when released into the environment and accumulate in the tissues of living organisms. They have been shown

to cause adverse health effects on laboratory animals and could cause adverse health effects in humans. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, clean-up, and release reporting requirements for numerous chemicals like PCBs. TSCA Title II provides statutory framework for "Asbestos Hazard Emergency Response," which applies only to schools. TSCA Title III, "Indoor Radon Abatement," states indoor air in buildings of the United States should be as free of radon as the outside ambient air. Federal agencies are required to conduct studies on the extent of radon contamination in buildings they own. TSCA Title IV, "Lead Exposure Reduction," directs Federal agencies to "conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards." Further, any Federal agency having jurisdiction over a property or facility must comply with all Federal, state, interstate, and local requirements concerning lead-based paint.

# APPENDIX B

## INTERAGENCY COORDINATION AND PUBLIC INVOLVEMENT

**Florida State Agency Comments on the Draft Final EA through the Florida Clearinghouse**

| Comment | Commenter | Response |
|---|---|---|
| Section 3.7.1 should be revised to reflect the recently implemented Environmental Resource Permitting requirements of Chapter 62-346, Florida Administrative Code, currently regulating storm water treatment and enacted later in 2008 to regulate wetlands as well. | Northwest Florida Water management District (NWFWMD) | New permitting requirements were verified and sections 1.5.5 and 3.7.1 of the EA were revised to reflect the new permit. |
| Section 3.7.2 should be revised to indicate that the regulation of all consumptive uses of water is provided for under Chapter 40A-2 of the Florida Administrative Code. | NWFWMD | Text was revised in Section 3.7.2 and 3.10.2 (utilities and infrastructure) per comment. |
| Section 3.10.2 should be modified to reflect the regulation of drinking water quality by the Florida Department of Environmental Protection and consumptive use by the NWFWMD. | NWFWMD | Text revised per comment. |
| Please be advised that, while the NWFWMD has developed a minimum flows and levels (MFLs) priority list, no actual MFLs have been established at this time. | NWFWMD | Comment noted. Text revised in Section 3.10.2 per comment. |
| Based on the information in the Draft Final EA and the enclosed state agency comments, the state has determined that, at this stage, the proposed federal activity is consistent with the Florida Coastal Management Program. | Florida Department of Environmental Protection | Comment noted. |
| In order to further review this proposal, please address the following: What is the need for a restaurant, daycare, retail | West Florida Regional Planning Council | Eglin AFB personnel contacted the commenter personally to explain the basis of the proposed action. After the |

| Comment | Commenter | Response |
|---|---|---|
| space, fitness center, and plaza? What type of environmental impacts are associated with the placement of these structures/facilities? | | discussion, the commenter stated that no further action or clarification was needed. No changes to the EA were warranted. |
| No comment/Consistent (under the CZMA) | Division of Historical Resources – Bureau of Historic Preservation | Comment noted. |

Florida Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 12, 2008

Mr. Michael Spaits
Department of the Air Force
96 CEG/CEV
501 De Leon Street, Suite 101
Eglin AFB, FL 32542-5133

RE: Department of the Air Force – Draft Final Environmental Assessment for Construction of the Emerald Coast Technology and Research Campus at the University of Florida Research Engineering Education Facility (UF-REEF) at Eglin Air Force Base – Okaloosa County, Florida.
SAI # FL200803314142C

Dear Mr. Spaits:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the referenced Draft Final Environmental Assessment (EA).

The Northwest Florida Water Management District (NWFWMD) recommends that Section 3.7.1 of the Draft EA be revised to reflect the recently implemented Environmental Resource Permitting (ERP) requirements of Chapter 62-346, *Florida Administrative Code* (*F.A.C.*) – currently regulating stormwater treatment and enacted later in 2008 to regulate wetland impacts as well. Section 3.7.2 should be revised to indicate that the regulation of all consumptive uses of water is provided for under Chapter 40A-2, *F.A.C.* Additionally, Section 3.10.2 should be modified to reflect the regulation of drinking water quality by the Florida Department of Environmental Protection and consumptive use by the NWFWMD. Please be advised that, while the NWFWMD has developed a minimum flows and levels (MFLs) priority list, no actual MFLs have been established at this time. Please refer to the enclosed NWFWMD letter for additional details.

West Florida Regional Planning Council (WFRPC) staff requests further information on the need for the proposed restaurant, daycare center, retail space, fitness center and plaza and details regarding the environmental impacts associated with placement of these structures/facilities. Please refer to the enclosed WFRPC letter for further information.

Based on the information contained in the Draft Final EA and the enclosed state agency comments, the state has determined that, at this stage, the proposed federal activity is consistent with the Florida Coastal Management Program (FCMP). The issues identified by our reviewing agencies must, however, be addressed prior to project implementation. The state's continued concurrence with the project will be based, in part, on the adequate resolution of issues identified during this and subsequent reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting stage.

Thank you for the opportunity to review the proposed project. Should you have any questions regarding this letter, please contact Ms. Lauren P. Milligan at (850) 245-2170.

Sincerely yours,

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lm
Enclosures

cc: Duncan Cairns, NWFWMD
John Gallagher, WFRPC



# Florida
## Department of Environmental Protection

*"More Protection, Less Process"*





| Project Information | |
|---|---|
| **Project:** | FL200803314142C |
| **Comments Due:** | 04/30/2008 |
| **Letter Due:** | 05/12/2008 |
| **Description:** | DEPARTMENT OF THE AIR FORCE - DRAFT FINAL ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION OF THE EMERALD COAST TECHNOLOGY AND RESEARCH CAMPUS AT THE UNIVERSITY OF FLORIDA RESEARCH ENGINEERING EDUCATION FACILITY (UF-REEF) AT EGLIN AIR FORCE BASE - OKALOOSA COUNTY, FLORIDA. |
| **Keywords:** | USAF - EMERALD COAST TECHNOLOGY & RESEARCH CAMPUS, UF-REEF, EGLIN AFB - OKALOOSA |
| **CFDA #:** | 12.200 |

**Agency Comments:**

| |
|---|
| **WEST FLORIDA RPC - WEST FLORIDA REGIONAL PLANNING COUNCIL** |
| WFRPC staff requests further information on the need for the proposed restaurant, daycare center, retail space, fitness center and plaza and details regarding the environmental impacts associated with placement of these structures/facilities. |
| **OKALOOSA - OKALOOSA COUNTY** |
| |
| **COMMUNITY AFFAIRS - FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS** |
| DCA has no comment. |
| **FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION** |
| NO COMMENT BY FRED ROBINETTE ON 4/21/08. |
| **STATE - FLORIDA DEPARTMENT OF STATE** |
| No Comments/Consistent |
| **TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION** |
| Released Without Comment |
| **ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION** |
| DEP advises that the proposal to construct the UF-REEF facility will require issuance of an Environmental Resource Permit by the Northwest Florida Water Management District. As indicated in the Draft EA, the proposed project will also require issuance of a National Pollutant Discharge Elimination System (NPDES) Generic Permit by the DEP's NPDES Stormwater Section in Tallahassee, phone (850) 245-7522. |
| **NORTHWEST FLORIDA WMD - NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT** |
| The NWFWMD recommends that Section 3.7.1 of the Draft EA be revised to reflect the recently implemented Environmental Resource Permitting (ERP) requirements of Chapter 62-346, F.A.C. - currently regulating stormwater treatment and enacted later in 2008 to regulate wetland impacts as well. Section 3.7.2 should be revised to indicate that the regulation of all consumptive uses of water is provided for under Chapter 40A-2, F.A.C. Additionally, Section 3.10.2 should be modified to reflect the regulation of drinking water quality by DEP and consumptive use by the NWFWMD. Please be advised that, while the NWFWMD has developed a minimum flows and levels (MFLs) priority list, no actual MFLs have been established at this time. |

For more information or to submit comments, please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD, M.S. 47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

Northwest Florida Water Management District

81 Water Management Drive, Havana, Florida 32333-4712
*(U.S. Highway 90, 10 miles west of Tallahassee)*

(850) 539-5999 • (Fax) 539-2777

Douglas E. Barr
*Executive Director*

**MEMORANDUM**

TO: Duncan Cairns, Chief, Bureau of Environmental Management and Planning

FROM: Paul Thorpe, Director, Resource Planning Section

DATE: April 21, 2008

SUBJECT: Draft Final Environmental Assessment, Construction of Emerald Coast Technology and Research Campus at the University of Florida Research Engineering Education Facility at Eglin AFB – SAI # FL200803314142C

---

Eglin Air Force Base (AFB) proposes to lease 118 acres to establish the Emerald Coast Technology and Research Campus (ECTRC) under the base's Enhanced Use Lease program. Pursuant to the lease, approximately 98 acres would be developed by a private developer for construction of the campus and attendant facilities. The ECTRC is envisioned as a partnership campus between federal and state governments, including the military at Eglin AFB, the private sector, and academia. Northwest Florida Water Management (NWFWMD) staff have reviewed the environmental assessment and offer the following comments and recommendations.

It is recommended that the sixth paragraph of Section 3.7.1 be revised to reflect regulation of stormwater under Environmental Resource Permitting (ERP) in accordance with Chapter 62-346, F.A.C. Stormwater ERP regulation began in October 2007. Additionally, it is anticipated that wetland regulation under ERP will be enacted later during 2008.

Section 3.7.2 (last sentence, second paragraph) appears to suggest that the NWFWMD regulates consumptive uses of water only from the Floridan Aquifer. It is recommended that the text be revised to reflect regulation of all consumptive uses of water as provided for under Chapter 40A-2, Florida Administrative Code.

It is recommended that the fifth paragraph (Water Supply) of Section 3.10.2 be revised to reflect regulation of drinking water quality by FDEP and regulation of consumptive use by the NWFWMD. Additionally, the paragraph incorrectly states that the NWFWMD has established minimum flows and levels (MFLs) for groundwater and surface water systems. While the NWFWMD has developed an MFL priority list, no actual MFLs have as yet been established within the NWFWMD.

District staff appreciate the opportunity to review this Draft EA. If there are any questions, please do not hesitate to contact Paul Thorpe at (850) 539-5999.

GEORGE ROBERTS, Chair, Panama City
PHILIP K. McMILLAN, Vice Chair, Blountstown
SHARON PINKERTON, Secretary/Treasurer, Pensacola
PETER ANTONACCI, Tallahassee
STEPHANIE BLOYD, Panama City Beach
SHARON T. GASKIN, Wewahitchka
STEVE GHAZVINI, Tallahassee
TIM NORRIS, Santa Rosa Beach
JERRY PATE, Pensacola

West Florida Regional Planning Council

Bill Roberts, Chairman
Bill Dozier, Vice-Chairman

Terry A. Joseph, Executive Director

## FAX TRANSMITTAL (S) Total # of Pages (including cover) 1

**TO: STATE CLEARINGHOUSE • FAX: (850) 245-2190/(850) 245-2189**
**Phone: 850-245-2161**

**DATE:** Tuesday, April 29, 2008

**FROM:** John Gallagher, Director, Housing & Homeland Security & Emergency Mgmt.
John.Gallagher@wfrpc.org

**SUBJECT: State Clearinghouse Review(s) Fax Transmittals:**

| SAI # | Project Description | RPC # |
|---|---|---|
| FL200803314142C | Draft Environmental Assessment for Construction of Tech & Research Campus, UF-REEF, Eglin AFB | O 88-4-1-08 |

| | |
|---|---|
| | No Comments – Generally consistent with the WFSRPP |
| X | Comments Attached |

*If you have any questions, please call.*

P.O. Box 11399 • Pensacola, FL 32524-1399 • P: 850.332-7976 • 1.800.226.8914 • F: 850.637-1923
4081 East Olive Road, Suite A; Pensacola, FL 32514
651 West 14th Street, Suite E • Panama City, FL 32401 • P: 850.769.4854 • F: 850.784.0466
www.wfrpc.org

West Florida Regional Planning Council

Bill Roberts, Chairman
Bill Dozier, Vice-Chairman

Terry A. Joseph, Executive Director

**MEMORANDUM**

**To:** Mr. Mike Spaits, Eglin AFB Environmental Public Affairs, 96 CEG/CEVPA, Eglin AFB, Fl 32542-5000

**From:** Mary F. Gutierrez, Environmental Planner, West Florida Regional Planning Council MFG 4/28/08

**Date:** Monday, April 28, 2008

**Subject:** Preparation of an Environmental Assessment (EA) addressing the Construction of the Emerald Coast Technology and Research Campus (ECTRC) at the University of Florida Research Engineering Education Facility (UF-REEF) at Eglin Force Base, Florida. FL200803314142C; RPC# O 884 4-1-08

The proposal action is for the construction of the Emerald Coast Technology and Research Campus (ECTRC) at the University of Florida Research Engineering Education Facility (UF-REEF) at Eglin Force Base, Florida.

In order to further review this proposal please address the following:

What is the need for a restaurant, daycare, retail space, fitness center, and plaza? What type of environmental impacts are associated with the placement of these structures/facilities?

P.O. Box 11399 • Pensacola, FL 32524-1399 • P: 850.332.7976 • 1.800.226.8914 • F: 850.637.1923
551 West 14th Street, Suite E • Panama City, FL 32401 • P: 850.769.4654 • F: 850.784.0466
www.wfrpc.org

COUNTY: OKALOOSA
SCH-08-F-EG

DATE: 3/28/2008
COMMENTS DUE DATE: 4/30/2008
CLEARANCE DUE DATE: 5/12/2008
SAI#: FL200803314142C

MESSAGE: 2008-02120

| STATE AGENCIES | WATER MNGMNT. DISTRICTS | OPB POLICY UNIT | RPCS & LOC GOVS |
|---|---|---|---|
| COMMUNITY AFFAIRS | NORTHWEST FLORIDA WMD | | |
| ENVIRONMENTAL PROTECTION | | | |
| FISH and WILDLIFE COMMISSION | | | |
| X STATE | | | |
| TRANSPORTATION | | | |

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.

Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.

Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

**Project Description:**

DEPARTMENT OF THE AIR FORCE - DRAFT FINAL ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION OF THE EMERALD COAST TECHNOLOGY AND RESEARCH CAMPUS AT THE UNIVERSITY OF FLORIDA RESEARCH ENGINEERING EDUCATION FACILITY (UF-REEF) AT EGLIN AIR FORCE BASE - OKALOOSA COUNTY, FLORIDA.

**To: Florida State Clearinghouse**

AGENCY CONTACT AND COORDINATOR (SCH)
3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

**EO. 12372/NEPA Federal Consistency**

☒ No Comment
☐ Comment Attached
☐ Not Applicable

☒ No Comment/Consistent
☐ Consistent/Comments Attached
☐ Inconsistent/Comments Attached
☐ Not Applicable

**From:**
Division/Bureau: Division of Historical Resources
Bureau of Historic Preservation

Reviewer: Samantha Earnest Laura A. Kammerer, Deputy SHPO

Date: 5/1/8 5/1/2008

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BUREAU OF
HISTORIC PRESERVATION

28 March 2008

**MEMORANDUM FOR DISTRIBUTION**

**FROM:** engineering-environmental Management, Inc.
2751 Prosperity Avenue
Suite 200
Fairfax, VA 22031

**SUBJECT:** Solicitation of input into the preparation of an Environmental Assessment (EA) addressing the Construction of the Emerald Coast Technology and Research Campus (ECTRC) at the University of Florida Research Engineering Education Facility (UF-REEF) at Eglin AFB, Florida.

1. The U.S. Air Force (USAF), Air Force Materiel Command is preparing an EA to address a proposal by Eglin Air Force Base (AFB) to lease 118 acres of the installation to establish the Emerald Coast Technology and Research Campus (ECTRC). Currently, 20 acres are associated with the University of Florida Research Engineering Education Facility (UF-REEF). Approximately 98 acres of the parcel would be developed by a private developer for this purpose under the Enhanced Use Lease (EUL) program. This Draft Final EA evaluates implementation of the Proposed Action at three alternative site locations (construction of the ECTRC adjacent to the UF-REEF and additional site alternatives near the UF-REEF site) and the No Action Alternative, and will aid in determining whether the preparation of an Environmental Impact Statement (EIS) is necessary. Two hard copies and 14 CDs of he Draft Final EA, which includes a detailed description of the proposal, are included with this correspondence for distribution to the appropriate agencies for review. A consistency determination in accordance with the federal Coastal Zone Management Act (CZMA) is included in Appendix D of the Draft Final EA.

2. The environmental impact analysis process for the Proposed Action and alternatives is being conducted by Headquarters Air Force Materiel Command in accordance with the Council on Environmental Quality guidelines pursuant to the requirements of the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached EA and solicit your comments concerning the proposal and any potential environmental issues of concern to you.

3. Please provide any general or public comments, and any CZMA letters of concurrence directly to Mr. Mike Spaits at 96 CEG/CEV, 501 DeLeon Street, Suite 101, Eglin AFB, FL 32542-5133 by 28 April 2008.

4. If members of your staff have any technical-related questions or inquiries please feel free to contact me at the address listed at the top of this letter.

If you have any questions, please contact me at (830) 438-4720, ext. 108. Thank you.

Sincerely,

Stephen G. Pyle
Project Manager
engineering-environmental Management, Inc.

**PUBLIC NOTICE**

**Notice of Availability**
**Draft Finding of No Significant Impact for the Environmental Assessment of Construction of the Emerald Coast Technology and Research Campus at Eglin AFB, Florida**

**Eglin AFB, Florida** – An Environmental Assessment for the Construction of the Emerald Coast Technology and Research Campus at Eglin Air Force Base AFB is being prepared. The U.S. Air Force is proposing to lease a 118 acre parcel of Eglin AFB property under Enhanced Use Lease authority for construction of the proposed Emerald Coast Technology and Research Campus.

The U.S. Air Force is proposing to issue a Finding of No Significant Impact based on the EA. The analysis considered in detail includes the potential effects of the Proposed Action at three alternative site locations and the No Action Alternative on 10 resource areas: noise, land use, air quality, safety, water resources, geological resources, biological resources, socioeconomic resources and environmental justice, infrastructure and utilities, and hazardous materials and wastes. The results, as found in the EA, indicate that the Proposed Action would not have a significant impact on the environment.

Copies of the Draft FONSI and EA describing the Proposed Action in detail and presenting the analysis are available for review at the Fort Walton Beach Library, the Shalimar Library and the Valparaiso Library. Public comments on the Draft FONSI and EA will be accepted through April 28, 2008.

Written comments and inquiries on the Draft FONSI and EA should be directed to Mr. Mike Spaits at 96 CEG/CEV, 501 DeLeon Street, Suite 101, Eglin AFB, Florida 32542, or email spaitsm@eglin.af.mil.

screenplay for "Daughter at Nuremberg," has died at 80.

Writers Guild of America spokesman Gregg Mitchell said Mann died Tuesday. The cause of death was not given.

Mann also won multiple Emmys, including one in 1973 for "The Marcus-Nelson Murders," which created a maverick New York police detective named Theo Kojak. The film, starring Telly Savalas, was spun off into the long-running TV series "Kojak."

Sheriff has the right to appeal to the governor."

Johnson scheduled a public hearing Feb. 26, but attended a cooking school instead. Without Johnson present to answer their questions, commissioners denied his request.

The Sheriff's Office contends that the $311,431 for the new 911 system was in its budget last year, but Johnson had to return the money to the county in February at the county auditor's request. Johnson was required by law to hand back any excess funds

...allocated money for new 911 equipment.

Imfeld said for funds to be encumbered they must be budgeted against authorized projects. The 911 system wasn't authorized because it was never mentioned in any budget or public hearings.

Constitutional offices such as the Sheriff's Office have control over their budgets after the County Commission's approval. However, if Johnson needs more money he must ask for a budget amendment, which the funds for the new 911 system are, Imfeld said.

## PUBLIC NOTICE

### Notice of Availability
### Draft Finding of No Significant Impact for the Environmental Assessment of Construction of the Emerald Coast Technology and Research Campus at Eglin AFB, Florida

**Eglin AFB, Florida** – An Environmental Assessment for the Construction of the Emerald Coast Technology and Research Campus at Eglin Air Force Base AFB is being prepared. The U.S. Air Force is proposing to lease a 118 acre parcel of Eglin AFB property under Enhanced Use Lease authority for construction of the proposed Emerald Coast Technology and Research Campus.

The U.S. Air Force is proposing to issue a Finding of No Significant Impact based on the EA. The analysis considered in detail includes the potential effects of the Proposed Action at three alternative site locations and the No Action Alternative on 10 resource areas: noise, land use, air quality, safety, water resources, geological resources, biological resources, socioeconomic resources and environmental justice, infrastructure and utilities, and hazardous materials and wastes. The results, as found in the EA, indicate that the Proposed Action would not have a significant impact on the environment.

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March 28, 2008

Fort Walton Beach Library
185 Miracle Strip Pkwy SE
Fort Walton Bch, FL 32548
(850) 833-9590

Shalimar Library
6 10th Ave,
Shalimar, FL 32579
(850) 609-1515

Valparaiso Library
459 Valparaiso Parkway
Valparaiso, FL 32580
(850) 729-5406

The public notice shown below has been published in the Northwest Florida Daily News. Please place the enclosed copy of the Environmental Assessment either on reserve or in the reference section of your library. Members of the public have been invited to review the document at your library until April 28, 2008. The document should not leave the library.

**Notice of Availability**
**Draft Finding of No Significant Impact for the Environmental Assessment of Construction of the Emerald Coast Technology and Research Campus at Eglin AFB, Florida**

**Eglin AFB, Florida** – An Environmental Assessment (EA) for the Construction of the Emerald Coast Technology and Research Campus at Eglin Air Force Base (AFB) is being prepared. The U.S. Air Force is proposing to lease a 118 acre parcel of Eglin AFB property under Enhanced Use Lease authority for construction of the proposed Emerald Coast Technology and Research Campus.

The U.S. Air Force is proposing to issue a Finding of No Significant Impact (FONSI) based on the EA. The analysis considered in detail includes the potential effects of the Proposed Action at three alternative site locations and the No Action Alternative on 10 resource areas: noise, land use, air quality, safety, water resources, geological resources, biological resources, socioeconomic resources and environmental justice, infrastructure and utilities, and hazardous materials and wastes. The results, as found in the EA, indicate that the Proposed Action would not have a significant impact on the environment.

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Written comments and inquiries on the Draft FONSI and EA should be directed to Mr. Mike Spaits at 96 CEG/CEV, 501 DeLeon Street, Suite 101, Eglin AFB, Florida 32542, or email spaitsm@eglin.af.mil.

If you have any questions, please contact me at (830) 438-4720, ext. 108. Thank you.

Sincerely,

Stephen G. Pyle
Project Manager
engineering-environmental Management, Inc.

Florida's two major research universities would gain wide power over how much to charge students under a bill that was overwhelmingly approved Friday by the Florida House.

The House voted 85-28 for legislation (HB 7129) that would allow the University of Florida and Florida State University to raise tuition above the current 15 percent a year cap.

The legislation was an outgrowth of House Speaker Dean Cannon's complaint in January that the state university system was mired in mediocrity and had suffered from political interference over the years.

Supporters of the bill contended giving universities such broad power over tuition would help elevate the stature of UF and FSU nationally and allow them to compete with public universities in Virginia, North Carolina, Michigan and California.

Carolina has a Chapel Hill?" said Rep. Bill Proctor, R-St. Augustine and the primary sponsor of the bill.

Those supporting the bill also have argued that Florida's overall tuition rates remain among the cheapest in the nation.

But the House vote comes at the same time budget negotiators have already agreed to a $300 million cut in state money going to universities.

University students have showed up several times this session to complain about repeated tuition hikes this year. Earlier this week several of them lined a corridor with signs including one that read "Where's my tax break? Students Inc."

Those legislators opposed to the bill complained it would be too much of a burden on students during a time of economic hardship. They said the universities are asking for more tuition money

reeling from the last few years of budget cuts.

"I think it is dead wrong to require our students to bear the burden of the state's failure to fully fund our university system," said Rep. Martin Kiar, D-Davie.

Florida legislators have the power to order tuition hikes, but universities also have the power to raise tuition up to 15 percent a year without legislative approval.

The bill that passed Friday would allow any university that meets a list of criteria to ask the Board of Governors to raise tuition even higher, or to set different tuition rates for different types of programs.

The criteria include attracting students with high SAT scores, spending at least $200 million on research, retaining at least 90 percent of their incoming freshmen and having a number of nationally-recognized faculty members.

# Notice of Availability

Draft Finding of No Significant Impact for the Environmental Assessment of Construction of the Emerald Coast Technology and Research Campus at Eglin AFB, Florida

Eglin AFB, Florida – An Environmental Assessment for the Construction of the Emerald Coast Technology and Research Campus at Eglin Air Force Base has been prepared. The U.S. Air Force is proposing to lease a 98.65 acre parcel of Eglin AFB property under Enhanced Use Lease authority for construction of the proposed Emerald Coast Technology and Research Campus. The property is near the corner of Lewis Turner Boulevard and Poquito Road, adjacent to the University of Florida Research and Engineering Education Facility near Eglin's West Gate.

The ECTRC is envisioned as a partnership campus between Federal and state government, including the military at Eglin AFB, the private sector, and academia. The ECTRC will be developed as a campus attractive to hi-tech companies paying premium wages to skilled professionals.

Your comments on this Draft EA are requested. Letters and other written or oral comments provided may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided, including private addresses, will be used only to identify your desire to make a statement during the public comment period or to compile a mailing list to fulfill requests for copies of the Final EA or associated documents. However, only the names and respective comments of respondent individuals will be disclosed: personal home addresses and phone numbers will not be published in the Final EA.

The Draft Environmental Assessment and Draft Finding of No Significant Impact are available on the web at www.eglin.af.mil/environmentalassessments.asp from Mar. 3rd, 2012 until Mar. 17th, 2012. The documents can also be viewed online at all area public libraries. For more information, contact Mike Spaits, 96th Air Base Wing Environmental Public Affairs, 501 De Leon Street, Suite 101, Eglin AFB, Florida 32542-5133 or email: mike.spaits@eglin.af.mil. Tel: (850) 882-2836; Fax: (850) 882-3761.

For more information or to comment on the Proposed Action, contact Mike Spaits using the contact information given above. Comments must be received by Mar. 20th, 2012.

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# APPENDIX C

## CALCULATIONS TO SUPPORT AIR QUALITY IMPACT ANALYSES

**Summary** Summarizes total emissions by calendar year.

**Combustion** Estimates emissions from non-road equipment exhaust as well as painting.

**Fugitive** Estimates fine particulate emissions from earthmoving, vehicle traffic, and windblown dust

**Grading** Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions

**AQCR Tier Report** Summarizes total emissions for the Mobile (Alabama)-Pensacola-Panama City (Florida)-Southern Mississippi Interstate AQCR Tier Reports for 2001, to be used to compare project to regional emissions.

**Construction Emissions from Proposed Action**

| | | $NO_x$ (ton) | VOC (ton) | CO (ton) | $SO_2$ (ton) | $PM_{10}$ (ton) |
|---|---|---|---|---|---|---|
| **CY2010** | Construction Combustion | 30.395 | 9.562 | 68.958 | 1.770 | 2.013 |
| | Construction Fugitive Dust | 0.000 | 0.000 | 0.000 | 0.000 | 24.252 |
| | TOTAL CY2010 | 30.395 | 9.562 | 68.958 | 1.770 | 26.265 |

Since future year budgets were not readily available, actual 2001 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

**Mobile (Alabama)-Pensacola-Panama City (Florida)-Southern Mississippi Interstate AQCR**

| | Point and Area Sources Combined | | | | |
|---|---|---|---|---|---|
| Year | $NO_x$ (tpy) | VOC (tpy) | CO (tpy) | $SO_2$ (tpy) | $PM_{10}$ (tpy) |
| 2001 | 393,759 | 620,543 | 1,842,768 | 384,684 | 336,547 |

Source: USEPA-AirData NET Tier Report (http://www.epa.gov/air/data/geosel.html). Site visited on 10 May 2007.

**Determination Significance (Significance Threshold = 10%) for Construction Activities**

| | Point and Area Sources Combined | | | | |
|---|---|---|---|---|---|
| | $NO_x$ (tpy) | VOC (tpy) | CO (tpy) | $SO_2$ (tpy) | $PM_{10}$ (tpy) |
| Minimum - 2001 | 393,759 | 620,543 | 1,842,768 | 384,684 | 336,547 |
| CY2010 Emissions | 30.395 | 9.562 | 68.958 | 1.770 | 26.265 |
| Proposed Action % | **0.0077%** | **0.0015%** | **0.0037%** | **0.0005%** | **0.0078%** |

**Construction Combustion Emissions for CY 2009**

Combustion Emissions of VOC, $NO_x$, $SO_2$, CO and $PM_{10}$ Due to Construction

The Proposed Action is scheduled to occur over a 5 to 7 year period. Therefore, total construction was averaged over a 5-year period to estimate a worst-case scenario for local and regional air quality emissions.

Includes:

| | | | | | |
|---|---|---|---|---|---|
| 1 | 20% of Construct Office Research Buildings (1,400,000 ft$^2$) | 280,000 | ft$^2$ | 6.43 | acres |
| 2 | 20% of Construct Educational Buildings (400,000 ft$^2$) | 80,000 | ft$^2$ | 1.84 | acres |
| 3 | 20% of Construct Hotel Conference Center (110,000 ft$^2$) | 22,000 | ft$^2$ | 0.51 | acres |
| 4 | 20% of Construct Residential Condos (500,000 ft$^2$) | 100,000 | ft$^2$ | 2.30 | acres |
| 5 | 20% of Construct Parking Facilities (1,200,000 ft$^2$) | 240,000 | ft$^2$ | 5.51 | acres |
| 6 | 20% of Construct Cafeteria/Food Court (17,000 ft$^2$) | 3,400 | ft$^2$ | 0.08 | acres |
| 7 | 20% of Construct Restaurant (10,000 ft$^2$) | 2,000 | ft$^2$ | 0.05 | acres |
| 8 | 20% of Construct Day Care Facility (12,000 ft$^2$) | 2,400 | ft$^2$ | 0.06 | acres |
| 9 | 20% of Construct Convenience Retail Space (10,000 ft$^2$) | 2,000 | ft$^2$ | 0.05 | acres |
| 10 | 20% of Construct Fitness Center (6,000 ft$^2$) | 1,200 | ft$^2$ | 0.03 | acres |
| 11 | 20% of Construct Side Walks/Plaza (400,000 ft$^2$) | 80,000 | ft$^2$ | 1.84 | acres |
| 12 | 20% of Construct Storm Water Retention Ponds (110,000 ft$^2$) | 22,000 | ft$^2$ | 0.51 | acres |
| 13 | 20% of Construct Access Roads/Surface Parking (110,000 ft$^2$) | 22,000 | ft$^2$ | 0.51 | acres |

| | | | |
|---|---|---|---|
| Total Building Construction Area: | 813,000 | ft$^2$ | (1-11) |
| Total Demolished Area: | 0 | ft$^2$ | (None) |
| Total Paved Area: | 22,000 | ft$^2$ | (13) |
| Total Disturbed Area: | 857,000 | ft$^2$ | (1-13) |
| Construction Duration: | 1.0 | year(s) | |
| Annual Construction Activity: | 230 | days/yr | |

## Emission Factors Used for Construction Equipment

Reference: Guide to Air Quality Assessment, SMAQMD, 2004

Emission factors are taken from Table 3-2. Assumptions regarding the type and number of equipment are from Table 3-1 unless otherwise noted.

**Grading**

| Equipment | No. Reqd.[a] per 10 acres | $NO_x$ (lb/day) | VOC[b] (lb/day) | CO (lb/day) | $SO_2$[c] | $PM_{10}$ (lb/day) |
|---|---|---|---|---|---|---|
| Bulldozer | 1 | 29.40 | 3.66 | 25.09 | 0.59 | 1.17 |
| Motor Grader | 1 | 10.22 | 1.76 | 14.98 | 0.20 | 0.28 |
| Water Truck | 1 | 20.89 | 3.60 | 30.62 | 0.42 | 0.58 |
| Total per 10 acres of activity | 3 | 60.51 | 9.02 | 70.69 | 1.21 | 2.03 |

**Paving**

| Equipment | No. Reqd.[a] per 10 acres | $NO_x$ (lb/day) | VOC[b] (lb/day) | CO (lb/day) | $SO_2$[c] | $PM_{10}$ (lb/day) |
|---|---|---|---|---|---|---|
| Paver | 1 | 7.93 | 1.37 | 11.62 | 0.16 | 0.22 |
| Roller | 1 | 5.01 | 0.86 | 7.34 | 0.10 | 0.14 |
| Total per 10 acres of activity | 2 | 12.94 | 2.23 | 18.96 | 0.26 | 0.36 |

**Demolition**

| Equipment | No. Reqd.[a] per 10 acres | $NO_x$ (lb/day) | VOC[b] (lb/day) | CO (lb/day) | $SO_2$[c] | $PM_{10}$ (lb/day) |
|---|---|---|---|---|---|---|
| Loader | 1 | 7.86 | 1.35 | 11.52 | 0.16 | 0.22 |
| Haul Truck | 1 | 20.89 | 3.60 | 30.62 | 0.42 | 0.58 |
| Total per 10 acres of activity | 2 | 28.75 | 4.95 | 42.14 | 0.58 | 0.80 |

**Building Construction**

| Equipment[d] | No. Reqd.[a] per 10 acres | $NO_x$ (lb/day) | VOC[b] (lb/day) | CO (lb/day) | $SO_2$[c] | $PM_{10}$ (lb/day) |
|---|---|---|---|---|---|---|
| Stationary | | | | | | |
| Generator Set | 1 | 11.83 | 1.47 | 10.09 | 0.24 | 0.47 |
| Industrial Saw | 1 | 17.02 | 2.12 | 14.52 | 0.34 | 0.68 |
| Welder | 1 | 4.48 | 0.56 | 3.83 | 0.09 | 0.18 |
| Mobile (non-road) | | | | | | |
| Truck | 1 | 20.89 | 3.60 | 30.62 | 0.84 | 0.58 |
| Forklift | 1 | 4.57 | 0.79 | 6.70 | 0.18 | 0.13 |
| Crane | 1 | 8.37 | 1.44 | 12.27 | 0.33 | 0.23 |
| Total per 10 acres of activity | 6 | 67.16 | 9.98 | 78.03 | 2.02 | 2.27 |

Note: Footnotes for tables are on following page

**Architectural Coatings**

| Equipment | No. Reqd.[a] per 10 acres | $NO_x$ (lb/day) | VOC[b] (lb/day) | CO (lb/day) | $SO_2$[c] | $PM_{10}$ (lb/day) |
|---|---|---|---|---|---|---|
| Air Compressor | 1 | 6.83 | 0.85 | 5.82 | 0.14 | 0.27 |
| Total per 10 acres of activity | 1 | 6.83 | 0.85 | 5.82 | 0.14 | 0.27 |

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activitiy, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.

c) The SMAQMD 2004 reference does not provide $SO_2$ emission factors. For this worksheet, $SO_2$ emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting $SO_2$ factor was found to be approximately 0.04 times the NOx emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NOx emission factor for all other equipment (based on AP-42, Table 3.4-1)

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

## PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

| Source | Equipment Multiplier* | SMAQMD Emission Factors (lb/day) | | | | |
|---|---|---|---|---|---|---|
| | | $NO_x$ | VOC | CO | $SO_2$** | $PM_{10}$ |
| Grading Equipment | 2 | 238.095 | 35.492 | 278.151 | 4.762 | 7.988 |
| Paving Equipment | 1 | 0.654 | 0.113 | 0.958 | 0.013 | 0.018 |
| Demolition Equipment | 1 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Building Construction | 2 | 250.694 | 74.506 | 582.538 | 15.079 | 16.947 |
| Air Compressor for Architectural Coating | 2 | 25.495 | 6.346 | 43.450 | 1.020 | 2.016 |
| Architectural Coating** | | | 73.486 | | | |

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NOx = (Total Grading NOx per 10 ac*((total disturbed area/43560)/10))*(Equipment Multiplier)

Summary of Input Parameters

| | Total Area ($ft^2$) | Total Area (acres) | Total Days | |
|---|---|---|---|---|
| Grading: | 857,000 | 19.67 | 11 | (from "CY2009 Grading" worksheet) |
| Paving: | 22,000 | 0.51 | 3 | |
| Demolition: | 0 | 0.00 | 60 | |
| Building Construction: | 813,000 | 18.66 | 230 | |
| Architectural Coating | 813,000 | 18.66 | 20 | (per SMAQMD "Air Quality of Thresholds of Significance", 1994) |

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total 'Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. Paving is double-weighted since projects typically involve more paving demolition. The 'Total Days' estimate for building construction is assumed to be 230 days, unless project-specific data is known.

## Total Project Emissions by Activity (lbs)

| | $NO_x$ | VOC | CO | $SO_2$ | $PM_{10}$ |
|---|---|---|---|---|---|
| Grading Equipment | 2,619.04 | 390.41 | 3,059.66 | 52.38 | 87.86 |
| Paving | 1.96 | 0.34 | 2.87 | 0.04 | 0.05 |
| Demolition | - | - | - | - | - |
| Building Construction | 57,659.54 | 17,136.46 | 133,983.74 | 3,468.16 | 3,897.77 |
| Architectural Coatings | 509.90 | 1,596.63 | 868.99 | 20.40 | 40.31 |
| **Total Emissions (lbs):** | **60,790.45** | **19,123.84** | **137,915.27** | **3,540.97** | **4,026.00** |

## Results: Total Project Annual Emission Rates

| | $NO_x$ | VOC | CO | $SO_2$ | $PM_{10}$ |
|---|---|---|---|---|---|
| Total Project Emissions (lbs) | 60,790.45 | 19,123.84 | 137,915.27 | 3,540.97 | 4,026.00 |
| Total Project Emissions (tons) | 30.40 | 9.56 | 68.96 | 1.77 | 2.01 |

**Construction Fugitive Dust Emissions for CY 2009**

Calculation of $PM_{10}$ Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

| | | | |
|---|---|---|---|
| Acres graded per year: | 19.67 | acres/yr | (From "CY2009 Combustion" worksheet) |
| Grading days/yr: | 10.99 | days/yr | (From "CY2009 Grading worksheet) |
| Exposed days/yr: | 90 | assumed days/yr graded area is exposed | |
| Grading Hours/day: | 8 | hr/day | |
| Soil piles area fraction: | 0.10 | (assumed fraction of site area covered by soil piles) | |
| Soil percent silt, s: | 8.5 | % | (mean silt content; expected range: 0.56 to 23, AP-42 Table 13.2.2-1) |
| Soil percent moisture, M: | 50 | % | (http://www.cpc.noaa.gov/products/soilmst/w.shtml) |
| Annual rainfall days, p: | 110 | days/yr rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1) | |
| Wind speed > 12 mph %, I: | 21.5 | % | Ave. of wind speed at Tallahassee, Florida (ftp://ftp.wcc.nrcs.usda.gov/downloads/climate/windrose/florida/tallahassee/) |
| Fraction of TSP, J: | 0.5 | per California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993, p. A9-99 | |
| Mean vehicle speed, S: | 5 | mi/hr | (On-site) |
| Dozer path width: | 8 | ft | |
| Qty construction vehicles: | 3.00 | vehicles | (From "CY2009 Grading worksheet) |
| On-site VMT/vehicle/day: | 5 | mi/veh/day | (Excluding bulldozer VMT during grading) |
| $PM_{10}$ Adjustment Factor k | 1.5 | lb/VMT | (AP-42 Table 13.2.2-2 12/03 for $PM_{10}$ for unpaved roads) |
| $PM_{10}$ Adjustment Factor a | 0.9 | (dimensionless) | (AP-42 Table 13.2.2-2 12/03 for $PM_{10}$ for unpaved roads) |
| $PM_{10}$ Adjustment Factor b | 0.45 | (dimensionless) | (AP-42 Table 13.2.2-2 12/03 for $PM_{10}$ for unpaved roads) |
| Mean Vehicle Weight W | 40 | tons | assumed for aggregate trucks |

TSP - Total Suspended Particulate
VMT - Vehicle Miles Traveled

**Emissions Due to Soil Disturbance Activities**

Operation Parameters (Calculated from User Inputs)

| | | | |
|---|---|---|---|
| Grading duration per acre | 4.5 | hr/acre | |
| Bulldozer mileage per acre | 1 | VMT/acre | (Miles traveled by bulldozer during grading) |
| Construction VMT per day | 15 | VMT/day | |
| Construction VMT per acre | 8.4 | VMT/acre | (Travel on unpaved surfaces within site) |

Equations Used (Corrected for $PM_{10}$)

| Operation | Empirical Equation | Units | AP-42 Section (5th Edition) |
|---|---|---|---|
| Bulldozing | $0.75(s^{1.5})/(M^{1.4})$ | lbs/hr | Table 11.9-1, Overburden |
| Grading | $(0.60)(0.051)s^{2.0}$ | lbs/VMT | Table 11.9-1, |
| Vehicle Traffic (unpaved roads) | $[(k(s/12)^{a} (W/3)^{b})]$ [(365-P)/365] | lbs/VMT | Section 13.2.2 |

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 10/98 and Section 13.2 dated 12/03

Calculation of $PM_{10}$ Emission Factors for Each Operation

| Operation | Emission Factor (mass/ unit) | Operation Parameter | Emission Factor (lbs/ acre) |
|---|---|---|---|
| Bulldozing | 0.08 lbs/hr | 4.5 hr/acre | 0.40 lbs/acre |
| Grading | 0.77 lbs/VMT | 1 VMT/acre | 0.80 lbs/acre |
| Vehicle Traffic (unpaved roads) | 2.46 lbs/VMT | 8.4 VMT/acre | 20.70 lbs/acre |

**Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface**

Reference: California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993.

Soil Piles EF = 1.7(s/1.5)[(365 - p)/235](I/15)(J) = (s)(365 - p)(I)(J)/(3110.2941), p. A9-99.

Soil Piles EF = 7.5 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
Soil Piles EF = 0.75 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

**Calculation of Annual $PM_{10}$ Emissions**

| Source | Emission Factor | Graded Acres/yr | Exposed days/yr | Emissions lbs/yr | Emissions tons/yr |
|---|---|---|---|---|---|
| Bulldozing | 0.40 lbs/acre | 19.67 | NA | 8 | 0.004 |
| Grading | 0.80 lbs/acre | 19.67 | NA | 16 | 0.008 |
| Vehicle Traffic | 20.70 lbs/acre | 19.67 | NA | 407 | 0.204 |
| Erosion of Soil Piles | 0.75 lbs/acre/day | 19.67 | 90 | 1,328 | 0.664 |
| Erosion of Graded Surface | 26.40 lbs/acre/day | 19.67 | 90 | 46,745 | 23.373 |
| TOTAL | | | | 48,504 | 24.25 |

Soil Disturbance EF: 21.90 lbs/acre
Wind Erosion EF: 27.15 lbs/acre/day

Back calculate to get EF: 224.36 lbs/acre/grading day

**Construction (Grading) Schedule for CY 2009**

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 19.67 acres/yr (from "CY2009 Combustion" Worksheet)

Qty Equipment: 3.00 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions.

Terrain is mostly flat.
An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
200 hp bulldozers are used for site clearing.
300 hp bulldozers are used for stripping, excavation, and backfill.
Vibratory drum rollers are used for compacting.
Stripping, Excavation, Backfill and Compaction require an average of two passes each.
Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 19th Ed., R. S. Means, 2005.

| Means Line No. | Operation | Description | Output | Units | Acres per equip-day) | equip-days per acre | Acres/yr (project-specific) | Equip-days per year |
|---|---|---|---|---|---|---|---|---|
| 2230 200 0550 | Site Clearing | Dozer & rake, medium brush | 8 | acre/day | 8 | 0.13 | 19.67 | 2.46 |
| 2230 500 0300 | Stripping | Topsoil & stockpiling, adverse soil | 1,650 | cu. yd/day | 2.05 | 0.49 | 19.67 | 9.62 |
| 2315 432 5220 | Excavation | Bulk, open site, common earth, 150' haul | 800 | cu. yd/day | 0.99 | 1.01 | 9.84 | 9.92 |
| 2315 120 5220 | Backfill | Structural, common earth, 150' haul | 1,950 | cu. yd/day | 2.42 | 0.41 | 9.84 | 4.07 |
| 2315 310 5020 | Compaction | Vibrating roller, 6 " lifts, 3 passes | 2,300 | cu. yd/day | 2.85 | 0.35 | 19.67 | 6.90 |
| TOTAL | | | | | | | | 32.97 |

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 32.97
Qty Equipment: 3.00
Grading days/yr: 10.99

**Mobile (Alabama)-Pensacola-Panama City (Florida)-Southern Mississippi Interstate AQCR**

| | | | Area Source Emissions | | | | | | Point Source Emissions | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Row # | State | County | CO | NOx | PM10 | PM2.5 | SO2 | VOC | CO | NOx | PM10 | PM2.5 | SO2 | VOC |
| 1 | FL | Bay Co | 82,289 | 5,639 | 7,930 | 4,430 | 696 | 10,557 | 5,372 | 9,243 | 2,079 | 1,688 | 22,045 | 2,186 |
| 2 | FL | Calhoun Co | 34,573 | 1,269 | 4,816 | 2,934 | 222 | 2,136 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | FL | Escambia Co | 128,513 | 12,034 | 11,470 | 4,420 | 1,072 | 29,592 | 3,765 | 17,496 | 18,102 | 13,174 | 45,739 | 1,284 |
| 4 | FL | Gulf Co | 37,409 | 1,258 | 4,258 | 2,858 | 219 | 3,596 | 19.5 | 92.5 | 63.6 | 55.1 | 1.33 | 45.3 |
| 5 | FL | Holmes Co | 27,497 | 1,840 | 3,840 | 2,011 | 185 | 1,908 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | FL | Jackson Co | 55,251 | 4,566 | 8,799 | 3,739 | 379 | 4,997 | 134 | 1,114 | 464 | 269 | 2,686 | 269 |
| 7 | FL | Okaloosa Co | 100,247 | 7,073 | 8,927 | 4,830 | 671 | 11,110 | 48,490 | 1,406 | 5,304 | 5,303 | 15.4 | 8,384 |
| 8 | FL | Santa Rosa Co | 96,750 | 6,851 | 12,547 | 6,032 | 592 | 10,874 | 937 | 5,561 | 408 | 371 | 3,581 | 541 |
| 9 | FL | Walton Co | 82,106 | 4,669 | 8,934 | 5,423 | 493 | 6,543 | 39.9 | 21.1 | 1.84 | 0.55 | 11.8 | 20.4 |
| 10 | FL | Washington Co | 41,631 | 2,487 | 4,685 | 2,888 | 268 | 2,910 | 142 | 850 | 1.43 | 1.43 | 7.64 | 41.5 |
| 11 | AL | Baldwin Co | 91,250 | 9,428 | 17,122 | 4,406 | 1,572 | 14,377 | 192 | 167 | 53.4 | 40 | 120 | 315 |
| 12 | AL | Escambia Co | 24,564 | 3,262 | 5,355 | 1,322 | 623 | 2,909 | 14,280 | 2,522 | 954 | 782 | 25,268 | 1,601 |
| 13 | AL | Mobile Co | 150,652 | 31,184 | 17,921 | 4,487 | 9,938 | 28,781 | 16,848 | 38,951 | 5,992 | 4,878 | 82,121 | 9,754 |
| 14 | MS | Adams Co | 15,729 | 3,781 | 4,517 | 1,236 | 537 | 3,201 | 267 | 1,165 | 1,364 | 988 | 1,464 | 1,994 |
| 15 | MS | Amite Co | 7,959 | 885 | 2,780 | 685 | 57.7 | 891 | 653 | 78.6 | 409 | 317 | 3.9 | 611 |
| 16 | MS | Claiborne Co | 7,474 | 3,076 | 2,463 | 716 | 500 | 1,133 | 245 | 75.4 | 205 | 154 | 11.4 | 245 |
| 17 | MS | Clarke Co | 12,603 | 1,884 | 2,736 | 705 | 111 | 1,523 | 979 | 1,371 | 122 | 108 | 2,385 | 733 |
| 18 | MS | Copiah Co | 15,654 | 2,021 | 3,459 | 840 | 97.4 | 1,951 | 161 | 177 | 526 | 334 | 107 | 500 |
| 19 | MS | Covington Co | 7,609 | 1,023 | 2,880 | 645 | 56.2 | 1,248 | 315 | 1,599 | 114 | 59.1 | 90.8 | 533 |
| 20 | MS | Forrest Co | 29,340 | 3,468 | 4,048 | 1,025 | 180 | 4,888 | 1,043 | 2,483 | 560 | 365 | 278 | 1,407 |
| 21 | MS | Franklin Co | 5,650 | 516 | 1,853 | 526 | 32 | 583 | 175 | 34.9 | 286 | 218 | 0.85 | 398 |
| 22 | MS | George Co | 8,417 | 1,020 | 2,935 | 684 | 51 | 1,078 | 11.8 | 13.6 | 6.72 | 1.69 | 42.2 | 8.26 |
| 23 | MS | Greene Co | 7,624 | 825 | 2,117 | 587 | 52.7 | 758 | 91.6 | 68.6 | 325 | 231 | 103 | 214 |
| 24 | MS | Hancock Co | 22,601 | 2,610 | 4,108 | 1,174 | 139 | 3,445 | 1,963 | 4,329 | 132 | 91.1 | 72.7 | 284 |
| 25 | MS | Harrison Co | 76,081 | 8,508 | 9,166 | 2,473 | 585 | 14,392 | 765 | 17,790 | 2,596 | 1,988 | 38,886 | 2,117 |
| 26 | MS | Hinds Co | 96,982 | 11,603 | 11,022 | 2,363 | 616 | 18,162 | 1,176 | 2,893 | 1,132 | 696 | 328 | 1,450 |
| 27 | MS | Jackson Co | 60,283 | 13,920 | 8,178 | 2,504 | 1,504 | 23,362 | 7,092 | 21,504 | 3,837 | 3,149 | 40,997 | 2,483 |
| 28 | MS | Jasper Co | 11,753 | 1,582 | 3,127 | 769 | 78.8 | 1,336 | 681 | 2,142 | 141 | 119 | 4.18 | 566 |
| 29 | MS | Jefferson Co | 5,850 | 2,893 | 2,170 | 654 | 493 | 751 | 948 | 3,422 | 11.1 | 8.76 | 0.02 | 204 |
| 30 | MS | Jefferson Davis Co | 6,585 | 764 | 2,451 | 528 | 37.4 | 1,006 | 102 | 1,345 | 0 | 0 | 0 | 63 |
| 31 | MS | Jones Co | 30,728 | 3,917 | 7,142 | 1,614 | 179 | 4,941 | 2,515 | 13,913 | 1,447 | 1,173 | 246 | 1,715 |
| 32 | MS | Lamar Co | 18,469 | 2,469 | 4,345 | 1,015 | 116 | 2,187 | 282 | 6,307 | 786 | 508 | 9,060 | 109 |
| 33 | MS | Lauderdale Co | 39,653 | 4,707 | 6,017 | 1,435 | 225 | 6,088 | 87.1 | 250 | 479 | 288 | 11.6 | 1,427 |
| 34 | MS | Lawrence Co | 6,892 | 817 | 2,426 | 571 | 46.6 | 904 | 16.4 | 23.8 | 1,204 | 1,030 | 3,822 | 192 |
| 35 | MS | Lincoln Co | 17,724 | 2,428 | 4,185 | 985 | 131 | 2,275 | 35.8 | 51.9 | 314 | 196 | 0.16 | 121 |
| 36 | MS | Madison Co | 31,905 | 3,937 | 8,459 | 1,966 | 189 | 4,824 | 71.9 | 11.8 | 76.6 | 61.4 | 0.41 | 439 |
| 37 | MS | Marion Co | 11,114 | 1,288 | 3,615 | 818 | 67.1 | 1,663 | 291 | 168 | 384 | 257 | 95.4 | 747 |
| 38 | MS | Newton Co | 12,471 | 1,731 | 3,086 | 717 | 76.7 | 1,840 | 510 | 63.1 | 245 | 173 | 2.38 | 408 |
| 39 | MS | Pearl River Co | 25,785 | 3,174 | 5,601 | 1,375 | 149 | 3,242 | 99.9 | 66.1 | 186 | 87.8 | 106 | 373 |
| 40 | MS | Perry Co | 7,175 | 855 | 2,115 | 564 | 53.1 | 753 | 5,705 | 3,401 | 1,279 | 1,161 | 5,980 | 603 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41 | MS | Pike Co | 20,253 | 2,742 | 4,746 | 1,044 | 133 | 3,029 | 2,892 | 655 | 1,564 | 1,375 | 290 | 1,035 |
| 42 | MS | Rankin Co | 51,804 | 5,699 | 10,385 | 2,592 | 296 | 6,590 | 1,851 | 1,297 | 985 | 772 | 26,577 | 833 |
| 43 | MS | Scott Co | 16,420 | 2,334 | 3,332 | 787 | 111 | 1,993 | 190 | 210 | 440 | 266 | 161 | 626 |
| 44 | MS | Simpson Co | 10,820 | 1,403 | 3,778 | 867 | 77.6 | 1,521 | 3.5 | 3.3 | 92.4 | 40.1 | 26.7 | 2.6 |
| 45 | MS | Smith Co | 6,320 | 685 | 2,821 | 663 | 41.9 | 819 | 1,004 | 300 | 765 | 564 | 20.8 | 1,375 |
| 46 | MS | Stone Co | 6,108 | 672 | 1,642 | 434 | 45.4 | 772 | 3,410 | 238 | 1,122 | 865 | 36 | 272 |
| 47 | MS | Walthall Co | 7,028 | 875 | 2,814 | 612 | 49.9 | 955 | 291 | 956 | 124 | 94.8 | 3.89 | 180 |
| 48 | MS | Warren Co | 23,929 | 7,633 | 5,916 | 1,522 | 1,002 | 4,630 | 2,026 | 24,067 | 5,180 | 4,046 | 45,688 | 1,690 |
| 49 | MS | Wayne Co | 10,396 | 1,201 | 2,833 | 745 | 81.1 | 1,556 | 1,998 | 385 | 487 | 376 | 556 | 618 |
| 50 | MS | Wilkinson Co | 6,619 | 2,964 | 2,225 | 675 | 501 | 909 | 61.2 | 6.8 | 99.7 | 79.6 | 0.34 | 0.99 |
| Grand Total | | | 1,712,539 | 203,470 | 274,097 | 88,895 | 25,630 | 261,489 | 130,229 | 190,289 | 62,450 | 48,803 | 359,054 | 51,018 |

SOURCE:
http://www.epa.gov/air/data/geosel.html
USEPA - AirData NET Tier Report
*Net Air pollution sources (area and point) in tons per year (2001)
Site visited on 10 May 2007

MPPCSMI AQCR :
In the State of Alabama: Baldwin Co, Escambia Co, and Mobile Co.
In the State of Florida: Bay Co, Calhoun Co, Escambia Co, Gulf Co, Holmes Co, Jackson Co, Okaloosa Co, Santa Rosa Co, Walton Co, and Washington Co.
In the State of Mississippi: Adams Co, Amite Co, Clairborne Co, Clarke Co, Copiah Co, Covington Co, Forrest Co, Franklin Co, George Co, Greene Co, Hancock Co, Harrison Co, Hinds Co, Jackson Co, Jasper Co, Jefferson Co, Jefferson Davis Co, Jones Co, Lamar Co, Lauderdale Co, Lawrence Co, Lincoln Co, Madison Co, Marion Co, Newton Co, Pearl River Co, Perry Co, Pike Co, Rankin Co, Scott Co, Simpson Co, Smith Co, Stone Co, Walthall Co, Warren Co, Wayne Co, and Wilkinson Co.

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# APPENDIX D

## CZMA CONSISTENCY DETERMINATION

# FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

## Introduction

This document provides the State of Florida with the U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 sub-part C. The information in this Consistency Determination is provided pursuant to 15 C.F.R. Section 930.39 and Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930.

This federal consistency determination addresses the Proposed Action for the development of the Emerald Coast Technology and Research Center (ECTRC) at the existing University of Florida Research Engineering Education Facility (UF-REEF) site on Eglin Air Force Base (AFB), Florida.

## Proposed Federal agency action:

The Proposed Action is to establish the ECTRC at the existing UF-REEF site on Eglin AFB (Figure 1). The UF-REEF is designed as an engineering education facility in cooperation with the University of Florida and Eglin AFB. The UF-REEF provides a state-of-the-art facility to conduct technical research critical to the advancement of national defense and security capabilities as well as providing cooperative educational benefits to the Eglin AFB community, including access to the resources of the University of Florida, Gainesville.

Elgin AFB proposes to lease 118 acres to establish the ECTRC. The UF-REEF currently occupies approximately twenty acres of the proposed 118-acre Enhanced Use Lease (EUL) site. Therefore, the proposed ECTRC would be constructed on the remaining ninety-eight acres of the parcel. Eglin AFB would lease the land to a private developer under the EUL program. The land would be contiguous with the existing UF-REEF. The existing UF-REEF and its research and educational foundation would serve as the nucleus for a comprehensive engineering research and development campus on the 118-acre parcel, in cooperation with the University of Florida.

Under the Proposed Action, the lessee would be obligated to provide the design, construction, operation, and maintenance of a comprehensive research campus to be known as the ECTRC. The proposed ECTRC campus (Figure 2) would be developed in four to six phases over a 5- to 7-year timeframe. The following general specifications would be met by the lessee:

- Office research buildings – 1,400,000 square feet ($ft^2$)
- Educational buildings – 400,000 $ft^2$
- Hotel/conference center – 110,000 $ft^2$
- Residential condominiums – 500,000 $ft^2$

- Parking facilities – 1,200,000 $ft^2$
- Cafeteria/food court – 17,000 $ft^2$
- Restaurant – 10,000 $ft^2$
- Day care facility – 12,000 $ft^2$
- Convenience retail space – 10,000 $ft^2$
- Fitness center – 6,000 ft2
- Access roads and parking – 110,000 $ft^2$
- Stormwater retention ponds – 190,000 $ft^2$
- Sidewalks/plaza – 400,000 $ft^2$
- Green space – 350,000 $ft^2$

The Site Development Plan (SDP) would incorporate pollution prevention, energy, and water conservation initiatives into all facilities and activities where practicable or as required by local or state regulations or guidelines. The objectives of such initiatives shall be to improve (1) waste reduction and waste management practices, (2) energy efficiency and energy conservation practices, (3) water resource conservation and management practices (e.g. xeriscaping), and (4) recycling and reuse practices (e.g., curbside recycling).

**Federal Consistency Review**

Statutes addressed as part of the Florida Coastal Zone Management Program consistency review and considered in the analysis of the Proposed Action are discussed in the following table.

Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with or object to this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida's concurrence will be presumed if Eglin AFB does not receive its response on the 60th day from receipt of this determination.

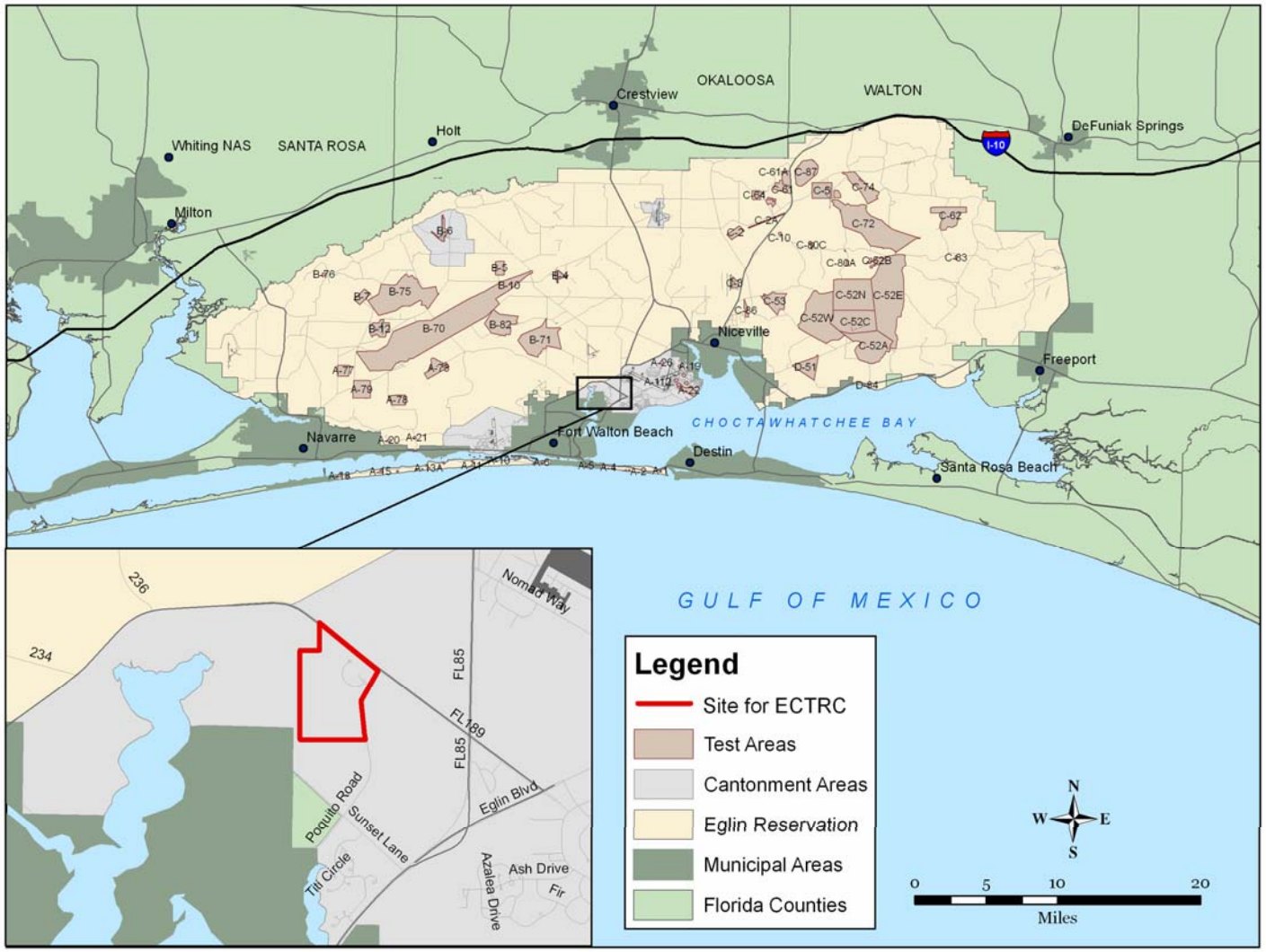



**Figure 1. Overview of Site for ECTRC on Eglin Air Force Base, FL**

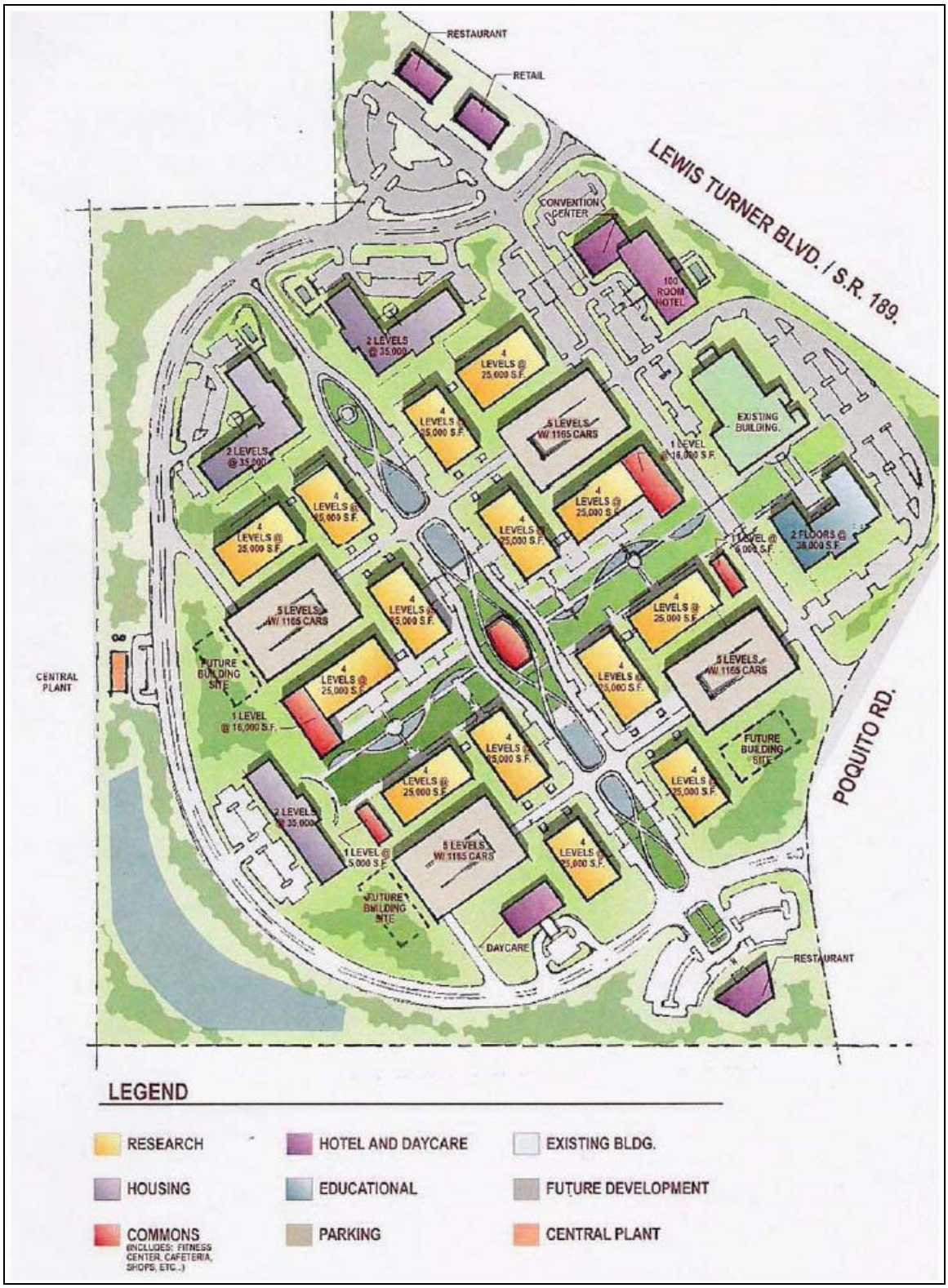



**Figure 2. Conceptual Design of the Proposed ECTRC**

## Florida Coastal Management Program Consistency Review

| Statute | Consistency | Scope |
|---|---|---|
| Chapter 161<br>*Beach and Shore Preservation* | The Proposed Action would not affect beach and shore management, specifically as it pertains to:<br>• The Coastal Construction Permit Program.<br>• The Coastal Construction Control Line (CCCL) Permit Program.<br>• The Coastal Zone Protection Program.<br>All land activities would occur on federal property. | Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the states' beaches. |
| Chapter 163, Part II<br>*Growth Policy; County and Municipal Planning; Land Development Regulation* | The Proposed Action would not affect local government comprehensive plans. | Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest. |
| Chapter 186<br>*State and Regional Planning* | State and regional agencies will be provided the opportunity to review the Environmental Assessment. Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding state plans for water use, land development or transportation. | Details state-level planning requirements. Requires the development of special statewide plans governing water use, land development, and transportation. |
| Chapter 252<br>*Emergency Management* | The Proposed Action would not affect the state's vulnerability to natural disasters.<br>The Proposed Action would not affect emergency response and evacuation procedures. | Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters. |
| Chapter 253<br>*State Lands* | All activities would occur on federal property; therefore the Proposed Action would not affect state or public lands. | Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands. |
| Chapter 258<br>*State Parks and Preserves* | The Proposed Action would not affect state parks, recreational areas and aquatic preserves. | Addresses administration and management of state parks and preserves (Chapter 258). |
| Chapter 259<br>*Land Acquisition for Conservation or Recreation* | The Proposed Action would not affect tourism and/or outdoor recreation. | Authorizes acquisition of environmentally endangered lands and outdoor recreation lands (Chapter 259). |

| | | |
|---|---|---|
| Chapter 260<br>*Recreational Trails System* | The Proposed Action would not include the acquisition of land and would not affect the Greenways and Trails Program. | Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system (Chapter 260). |
| Chapter 375<br>*Multipurpose Outdoor Recreation; Land Acquisition, Management, and Conservation* | The Proposed Action would not affect opportunities for recreation on state lands. | Develops comprehensive multipurpose outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs (Chapter 375). |
| Chapter 267<br>*Historical Resources* | The Proposed Action would not affect cultural resources of the state. However, in the event that additional archaeological resources are inadvertently discovered during construction, 96th CEG/CEVH, Cultural Resources Branch would be notified immediately and further ground-disturbing activities would cease in that area. Identified resources would be managed in compliance with Federal law and Air Force regulations. | Addresses management and preservation of the state's archaeological and historical resources. |
| Chapter 288<br>*Commercial Development and Capital Improvements* | The Proposed Action would not affect future business opportunities on state lands, or the promotion of tourism in the region. | Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy. |
| Chapter 334<br>*Transportation Administration* | Minor short-term and long-term effects are anticipated on the transportation network at and around Eglin AFB. Traffic from construction vehicles would comprise a small percentage of the total existing traffic. Long-term effects would include traffic congestion from the proposed entrances into the ECTRC. Traffic congestion and delays could occur during rush hours. The Proposed Action would provide adequate roadway systems and parking facilities within the ECTRC complex. | Addresses the state's policy concerning transportation administration (Chapter 334). |
| Chapter 339<br>*Transportation Finance and Planning* | The Proposed Action would not affect the finance and planning needs of the state's transportation system. | Addresses the finance and planning needs of the state's transportation system (Chapter 339). |
| Chapter 370<br>*Saltwater Fisheries* | The Proposed Action would not affect saltwater fisheries. | Addresses management and protection of the state's saltwater fisheries. |
| Chapter 372<br>*Wildlife* | In accordance with Section 7 of the Endangered Species Act (ESA), | Addresses the management of the wildlife resources of the state. |

| | | |
|---|---|---|
| | consultation with the United States Fish and Wildlife Service (USFWS) was completed on May 30, 2007. Eglin has determined that the Proposed Action is not likely to adversely affect threatened or endangered species found in or around the project area.<br><br>Activities proposed in and around threatened and endangered species would be performed in accordance with applicable USFWS guidelines. All mitigation measures resulting from the Section 7 consultation would be followed. | |
| Chapter 373<br><br>*Water Resources* | Eglin's Water Resources Section, 96th CEG/CEVCE, would coordinate all applicable permits in accordance with the Florida Administrative Code (FAC).<br><br>Applicable permitting requirements for septic and sewer installation would be satisfied in accordance with chapter 373 of the FAC.<br><br>The Proposed Action would increase the potential for impact from the increased rate and volume of stormwater runoff, due to an increase in impervious surface area. In order to limit the effects the Proposed Action would have on water resources, Best Management Practices such as preserving vegetation for as long as possible and stabilizing disturbed areas would be applied to control erosion and stormwater runoff.<br><br>Applicable permitting requirements would be satisfied in accordance with 62-25 of the FAC and National Pollutant Discharge Elimination System (NPDES). Eglin AFB would submit a notice of intent to use the generic permit for stormwater discharge under the NPDES program prior to project initiation according to Section 403.0885, Florida Statutes (FS). The Proposed Action would also require coverage under the generic permit for stormwater discharge from construction activities that disturb one or more acres of land (FAC 62-621).<br><br>The Proposed Action would include the construction of a stormwater retention pond in accordance with FAC 62-25.<br><br>All potential impacts to water resources from construction activities are further | Addresses the state's policy concerning water resources. |

| | | |
|---|---|---|
| | addressed in Chapter 4, Section 4.6 of the Environmental Assessment.<br><br>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the water resources of the state. | |
| Chapter 376<br>*Pollutant Discharge Prevention and Removal* | Any construction area larger than one acre would require a National Pollutant Discharge Elimination System (NPDES) General Permit under 40 CFR 122.26(b)(14)(x). A stormwater pollution prevention plan would also be required under the NPDES permit before beginning construction activities.<br><br>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the transfer, storage, or transportation of pollutants. | Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges. |
| Chapter 377<br>*Energy Resources* | Newly constructed buildings would tie into existing gas and electric utility lines.<br><br>Therefore, the Proposed Action would not affect energy resource production, including oil and gas, and/or the transportation of oil and gas. | Addresses regulation, planning, and development of oil and gas resources of the state. |
| Chapter 380<br>*Land and Water Management* | The Proposed Action would occur on federally owned lands.<br><br>The Proposed Action would not affect development of state lands with regional (i.e. more than one county) impacts. The Proposed Action would not include changes to coastal infrastructure such as capacity increases of existing coastal infrastructure, or use of state funds for infrastructure planning, designing or construction. | Establishes land and water management policies to guide and coordinate local decisions relating to growth and development. |
| Chapter 381<br>*Public Health, General Provisions* | The Proposed Action would not affect the state's policy concerning the public health system. | Establishes public policy concerning the state's public health system. |
| Chapter 388<br>*Mosquito Control* | The Proposed Action would not affect mosquito control efforts. | Addresses mosquito control effort in the state. |
| Chapter 403<br>*Environmental Control* | Eglin's Water Resources Section, 96$^{th}$ CEG/CEVCE, would coordinate all applicable permits in accordance with the Florida Administrative Code (FAC).<br><br>Eglin AFB would take reasonable precautions to minimize fugitive | Establishes public policy concerning environmental control in the state. |

| | | |
|---|---|---|
| | particulate (dust) emissions during any ground disturbing/construction/renovation activities in accordance with FAC 62-296. All potential impacts to air quality from construction activities are further addressed in Chapter 4, Section 4.3 of the Environmental Assessment.<br><br>Coordination of contractors with all local county and private landfill operators prior to construction would minimize any potential impacts associated with disposal of construction debris. Solid waste is further addressed in Chapter 4, Section 4.10 of the Environmental Assessment.<br><br>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding water quality, air quality, pollution control, solid waste management, or other environmental control efforts. | |
| Chapter 582<br>*Soil and Water Conservation* | All applicable Best Management Practices, such as preserving vegetation for as long as possible and stabilizing disturbed areas would be applied to minimize erosion and storm water run-off, and to regulate sediment control. Therefore, the Proposed Action would not affect soil and water conservation efforts. | Provides for the control and prevention of soil erosion. |

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# APPENDIX E

## BIOLOGICAL ASSESSMENT FOR PROPOSED ECTRC CONSTRUCTION

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 96TH AIR BASE WING (AFMC)
EGLIN AIR FORCE BASE FLORIDA

Mr. Stephen M. Seiber
Chief, Natural Resources Section
96 CEG/CEVSN
501 De Leon Street, Suite 101
Eglin AFB FL 32542-5133

09 MAY 2007

Ms. Janet Mizzi
U.S. Fish and Wildlife Service
1601 Balboa Avenue
Panama City FL 32405

Dear Ms. Mizzi:

The following information is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA). This report assesses potential impacts to the eastern indigo snake and the red-cockaded woodpecker (RCW) associated with the development of the Emerald Coast Technology and Research Center (ECTRC) at the existing University of Florida Research Engineering Education Facility (UF-REEF) site on Eglin Air Force Base (AFB), Florida. Additionally the Florida black bear and gopher tortoise are considered.

**Description of the Proposed Action**

The Proposed Action is to establish the ECTRC at the existing UF-REEF site on Eglin AFB (Figure 1). The UF-REEF is designed as an engineering education facility in cooperation with University of Florida and Eglin AFB. The UF-REEF provides a state-of-the-art facility to conduct technical research critical to the advancement of national defense and security capabilities. It also provides cooperative educational benefits to the Eglin AFB community, including access to the resources of the University of Florida, Gainesville.

Elgin AFB proposes to lease 118 acres to establish the ECTRC. The UF-REEF currently occupies approximately twenty acres of the proposed 118-acre Enhanced Use Lease (EUL) site. Therefore, the proposed ECTRC would be constructed on the remaining ninety-eight acres of the parcel. The site is on Eglin AFB, approximately 1.5 miles northwest of the Eglin AFB west gate (Figure 1). Eglin AFB would lease the land to a private developer under the EUL program. The land would be contiguous with the existing UF-REEF. The existing UF-REEF and its research and educational foundation would serve as the nucleus for a comprehensive engineering research and development campus on the 118-acre parcel, in cooperation with the University of Florida.

Under the Proposed Action, the lessee would be obligated to provide the design, construction, operation, and maintenance of a comprehensive research campus to be known as the ETCRC. The proposed ECTRC campus (Figure 2) would be developed in four to six phases over a five to seven year timeframe. The following general specifications would be met by the lessee:

- Office research buildings – 1,400,000 square feet ($ft^2$)
- Educational buildings – 400,000 $ft^2$
- Hotel/conference center – 110,000 $ft^2$
- Residential condos – 500,000 $ft^2$
- Parking facilities – 1,200,000 $ft^2$
- Cafeteria/food court – 17,000 $ft^2$
- Restaurant – 10,000 $ft^2$
- Day care facility – 12,000 $ft^2$
- Convenience retail space – 10,000 $ft^2$
- Fitness center – 6,000 ft2
- Access roads/surface parking – 110,000 $ft^2$
- Storm water retention ponds – 190,000 $ft^2$
- Sidewalks/plaza – 400,000 $ft^2$
- Green space – 350,000 $ft^2$

The Site Development Plan (SDP) would incorporate pollution prevention, energy, and water conservation initiatives into all facilities and activities where practicable or as required by local or state regulations or guidelines. The objectives of such initiatives shall be to improve (1) waste reduction and waste management practices, (2) energy efficiency and energy conservation practices, (3) water resource conservation and management practices (e.g., xeriscaping), and (4) recycling and reuse practices (e.g., curbside recycling) (USAF, undated).

## Biological Information

Two federally listed endangered (E) and threatened (T) species are known to occur within the project area. Additionally, the Florida black bear and gopher tortoise are located within the project area. The following list indicates those federally listed species considered for this action:

| Common Name | Scientific Name | Federal Status |
|---|---|---|
| Eastern indigo snake | *Drymarchon corais couperi* | T |
| Red-cockaded woodpecker | *Picoides borealis* | E |

These state-listed species are considered:

| Common Name | Scientific Name |
|---|---|
| Florida black bear | *Ursus americanus floridanus* |
| Gopher tortoise | *Gopherus polyphemu* |

**Eastern Indigo Snake**

The eastern indigo snake (*Drymarchon corais couperi*) is listed as a federal and state threatened species and is the largest nonvenomous snake in North America. The primary reason for its listing is population decline resulting from habitat loss and fragmentation. Movement along travel corridors between seasonal habitats exposes the snake to danger from increased contact with humans. Indigo snakes frequently utilize gopher tortoise burrows and the burrows of others species for overwintering. The snake frequents flatwoods, hammocks, stream bottoms, riparian thickets, and high ground with well-drained, sandy soils. The indigo snake could occur anywhere on Eglin AFB because it uses such a wide variety of habitats (U.S. Air Force, 2006).

The species is extremely uncommon on Eglin AFB with the sighting of only twenty-nine indigo snakes throughout Eglin AFB from 1956 to 1999, while no sightings have been reported since 1999 (Gault, 2006). Most of these snakes were seen crossing roads or after being killed by vehicles. It is difficult to determine a precise number or even estimate of the number of these snakes due to the secretive nature of this species (U.S. Air Force, 2006).

**Red-cockaded Woodpecker**

The RCW (*Picoides borealis*) is listed as a federally endangered bird species and a state species of special concern. The RCW excavates cavities in live longleaf pine trees that are at least eighty-five years old. The RCW historically had a habitat range as far north as New Jersey and as far west as Oklahoma. Today, the RCW has been restricted to the southeastern United States, from Florida to Virginia and to southeast Texas, due to a loss of habitat. In the southeast, ninety-eight percent of the longleaf pine forests have been removed, making federal lands such as Eglin AFB primary habitat for the species. Due to the preservation and continuity of longleaf pine forests on Eglin, Eglin AFB has one of the largest remaining populations of RCWs in the country. In 2003, the USFWS identified Eglin AFB as one of thirteen primary core populations for the RCW (U.S. Air Force, 2006).

The removal of longleaf pine trees, degradation of quality habitat, or noise generated from mission-related or other activities are potential threats to the RCW on Eglin AFB. Eglin is executing an approved USFWS management strategy to meet certain growth objectives of the RCW to obtain increased mission flexibility.

The locations of active RCW cavity trees, which are defined as any tree containing one or more cavities that are utilized by the RCW, are recorded in the Eglin Natural Resources Geographic Information System (GIS). Additionally, inactive RCW cavities, which are defined as those cavities that were once utilized by the RCW but have not shown recent activity, are spatially recorded.

**Other Species Considered:**

***Florida Black Bear***

The Florida black bear (*Ursus americanus floridanus*) is currently listed as a state threatened species except in Baker and Columbia counties and Apalachicola National Forest. Florida black bear populations are currently found in Florida and Georgia, as well as a small population in Alabama. Reasons for population declines throughout Florida and Georgia include loss of habitat due to urban development and direct mortality due to collisions with vehicles. Eglin AFB is considered to be the smallest population, with an estimated sixty to one-hundred individuals; however, Eglin's black bear population has shown signs of increase since the early 1990s. Black bear in Florida breed in June/July, and young are born in January/February. Most black bears within Eglin AFB utilize the large swamps and floodplain forests in the southwest and northern portions of Eglin AFB, where they feed on fruits, acorns, beetles, and yellow jackets. Black bear sightings have occurred at numerous locations throughout Eglin AFB, the majority of which have been within the interstitial areas (U.S. Air Force, 2006).

***Gopher Tortoise***

The gopher tortoise (*Gopherus polyphemus*) is a state species of special concern. The Florida Fish and Wildlife Conservation Commission agreed that reclassification of the gopher tortoise from species of special concern to threatened is warranted; however the reclassification will not occur until a management plan for the species is approved (FWC, 2007). The tortoise is found primarily within the Sandhills and Open Grassland ecological associations on Eglin AFB. Gopher tortoise burrows serve as important habitat for many species, including the federally listed eastern indigo snake (U.S. Air Force, 2006).

**Determination of Impacts**

**Eastern Indigo Snake**

The potential impact to the eastern indigo snake is from direct physical impacts associated with construction activities. Incidental contact with personnel and equipment could result in trampling or crushing of individual species. However, this occurrence is considered unlikely, as the snake would most likely move away from the area if it sensed a general disturbance in its vicinity. Should an indigo snake be sighted during installation, personnel would cease activities until the snake has moved away from the area before resuming work. Eglin NRS has determined that the Proposed Action is **not likely to adversely affect** the eastern indigo snake if the following avoidance and minimization measures are followed:

- Construction personnel would be provided a description of the eastern indigo snake and its protection under Federal Law. They would be given instructions not to harass injure, harm, or kill this species.

- Should an indigo snake be sighted, construction personnel would be directed to cease any activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming such activities.

**Red-cockaded Woodpecker**

There are no active RCW trees within close proximity to the Proposed Action area, however there are four inactive RCW trees that would be removed due to construction activities. These trees are in degraded RCW habitat. The USFWS completed a site survey in February 2007 and determined that the trees may be removed. The tree cavities were screened after the site survey to deter nesting of other animals. Therefore, Eglin NRS has determined that the Proposed Action is **not likely to adversely affect** the RCW.

**Other Species Considered:**

***Florida Black Bear***

Any potential impact to Florida black bear would be from incidental contact with the animal, or disruption of its behavioral habits. In the unlikely event that construction personnel come into contact with a black bear, all activities would cease until the bear has moved away from the area. Therefore, Eglin NRS has determined that the Proposed Action would not have a significant effect on the Florida black bear.

***Gopher Tortoise***

The potential to impact the gopher tortoise is from direct physical impacts associated with construction activities. Incidental contact with personnel and equipment could result in trampling or crushing of individual species or their burrow. Florida Natural Areas Inventory (FNAI) performed a survey in December 2006, there are potentially six burrows located in the construction area. Eglin NRS would conduct a gopher tortoise survey prior to construction activities. If a gopher tortoise burrow is identified within the proposed path of construction, Natural Resource personnel would investigate the burrow and relocate any gopher tortoise or commensals that may be occupying the burrow. All gopher tortoise or commensal relocation would be performed in accordance with Eglin AFB's Gopher Tortoise Relocation Permit. In the unlikely event that construction personnel come into contact with a gopher tortoise, all activities would cease until the tortoise has moved away from the area. Eglin NRS has determined that Proposed Action would not have a significant effect on the gopher tortoise if the following avoidance and minimization measures are followed:

- Should a gopher tortoise burrow be identified within the proposed path of construction by construction personnel, work would cease until Natural Resources personnel have investigated the burrow and relocated any gopher tortoise or commensals to a suitable location.
- Gopher tortoise and/or commensal relocation would be performed in accordance with Eglin AFB's Gopher Tortoise Relocation Permit.

**Conclusion**

The analysis of the potential impacts to federally listed species from the proposed activities due to the construction of the ECTRC is minimal if the above avoidance and minimization measures are followed; therefore Eglin NRS has determined that the Proposed Action is **not likely to adversely affect** the eastern indigo snake or the red-cockaded woodpecker.

Eglin AFB would notify the USFWS immediately if it modifies any of the actions considered in this Proposed Action or if additional information on listed species becomes available, as the USFWS may require a reinitiation of consultation. If impact to listed species occurs beyond what Eglin has considered in this assessment, all operations would cease and Eglin would notify the USFWS. Prior to commencement of activities, Eglin would implement any modifications or conditions resulting from consultation with the USFWS. Eglin NRS believes this fulfills all requirements of the ESA, and no further action is necessary.

If you have any questions regarding this letter or any of the proposed activities, please do not hesitate to contact either Mr. Bob Miller (850) 883-1153 or myself at (850) 882-8391.

Sincerely,

STEPHEN M. SEIBER, YF-2
Chief, Natural Resources Section

Attachments:
Figures 1- 2

## REFERENCES:


Florida Fish and Wildlife Conservation Commission (FWC), 2007. Web based document accessed April 26, 2007 at: http://myfwc.com/imperiledspecies/petitions/gopher-tortoise.htm

Gault, K. 2006. Personal communication between Kathy Gault, Eglin Natural Resources Section, Wildlife, and Stephanie Hiers, SAIC. August 2006.

U.S. Air Force, undated. United *Enhanced Use Leasing Eglin Air Force Base*. Request for Qualifications (RFQ) No. AFRPA-FY-XXXX

U.S. Air Force, 2006. Threatened and Endangered Species Component Plan for Eglin AFB, FL. 96 CEG/CEVSN.

**INFORMAL CONSULTATION REGARDING**

IMPACTS TO FEDERALLY LISTED SPECIES
RESULTING FROM CONSTRUCTION OF ECTRC FACILITY
EGLIN AIR FORCE BASE, FLORIDA

Prepared by: Kelly Knight 5/7/07
Kelly Knight — Date
Environmental Scientist, SAIC
Eglin Natural Resources Section

Reviewed by: Robert J Miller 5/7/07
Bob Miller — Date
Endangered Species Biologist
Eglin Natural Resources Section

Bruce Hagedorn 5/8/07
Bruce Hagedorn — Date
Chief, Wildlife Element
Eglin Natural Resources Section

Stephen M. Seiber 5/9/07
Stephen M. Seiber — Date
Chief, Eglin Natural Resources Section

**USFWS CONCURRENCE:**

5/30/07
Project Leader — Date
U.S. Fish and Wildlife Service
Panama City, FL

FWS Log No. 4-P-07-169 (41410-2007-I-0213)

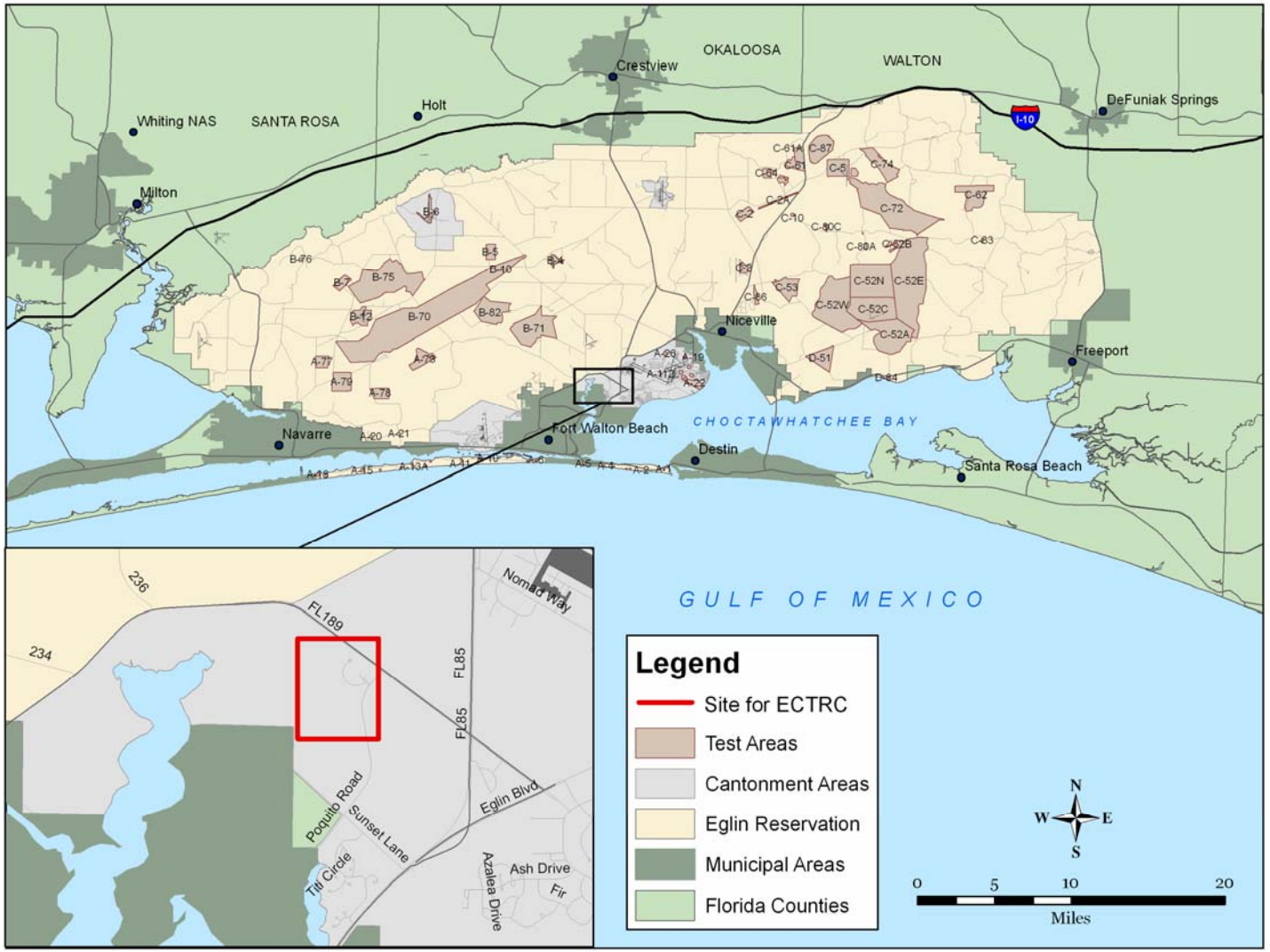



**Figure 1. Overview of Site for ECTRC on Eglin Air Force Base, FL**

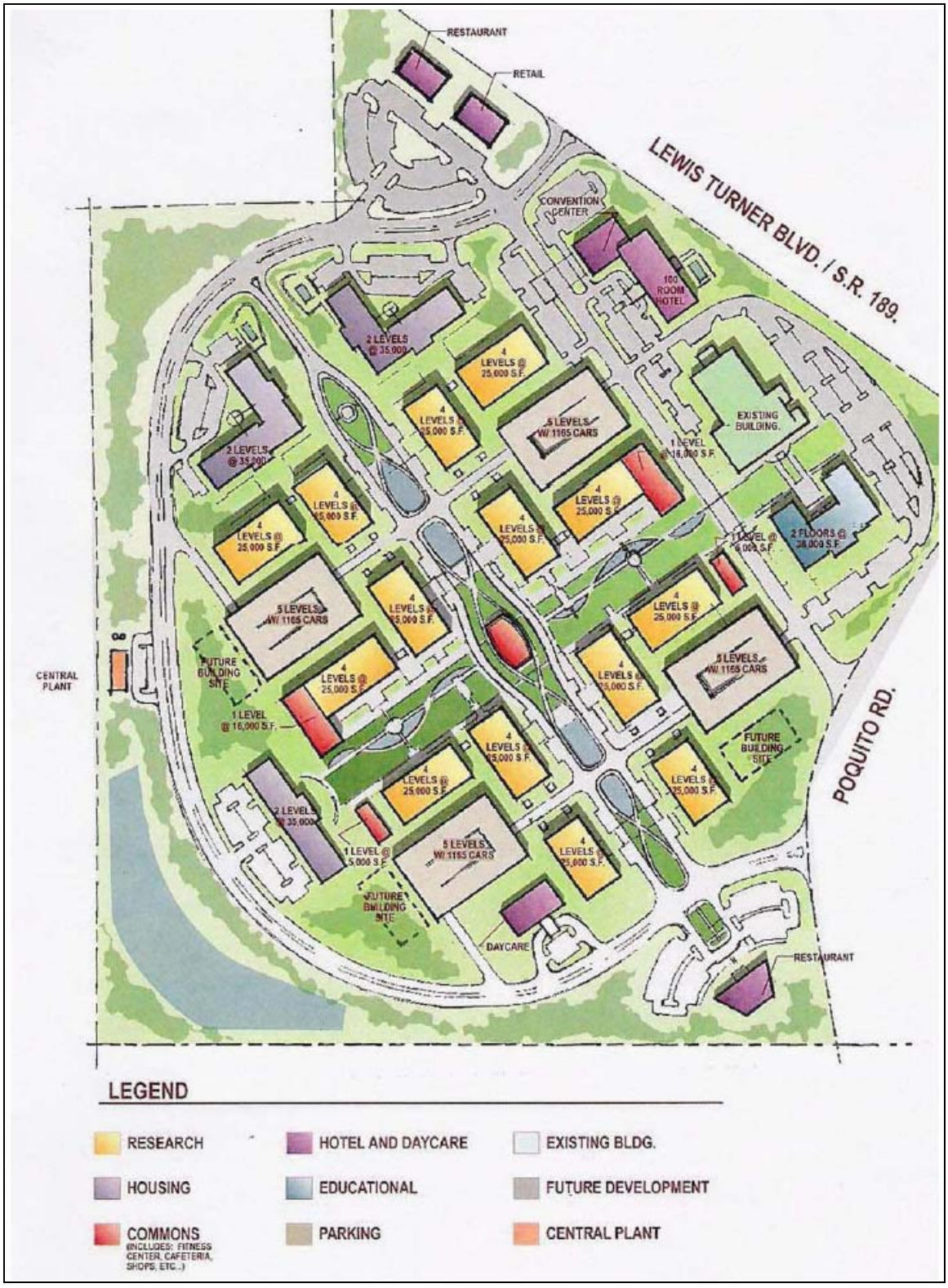



**Figure 2. Conceptual Design of the Proposed ECTRC**

# Appendix B List of Threatened and Endangered Species

## October 2001 Eglin Air Force Base Summary
## Occurrence Records currently in the Florida Natural Areas Inventory database

| IC NAME | COMMON NAME | FNAI GLOBAL RANK | FNAI STATE RANK | F STAT | STATE STAT | FNAI RECORDED |
|---|---|---|---|---|---|---|
| FISHES | | | | | | |
| | | | | | | |
| Acipenser oxyrinchus desotoi | Gulf Sturgeon | G3T2 | S2 | LT | LS | 2 |
| Awaous banana | River Goby | G5 | S1S2 | N | N | 1 |
| Etheostoma okaloosae | Okaloosa Darter | G1 | S1 | LE | LE | 6 |
| Pteronotropis welaka | Bluenose Shiner | G4 | S4 | N | LS | 1 |
| | | | | | | |
| AMPHIBIANS | | | | | | |
| | | | | | | |
| Ambystoma cingulatum | Flatwoods Salamander | G2G3 | S2S3 | LT | LS | 3 |
| Amphiuma pholeter | One-toed Amphiuma | G3 | S3 | N | N | 3 |
| Hemidactylium scutatum | Four-toed Salamander | G5 | S2 | N | N | 3 |
| Hyla andersonii | Pine Barrens Treefrog | G4 | S3 | N | LS | 61 |
| Rana capito | Gopher Frog | G3G4 | S3 | N | LS | 15 |
| Rana okaloosae | Florida Bog Frog | G2 | S2 | N | LS | 30 |
| | | | | | | |
| REPTILES | | | | | | |
| | | | | | | |
| Alligator mississippiensis | American Alligator | G5 | S4 | T(S/A) | LS | 4 |
| Caretta caretta | Loggerhead | G3 | S3 | LT | LT | 1 |
| Chelonia mydas | Green Turtle | G3 | S2 | LE | LE | 1 |
| Crotalus adamanteus | Eastern Diamondback Rattlesnake | G4 | S3 | N | N | 28 |
| Dermochelys coriacea | Leatherback | G3 | S2 | LE | LE | 3 |
| Drymarchon corais couperi | Eastern Indigo Snake | G4T3 | S3 | LT | LT | 17 |
| Eumeces anthracinus | Coal Skink | G5 | S3 | N | N | 6 |
| Gopherus polyphemus | Gopher Tortoise | G3 | S3 | N | LS | 37 |
| Graptemys ernsti | Escambia Map Turtle | G2 | S2 | N | N | 1 |
| Heterodon simus | Southern Hognose Snake | G2 | S2 | N | N | 5 |
| Macroclemys temminckii | Alligator Snapping Turtle | G3G4 | S3 | N | LS | 4 |
| Pituophis melanoleucus mugitus | Florida Pine Snake | G4T3? | S3 | N | LS | 19 |

| SCIENTIFIC NAME | COMMON NAME | FNAI GLOBAL RANK | FNAI STATE RANK | FED STAT | STATE STAT | FNAI RECORDED |
|---|---|---|---|---|---|---|
| BIRDS | | | | | | |
| | | | | | | |
| Accipiter cooperii | Cooper's Hawk | G5 | S3? | N | N | 1 |
| Aimophila aestivalis | Bachman's Sparrow | G3 | S3 | N | N | 11 |
| Athene cunicularia floridana | Florida Burrowing Owl | G4T3 | S3 | N | LS | 3 |
| Charadrius alexandrinus | Snowy Plover | G4 | S1 | N | LT | 2 |
| Charadrius melodus | Piping Plover | G3 | S2 | LT | LT | |
| Falco sparverius paulus | Southeastern American Kestrel | G5T4 | S3 | N | LT | 3 |
| Haliaeetus leucocephalus | Bald Eagle | G4 | S3 | LT | LT | 1 |
| Picoides borealis | Red-cockaded Woodpecker | G3 | S2 | LE | LT | 22 |
| Rynchops niger | Black Skimmer | G5 | S3 | N | LS | 1 |
| Sterna antillarum | Least Tern | G4 | S3 | N | LT | 1 |
| | | | | | | |
| MAMMALS | | | | | | |
| | | | | | | |
| Peromyscus polionotus leucocephalus | Santa Rosa Beach Mouse | G5T1 | S1 | N | N | 2 |
| Sciurus niger shermani | Sherman's Fox Squirrel | G5T3 | S3 | N | LS | 17 |
| Trichechus manatus | Manatee | G2 | S2 | LE | LE | 1 |
| Ursus americanus floridanus | Florida Black Bear | G5T2 | S2 | N | LT* | 2 |
| | | | | | | |
| PLANTS | | | | | | |
| | | | | | | |
| Andropogon arctatus | Pine-woods Bluestem | G3 | S3 | N | LT | 12 |
| Aristida simpliciflora | Southern Three-awned Grass | G3G4 | S3 | MC | N | 7 |
| Asclepias viridula | Southern Milkweed | G2 | S2 | N | LT | 1 |
| Baptisia calycosa var villosa | Hairy Wild Indigo | G3T3 | S3 | MC | LT | 194 |
| Calamintha dentata | Toothed Savory | G3 | S3 | N | LT | 15 |
| Calamovilfa curtissii | Curtiss' Sandgrass | G3 | S3 | MC | LT | 61 |
| Calycanthus floridus | Sweet-shrub | G5 | S2 | N | LE | 2 |
| Carex baltzellii | Baltzell's Sedge | G3 | S3 | N | LT | 90 |
| Carex tenax | Sandhill Sedge | G5? | S3 | N | N | 13 |
| Chrysopsis godfreyi | Godfrey's Golden Aster | G2 | S2 | MC | LE | 18 |
| Chrysopsis gossypina ssp cruiseana | Cruise's Golden Aster | G5T2 | S2 | MC | LE | 40 |
| Cladium mariscoides | Pond Rush | G5 | S1 | N | N | 3 |
| Coelorachis tuberculosa | Piedmont Jointgrass | G3 | S3 | MC | LT | 5 |

| SCIENTIFIC NAME | COMMON NAME | FNAI GLOBAL RANK | FNAI STATE RANK | FED STAT | STATE STAT | FNAI RECORDED |
|---|---|---|---|---|---|---|
| Drosera intermedia | Spoon-leaved Sundew | G5 | S3 | N | LT | 61 |
| Eleocharis rostellata | Beaked Spikerush | G5 | S1 | N | LE | 1 |
| Epigaea repens | Trailing Arbutus | G5 | S2 | N | LE | 8 |
| Hexastylis arifolia | Heartleaf | G5 | S3 | N | LT | 25 |
| Hymenocallis henryae | Panhandle Spiderlily | G2 | S2 | MC | | 1 |
| Ilex amelanchier | Serviceberry Holly | G4 | S2 | N | | 11 |
| Juncus gymnocarpus | Coville's Rush | G4 | S2 | N | LE | 4 |
| Kalmia latifolia | Mountain Laurel | G5 | S3 | N | LT | 33 |
| Lachnocaulon digynum | Bog Button | G3 | S3 | N | LT | 43 |
| Lilium iridollae | Panhandle Lily | G2 | S2 | MC | LE | 33 |
| Lilium michauxii | Carolina Lily | G4G5 | S2 | N | LE | 2 |
| Lindera subcoriacea | Bog Spicebush | G2 | S1 | MC | LE | 1 |
| Linum westii | West's Flax | G2 | S2 | MC | LE | 2 |
| Litsea aestivalis | Pondspice | G3 | S2 | MC | LE | 1 |
| Lupinus westianus | Gulf Coast Lupine | G2 | S2 | MC | LT | 2 |
| Macranthera flammea | Hummingbird Flower | G3 | S2 | N | LE | 5 |
| Magnolia ashei | Ashe's Magnolia | G2 | S2 | MC | LE | 32 |
| Magnolia pyramidata | Pyramid Magnolia | G4 | S3 | N | LE | 3 |
| Malaxis unifolia | Green Adder's-mouth | G5 | S3 | N | LE | 6 |
| Matelea alabamensis | Alabama Spiny-pod | G2 | S2 | MC | LE | 20 |
| Medeola virginiana | Indian Cucumber-root | G5 | S1 | N | LE | 1 |
| Monotropa hypopithys | Pinesap | G5 | S1 | N | LE | 3 |
| Myriophyllum laxum | Piedmont Water-milfoil | G3 | S3 | N | N | 2 |
| Nuphar lutea ssp ulvacea | West Florida Cowlily | G5T2 | S2 | MC | N | 22 |
| Panicum nudicaule | Naked-stemmed Panic Grass | G3 | S3 | MC | LT | 69 |
| Pinguicula primuliflora | Primrose-flowered Butterwort | G3G4 | S3 | N | LE | 2 |
| Platanthera integra | Yellow Fringeless Orchid | G3G4 | S3 | N | LE | 4 |
| Polygonella macrophylla | Large-leaved Jointweed | G3 | S3 | MC | LT | 23 |
| Quercus arkansana | Arkansas Oak | G3 | S3 | N | LT | 133 |
| Rhexia parviflora | Small-flowered Meadowbeauty | G2 | S2 | MC | LE | 10 |
| Rhexia salicifolia | Panhandle Meadowbeauty | G2 | S2 | MC | LT | 23 |
| Rhododendron austrinum | Orange Azalea | G3 | S3 | N | LE | 24 |
| Rhynchospora crinipes | Hairy-peduncled Beakrush | G1 | S1 | MC | LE | 11 |
| Rhynchospora stenophylla | Narrow-leaved Beakrush | G4 | S3 | N | LT | 6 |
| Sarracenia leucophylla | White-top Pitcherplant | G3 | S3 | MC | LE | 132 |

| SCIENTIFIC NAME | COMMON NAME | FNAI GLOBAL RANK | FNAI STATE RANK | FED STAT | STATE STAT | FNAI RECORD |
|---|---|---|---|---|---|---|
| Sarracenia rubra | Sweet Pitcherplant | G3 | S3 | MC | LT | 186 |
| Sideroxylon thornei | Thorne's Buckthorn | G2 | S1 | N | LE | 1 |
| Stewartia malacodendron | Silky Camellia | G4 | S3 | N | LE | 33 |
| Tephrosia mohrii | Pineland Hoary-pea | G3 | S3 | MC | LT | 162 |
| Xanthorhiza simplicissima | Yellow-root | G5 | S1 | N | LE | 3 |
| Xyris drummondii | Drummond's Yellow-eyed Grass | G3 | S3 | N | N | 84 |
| Xyris longisepala | Karst Pond Xyris | G2 | S2 | MC | LE | 15 |
| Xyris scabrifolia | Harper's Yellow-eyed Grass | G3 | S3 | N | LT | 53 |
| | | | | | | |
| LICHENS | | | | | | |
| | | | | | | |
| Cladonia perforata | Perforate Reindeer Lichen | G1 | S1 | LE | LE | 7 |
| | | | | | | |
| NATURAL COMMUNITIES | | | | | | |
| | | | | | | |
| Estuarine Tidal Marsh | | G4 | S4 | N | N | 4 |
| River Floodplain Lake | | G4? | S2 | N | N | 4 |
| Sandhill Upland Lake | | G3 | S2 | N | N | 5 |
| Swamp Lake | | G4 | S3 | N | N | 5 |
| Marine Tidal Marsh | | G4 | S4 | N | N | 1 |
| Basin Swamp | | G4? | S3 | N | N | 5 |
| Baygall | | G4? | S4? | N | N | 22 |
| Bog | | G? | S3 | N | N | 5 |
| Bottomland Forest | | G4 | S4? | N | N | 6 |
| Coastal Interdunal Swale | | G3 | S2 | N | N | 24 |
| Depression Marsh | | G4? | S3 | N | N | 28 |
| Dome Swamp | | G4? | S3? | N | N | 61 |
| Floodplain Forest | | G? | S3 | N | N | 14 |
| Floodplain Swamp | | G? | S4? | N | N | 8 |
| Freshwater Tidal Swamp | | G3 | S3 | N | N | 1 |
| Hydric Hammock | | G? | S4? | N | N | 1 |
| Seepage Slope | | G3? | S2 | N | N | 136 |
| Wet Flatwoods | | G? | S4? | N | N | 19 |
| Wet Prairie | | G? | S4? | N | N | 24 |
| Alluvial Stream | | G4 | S2 | N | N | 1 |

| SCIENTIFIC NAME | COMMON NAME | FNAI GLOBAL RANK | FNAI STATE RANK | FED STAT | STATE STAT | FNAI RECORD |
|---|---|---|---|---|---|---|
| Blackwater Stream | | G4 | S2 | N | N | 5 |
| Seepage Stream | | G4 | S2 | N | N | 21 |
| Spring-run Stream | | G2 | S2 | N | N | 1 |
| Beach Dune | | G4? | S2 | N | N | 14 |
| Coastal Grassland | | G3 | S2 | N | N | 12 |
| Maritime Hammock | | G4 | S2 | N | N | 9 |
| Mesic Flatwoods | | G? | S4 | N | N | 60 |
| Sandhill | | G2G3 | S2 | N | N | 83 |
| Scrub | | G2 | S2 | N | N | 73 |
| Scrubby Flatwoods | | G3 | S3 | N | N | 8 |
| Slope Forest | | G3 | S2 | N | N | 2 |
| Upland Hardwood Forest | | G? | S3 | N | N | 64 |
| Upland Mixed Forest | | G? | S4 | N | N | 15 |
| Upland Pine Forest | | G? | S3 | N | N | 30 |
| Xeric Hammock | | G? | S3 | N | N | 17 |
| | | | | | | |
| OTHER | | | | | | |
| Bird rookery | | | | N | N | 1 |
| Geological feature | | | | N | N | 7 |
| | | | | | | |
| TOTAL COUNT: | | | | | | |
| Total tracked taxa and communities tallied: 128 | | | | | | |
| Total Summary Occurrences: 2875 | | | | | | |

FNAI GLOBAL RANK DEFINITIONS

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4 = Apparently secure globally (may be rare in parts of range)
G5 = Demonstrably secure globally
GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
GX = Believed to be extinct throughout range
GXC = Extirpated from the wild but still known from captivity or cultivation
G#? = Tentative rank (e.g., G2?)
G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3)
G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
G#T#Q = Same as above, but validity as subspecies or variety is questioned.
GU = Due to lack of information, no rank or range can be assigned (e.g., GUT2).
G? = Not yet ranked (temporary)

FNAI STATE RANK DEFINITIONS

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
S4 = Apparently secure in Florida (may be rare in parts of range)
S5 = Demonstrably secure in Florida
SH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
SX = Believed to be extinct throughout range
SA = Accidental in Florida, i.e., not part of the established biota
SE = An exotic species established in Florida may be native elsewhere in North America
SN = Regularly occurring, but widely and unreliably distributed; sites for conservation hard to determine

SPECIAL ANIMAL LISTINGS - STATE AND FEDERAL STATUS

Grus americana (whooping crane) - Federally listed as XN (nonessential experimental population) which refers to the Florida experimental population only; Federal listing elsewhere is LE.
Pandion haliaetus (osprey) - State listed as LS (Species of Special Concern) in Monroe county only; not listed in rest of state.
Mustela vison mink pop1 (southern mink, S. Florida population) - State listed as LT (Threatened) which refers to the Everglades population only; species formerly listed as Mustela vison evergladensis.
Ursus americanus floridanus (Florida black bear) - State listed as LT but not applicable in Baker and Columbia counties or the Apalachicola National Forest.

A number of rare, threatened and endangered species also occur in the 124,642 square mile Eglin Gulf Test and Training Range. (INSERT MAP) Some of these species along with their ranking status are found in the chart below.
Potential impacts to these species resulting from Air Force missions are identified and evaluated during the Environmental Impact Analysis Process for each mission.

# MARINE SPECIES IN THE EGLIN GULF TEST AND TRAINING RANGE AND ADJACENT WATERS

| SCIENTIFIC NAME | COMMON NAME | DESIGNATED STATUS | | |
|---|---|---|---|---|
| | | FFWCC | USFWS | FNAI G RANK |
| Fish | | | | |
| | | | | |
| Alosa alabamae | Alabama shad | - | C | - |
| Epinephelus itijara | Jewfish | - | C | - |
| Epinephelus drummondhayi | Speckled hind | - | C | - |
| Epinephelus nigritus | Warsaw grouper | - | C | - |
| Carcharhinus obscurus | Dusky shark | - | C | - |
| Carcharhinus signatus | Night shark | - | C | - |
| Odontaspis taurus | Sand tiger shark | - | C | - |
| Acipenser oxyrinchus desotoi | Gulf Sturgeon | SC | T | G3 |
| | | | | |
| Reptiles (Marine) | | | | |
| | | | | |
| Caretta caretta | Atlantic loggerhead turtle | T | T | G3 |
| Chelonia mydas | Atlantic green turtle | E | E | G3 |
| Dermochelys coriacea | Leatherback turtle | E | E | G3 |
| Eretmochelys imbricata | Hawksbill turtle | E | E | G3 |
| Lepidochelys kempi | Kemp's Ridley turtle | E | E | G1 |
| | | | | |
| Mammals (Marine) | | | | |
| | | | | |
| Balaenoptera musculus | Blue whale | E | E | - |
| Balaenoptera physalus | Fin whale | E | E | - |
| Eubalaena glacialis | Northern right whale | E | E | - |
| Megaptera novaeangliae | Humpback whale | E | E | - |
| Physeter macrocephalus | Sperm whale | E | E | - |

Status designations are as follows:

E = Endangered
T = Threatened
SSC = Species of special concern
C = Candidate for listing
SC = Species of concern
- = No Designated status

FEDERAL LEGAL STATUS

Provided by FNAI for information only.
For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.
LE Endangered: species in danger of extinction throughout all or a significant portion of its range.
LT Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
E(S/A) Endangered due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
T(S/A) Threatened due to similarity of appearance (see above).
PE Proposed for listing as Endangered species.
PT Proposed for listing as Threatened species.
C Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
XN Non-essential experimental population.
MC Not currently listed, but of management concern to USFWS.
N Not currently listed, nor currently being considered for listing as Endangered or Threatened.

STATE LEGAL STATUS

Provided by FNAI for information only.
For official definitions and lists of protected species, consult the relevant federal agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.
LE Endangered: species, subspecies, or isolated population so few or depleted in number or so restricted in range that it is in imminent danger of extinction.
LT Threatened: species, subspecies, or isolated population facing a very high risk of extinction in the future.
LS Species of Special Concern is a species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.
PE Proposed for listing as Endangered.
PT Proposed for listing as Threatened.
PS Proposed for listing as Species of Special Concern.
N Not currently listed, nor currently being considered for listing.
Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see http://doacs.state.fl.us/~pi/5b-40.htm#.0055.
LE Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
LT Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
PE Proposed for listing as Endangered.
PT Proposed for listing as Threatened.
N Not currently listed, nor currently being considered for listing.

# APPENDIX F

## CONSTRUCTION NOISE LEVEL CALCULATIONS

**Distance Calculations**
dB2=dB1-10*(a)LOG(R2-R1)
Construction noise level of 85.5 dB
R1 = distance of 50 feet
R2= distance to source

Residents 1,700 feet from construction

dB2=85.5-10*(2)LOG(1700/50)
55

Residents 4,000 feet from building construction

dB2=85.5-10*(2)LOG(4000/50)
47

Residents 700 feet away from construction

dB2=85.5-10*(2)LOG(700/50)
63

Residents 950 feet from construction

dB2=85.5-10*(2)LOG(950/50)
60