

FINAL
ENVIRONMENTAL ASSESSMENT
FOR PLANNED GROWTH
HURLBURT FIELD, FLORIDA



AUGUST 2009

Report Documentation Page

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**FINDING OF NO SIGNIFICANT IMPACT
AND
FINDING OF NO PRACTICABLE ALTERNATIVE
PLANNED GROWTH
HURLBURT FIELD, FLORIDA**

Agency: United States Air Force, Headquarters Air Force Special Operations Command

Background: Pursuant to the provisions of the National Environmental Policy Act of 1969, 42 United States Code § 4321-4370, President's Council on Environmental Quality regulations, Title 40 Code of Federal Regulations Parts 1500-1508, and the Air Force Environmental Impact Analysis Process, as promulgated in 32 Code of Federal Regulations Part 989, the United States Air Force has conducted an assessment of the potential environmental consequences associated with implementation of the Proposed Action (described below). The Environmental Assessment, hereby incorporated by reference, considered potential impacts to both the natural and human environments and assessed the Proposed Action and alternatives as both solitary actions and in conjunction with other proposed activities. This Finding of No Significant Impact summarizes the results of the evaluation of the Proposed Action and considered alternatives. This Finding of No Practicable Alternative summarizes the options considered and why the construction associated with the Proposed Action, described below, was sited as proposed.

Purpose and Need: The purpose of the Proposed Action is to implement a 13% increase in personnel; reassignment of aircraft (resulting in a net increase of one); the two-part renovation of one building; construction of three buildings, with associated demolition; and the construction of a new taxiway. The need for the Proposed Action is the increased demand for special operations personnel and aircraft, particularly for the "Overseas Contingency Operations." Existing personnel and aircraft cannot handle the current and foreseeable future workload and Hurlburt Field needs additional facilities and requires renovations to existing facilities to accommodate the additional personnel and aircraft.

Proposed Action: The Proposed Action is to implement base-wide Planned Growth at Hurlburt Field which includes personnel increases, aircraft increases and changes, along with facility renovation and construction, as summarized below:

- Increase of 1,340 personnel (current baseline 10,166 [fiscal year 2007] to 11,506 by the end of fiscal year 2013)
- Net increase of 1 aircraft (including the retirement of the MH-53J/M Pave Low III/IV, the addition of CV-22 Ospreys and other aircraft additions/subtractions/substitutions)
- Add/Alter and Repair Building 90815
- Construct New Hot Cargo Taxiway between current taxiways Alpha and Bravo
- Construct Light Aircraft Squadron Operations and Maintenance Facility
- Construct Base Logistics Facility and demolish a portion of the existing Logistics Facility (Building 90710)
- Construct Fuel Cell Maintenance Hangar

Alternatives were also analyzed during the environmental impact analysis process. Alternatives consisted of utilizing different construction sites, altering other buildings to meet the intended

purpose, or consolidating into existing facilities. The No-Action Alternative would result in no increase in personnel or aircraft, and no construction or demolition activities would take place. Other alternatives eliminated from further study were not evaluated as they were not considered viable options, since they did not meet the purpose and need. The environmental assessment process identified the Proposed Action as the preferred course of action, since it would best suit the needs of both military personnel and Hurlburt Field and, if implemented properly, would not result in significant environmental impacts. The environmental consequences associated with implementation of the Proposed Action are summarized in the following sections. Personnel and aircraft increases are discussed separately from construction projects, except where noted.

Air Quality: Increased personnel and aircraft are expected to generate long-term criteria air pollutant emissions from additional personal vehicles and aircraft. Construction projects would temporarily generate fugitive dust and construction vehicle emissions. However, the implementation of the Proposed Action would not exceed evaluation criteria and the total emissions for the Proposed Action were determined to be well below the 10% inventory threshold for Okaloosa County. The Proposed Action would contribute directly to emissions of greenhouse gases from the combustion of fossil fuels from construction equipment and commuter vehicles. However, the Proposed Action would have a negligible contribution towards statewide greenhouse gas inventories.

Noise: Increased personnel and the subsequent increase in traffic would cause additional noise; however, the increase in personnel is only approximately 13% and the associated noise would occur in short durations during rush hour. The noise contours are expected to be smaller due to a different mix of aircraft, including quieter turboprop aircraft. The Proposed Action for the construction and demolition projects is expected to create temporary operational noise. All of the Proposed Action construction projects are within compatible land uses; therefore, once constructed, the noise generated from the daily activities at these buildings would be typical of existing buildings and would not increase the noise intensity. The Proposed Action will not create permanent additional operational noise that would impact adjacent off-base land use.

Land Use: The Proposed Action for the personnel and aircraft increases is not expected to affect land use conditions and the proposed construction projects would have some long-term beneficial effects on land use. The proposed construction projects would correct the land use associated with Building 90815 and create more space available for future development adjacent to the airfield with the construction of the new Hot Cargo Taxiway. Approximately nine acres of open space would be converted to aircraft operations or industrial use and 1.1 acres of air accident zone would be converted to airfield pavement.

Safety: The Proposed Action could pose additional safety hazards. Day-to-day operations, and maintenance activities conducted at Hurlburt Field are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health requirements. Any non-Air Force personnel performing work on Hurlburt Field are subject to the Occupational Safety and Health Administration regulations to ensure the protection of workers and the general public during construction. Construction and demolition activities associated with the Proposed Action could pose safety hazards to construction workers and Hurlburt personnel. Hazards generated during demolition and construction projects are generally industrial in nature and would pose the greatest risk to Hurlburt personnel that remain located and continue to work in facilities undergoing renovation or remain in the immediate vicinity of the construction work. Safety hazards associated with construction and demolition activities typically include exposure to falls, slips, excavations and trenches, noise, dusts, heavy equipment operations, congested working spaces and parking areas, and constantly changing work environments. Construction of the Light Aircraft Squadron Operations and Maintenance Facility would have a long-term beneficial impact

on safety, as it would consolidate several facilities and negate the need for continued travel to a leased maintenance hangar located 100 miles off base which lacks Anti-Terrorism/Force Protection.

Geological Resources: The Proposed Action for the personnel and aircraft increases is not expected to affect geological resources. Under the Proposed Action for construction, activities such as grading, excavating, and re-contouring of the soils and shallow geologic sediments, would result in some minor disturbance. However, during construction, erosion and sediment disturbances resulting from normal construction activities will be managed through the implementation of best management practices (e.g., silt fencing, sediment traps, application of water sprays, and revegetation of disturbed areas) in compliance with Florida Administrative Code 62-621 and 62-346 permit requirements. In areas of floodplains or wetlands the construction activities may involve leveling topographical anomalies and possible removal of small amounts of geotechnically incompatible soils.

Water Resources: The Proposed Action for the personnel and aircraft increases is not expected to affect drainage basins, floodplain, wetlands, surface water, or the Sand & Gravel Aquifer. The additional personnel and Clearwater Rinse Facility will create an increase in potable water use from the Floridan Aquifer, however, the proposed increase is minimal and infrastructure is currently being constructed to supply reuse water to the Clearwater Facility. The proposed construction projects will not affect the Floridan Aquifer. The construction projects may have the potential to affect drainage basins, floodplain, wetlands, surface water, or the Sand & Gravel Aquifer. However, to minimize the impact to water resources, in accordance with United Facilities Criteria UFC 3-210-1 Low Impact Development techniques would be incorporated into building, site, and landscape design plans; and erosion and sediment control best management practices would be utilized during active construction in accordance with FAC 62-621. Once completed, the Proposed Action construction facilities would require additional irrigation. However, the Proposed Action construction projects would utilize to the extent possible, landscaping techniques involving native or exotic species approved in the Master List of Trees, Shrubs, and Accent Flowers for Use in the Developed Areas of Hurlburt Field in order to minimize irrigation requirements. Construction of the proposed facilities would add 10.19 acres of impervious surface in the East Bay drainage sub-basin. The proposed number of acres represents a small increase (0.01%) as compared to the available acreage of this drainage basin. None of the Proposed Action construction projects will create direct discharge to surface water.

Wetlands and Floodplain: As required by Executive Order 11990, *Protection of Wetlands*; Executive Order 11988, *Floodplain Management*; and Air Force Instruction 32-7064, *Integrated Natural Resources Management*, the United States Air Force hereby provides notice of the potential for wetland impacts and floodplain construction. The Light Aircraft Squadron Operations and Maintenance Facility, Base Logistics Facility, and Fuel Cell Maintenance Hangar are located in wetlands. A total of 9.5 acres of wetlands would be impacted. The proposed Fuel Cell Maintenance Hangar and the Base Logistics Facility are located in the 100-year floodplain. A total of 2.1 acres of floodplain would be impacted. These facilities will be designed and constructed in accordance with the federal, state, and local floodplain protection standards so as to minimize impacts to wetlands and floodplain. Best management practices will be implemented during construction to minimize impact to adjacent wetlands. Construction within wetlands requires mitigation measures to be implemented resulting in a no-net loss of wetlands. The portion of wetlands effected by the Fuel Cell Maintenance Hangar construction was previously mitigated under a 10-year Memorandum of Agreement with United States Corps of Engineers, and Florida Department of Environmental Protection, dated July 13, 2000, and permitted under the Florida Department of Environmental Protection Permit Number 17-0151212-001-DF and United States Corps of Engineers Section 404 Permit Number 199900679 (IP-DH), which expires

on September 24, 2010. It has been proposed that the remaining wetlands will be mitigated with participation in a mitigation partnership with Eglin Air Force Base. Mitigation options being explored include restoration of three to four flatwoods salamander pond habitats and up to three bridge crossings on Eglin. All ponds and crossings under consideration are in the same drainage basin as the wetland impacts at Hurlburt Field. The mitigation process begins with functional assessments of the wetlands impacted and the flatwoods salamander pond habitats and bridge crossings chosen for possible restoration. Completed assessments, an Application for Works in the Waters of Florida, and supporting documentation will be submitted to the USACE and FDEP. Hurlburt Field personnel plan to have the submittal package to the agencies on October 1, 2009. The agencies must then determine how much acreage must be mitigated and how much credit can be awarded for each restoration project. Once the mitigation requirements are identified, a Joint Environmental Restoration Permit and Clean Water Act Section 404 Permit will be submitted to the Florida Department of Environmental Protection and United States Corps of Engineers, thereby mitigating the adverse impacts on wetlands. Potential adverse effects to wetlands as a result of the Proposed Action are not considered a significant adverse effect to the overall wetland resource of 3,431 acres at Hurlburt Field because of mitigation efforts.

Biological Resources: Potential biological resource impacts would be a minimal increase in noise and potential for bird aircraft strike hazard incidents. Hurlburt Field has an active bird aircraft strike hazard program to assist pilots in preventing bird strikes on aircraft. No protected species or habitat or water bodies are documented in the vicinity of the Proposed Action project areas. It is expected that any wildlife affected by noise due to construction activities would return to their normal routine once construction activities have ceased.

Cultural Resources: The Proposed Action for the personnel and aircraft increases or construction projects is not expected to affect cultural resources. No cultural resources exist within, or near the immediate vicinity of the Construction Project areas and no buildings planned for remodel or demolition are potential for the National Register of Historic Places.

Coastal Zone Management: In accordance with the Federal Coastal Zone Management Act and the Florida Coastal Zone Management Act, a Consistency Determination was made, finding that the activities under the Proposed Action are consistent with the Florida Coastal Management Program. In accordance with Florida statutes, the State of Florida has reviewed the attached Environmental Assessment and agrees that the Proposed Action is consistent with the Florida Coastal Management Program.

Socioeconomics / Environmental Justice: The Proposed Action would have a minor beneficial effect on socioeconomics over the short- and long-term, as it would employ construction workers and the additional personnel and family members would participate in local commerce. The Proposed Action would not affect minority, low-income populations, or children.

Infrastructure: The Proposed Action for the aircraft increase is not expected to affect communications, electrical, natural gas, wastewater, stormwater, or transportation. The Proposed Action for the aircraft would increase the use of the parking apron (airfield). The Proposed Action for the personnel increases and construction projects would increase the demand on the communications, electrical, natural gas, wastewater, stormwater, and transportation infrastructure. Low Impact Development techniques implemented during design and best management practices implemented during active construction will minimize potential effect on stormwater. Ongoing infrastructure upgrades will ensure these infrastructure components are able to handle increased demand.

Wastes, Hazardous Materials, and Stored Fuel: The Proposed Action for the personnel and aircraft increases is not expected to affect asbestos, lead-based paint, or the Environmental Restoration Program. The increased aircraft would have a minor beneficial effect on hazardous

wastes and materials since newer aircraft generate less waste due to decreased maintenance requirements. Solid waste generated from the proposed personnel increases would consist primarily of office materials. Installation policy directs personnel to recycle to the greatest extent possible, thus allowing any recyclable material to be diverted from landfills. Local landfills have adequate capacity to handle additional solid waste not appropriate for recycling. The existing fuel storage capacity would be adequate for the additional personnel and aircraft which utilize the on-base fuel services. The Proposed Action for the construction projects are not expected to adversely affect the Environmental Restoration Program as none of the proposed action sites are located within an environmental cleanup site. However, minimal quantities of hazardous waste, solid waste, and hazardous materials may be generated or used during construction. Management of all hazardous waste will comply with Hurlburt Field Hazardous Waste Management Plan and management of hazardous materials would be handled in accordance with Air Force Instruction 32-7086. A slight increase in stored fuel (approximately 500-gallons) would occur due to the installation of a new aboveground emergency generator tank at the Light Aircraft Squadron Operations and Maintenance Facility for the 319 SOS. The additional tank will be added to the installation Spill Prevention, Control, and Countermeasures Plan. Asbestos containing material and lead-based paint may be present in buildings 90815 and 90710. These buildings will be sampled for asbestos and lead-based paint prior to renovation or demolition. Asbestos containing material and lead-based paint would be abated prior to the demolition or renovation of any facility in accordance with applicable Federal, state, and local regulations to prevent any health hazards.

Direct, Indirect and Cumulative Impacts: The construction and demolition activities; the operation of the new facilities; the addition of new personnel; and the transition to different aircraft were considered with other on-going and planned construction projects, and found that together they do not constitute a significant cumulative impact.

Interagency and Intergovernmental Coordination and Public Review: A public notice was published in the *Northwest Florida Daily News*, the *Hurlburt Warrior*, and the *Hurlburt Patriot* on May 8, 2009 inviting the public to review the Draft Environmental Assessment and Draft Finding of No Significant Impact and Finding of No Practicable Alternative, beginning the 30-day comment period. Concurrently, the Draft Environmental Assessment was submitted to the Florida State Clearinghouse, United States Fish and Wildlife Service, and the U.S. Army Corps of Engineers-Omaha for 60-day agency review. The public comment period closed on June 10, 2009. Agency comments received are provided in Appendix B and no public comments were received.

FINDING OF NO SIGNIFICANT IMPACT / FINDING OF NO PRACTICABLE ALTERNATIVE: Based on my review of the facts and analyses contained in the attached Planned Growth Environmental Assessment, I conclude that the implementation of the Proposed Action will not have a significant environmental impact, either by itself or cumulatively with other projects at Hurlburt Field. Accordingly, the requirements of National Environmental Policy Act, the regulations promulgated by the Council on Environmental Quality and the Air Force are fulfilled and an Environmental Impact Statement is not required.

FINDING OF NO PRACTICABLE ALTERNATIVE: Pursuant to Executive Order 11988, the authority delegated in the Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to locating the Light Aircraft Squadron Operations and Maintenance Facility, Fuel Cell Maintenance Hangar, and the Base Logistics Facility at their proposed sites. Due to lack of sufficient available open space, construction must occur in the floodplain and wetlands. The extremely limited amount of acreage outside of constraint areas, floodplains, and wetlands severely impairs Hurlburt Field's ability to build and meet future mission requirements. Hurlburt Field must build in the floodplain and wetlands in order to meet the future mission demands of the installation.

The alternatives evaluated for these construction projects, while feasible, are not practicable. The alternative for the Light Aircraft Squadron Operations and Maintenance Facility is not practicable due to the lack of available constraint-free space along the airfield to move the current users and aircraft associated with Bldg 90812 and 90815 in order to sequence the demolition and new construction. The alternative for the Fuel Cell Maintenance Hangar is not practicable since it would create short- and long-term logistical issues for scheduling regular maintenance for the CV-22, since Bldg 91262 is currently used to capacity for this purpose. The alternative for the Base Logistics Facility is not practicable due to lack of accessibility based on its location outside the aircraft operations/industrial area and the inadequacy of roads to the alternate location.

The No Action alternative for these construction projects is a viable alternative but is not acceptable for multiple reasons. The No Action alternative for the Light Aircraft Squadron Operations and Maintenance Facility is not acceptable since the existing facilities are inadequate and undersized for the proposed growth of the unit. In addition, major maintenance is currently being conducted in a leased hangar at a civilian airfield approximately 100 miles away. The No Action alternative for the Base Logistics Facility is not acceptable since the existing logistics supply warehouse is over 50 years old and has had two additions. The warehouse is inadequate to support the planned growth of Head Quarters Air Force Special Operations Command and the 1 Special Operations Wing. Hurlburt Field is the site of three new Consolidated Repair Facilities that perform depot maintenance on avionics, engines/propellers, and isochronal inspections on all Air Force Special Operations Command C-130 aircraft. The Consolidated Repair Facilities will create a 30% increase in receipt, storage and delivery of aircraft parts and supplies, which would overwhelm the existing warehouse.

Additionally, those alternatives eliminated from further study were deemed unacceptable as preliminary assessments indicated that they did not meet the purpose and need of the Proposed Action.

The Proposed Action, as designed, includes all practicable measures to minimize harm to the wetlands and floodplain. The Air Force has sent all required notices to Federal agencies, single points of contact, the State of Florida, local government representatives, and the local news media.



CLAUDE V. FULLER, JR., Colonel, USAF
Director, Installations and Mission Support



Date

Attachment: Environmental Assessment

FINAL
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HURLBURT FIELD, FLORIDA



August 2009

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Acronyms	
ACM	Asbestos-containing Material
ACAM	Air Conformity Applicability Model
ADAL	Add / Alter
AFB	Air Force Base
AFCWC	Air Force Combat Weather Center
AFI	Air Force Instruction
AFPD	Air Force Policy Directive
AFOSH	Air Force Occupational Safety and Health
AFRC	Air Force Reserve Command
AFSOC	Air Force Special Operations Command
AFSOTC	Air Force Special Operations Training Center
AICUZ	Air Installation Compatibility Use Zones
AMC	Air Mobility Command
ANG	Air National Guard
AOC	Area of Concern
AQCR	Air Quality Control Region
ASC	Area of Special Concern
AST	Aboveground Storage Tank
AT/FP	Anti-Terrorism / Force Protection
BASH	Bird Aircraft Strike Hazard
Bldg	Building
BMPs	Best Management Practices
BX	Base Exchange
C&D	Construction and Demolition
CAA	Clean Air Act
CATEX	Categorical Exclusion
CCCL	Coastal Construction Control Line

Acronyms	
CCW	Command and Control Wing
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CRFs	Consolidated Repair Facilities
CWA	Clean Water Act
CWS	Combat Weather Squadron
CZMA	Coastal Zone Management Act
dB	Decibels
dBA	A-weighted Decibels
DERA	Defense Environmental Restoration Account
Det	Detachment
DNL	Day-Night Average A-weighted sound level
DoD	Department of Defense
DOT	Department of Transportation
DSN	Defense Switching Network
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EMIS	Environmental Management Information System
EO	Executive Order
EOD	Explosive Ordnance Disposal
EPCRA	Emergency Planning & Community Right-To-Know Act
ERP	Environmental Restoration Program

Acronyms	
ESA	Endangered Species Act
FAC	Florida Administrative Code
FCMP	Florida Coastal Management Program
FDEP	Florida Department of Environmental Protection
FEMA	Federal Emergency Management Agency
FGS	Florida Geological Survey
FICUN	Federal Interagency Committee on Urban Noise
FLTS	Flight Test Squadron
FNAI	Florida Natural Areas Inventory
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FS	Florida Statute
ft ²	Square feet
FUB	Facility Utilization Board
FWC	Fish and Wildlife Conservation Commission
FY	Fiscal Year
gal/day	Gallons per Day
gal/mo	Gallons per Month
Gbps	Giga bits per second
gpd	Gallons per Day
gpm	Gallons per Minute
GWP	Global Warming Potential
HAZMART	Hazardous Materials Pharmacy
HCM	Highway Capacity Manual
HQ	Headquarters
HP	horsepower
HSWA	Hazardous and Solid Waste Amendment
ICA	Intergovernmental Coordination Act

Acronyms	
ICRMP	Integrated Cultural Resources Management Plan
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
IOS	Information Operations Squadron
IOT&E	Initial Operational Test and Evaluation
IPCC	Intergovernmental Panel on Climate Change
IS	Intelligence Squadron
ISDN	Integrated Services Digital Network
JSOU	Joint Special Operations University
LBP	Lead-Based Paint
LID	Low Impact Development
LOS	Level of Service
LTM	Long-Term Monitoring
LUC	Land Use Controls
mg/m ³	Milligram per cubic meter
MFH	Military Family Housing
MGD	Million Gallons per Day
MHPI	Military Housing Privatization Initiative
MMRP	Military Munitions Response Program
MMTCO ₂ E	Million Metric Tons of CO ₂ Equivalent
MOA	Memorandum of Agreement
MS4	Municipal Separate Stormwater Sewer System
MSA	Metropolitan Statistical Area
MSGP	Multi-Sector General Permit
msl	Mean sea level
MSW	Municipal Solid Waste
MX	Maintenance
N ₂ O	Nitrous Oxide
NA	Not Available

Acronyms	
NAAQS	National Ambient Air Quality Standards
NEIC	National Energy Information Center
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NM	New Mexico
NMFS	National Marine Fisheries Service
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWFWMD	Northwest Florida Water Management District
O ₃	Ozone
OSHA	Occupational Safety and Health Act
OSS	Operations Support Squadron
Pb	Lead
PGEA	Planned Growth Environmental Assessment
PM ₁₀	Particulate matter 10 micrometers
PM _{2.5}	Particulate matter 2.5 micrometers
ppm	Parts per million
PSD	Prevention of Significant Deterioration
QD	Quantity Distance
RCRA	Resource Conservation and Recovery Act
RCW	Red Cockaded Woodpecker
RHS	Red Horse Squadron
ROI	Region of Influence
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan

Acronyms	
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	Sulfur Dioxide
SOCES	Special Operations Civil Engineer Squadron
SOF	Special Operations Forces
SOCES/CEAN	1 SOCES/Natural Resources Element
SOFWOC	Special Operations Forces Weather Operations Center
SOG	Special Operations Group
SOLRS	Special Operations Logistics Readiness Squadron
SOMDG	Special Operations Medical Group
SOMSG	Special Operations Mission Support Group
SOMXG	Special Operations Maintenance Group
SOS	Special Operations Squadron
SOSS	Special Operations Support Squadron
SOW	Special Operations Wing
SO _x	Sulfur Oxides
SPCC	Spill Prevention, Control, and Countermeasures
STG	Special Tactics Group
STS	Special Tactics Squadron
SWP3	Stormwater Pollution Prevention Plan
T&E	Threatened and Endangered
tpy	Tons per Year
TRS	Training Squadron
TSCA	Toxic Substances Control Act
µg/m ³	Microgram per cubic meter
UFC	United Facilities Criteria
U.S.	United States
USC	United States Code

Acronyms	
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USAFSOS	United States Air Force Special Operations School
USEPA	United State Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USSOCOM	United States Special Operations Command
VOC	Volatile Organic Compounds
VoIP	Voice over Internet Protocol
WPS	Weapons Squadron
WRCA	Water Resource Caution Area
WS	Weather Squadron

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EXECUTIVE SUMMARY

Introduction

Hurlburt Field is a United States Air Force installation and home to the Air Force Special Operations Command, the Air Force component of United States Special Operations Command. The installation is located in the Florida Panhandle between Pensacola and Fort Walton Beach. The Air Force Special Operations Command mission is to organize, train, equip, and educate Air Force special operations forces for worldwide deployment and assignment to regional unified command.

The 1st Special Operations Wing at Hurlburt Field, Florida, and Headquarters Air Force Special Operations Command have initiated a comprehensive United States Air Force Environmental Impact Analysis Process for base-wide planned growth at Hurlburt Field to streamline the National Environmental Policy Act compliance process. The Planned Growth evaluated in this Environmental Assessment includes a 13% increase in personnel; reassignment of aircraft (resulting in a net increase of one); a two-part renovation of one building; construction of three buildings, with associated demolition; and the construction of a new taxiway.

This Environmental Assessment has been prepared to assess the potential environmental, cultural, physical, and socioeconomic impacts associated with the proposed personnel and aircraft increases and construction/renovation projects associated with the Planned Growth. The potential impacts on the resources covered by this Environmental Assessment are assessed for the Proposed Action (Planned Growth), Reasonable Alternatives, and the No-Action Alternative (maintaining existing conditions).

This Environmental Assessment has been prepared in accordance with the National Environmental Policy Act implementing regulations, related Air Force Instruction 32-7061 (32 Code of Federal Regulations Part 989), and Department of Defense directives.

Purpose and Need

The purpose of this Planned Growth Environmental Assessment addresses the Proposed Action of implementing a 13% increase in personnel; reassignment of aircraft (resulting in a net increase of one); the two-part renovation of one building; construction of three buildings, with associated demolition; and the construction of a new taxiway. The need for the Proposed Action is the increased demand for special operations personnel and aircraft, particularly for the “Overseas Contingency Operations.” Existing personnel and aircraft cannot handle the current and foreseeable future workload. Hurlburt Field needs new facilities and requires renovations to existing facilities to accommodate the additional personnel and aircraft.

Proposed Actions and Alternatives

Personnel and Aircraft Increases

Hurlburt Field's personnel are projected to increase from a Fiscal Year 07 baseline of 10,166 to 11,506 by the end of Fiscal Year 13, which would be an overall increase of 1,340 personnel, of which 60% of the increase is administrative and 40% of the increase is aircraft related personnel. Due to the dynamic process being assessed and the length of time required to complete the Environmental Assessment, the FY07 baseline could not be avoided. The personnel include active duty military, reservists, civilians, and contractors. The net increase of one aircraft over five years involves the retirement of the MH-53J/M Pave Low III/IV and addition of CV-22 Ospreys as well as other aircraft additions, subtractions, and substitutions for squadrons and units at the installation.

A partial increase in the number of personnel and aircraft was considered but determined not to be feasible due to operational demands.

The No-Action Alternative would be to maintain existing conditions. Under the No-Action Alternative, personnel and aircraft numbers would not increase.

Construction Project Descriptions

The six proposed construction projects are summarized below. Two proposed projects at Building 90815 are discussed together.

Add/Alter and Repair Building 90815

Building 90815 is located on the westside aircraft parking apron off Cruz Avenue, east of Building 90812. The 319th Special Operations Squadron needs the facility converted back to a hangar to support aircraft maintenance and supply. The first phase would consist of new hangar doors and interior renovations, and the second phase would involve the repair of the heating/air conditioning and fire suppression systems and modifications to make the office space functional.

The Alternative to this Proposed Action would be to utilize existing hangars for maintenance of the 319th Special Operations Squadron aircraft. This Alternative, while feasible, would create logistical problems, since the existing hangars are continuously used for maintenance of other, mostly larger, aircraft.

The No-Action Alternative would be to maintain existing conditions. Under the No-Action Alternative, Building 90815 would not be modified in any manner.

New Hot Cargo Taxiway

Hot Cargo Taxiway Bravo has an associated quantity distance arc of 1,250 feet. The quantity distance arc is instituted as a minimum safe distance for the loading and unloading of live ordnance. The presence of the quantity distance arc associated with Taxiway Bravo precludes development of vacant land adjacent to the airfield. To accommodate the safe loading and unloading of live ordnance and to allow for future development along the airfield, an additional taxiway is proposed north of Taxiway Bravo, between Taxiway Alpha and Taxiway Bravo.

The Alternative to this Proposed Action would be to construct a New Hot Cargo Loading Ramp northwest of Taxiway Alpha. This would provide unrestricted access to the departure end of Runway 18 for other aircraft. The construction in this area would require substantial backfill, require twice the acreage, and cost approximately three times the cost of the Preferred Alternative. In addition, construction in this location would impact approximately 2.2 acres of wetlands and floodplains.

The No-Action Alternative would be to maintain existing conditions. Under the No-Action Alternative, the New Hot Cargo Taxiway would not be constructed.

Light Aircraft Squadron Operations and Maintenance Facility

The proposed Light Aircraft Squadron Operations and Maintenance Facility for the 319th Special Operations Squadron would be constructed east of the vicinity of Building 90809. This facility is needed to accommodate the proposed growth of the 319th Special Operations Squadron and to eliminate the need for a leased hangar for major maintenance at a civilian airfield approximately 100 miles away. The proposed facility would include hangar space for aircraft inspection, maintenance, and repair, including indoor aircraft jacking, flight control replacement, rigging, and other heavy maintenance. The new facility would negate the need to continue leasing an additional maintenance hangar located approximately 100 miles from Hurlburt Field. Anti-Terrorism/Force Protection measures would be incorporated. Construction at this location would impact approximately two acres of wetlands.

The Alternative to this Proposed Action would be to demolish Buildings 90812 and 90815 and construct a new Light Aircraft Squadron Operations and Maintenance Facility in this location. This Alternative, while feasible, would create a problem securing available space to allow the move of the current users of Buildings 90812 and 90815 in order to sequence the demolition and new construction.

The No-Action Alternative would be to maintain existing conditions. Under the No-Action Alternative, the Light Aircraft Squadron Operations and Maintenance Facility for

the 319 Special Operations Squadron would not be constructed. The proposed additional personnel would have to be located in the existing inadequate facilities and continue to lease a maintenance hangar located approximately 100 miles from Hurlburt Field, which does not have Anti-Terrorism/Force Protection measures in place. This creates significant logistical impediments and a loss of operational control, as well as security concerns.

Base Logistics Facility

The proposed Base Logistics Facility for the 1st Special Operations Logistics Readiness Squadron would be located just west of Building 90802 at the intersection of Red Horse Road and Hamby Place. The existing facility is inadequate and undersized to support the planned growth of the Air Force Special Operations Command and the 1st Special Operations Wing. The proposed facility would include functional space for traffic management; a general supply warehouse for bulk/bin storage, contractor administration and warehouse offices, and inspection, pickup, and delivery activities; Mobility Readiness Spares Package; aircraft parts store; war readiness materials storage; and command and staff offices. The warehouse portion of the existing logistics facility (Building 90710), which is approximately 125,647ft², would be demolished. Anti-Terrorism/Force Protection measures would be incorporated. The proposed location would impact approximately seven acres of wetlands and one acre of floodplain.

The Alternative to this Proposed Action would be to construct the facility on the south side of Tully Street, south of Building 90531. The warehouse portion of the existing logistics supply warehouse (Building 90710) would be demolished as part of the Alternative, as well. The Alternative, while feasible, would not be as close or as accessible to the majority of users as the Preferred Alternative and wetlands would still be impacted. This alternate location would impact approximately three acres of wetlands.

The No Action Alternative would be to maintain existing conditions. Under the No Action Alternative, no new construction would occur and the current inadequate and undersized warehouse portion of Building 90710 would continue to be utilized.

Fuel Cell Maintenance Hangar for C-130 and CV-22 Aircraft

The proposed Fuel Cell Maintenance Hangar for the C-130 and CV-22 aircraft would be located near the northeast corner of the eastside aircraft parking apron and north of Building 91262. This facility is needed since Hurlburt Field has only one fuel cell hangar, which is already used to capacity by the C-130 aircraft. The proposed fuel cell hangar would consist of a fuel cell repair area, shop space, and building support. Anti-Terrorism/Force Protection measures would be incorporated. This location would impact approximately 0.5 acre of previously permitted wetlands and 1.1 acres of floodplain.

The Alternative to this Proposed Action would be to renovate Building 91262 to accommodate fuel cell maintenance. Renovations would require measures for fire suppression and explosion proofing, as well as installation of exhaust vents. This Alternative, while feasible, would create short- and long-term logistical issues for scheduling regular maintenance for the CV-22 aircraft, since Building 91262 is currently used for this purpose.

The No Action Alternative would be to maintain existing conditions. Under the No Action Alternative no construction or renovations would occur. Required fuel cell maintenance would not occur in a timely manner, which would significantly restrict combat readiness.

Environmental Consequences

The potential environmental, cultural, physical, and socioeconomic impacts of the Proposed Actions, Alternatives to the Proposed Action, and No-Action Alternatives are summarized below in **Table ES-1-1**.

Table ES-1-1 Environmental Impact Summary

Resource Area	Proposed Action	Alternatives to the Proposed Action	No-Action Alternative
Air Quality			
Basewide Personnel & Aircraft Increases	NO SIGNIFICANT IMPACT Minor adverse long-term impact	NOT APPLICABLE	NO EFFECT
Construction Projects	NO SIGNIFICANT IMPACT Intermittent minor short-term impact	NO SIGNIFICANT IMPACT Intermittent minor short-term impact	NO SIGNIFICANT IMPACT Intermittent minor short-term impact
Noise			
Basewide Personnel & Aircraft Increases	NO SIGNIFICANT IMPACT Minor long-term impact	NOT APPLICABLE	NO EFFECT
Construction Projects	NO SIGNIFICANT IMPACT Intermittent minor short-term impact	NO SIGNIFICANT IMPACT Intermittent minor short-term impact	NO SIGNIFICANT IMPACT Negligible long-term impact

Resource Area	Proposed Action	Alternatives to the Proposed Action	No-Action Alternative
Land Use			
Basewide Personnel & Aircraft Increases	NO EFFECT	NOT APPLICABLE	NO EFFECT
Construction Projects	NO SIGNIFICANT IMPACT Minor long-term beneficial impact	NO SIGNIFICANT IMPACT Minor long-term beneficial impact	NO SIGNIFICANT IMPACT Minor long-term impact
Safety			
Basewide Personnel & Aircraft Increases	NO SIGNIFICANT IMPACT Minor long-term impact	NOT APPLICABLE	NO EFFECT
Construction Projects	NO SIGNIFICANT IMPACT Minor long-term beneficial impact	NO SIGNIFICANT IMPACT Minor long-term beneficial impact	NO EFFECT
Geological Resources			
Basewide Personnel & Aircraft Increases	NO EFFECT	NOT APPLICABLE	NO EFFECT
Construction Projects	NO SIGNIFICANT IMPACT Minor long-term impact	NO SIGNIFICANT IMPACT Minor long-term impact	NO EFFECT
Water Resources			
Basewide Personnel & Aircraft Increases	NO SIGNIFICANT IMPACT Minor long-term impact to Potable Water System/Floridan Aquifer	NOT APPLICABLE	NO EFFECT
Construction Projects	NO SIGNIFICANT IMPACT Long-term adverse impact on wetlands which will be fully mitigated as a condition of the Joint Environmental Resource Permit and CWA Section 404 Permit; minor long-term impacts to drainage basin, floodplains, and the Sand & Gravel Aquifer	NO SIGNIFICANT IMPACT Long-term adverse impact on wetlands which will be fully mitigated as a condition of the Joint Environmental Resource Permit and CWA Section 404 Permit; minor long-term impacts to drainage basin, floodplains, and the Sand & Gravel Aquifer	NO EFFECT

Resource Area	Proposed Action	Alternatives to the Proposed Action	No-Action Alternative
Biological Resources			
Basewide Personnel & Aircraft Increases	NO SIGNIFICANT IMPACT Negligible long-term impact	NOT APPLICABLE	NO EFFECT
Construction Projects	NO SIGNIFICANT IMPACT Minor intermittent short-term impact	NO SIGNIFICANT IMPACT Minor intermittent short-term impact	NO EFFECT
Cultural Resources			
Basewide Personnel & Aircraft Increases	NO EFFECT	NOT APPLICABLE	NO EFFECT
Construction Projects	NO EFFECT	NO EFFECT	NO EFFECT
Coastal Zone Management			
Basewide Personnel & Aircraft Increases	NO EFFECT	NOT APPLICABLE	NO EFFECT
Construction Projects	NO EFFECT	NO EFFECT	NO EFFECT
Socioeconomics / Environmental Justice			
Basewide Personnel & Aircraft Increases	INSIGNIFICANT BENEFICIAL IMPACT Minor long-term beneficial impact on socioeconomics and no impact to environmental justice	NOT APPLICABLE	NO EFFECT
Construction Projects	INSIGNIFICANT BENEFICIAL IMPACT Minor short-term beneficial impact on socioeconomics and no impact to environmental justice	INSIGNIFICANT BENEFICIAL IMPACT Minor short-term beneficial impact on socioeconomics and no impact to environmental justice	NO EFFECT

Resource Area	Proposed Action	Alternatives to the Proposed Action	No-Action Alternative
Infrastructure			
Aircraft Increases	NO SIGNIFICANT IMPACT Minor long-term impact on airfield and liquid fuels infrastructure	NOT APPLICABLE	NO EFFECT
Construction Projects & Basewide Personnel Increases	NO SIGNIFICANT IMPACT Minor beneficial impact on airfield infrastructure and minor long-term adverse impact on transportation infrastructure. Insignificant impacts on: communications, electrical, natural gas, liquid fuels, natural gas, wastewater, and stormwater	NO SIGNIFICANT IMPACT Minor beneficial impact on airfield infrastructure and minor long-term adverse impact on transportation infrastructure. Insignificant impacts on: communications, electrical, natural gas, liquid fuels, natural gas, wastewater, and stormwater	NO EFFECT
Hazardous Materials and Waste			
Basewide Personnel & Aircraft Increases	NO SIGNIFICANT IMPACT Minor long term beneficial impact on hazardous materials, insignificant long term impact on solid waste; insignificant impact on hazardous waste and stored fuels	NOT APPLICABLE	NO EFFECT
Construction Projects	NO SIGNIFICANT IMPACT Insignificant short-term impact on hazardous waste, solid waste, hazardous materials, asbestos, and lead based paint. Insignificant long-term beneficial impacts on asbestos and lead based paint. Insignificant long-term impacts on stored fuels. No significant impact on ERP	NO SIGNIFICANT IMPACT Insignificant short-term impact on hazardous waste, solid waste, hazardous materials, asbestos, and lead based paint. Insignificant long-term beneficial impacts on asbestos and lead based paint. Insignificant long-term impacts on stored fuels. No significant impact on ERP	NO EFFECT

1.0 PURPOSE, NEED AND SCOPE

1.1 Introduction

The 1st Special Operations Wing (1 SOW) at Hurlburt Field, Florida, and Headquarters (HQ) Air Force Special Operations Command (AFSOC) have initiated a comprehensive United States (U.S.) Air Force (USAF) Environmental Impact Analysis Process (EIAP) for the base-wide planned growth at Hurlburt Field to streamline the National Environmental Policy Act (NEPA) compliance process.

Hurlburt Field is located in the Florida Panhandle between Pensacola and Fort Walton Beach. The installation covers 6,643 acres in southern Okaloosa County (**Figure 1-1**). Current site features and layout can be seen in an aerial photograph taken in 2007 (**Figure 1-2**) and the site overview (**Figure 1-3**).

This Environmental Assessment (EA) has been prepared in accordance with the NEPA of 1969 (Public Law 91-190, Title 42, Chapter 55, United States Code (USC), Sections 4321-4347); the President's Council on Environmental Quality (CEQ) Regulation; Title 40 of the Code of Federal Regulations (CFR) Parts 1500-1508 (40 CFR 1500-1508); Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*; and the Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*, implemented in 32 CFR 989.

Section 1.0 of this document includes seven subsections: related EAs and Environmental Impact Statements (EISs), background information on the location and mission of Hurlburt Field, a statement of the purpose of and the need for the Proposed Action, an overview of the scope of the analysis, a discussion of installation constraints and construction criteria, a summary of key environmental compliance requirements, and an introduction to the organization of this EA.

1.2 Proposed Action

The Planned Growth includes personnel increases, aircraft changes, and the following six construction projects (including renovation, repair, and alteration):

- Add/Alter Hangar, Building 90815 (**Figure 1-4**) [renovation]
- Repair Hangar, Building 90815 (**Figure 1-4**)
- New Hot Cargo Taxiway (**Figure 1-5**)
- Light Aircraft Squadron Operations and Maintenance Facility (**Figure 1-6**)

- Base Logistics Facility (**Figure 1-7**)
- Fuel Cell Maintenance Hangar (**Figure 1-8**)

The personnel total at Hurlburt Field would be projected to increase by 1,340 personnel from a fiscal year (FY) 07 baseline of 10,166 to 11,506 by the end of FY13. The increase includes active duty military, reservists, civilians, and contractors. The aircraft changes involve the retirement of the MH-53J/M Pave Low III/IV, the addition of CV-22 Osprey, and other aircraft additions/subtractions.

1.3 Purpose of and Need for the Proposed Action

The purpose of this Planned Growth Environmental Assessment (PGEA) addresses the Proposed Action (Planned Growth) of implementing a 13% increase in personnel; reassignment of aircraft (resulting in a net increase of one); the two-part renovation of one building; construction of three buildings, with associated demolition; and the construction of a new taxiway. These actions are proposed to take place at Hurlburt Field over the next five years. The need for this Planned Growth is the demand for special operations personnel and aircraft has increased over the years, particularly for the “Overseas Contingency Operations,” to the point that existing personnel and aircraft cannot handle the current and foreseeable future workload. Hurlburt Field needs new facilities and renovations to existing facilities to accommodate the additional personnel and aircraft.

The purpose of the two renovation projects, Add/Alter and Repair Hangar, Building (Bldg) 90815, are to convert the facility back to a usable hangar. Bldg 90815 was originally constructed in 1959 as a hangar. It once contained two C-123 nose docks, and the hangar bays are just large enough to fully enclose a U-28A or PC-12. The building has since been converted into a storage/office facility. The hangar doors were welded shut and smaller roll-up doors were installed. Bldg 90815 is needed for the 319th Special Operations Squadron, which is a new squadron that began initial operation in 2005. The creation of the 319 Special Operations Squadron (SOS) was directed as an immediate combat need. The 319 SOS has taken possession of this facility and needs the facility converted back to a hangar to support aircraft maintenance and supply.

The purpose of the new hot cargo taxiway is to allow development of vacant land adjacent to the airfield. Hot Cargo Taxiway Bravo has an associated Quantity Distance (QD) arc of 1,250 feet. The QD arc is instituted as a minimum safe distance for the loading and unloading of live ordnance. The Taxiway Bravo QD arc precludes the development of vacant land adjacent to the airfield. The vacant land adjacent to the airfield is needed to accommodate additional growth at Hurlburt Field. This land is the only vacant space along the western airfield.

The purpose of the Light Aircraft Squadron Operations and Maintenance Facility is to provide an adequate facility for aircraft inspection, maintenance, and repair, as well as areas to plan, brief, and direct flight operations. The Light Aircraft Squadron Operations and Maintenance Facility is needed to accommodate the proposed growth of the 319 SOS and to eliminate the need for a leased hangar for major maintenance at a civilian airfield approximately 100 miles away.

The purpose of the Base Logistics Facility is to provide an adequate facility within the aircraft operations/industrial area on the west side of the airfield for storage of material, equipment, and mobility bags to support the growth of the 1st Special Operations Wing and associated organizations. This facility is needed to replace the existing warehouse portion of Bldg 90710, which is inadequate and undersized for the 1 Special Operations Logistics Readiness Squadron (SOLRS). The existing logistics supply warehouse is over 50 years old and has had two additions.

The purpose of the Fuel Cell Maintenance Hangar is to provide additional fuel cell maintenance capability at Hurlburt Field. This facility is needed since Hurlburt Field has only one fuel cell hangar, which is already used to capacity by the C-130. The current fuel cell hangar can not adequately support fuel cell maintenance for the new CV-22. As the CV-22 fleet grows to operational levels, fuel cell maintenance will be a significant restriction on combat readiness.

The Proposed Action is needed to meet current and future mission requirements and national security objectives associated with HQ AFSOC, 1 SOW, and other Hurlburt Field units. Contributions by HQ AFSOC and Hurlburt Field to national security, as well as prospects for the assignments of additional missions in the future, dictate that Hurlburt Field implement growth planning for the next five years. To ensure the complete usefulness of Hurlburt Field for any tasks assigned, infrastructure projects must take into account—and be capable of supporting—all functions inherent to a USAF installation. These include aircraft operations and maintenance activities, security, administration, communications, billeting, supply and storage, training, transportation, and community quality of life. Continued development of infrastructure at Hurlburt Field must take into account future facilities construction/demolition/renovation, transportation needs, airfield alterations and enhancements, systems improvements, utilities improvements, land use planning, and development constraints and opportunities.

1.4 Related EAs and EISs

Several recently completed EAs and EISs relate to the Proposed Action for this PGEA. Therefore, a brief overview of these documents is provided, as information from these documents has been utilized in the development of this PGEA.

In September 2001, the USAF prepared an EA and subsequent Finding of No Significant Impact (FONSI) for CV-22 Osprey Beddown at Hurlburt Field (USAF, 2001). The decision to beddown and conduct post-beddown operations has already been made by the USAF. In April 2007, the USAF prepared an EA and subsequent FONSI for the 5-year Update for conducting initial operational test and evaluation (IOT&E) and beddown of the CV-22 Osprey at Hurlburt Field (USAF, 2007a). The purpose of the 5-Year Update EA was to revise and supplement the information provided in the September 2001 EA to reflect the current projection of CV-22 Osprey activities at Hurlburt Field. The EA included the IOT&E and beddown of up to 27 CV-22 Osprey at Hurlburt Field between FY07 and FY17. *This PGEA only assesses the cumulative effects at Hurlburt Field resulting from the CV-22 Osprey beddown.*

In October 2005, the USAF prepared an EA and subsequent FONSI for the General Plan EA for Hurlburt Field (USAF, 2005a). The General Plan EA evaluated the environmental impacts of the implementation of the 2002 Hurlburt Field General Plan (Hurlburt Field, 2002). The Hurlburt Field General Plan is a general assessment of the installation's infrastructure and attributes for the purpose of recommending capital improvement projects. The General Plan EA determined that implementation of the Hurlburt Field General Plan would not result in any significant adverse impacts to the natural, cultural, or socioeconomic environments. The General Plan EA may be used as a tiering document for other Hurlburt Field projects requiring NEPA documentation that were not specifically covered in the General Plan EA, in accordance with 40 CFR 1508.28. Some associated planned growth actions were previously evaluated using an Air Force Form 813, Request for Environmental Impact Analysis, and were appropriate for the application of a Categorical Exclusion (CATEX) under 32 CFR 989.13. *This PGEA only assesses the cumulative effects at Hurlburt Field resulting from this action.*

In July 2007, the USAF prepared an Environmental Impact Statement (EIS) for the AFSOC Assets beddown at Cannon Air Force Base (AFB), New Mexico (NM). The decision was to beddown approximately 108 AFSOC aircraft (C-130s with varying missions, CV-22 Osprey, Predator Unmanned Aerial Systems, and additional aircraft) to Cannon AFB. The Proposed Action included new equipment and personnel increases from 4,147 to 5,360 plus an estimated additional 320 contract personnel between 2005 and 2011 (USAF, 2007b). The USAF has already made the decision to implement this action, and some of the aircraft and personnel will be transferred from Hurlburt Field to Cannon AFB. *This PGEA only assesses the cumulative effects at Hurlburt Field resulting from this action.*

1.5 Background

1.5.1 Location and Area

Hurlburt Field is a USAF installation, originally designated as Eglin AFB Auxiliary Field No. 9 and is one of the original pilot and gunnery training fields built in the 1940s. The

installation retains close ties to Eglin AFB. At the time of this writing, Hurlburt Field has 7,588 active duty, 10,852 family members (living on/off base), 900 civilians, and 1,678 contractors working and/or living on base (AFSOC/ISOW/PA, 2008).

Hurlburt Field covers 6,643 acres in southern Okaloosa County in the Florida Panhandle between Pensacola and Fort Walton Beach. The installation is located within the boundary of Eglin Reservation and is bordered by the city of Mary Esther on the east, the community of Florosa on the west, and by the Santa Rosa Sound to the south. Primary highway access to Hurlburt Field is via U.S. 98 (**Figure 1-3**). Current site features and layout can be seen in an aerial photograph taken in 2007 (**Figure 1-2**).

This region of the Florida Panhandle is known as the Emerald Coast, which extends approximately 50 miles on either side of Fort Walton Beach and roughly parallels U.S. 98. This coastal area is known for its white sand beaches, favorable climate, and reasonable cost of living. As a result, the area is undergoing rapid population growth. Hurlburt Field is in the Fort Walton Beach-Crestview-Destin Metropolitan Statistical Area (MSA). The MSA just west of Hurlburt Field is entitled Pensacola-Ferry Pass-Brent. The Fort Walton Beach-Crestview-Destin MSA has a population of approximately 180,291, while the Pensacola-Ferry Pass-Brent MSA has a population of 439,987. The largest municipality in the immediate Hurlburt Field area is Fort Walton Beach. Immediately to the east of Hurlburt Field is Mary Esther, which is in the Fort Walton Beach-Crestview-Destin MSA, and to the west is Navarre, which is in the Pensacola-Ferry Pass-Brent MSA.

Hurlburt Field can be sub-divided into three distinct areas: westside, eastside, and soundside. The westside and eastside areas are north of U.S. 98 and are separated by the north-south runway and associated airfield. Runway 18/36 is 9,600 feet long and 150 feet wide. The majority of base infrastructure is located in these two areas. The westside area contains the airfield support functions for Hurlburt Field's fixed-wing missions, the main cantonment area, additional housing, and less developed areas containing the rifle range and Explosive Ordnance Disposal (EOD) operations. The eastside area contains Red Horse operations and training, airfield support facilities for Hurlburt Field's rotary-wing missions, additional family housing (Commando Village), temporary lodging facilities, and commercial (commissary, base exchange [BX], and other concessions), recreational (golf course, ball fields, and tennis and basketball courts), and medical facilities. The portion of the base south of U.S. 98 is known as the "soundside area" (soundside). This area provides space for officer and enlisted housing; the Soundside Club; the petroleum, oil, and lubricant marine dock; the installation marina; and other outdoor recreational facilities (**Figure 1-3**).

1.5.2 Military Mission

Hurlburt Field is the home of HQ AFSOC, the Air Force component of United States Special Operations Command (USSOCOM). The AFSOC mission is to organize, train,

equip, and educate Air Force special operations forces for worldwide deployment and assignment to regional unified command. AFSOC's core missions are as follows:

- Unconventional warfare
- Direct action
- Special reconnaissance
- Counterterrorism
- Foreign internal defense
- Humanitarian assistance
- Psychological operations
- Personnel recovery
- Counter-narcotics

The 1 SOW is the host unit at Hurlburt Field. The 1 SOW mission focus is unconventional warfare, counterterrorism, combat search and rescue, personnel recovery, psychological operations, aviation assistance to deploying nations, "deep battlefield" re-supply, interdiction, and close air support.

The 1 SOW at Hurlburt Field is divided into four groups as follows:

- 1st Special Operations Group (1 SOG)
- 1st Special Operations Maintenance Group (1 SOMXG)
- 1st Special Operations Mission Support Group (1 SOMSG)
- 1st Special Operations Medical Group (1 SOMDG)

The 1 SOG plans, prepares, and executes special operations, foreign internal defense, and security assistance worldwide in support of theater commanders. In order to accomplish its special operations mission, the group employs more than 70 fixed- and rotary-wing aircraft to provide day or night, all-weather access to hostile and/or denied airspace. More than 1,400 people are assigned to the group. The group consists of eight squadrons with one at a geographically separated location (Eglin AFB):

- 1st Special Operations Support Squadron (1 SOSS)
- 4 SOS, which flies AC-130U Spooky gunships
- 6 SOS, which flies the UH-1H Huey, Mi-17, C-130E, AN-26, and C-47
- 8 SOS, which flies the CV-22 Osprey

- 9 SOS, which flies the MC-130P/N Combat Shadow out of Eglin AFB
- 15 SOS, which flies the MC-130H Combat Talon II
- 16 SOS, which flies the AC-130H Spectre Gunship
- 319 SOS, which flies the U-28A and PC-12

The 73 SOS relocated to Cannon AFB in FY08. The 20 SOS was deactivated in December 2008.

The 1 SOMXG provides maintenance support to more than 70 aircraft assigned to the 1 SOW. Such aircraft include the AC-130H/U Gunship, MC-130E/H Combat Talon I/II, and the CV-22 Osprey.

The 1 SOMSG provides garrison and deployed support for the 1 SOW, HQ AFSOC, and 34 partner units. It deploys manpower, equipment, and supplies to support training, exercises, and contingency operations.

The 1 SOMDG provides exceptional preventive and curative health services to our war fighters and their families. The 1 SOMDG supports the Air Force component of unified command conducting clandestine, sensitive special operations missions. The group also provides worldwide, forward-deployed medical support operation in harsh, austere battlefield conditions during combined, joint, and service special operations missions.

The 1 SOW plays host to several major partner units including:

- Headquarters Air Force Special Operations Command (HQ AFSOC)
- Air Force Combat Weather Center (AFCWC)
- Air Force Special Operations Training Center (AFSOTC)
- Detachment 3, 342nd Training Squadron (Det 3, 342 TRS)
- Detachment 7, 373rd Training Squadron (Det 7, 373 TRS)
- Joint Special Operations University (JSOU)
- Special Operations Forces Weather Operations Center (SOFWOC)
- United States Air Force Special Operations School (USAFSOS)
- 5th Special Operations Squadron (5 SOS) Air National Guard (ANG)
- 10th Combat Weather Squadron (10 CWS)
- 11th Intelligence Squadron (11 IS)

- 14th Weapons Squadron (14 WPS)
- 18th Flight Test Squadron (18 FLTS)
- 21st Combat Communications Squadron (21 CBCS)
- 23rd Special Tactics Squadron (23 STS)
- 25th Information Operations Squadron (25 IOS)
- 39th Information Operations Squadron (39 IOS)
- 361st Intelligence, Surveillance, and Reconnaissance Group (361 ISR)
- 413th Flight Test Squadron (413 FLTS)
- 505th Command and Control Wing (505 CCW)
- 556th Red Horse Squadron (556 RHS) Air Force Reserve Command (AFRC)
- 720th Special Tactics Group (720 STG)
- 720th Operations Support Squadron (720 OSS)
- 745th Special Operations Squadron (745 SOS) ANG
- 823rd Red Horse Squadron (823 RHS)
- 919th Special Operations Wing (919 SOW) (AFRC)

1.6 Scope of the Analysis

Hurlburt Field seeks to implement the planned growth process by evaluating the Proposed Action in a single EA. The scope of this PGEA includes an evaluation of Alternatives for the various projects and analysis of the cumulative effects on the natural and man-made environments. The Proposed Action would implement new facility construction, facility upgrades, facility repair/renovation, Anti-Terrorism/Force Protection (AT/FP) improvements, personnel increases, and aircraft changes and increases. This PGEA analyzes the location of these construction activities with respect to the natural and human environment and associated constraints.

This PGEA evaluates the impacts of the Proposed Action by documenting and evaluating the effects of activities necessary to fulfill current and future mission requirements. This PGEA will present and analyze potentially adverse direct, indirect, and cumulative environmental impacts on environmentally sensitive areas resulting from implementation of the Proposed Action.

This PGEA examines potential effects of the Proposed Action and Alternatives in the following 12 areas:

- Air Quality
- Noise
- Land Use
- Safety
- Geological Resources
- Water Resources
- Biological Resources
- Cultural Resources
- Coastal Zone Management
- Socioeconomics and Environmental Justice
- Infrastructure
- Hazardous Materials and Waste

These resources and issues were identified as being potentially affected by the Proposed Action. They include critical elements of the natural and human environment that are mandated for review by Executive Order (EO), regulation, or policy.

The analysis of potential cumulative impacts of relevant actions in a single EA will streamline the NEPA review process, thus reducing the overall timeframe and costs, while meeting the USAF's EIAP goals. The PGEA will reduce project fragmentation, facilitate coordination of land use planning, enable better evaluation of potential cumulative environmental impacts, and assist in maintaining a baseline for future analysis. The evaluation of multiple actions in one EA will reduce the overall review time and hence workload for Hurlburt Field, AFSOC, and other reviewing agencies.

1.7 Installation Constraints and Construction Criteria

1.7.1 Major Installation Constraints

A number of land use, regulatory, and mission-related constraints exist within the boundaries of Hurlburt Field that influence and could potentially limit future development at the installation. The major constraints on Hurlburt Field are listed below and depicted in **Figure 1-9** to **Figure 1-13**. Some constraint areas overlap and therefore the sum of acreages listed below do not equal Hurlburt Field's total acreage (6,643 acres).

- **Airfield Infrastructure (~235 acres):** Within the airfield infrastructure, only airfield improvements and projects directly associated with airfield operations are allowed. This area includes both the airfield buffer zone and air accident zone. All projects within this area must be approved by the Facility Utilization Board (FUB) and airfield management prior to commencing any construction-related activities (**Figure 1-9**).
- **Quantity Distance (QD) arcs (~1,601 acres):** QD arcs are established to ensure that a minimum safe distance is present within areas where there is explosion potential. To minimize the potential for the loss of human life and property damage in the event of an explosion, non-munitions-related development may not occur within the QD zones (Hurlburt Field, 1998). Several QD arcs are located on Hurlburt Field. The radius of the QD arc is a function of the associated types and quantities of the munitions or the activities that may occur within the munitions area. QD arc radii on Hurlburt Field range from 300 to 2,500 feet. QD arcs on Hurlburt Field are associated with the EOD Range, the munitions storage area, the small arms and grenade range, the hot cargo taxiways, the flare ramp, and other explosive loading and parking areas associated with the airfield (**Figure 1-9**) (Hurlburt Field, 2007a and Poynor, 2008).
- **Wetlands (3,431 acres):** A total of 52% of Hurlburt Field is designated as wetlands, making it increasingly more impractical to avoid construction with wetlands. Hurlburt Field is at the point where development within wetlands will become necessary to ensure readiness for future national defense and homeland security requirements. Hurlburt Field's rationale for development includes a systematic and comprehensive approach designed to protect and enhance the natural environment to the maximum extent possible. In order to develop wetlands, procedures and practices outlined in EO 11990, *Protection of Wetlands*, 44 CFR 9, *Floodplain Management and Protection of Wetlands*, AFI 32-7064, *Integrated Natural Resources Management*, and 32 CFR 989, *Environmental Impact Analysis Process*, must be followed. (**Figure 1-10**).
- **100-Year Floodplain (~2,575 acres):** A total of 39% of Hurlburt Field is in the 100-year floodplain, and land available for development is limited. Hurlburt Field is at the point where development within the 100-year floodplain will become necessary to ensure readiness for future national defense and homeland security requirements. The increased risk of hazard in floodplains is an important consideration in project siting and Hurlburt Field's rationale for development includes a systematic and comprehensive approach designed to protect and enhance the natural environment to the maximum extent possible. In order to develop floodplains, procedures and practices outlined in EO 11988, *Floodplain Management*, 44 CFR 9, AFI 32-7064 and 32 CFR 989 must be followed. (**Figure 1-11**).
- **Environmental Cleanup Program Sites (~115 acres):** Hurlburt Field has identified 51 Environmental Cleanup Program sites. Of the 51 sites, 26 are Environmental Restoration Program (ERP) sites, four are non-ERP Compliance sites, four are Military Munitions Response Program (MMRP) sites, and 17 are

Areas of Concern (AOC). All 17 AOCs have been closed with “No Further Action (NFA)” required. Of the 26 ERP sites, 10 are closed with NFA required, 11 sites are in long-term monitoring (LTM) and/or have Land Use Controls (LUC), and five sites are undergoing cleanup. Of the four non-ERP Compliance sites, two are closed with NFA required, and two are in LTM with LUC. The Phase I site evaluations have been completed, and the Phase II site evaluations are in process for the four MMRP sites. New facilities may be constructed within certain cleanup sites depending upon the level of contamination, clean-up efforts, and LUC. Approval of new construction within the footprint of cleanup sites must be obtained from the FUB and coordinated with the 1st Special Operations Civil Engineer Squadron (SOCES) as well as HQ AFSOC, which manages the ERP for Hurlburt Field (Hurlburt Field, 2006b and Steele, 2008) (**Figure 1-12**).

- **Threatened and Endangered Species and Associated Habitats (~651 acres):** Threatened and Endangered (T&E) plant and animal species are known to exist on Hurlburt Field (**Figure 1-13**). Construction that may impact any T&E species must be coordinated with 1 SOCES Natural Resources Element; the and the U.S. Fish and Wildlife Service (USFWS); and Florida Fish and Wildlife Conservation Commission (FWC), as appropriate.
- **Cultural Resources, Historic Buildings, and Archaeological Sites (~47 acres):** Multiple historic building surveys have been completed for all structures at Hurlburt Field. The latest survey was conducted in 2006. No buildings or structures at Hurlburt Field have been determined eligible for listing in the National Register of Historic Places (NRHP) (Hurlburt Field, 2007b). Ten known archaeological sites have been identified at Hurlburt Field. Five of these sites are eligible for inclusion in the NRHP, four are not eligible, and one site requires further evaluation to determine its eligibility (Pruitt, 2008). Construction within or demolition of cultural resource sites must be coordinated with the Florida State Historic Preservation Office (SHPO), the FUB, and 1 SOCES Environmental Flight.
- **Coastal Zone Management Act (CZMA):** Hurlburt Field contains ~2.3 miles of coastline along its southern boundary. Coastal zones are regulated under the Florida Coastal Zone Protection Act (1985) by the Florida Department of Environmental Protection (FDEP). The act requires permits for construction of erosion control devices, excavations, or erection of structures within established coastal construction control lines (CCCLs) (Florida Statute, Chapter 161, Beach and Shore Preservation Act). All new construction within coastline areas must be approved by the FUB and 1 SOCES. Furthermore, the CZMA required Federal agencies, when undertaking activities that have reasonably foreseeable effects on any land or water use or natural resources of the coastal zone, to make these activities consistent to the maximum extent practicable with the enforceable policies of a coastal state’s federally approved coastal management program. While federal property is outside the coastal zone, the State of Florida has designated the entirety of the state as within its coastal zone, and thus federal

activities may well impact the coastal resources, uses, and effects of the state. The Coastal Zone Consistency statement is provided in Appendix A.

A composite map showing the combined potential constraints at Hurlburt Field is presented as **Figure 1-14**.

1.7.2 Construction Criteria

All construction would comply with fire and safety codes. The proposed construction projects would be implemented using sustainable design concepts, which emphasize state-of-the-art strategies for site development, efficient water and energy use, and improved indoor environmental quality.

The exterior and interior design of the new facilities would be consistent with the existing facilities on Hurlburt Field, thereby, maintaining a coherent architectural character throughout the installation. Landscaping would be used to provide an attractive and professional-looking area by using plants, shrubs, and trees to blend with the surrounding environment. When possible, landscaping techniques would incorporate native or other approved species adapted to Hurlburt Field's climate and soil conditions to reduce water requirements and minimize erosion (Hurlburt Field, 2007d).

All proposed construction and other activities within a wetland or floodplain must adhere to the requirements of EO 11990, or EO 11988, 44 CFR 9, AFI 32-7064, and 32 CFR 989. Specific details are provided in **Section 1.8.3**.

AT/FP measures would be incorporated into all proposed construction in accordance with Department of Defense (DoD) Instruction 2000.16, *DoD Antiterrorism Standards* (DoD, 2006), *Unified Facilities Criteria, DOD Minimum Antiterrorism Standards for Buildings* (DoD, 2007), AFI 31-210, *The Air Force Antiterrorism Program*, and *USAF Installation Force Protection Guide* (USAF, undated(a)). Antiterrorism refers to defensive measures used to reduce the vulnerability of individuals and property to terrorist acts, to include limited response and containment by local military and civilian forces. Force protection refers to measures designed to protect personnel, facilities, and equipment that support national defense missions. These measures are aimed at minimizing loss of life and other critical assets. Implementation should be based on the assessment of the threat (considering that the threat may be transitory and/or changeable), resources available, and command decisions.

1.8 Summary of Key Environmental Compliance Requirements

1.8.1 National Environmental Policy Act

NEPA (42 USC Section 4321–4347) is the Federal statute requiring the identification and analysis of potential environmental impacts associated with proposed Federal actions before those actions are taken. NEPA established the CEQ, which is charged with the development of regulations that ensure Federal agency compliance with NEPA. The implementing regulations for NEPA are codified in Title 40 CFR, Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, dated November 28, 1978. CEQ regulations specify that an EA be prepared to briefly provide evidence and analysis for determining whether to prepare a Finding of No Significant Impact (FONSI) / Finding of No Practicable Alternative (FONPA) or whether the preparation of an EIS is necessary. The EA can aid in an agency’s compliance with NEPA when an EIS is unnecessary and facilitate preparation of an EIS when one is required. AFI 32-7061, *The Environmental Impact Analysis Process*, dated March 12, 2003, adopts 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*, dated July 15, 1999, as the Air Force’s implementing regulation for NEPA.

1.8.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decision-making process for Proposed Actions 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. NEPA addresses them collectively in the form of an EA or EIS, which provides the decision-maker with a comprehensive view of major environmental issues and requirements associated with the Proposed Action.

Other environmental regulatory requirements relevant to the Proposed Action and Alternatives are considered in this EA. Included among them are regulatory requirements under the following programs:

- Noise Control Act of 1972 (42 USC Sections 4901 – 4918)
- Clean Air Act (CAA) (42 USC 7401 et seq)
- Clean Water Act of 1972 (CWA) (33 USC Sections 1251 - 1376)
- National Historic Preservation Act of 1966 (NHPA) (16 USC 470 et seq)
- Endangered Species Act of 1973 (ESA) (16 USC Sections 1531 – 1544)
- CZMA (16 USC Sections 1451-1464)

- Resource Conservation and Recovery Act of 1976 (RCRA) (42 USC Sections 6901-6992)
- Toxic Substances Control Act of 1970 (TSCA) (15 USC Sections 2601-2671)
- Occupational Safety and Health Act (OSHA) (29 USC Sections 651)

Requirements also include compliance with the following:

- EO 11988, *Floodplain Management*
- EO 11990, *Protection of Wetlands*
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*

1.8.3 Environmental Statutes and Regulations Specifically Applicable to Proposed Actions within Wetlands or Floodplains

EO 11990, *Protection of Wetlands*, states that wherever there is a practicable alternative, agencies shall avoid, to the extent possible, the destruction or modification of wetlands, including new development in wetlands. Agencies must evaluate possible alternatives in order to preserve and enhance the natural and beneficial values of wetlands. If it is decided that development will take place within wetlands, the agency must include all practicable measures to minimize harm to the wetlands. Notification for actions affecting wetlands must be available for public review and comment before any action can take place.

EO 11988, *Floodplain Management*, states that wherever there is a practicable alternative, agencies shall avoid, to the extent possible, the occupancy and modification of floodplains, including new development in floodplains. Agencies must evaluate possible alternatives in order to preserve the natural and beneficial values served by floodplains. If it is decided that development will take place within the floodplain, the agency must include all practicable measures to minimize harm to the floodplain. Building design and construction plans must meet applicable state and local floodplain protection standards to minimize the impact of floods on human safety, health, and welfare. Notification for actions affecting floodplains must be available for public review and comment before any action can take place.

44 CFR 9.6, *Floodplain Management and Protection of Wetlands - Decision Making Process*, is a specific step-by-step process which agencies must follow to comply with EO 11988. Steps include:

- Documenting whether or not the site is in a floodplain or wetland
- Documenting foreseeable direct or indirect impacts

- Evaluating measures to minimize impacts and to restore or preserve the beneficial values of the floodplain or wetlands
- Identification of possible alternatives
- Preparation of public notice with a clearly defined explanation that development within the floodplain or wetland is the only practicable alternative

AFI 32-7064, *Integrated Natural Resource Management*, is an Air Force Instruction document that provides Major Commands (MAJCOMs) and installations a framework for documenting and maintaining Air Force natural resources management programs with applicable Federal, state, and local laws and regulations. The document is a comprehensive seventeen chapter guide addressing resource areas including threatened and endangered species, fish and wildlife, forest and agricultural land, wildfires, invasive species, bird aircraft strike hazards (BASH), coastal resources, floodplains, and wetlands.

In regards to floodplains and wetlands it mandates:

- Baseline wetlands inventories
- Jurisdictional wetland surveys
- Floodplain boundary determinations

For actions that may potentially affect wetlands or the floodplain the agency must:

- Perform an environmental impact analysis in accordance with NEPA and the Air Force EIAP in 32 CFR Part 989.

For actions that will take place in wetlands or the floodplain the agency must:

- Obtain a Florida Environmental Resource Permit [Florida Administrative Code (FAC), Title 62, Chapter 312 (FAC 62-312)]
- Comply with the Clean Water Act which includes a Section 404 permit, and according to Section 401 actions requiring a state Environmental Resource Permit also require a Water Quality Certificate from the state water pollution control agency
- Identify mitigation measures, where applicable
- Prepare a FONSI, where applicable
- Prepare a FONPA, where applicable

1.8.4 Environmental Permit and Notification Requirements

1.8.4.1 Section 404 CWA Permit

A Section 404 CWA Permit from the U.S. Army Corps of Engineers (USACE) Jacksonville District is required for the dredge and fill of wetlands for the Proposed Action construction projects Light Aircraft Squadron Operations and Maintenance Facility and Base Logistics Facility. These projects will impact approximately 9.5 acres.

1.8.4.2 Environmental Resource Permit

The increase in impervious surface associated with the Proposed Action construction projects New Hot Cargo Taxiway, Light Aircraft Squadron Operations and Maintenance Facility, Base Logistics Facility, and Fuel Cell Maintenance Hangar requires application for an Environmental Resources Permit for stormwater issued by the Northwest Florida Water Management District (NFWFMD) under FAC 62-346, *Environmental Resource Permitting in Northwest Florida*. The Environmental Resource Permit Program regulates the construction, alteration, maintenance, removal, modification, and operation of all activities in uplands, wetlands, and other surface waters that will alter, divert, impede, or otherwise change the flow of surface waters. The program is designed to ensure that such activities do not degrade water quality or cause flooding.

An Environmental Resource Permit is required for the dredge and fill of wetlands for the Proposed Action construction projects Light Aircraft Squadron Operations and Maintenance Facility and Base Logistics Facility. These projects will impact approximately 9.5 acres. The Environmental Resource Permit for dredge and filling activities is currently regulated by the FDEP Northwest District in FAC 62-312. Rulemaking is currently underway that will divide this authority with the NFWFMD, which may occur before the permits are submitted. The portion of wetlands impacted by the Fuel Cell Maintenance Hangar construction was previously mitigated under a 10-year Memorandum of Agreement with USACE and FDEP, dated July 13, 2000, and permitted under the FDEP Permit Number 17-0151212-001-DF and USACE Section 404 Permit Number 199900679 (IP-DH).

1.8.4.3 Stormwater Discharge Permit for Construction Activities

The Proposed Action construction projects: Hot Cargo Taxiway, Light Aircraft Taxiway, and Fuel Cell Maintenance Hangar are each expected to disturb between 1.0 acre and 2.5 acres of land. For permitting purposes, each of these projects is defined as a small construction activity. The Proposed Action construction project Base Logistics Facility is expected to disturb approximately 8.5 acres. This project is defined as a large construction activity for permitting. All of these projects should qualify for permitting under the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities (FDEP, 2003). To obtain coverage under the Generic Stormwater Permit, a notice of intent (NOI) would be filed prior to commencing

construction activities. As part of the permit requirements, a site-specific Stormwater Pollution Prevention Plan (SWP3) should be developed and implemented as part of the Proposed Action (FDEP, 2003).

In addition, any Proposed Action construction project requiring dewatering will require a National Pollutant Discharge Elimination System (NPDES) Generic Permit for discharge of produced ground water from any non-contaminated site activity in accordance with FAC 62-621-300(2). Details on dewatering and any potential effect on contaminated sites are provided in **Section 4.12.2**.

1.8.4.4 Stormwater Discharge Associated with Industrial Activity and Phase II Municipal Storm Sewer Systems

Hurlburt Field is currently authorized to discharge stormwater to the waters of the state under the State of Florida Multi-Sector Generic Permit (MSGP) for Stormwater Discharge Associated with Industrial Activity (MSGP Facility ID: FLR05B132, issued by the FDEP on April 4, 2006) and the State of Florida Generic Permit for Discharge of Stormwater from Phase II Municipal Separate Storm Sewer Systems (issued by the FDEP on July 9, 2003, extended to 2013 in November 2007) (FDEP, 2003 and 2006). As part of the permit requirements, Hurlburt Field maintains a Stormwater Program Management Plan as stated in FAC 62-621. Given that the Proposed Action would increase the impervious area of the base, the Hurlburt Field SWP3 will need to be amended to show this change in impervious area. Additionally, any alterations to the stormwater conveyance system or stormwater outfalls will need to be noted in the Hurlburt Field SWP3.

1.8.4.5 Public Water Supply System Extension

In order to maintain the integrity of the public drinking water supply, the FDEP requires permitting for construction or alteration of any public water system component. Prior to initiating Proposed Action construction projects: Light Aircraft Squadron Operations and Maintenance Facility, Base Logistics Facility, and Fuel Cell Maintenance Hangar, the proponent should file a Notice of Intent to Use the General Permit for Construction of Water Main Extensions for Public Water Supply under FAC 62-555 *Permitting, Construction, Operation, and Maintenance of Public Water Systems*.

1.8.4.6 Wastewater Supply System Extension

The Florida Air and Water Pollution Control Act established that no wastes are to be discharged to any waters of the state without the treatment necessary to protect the beneficial use of such water. As such, the FDEP requires permitting for construction or modification to domestic wastewater collection/transmission systems. Prior to initiating the Proposed Action construction projects: Light Aircraft Squadron Operations and Maintenance Facility, Base Logistics Facility, and Fuel Cell Maintenance Hangar, the proponent should complete a Notification/Application for Constructing a Domestic

Wastewater Collection/Transmission System under FAC 62-604 *Collection System and Transmission Facilities*.

1.8.4.7 Asbestos Notification

The Proposed Action for the construction projects includes the demolition of a portion of building 90710 and the renovation of building 90815. These buildings may contain asbestos. In order to comply with the National Emission Standards for Hazardous Air Pollutants (NESHAP), a notification of asbestos demolition should be submitted to the FDEP Northwest District.

1.8.4.8 Storage Tank Systems Notification

The Proposed Action may include the installation of emergency power generators and associated aboveground fuel storage tanks. The fuel storage tanks should be added to the base's Spill Prevention, Control, and Countermeasure (SPCC) Plan and a site-specific spill response plan should be developed for each tank. If any of the fuel storage tanks have a capacity greater than 550 gallons, the tank must be registered under FAC 62-762, *Petroleum Storage Systems (Aboveground Storage Tank Systems)*. The Escambia County Health Department manages petroleum tank program through an agreement with FDEP.

1.8.5 Interagency Coordination and Public Involvement

NEPA ensures that environmental information is made available to the public during the decision-making process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information on the Proposed Action to state and local governments and the public and involve them in the planning process. The *Intergovernmental Coordination Act (ICA)*, *Demonstration Cities and Metropolitan Development Act (DCMDA)*, and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federally initiated Proposed Action. AFI 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning (IICEP)*, requires the USAF to implement the IICEP process. It also implements ICA, DCMDA, and EO 12372, which is used for the purpose of facilitating agency coordination and implements scoping requirements under NEPA.

Documentation of public notice, agency coordination (Florida State Clearinghouse, USACE, and USFWS), and agency responses is located in Appendix B. No public response was received.

1.9 Organization of this Document

This PGEA is organized into eight sections. **Section 1.0** contains background information on Hurlburt Field, the locations of the Proposed Action, the purpose of and need for the Proposed Action, the scope of the PGEA analysis, an overview of installation constraints and construction criteria, a summary of applicable regulatory requirements, and an introduction to the organization of the EA. **Section 2.0** provides a detailed description of the Proposed Action, Alternatives to the Proposed Action, the No-Action Alternative, and a description of the decision to be made and identification of the Preferred Alternative. **Section 3.0** contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the Proposed Action, Alternatives to the Proposed Action, or the No-Action Alternative. **Section 4.0** presents the analysis of the potential environmental consequences for the Hurlburt Field Planned Growth (the Proposed Action). **Section 5.0** includes an analysis of the potential cumulative impacts on Hurlburt Field. **Section 6.0** lists the preparers of the document. **Section 7.0** lists the persons contacted for this PGEA. **Section 8.0** lists the sources of information used in the preparation of the document.

The Coastal Zone Consistency statement is located in **Appendix A**. **Appendix B** is a copy of the IICEP letter mailed to the agencies for this action, the IICEP distribution list, responses to the IICEP letter, and the Notice of Availability. Air Force Form 813s, *Request for Environmental Impact Analysis*, are included in **Appendix C**. A list of the flora and fauna potentially found on Hurlburt Field is included in **Appendix D**.

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2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section describes the installation-wide Planned Growth (Proposed Action) at Hurlburt Field and Alternatives to the Proposed Action. **Section 2.1** describes the Proposed Action. **Section 2.2** identifies Alternatives to the Proposed Action, including the No-Action Alternative. **Section 2.3** identifies the Alternatives eliminated from further study. **Section 2.4** identifies the decision to be made and the Preferred Alternative.

2.1 Proposed Action

The Proposed Action would be to implement the installation-wide Planned Growth at Hurlburt Field, which includes personnel increases, aircraft increases/changes, and six construction projects (including renovation, repair, and alteration). Implementation of the Proposed Action would allow Hurlburt Field to properly plan for future budgeting cycles and ensure readiness for national defense and homeland security requirements.

2.1.1 Personnel and Aircraft Increases

The need for special operations personnel has increased over the years, particularly for the “Overseas Contingency Operations,” to the point that existing personnel cannot handle the current and foreseeable future workload. In response, HQ AFSOC is proposing to increase Hurlburt Field’s personnel from a current FY07 baseline of 10,166 to 11,506 by the end of FY13, an increase of 1,340 personnel, of which 60% of the increase is administrative and 40% of the increase is aircraft related personnel. Due to the dynamic process being assessed and the length of time required to complete the EA, the FY07 baseline could not be avoided. The personnel include active duty military, reservists, civilians, and contractors. The following organizations will see major growth over this time period:

- 1 SOSS
- 6 SOS
- 8 SOS
- 319 SOS
- 10 CWS
- 11 IS
- 21 CBCS
- 23 STS
- 25 IS
- 39 IOS
- 823 RHS
- 919 SOW
- AFSOTC
- HQ AFSOC
- SOFWOC

The following organizations will see major reductions over this time period:

- 16 SOS (relocating to Cannon AFB, NM)
- 20 SOS (deactivated)
- 73 SOS (relocated to Cannon AFB, NM)
- 1 SOMXG
- 1 SOMSG

The personnel increases for FY08 through FY13 are compared with the baseline year FY07 and are shown in **Table 2-1**. Each FY shows the yearly change, the cumulative change, and the total.

Table 2-1 Hurlburt Field Personnel Increases

	FY07	FY08			FY09			FY10		
	Base-line	Yr Chg*	Cum Chg**	Total	Yr Chg	Cum Chg	Total	Yr Chg	Cum Chg	Total
Population Total	10,166	470	470	10,636	-421	49	10,215	349	398	10,564

	FY11			FY12			FY13		
	Yr Chg	Cum Chg	Total	Yr Chg	Cum Chg	Total	Yr Chg	Cum Chg	Total
Population Total	486	884	11,050	201	1,085	11,251	255	1,340	11,506

Source: Guinter, 2008

*Yr Chg: Annual change in personnel and aircraft at the installation

**Cum Chg: Cumulative changes

Hurlburt Field's proposed aircraft changes involve the retirement of the MH-53J/M Pave Low III/IV, the addition of CV-22 Osprey, and other aircraft additions and subtractions. The MH-53 retired from the Air Force inventory in September 2008. AFSOC is proposing to relocate the MC-130W aircraft to Cannon AFB in FY08 and to relocate the AC-130H aircraft to Cannon in FY09. This Proposed Action only covers the environmental impacts on Hurlburt Field. The environmental impacts on Cannon AFB due to the MC-130W and AC-130H aircraft moves were previously analyzed in the AFSOC Assets Beddown EIS (USAF, 2007b). The environmental impacts on Hurlburt Field of the CV-22 beddown and operation were previously analyzed in the CV-22 Beddown EA (USAF, 2001) and in the 5-year Update CV-22 Beddown EA (USAF, 2007a). HQ AFSOC is proposing to add additional aircraft to the 6 SOS and 319 SOS inventory. The aircraft changes for FY08 through FY13 are compared with the baseline year FY07 and are shown in Table 2-2. Each FY shows the yearly change and the total. Descriptions of the aircraft and their missions follow below.

Table 2-2 Hurlburt Field Aircraft Changes

		FY07	FY08		FY09		FY10		FY11		FY12		FY13	
		Base-line	Yr Chg	Total	Yr Chg	Total	Yr Chg	Total	Yr Chg	Total	Yr Chg	Total	Yr Chg	Total
Aircraft	TOTAL/ Squadron	74	12	86	-9	77	0	77	-2	75	0	75	0	75
AC-130U	4 SOS	17	0	17	0	17	0	17	0	17	0	17	0	17
C-130E/H	6 SOS	2	0	2	0	2	0	2	0	2	0	2	0	2
Mi-17	6 SOS	3	1	4	0	4	0	4	0	4	0	4	0	4
An-26	6 SOS	1	0	1	0	1	0	1	0	1	0	1	0	1
BT-67 (C-47)	6 SOS	0	0	0	1	1	0	1	0	1	0	1	0	1
Casa 212	6 SOS	1	1	2	0	2	0	2	0	2	0	2	0	2
UH-1H	6 SOS	2	0	2	0	2	0	2	0	2	0	2	0	2
UH-1N	6 SOS	2	0	2	0	2	0	2	0	2	0	2	0	2
CV-22B SQ#1	8 SOS	3	2	5	2	7	0	7	0	7	0	7	0	7
MC-130H	15 SOS	9	0	9	0	9	0	9	0	9	0	9	0	9
AC-130H	16 SOS	8	0	8	-8	0	0	0	0	0	0	0	0	0
MH-53M & J	20 SOS	10	0	10	-10	0	0	0	0	0	0	0	0	0
MC-130W (H2)	73 SOS	4	-4	0	0	0	0	0	0	0	0	0	0	0
PC-12 (leased)	319 SOS	2	1	3	0	3	0	3	0	3	0	3	0	3
TU-28	319 SOS	0	2	2	0	2	0	2	0	2	0	2	0	2
U-28A	319 SOS	8	6	14	6	20	0	20	0	20	0	20	0	20
CV-22B	18 FLTS	0	1	1	0	1	0	1	0	1	0	1	0	1
V-22 ATA	AFMC	0	1	1	0	1	0	1	-1	0	0	0	0	0
RC-26	ANG	2	1	3	0	3	0	3	-1	2	0	2	0	2

Source: Guintier, 2008

*Yr Chg: Annual change in aircraft at the installation

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AC-130U/H: The 4 SOS flies AC-130U Spooky gunships and the 16 SOS flies the AC-130H Spectre gunship. These aircraft are used for missions of close air support, armed reconnaissance, and interdiction associated with conventional and joint special operations forces. These heavily armed aircraft incorporate side-firing weapons integrated with sophisticated sensor, navigation, and fire control systems to provide surgical firepower or area saturation during extended loiter periods, at night and in adverse weather. The sensor suite consists of a television sensor, infrared sensor, and radar. These sensors allow the gunship to visually or electronically identify friendly ground forces and targets any place, any time. Additionally, the AC-130U employs synthetic aperture strike radar for long-range target detection and identification and can attack two targets simultaneously. The AC-130U also has twice the munitions capacity of the AC-130H.

C-130E/H, Mi-17, An-26, BT-67, Casa 212, UH-1H/N: The 6 SOS supports foreign internal defenses and flies the UH-1H/N Huey and Mi-17 helicopters, as well as, the C-130E, An-26, and BT-67 fixed-wing aircrafts. Its mission is to assess, train, advise, and assist foreign aviation forces in airpower employment, sustainment, and force integration. These aircraft and helicopters are common airlift and gunship platforms in the countries where AFSOC personnel operate. Personnel using UH-1H/N helicopters can support theater combatant commanders in search and rescue, low-level operations, and to assess, train, advise, and assist foreign forces.

CV-22B: The 8 SOS flies CV-22 Osprey for missions of insertion, extraction, and re-supply of unconventional warfare forces and equipment into hostile or enemy-controlled territory using “airland” or “airdrop” procedures. The CV-22 Osprey is a tilt-rotor twin-engine aircraft that combines the vertical takeoff, hover, and vertical landing qualities of a helicopter with the long-range, fuel efficiency, and speed characteristics of a turboprop aircraft. The Osprey adds new capability and fills a long-standing USSOCOM requirement to conduct long-range infiltration, exfiltration, and resupply missions during night operations. The CV-22 can take off vertically and, once airborne, the nacelles (engine and prop-rotor group) on each wing can rotate into a forward position. This versatile, self-deployable aircraft offers increased speed and range over other rotary-wing aircraft, and can perform missions that normally would require both fixed- and rotary-wing aircraft. The Osprey can cruise at 220 knots indicated airspeed. The CV-22 is equipped with integrated threat countermeasures, terrain-following radar, forward-looking infrared sensor, and other advanced avionics systems that allow it to operate at low altitude in adverse weather conditions and medium- to high-threat environments.

MC-130H: The 15 SOS flies the MC-130H Combat Talon II which provides infiltration, exfiltration, and resupply of Special Operation Forces (SOF) and equipment in hostile or denied territory. Secondary missions include psychological operations and helicopter air refueling. The MC-130H features terrain-following and terrain-avoidance radars capable of operations as low as 250 feet above ground level in adverse weather conditions. Their navigation suite includes dual ring laser gyros, mission computers, and integrated GPS.

They can locate, and either land or perform airdrops, on small, unmarked zones with pinpoint accuracy day or night. An extensive electronic warfare suite enables the aircrew to detect and avoid potential threats. When engaged, the system protects the aircraft from both radar and infrared-guided threats, and includes the deployment of defensive chaff and flares. The MC-130H is equipped with aerial refueling pods to provide in-flight refueling of SOF and Combat Search and Rescue helicopters.

MH-53M/J: The Air Force's MH-53J Pave Low IIIE helicopter was flown by the 20 SOS, also known as the "Green Hornets." The Pave Low is a modified version of the HH-53 Super Jolly equipped for day or night low level penetration into hostile or enemy territory to accomplish clandestine operations, aerial gunnery support, and reinforcement throughout the world. The Pave Lows are used in long-range infiltration/exfiltration and resupply of special operations forces in day, night, or marginal weather conditions. They also provided combat search and rescue support.

MC-130W: The 73 SOS flies the MC-130W Combat Spear, which conducts infiltration, exfiltration, and resupply of special operations forces. The MC-130W primarily fly missions during darkness to reduce probability of visual acquisition and intercept by airborne threats. Collateral missions include refueling of special operations vertical lift assets, forward arming and refueling, specialized ordnance delivery, airdrops in support of psychological operations, and limited command and control capabilities. The aircraft is a highly modified C-130H featuring improved navigation, threat detection and countermeasures, and communication suites. The improved threat detection and countermeasures systems include advanced radar and missile warning receivers, chaff and flare dispensers and active infrared countermeasures, protecting the aircraft from both radar and infrared-guided threats. The communication systems upgrades include dual satellite communications suite with data burst capability. The aircraft has both interior and exterior night vision goggle compatible lighting. In-flight refueling capabilities extend the aircraft's range to unlimited.

PC-12, T-28, and U-28A: The 319 SOS mission is to provide intra-theater support for special operations forces. To accomplish the mission, they fly the PC-12, U-28A, a variation of the Pilatus PC-12, and the U-28A. The aircraft are certified to land on dirt and grass strips, and are equipped with weather radar and a suite of advanced communications and navigation gear.

RC-26: The RC-26's are used by the Air National Guard for training. The RC-26 is primarily used in conjunction with counter-drug support for local, state, and Federal law enforcement agencies, and is capable of generating photographs from several angles and altitudes over a specific area. The planes are equipped with TV imaging, thermal imaging, video, photo, and communications equipment that can all be used to aid government agency operations.

2.1.2 Construction Project Descriptions

In order to keep up with the “Overseas Contingency Operations” and the additional personnel and aircraft changes, Hurlburt Field proposes a number of facility construction projects (including renovation, repair, and alteration) over the next five years to support its future planned growth requirements and to comply with AT/FP requirements.

The General Plan EA addressed several of the infrastructure improvements and construction projects to accommodate the planned personnel increases (USAF, 2005a), as detailed in **Table 2-3**. Additionally, some of the projects identified in **Table 2-3** were previously evaluated using an Air Force Form 813, *Request for Environmental Impact Analysis*, or a Department of Defense Form 1391C, *Military Construction Project Data (Continuation)*, in accordance with AFSOC Instruction 32-7001 and were appropriate for the application of a CATEX under 32 CFR 989.13. An Air Force Form 813 with a description of the Proposed Action and Alternative is included in **Appendix C** for the projects where the CATEX Number A2.3.11 was used, except for projects FTEV073000, FTEV071097, FTEV063007, FTEV071168, FTEV081078, FTEV083002 and FTEV053006 where the Department of Defense Form 1391C was used. These projects are not analyzed in this EA, except for cumulative impacts, where applicable.

Table 2-3 Previously Analyzed Planned Growth Projects

Project Number	Project Title	Fiscal Year	Method of Analysis	CATEX Number
Not Applicable	Add two UH-1H aircraft to 6th SOS	FY07	CATEX	A2.3.7
FTEV051199	Alter 319 SOS, Building (Bldg) 91255	FY07	CATEX	A2.3.8
FTEV071097	SOF Construct Parking Lot, 6 SOS	FY07	CATEX	A2.3.11
FTEV043005	SOF Squadron Operations, Talon II (6 SOS)	FY07	GPEA	-
FTEV071191	Simplified Acquisition of Base Engineer Requirements-Install 2 Doors 16th SOS Bldg 90801	FY07	CATEX	A2.3.8
FTEV033014	Realign Cruz Avenue, Phase 1	FY07	GPEA	-
FTEV053006	SOF Operations Facility, 11 th IS	FY08	CATEX	A2.3.11
FTEV063014	Add/Alter (ADAL) 6th SOS Squadron Operations	FY08	CATEX	A2.3.11
FTEV053007	10th CWS Re-siting	FY08	CATEX	A2.3.11

Project Number	Project Title	Fiscal Year	Method of Analysis	CATEX Number
FTEV071168	SOF Construct Deployed Aircraft Ground Response Unit/STG Training Facility	FY08	CATEX	A2.3.11
FTEV973006	SOF Engine Maintenance and Storage Facility	FY08	CATEX	A2.3.11
FTEV063000	SOF Squadron Operations Annex, 4 SOS	FY08	CATEX	A2.3.11
FTEV081078	Construct Parking Lot, HQ AFSOC	FY08	CATEX	A2.3.11
FTEV023005	Red Horse Mobility and Training Facility	FY08	GPEA	-
FTEV023013	ADAL Special Operations School	FY09	GPEA	-
FTEV071041	Repair 6 SOS Bldg 90825	FY09	CATEX	A2.3.10
FTEV033017	SOF Special Tactics Group Bldg	FY09	GPEA	-
FTEV071187	Construct Round-About, Tully St.	FY09	CATEX	A2.3.11
FTEV962010	Realign Terry Ave. & O-Neil Ave. / Install Traffic Light	FY09	GPEA	-
FTEV073000	ADAL Entrance HQ AFSOC Bldg 1	FY09	CATEX	A2.3.8
FTEV043008	SOF Maintenance (MX)/Storage Facility	FY10	GPEA	-
FTEV023011	Mission Planning Center	FY10	GPEA	-
FTEV071132	Area Defense Counsel Offices	FY10	CATEX	A2.3.11
FTEV063003	ADAL Air Intelligence Agency Operations Facility	FY10	CATEX	A2.3.8
FTEV063005	ADAL 25 IOS Facility 90073	FY10	CATEX	A2.3.8
FTEV083002	SOF Operations Facility, 11 IS	FY10	CATEX	A2.3.11
FTEV973016	Hydrant Fueling System	FY10	GPEA	-
FTEV993031	605 Test & Evaluation AF Warfare Simulation Facility	FY11	GPEA	-
FTEV023013	ADAL USAFSOS Facility	FY11	GPEA	-
FTEV013021	25 th IS Operations Facility	FY12	GPEA	-
FTEV063007	Air Education and Training Command Dormitory (50 Rooms)	FY12	CATEX	A2.3.11

Project Number	Project Title	Fiscal Year	Method of Analysis	CATEX Number
FTEV063010	505 CCW Warfighting HQ Training Center/Sensitive Compartmented Information Facility	FY12	EA with FONSI May 03	-
FTEV043000	Refuel Vehicle Maintenance	FY10	GPEA	-
FTEV073021	Widen Independence Road Phase II - Tully to Loop Rd (1st Phase Cody to Tully)	~FY16	GPEA	-
FTEV973009	HQ Operations Group/Operations Support Facility	FY	GPEA	-
FTEV033013	Widen Independence Road	FY	GPEA	-
FTEV033015	Realign Cruz Avenue, Phase 2	FY	GPEA	-

Six planned growth renovation and/or construction projects were not previously evaluated in the General Plan EA. These projects are to be evaluated in this EA as part of the Proposed Action. The projects are listed in **Table 2-4** and the locations are provided in **Figures 1-4 thru 1-8**. The proposed fiscal year for construction completion is provided as well as the total estimated square feet (ft²) of construction, renovation, or demolition, including any associated parking lots. A discussion of each project follows **Table 2-4**.

Table 2-4 Construction Projects

Project Number	Project Title	Fiscal Year	Bldg Constructed, Renovated, or Demolished (ft ²)	Estimated Parking Lot (ft ²)	Total Area Constructed, Renovated, or Demolished (ft ²)
FTEV071091A	SOF ADAL Hangar, 319 SOS, Bldg 90815	FY08	2,500 (Renovation)	0	2,500
FTEV071091B	Repair Hangar, 319 SOS, Bldg 90815	FY09	14,980 (Renovation)	0	14,980
FTEV073011	New Hot Cargo Taxiway	FY10	0	48,750	48,750
FTEV073009	SOF Light Aircraft Squadron Operations and MX Facility	FY10	67,490 (Construction)	35,000	102,490
FTEV043016	Base Logistics Facility	FY10	155,054 (Construction) 125,647 (Demolition)	87,741	368,442
FTEV073010	SOF Fuel Cell MX Hangar	FY13	24,994 (Construction)	25,000	49,994

Source: Hurlburt Field personnel

Add/Alter and Repair Building 90815 for 319 SOS - Bldg 90815 is located off Cruz Avenue, east of Bldg 90812 on the westside aircraft parking apron (**Figure 1-4**). Bldg 90815 was originally constructed in 1959 as a hangar. It once contained two C-123 nose docks, and the hangar bays are just large enough to fully enclose a U-28A or PC-12. The building has since been converted into a storage/office facility. The hangar doors were welded shut and smaller roll-up doors were installed. The 319 SOS is a new squadron that began initial operation in 2005. The creation of the 319 SOS was directed as an immediate combat need. The 319 SOS has taken possession of this facility and needs the

facility converted back to a hangar to support aircraft maintenance and supply. In the first phase of the project, FTEV071091A, new hangar doors would be installed and other interior renovations made to convert the facility back to a usable hangar. The second phase of the project, FTEV071091B, would repair the heating and air conditioning and fire suppression system. The second phase would also modify the interior of the building to make the office space functional.

New Hot Cargo Taxiway - Hot Cargo Taxiway Bravo has an associated QD arc of 1,250 feet. The QD arc is instituted as a minimum safe distance for the loading and unloading of live ordnance. The presence of the QD arc associated with Taxiway Bravo precludes development of vacant land adjacent to the airfield. To accommodate the safe loading and unloading of live ordnance and to allow for future development along the airfield, an additional taxiway is proposed north of Taxiway Bravo, between Taxiway Alpha and Taxiway Bravo (**Figure 1-5**). Vacant land adjacent the airfield could then be utilized for proposed growth at Hurlburt Field, including a portion of the proposed location for the Light Aircraft Squadron Operations and Maintenance facility for the 319 SOS.

Light Aircraft Squadron Operations and Maintenance Facility - The proposed Light Aircraft Squadron Operations and Maintenance Facility for the 319 SOS would be located east of the vicinity of Bldg 90809 (**Figure 1-6**). This facility is needed to accommodate the proposed growth of the 319 SOS and to eliminate the need for a leased hangar for major maintenance at a civilian airfield approximately 100 miles away. The existing facilities are inadequate and undersized for the proposed growth of the unit. The proposed facility would include hangar space for aircraft inspection, maintenance and repair, including indoor aircraft jacking, flight control replacement, rigging, and other heavy maintenance. This hangar would also house support sections for bench stock, avionics, and a dedicated supply support unit. It would also provide space to plan, brief, and direct flight operations, as well as space to maintain, store, and issue flight and life support clothing and equipment. AT/FP measures would be incorporated into the design and construction. This location would impact approximately two acres of wetlands.

Base Logistics Facility – The proposed Base Logistics Facility for the 1 SOLRS would be located just west of Bldg 90802 at the intersection of Red Horse Road and Hamby Place within the aircraft operations/industrial area on the west side of the airfield (**Figure 1-7**). This facility is needed to replace the existing facility (Bldg 90710), which is inadequate and undersized for the 1 SOLRS. The existing logistics supply warehouse is over 50 years old and has had two additions. The warehouse is inadequate to support the planned growth of HQ AFSOC and the 1 SOW. The warehouse portion of the logistics facility (Bldg 90710), which is approximately 125,647 ft², would be demolished.

Hurlburt Field is the site of three new Consolidated Repair Facilities (CRFs) that perform depot maintenance on avionics, engines/propellers, and isochronal inspections on all

AFSOC C-130 aircraft. The CRFs will create a 30% increase in receipt, storage and delivery of aircraft parts and supplies, which would overwhelm the existing warehouse. The proposed facility would include functional space for traffic management; a general supply warehouse for bulk/bin storage, contractor administration and warehouse offices, and inspection, pickup, and delivery activities; Mobility Readiness Spares Package; aircraft parts store; war readiness materials; and command and staff offices. AT/FP measures would be incorporated into the design and construction. The facility would be capable of certification under Leadership in Energy and Environmental Design standards, a third-party certification program and the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. This location would impact approximately seven acres of wetlands and one acre of floodplain.

Fuel Cell Maintenance Hangar – The proposed Fuel Cell Maintenance Hangar for the C-130 and CV-22 would be near the northeast corner of the eastside aircraft parking apron and north of Bldg 91262 (**Figure 1-8**). This facility is needed since Hurlburt Field has only one fuel cell hangar, which is already used to capacity by the C-130. The current fuel cell hangar can not adequately support fuel cell maintenance for the new CV-22. As the CV-22 fleet grows to operational levels, fuel cell maintenance will be a significant restriction on combat readiness. The proposed fuel cell hangar would consist of a fuel cell repair area, shop space, and support space for heating, plumbing, latrines, ventilation, compressed air, and fire detection and suppression. AT/FP measures would be incorporated into the design and construction. This location would impact approximately 0.5 acres of previously permitted wetlands and 1.1 acres of floodplain.

2.2 Alternatives

In accordance with NEPA; AFD 32-70, *Environmental Quality*; and AFI 32-7061, *The Environmental Impact Analysis Process*, implemented in 32 CFR 989, the Air Force must analyze reasonable alternatives to the Proposed Action and the No-Action Alternative. Reasonable alternatives are those that meet the underlying purpose and need for the Proposed Action and cause a reasonable person to inquire further before choosing a particular course of action. Alternatives may be eliminated from detailed analysis based on operational concerns, technical standards, environmental standards, or other factors applicable to a particular project.

2.2.1 Construction Projects

An alternative for each of the six construction projects evaluated in this EA is provided. These alternatives are listed in **Table 2-5** and described below. The locations are provided in **Figures 1-4 to 1-8**. The proposed fiscal year for construction completion is provided as well as the total estimated square feet of construction, renovation, or demolition, including any associated parking lots.

Table 2-5 Alternative Construction Projects

Project Number	Project Title	Fiscal Year	Bldg Constructed, Renovated, or Demolished (ft ²)	Estimated Parking Lot (ft ²)	Total Area Constructed, Renovated, or Demolished (ft ²)
FTEV071091A	SOF ADAL Hangar, 319 SOS, Bldg 90815	FY08	0	0	0
FTEV071091B	Repair Hangar, 319 SOS Bldg 90815	FY09	0	0	0
FTEV073011	New Hot Cargo Taxiway	FY10	0	97,500	97,500
FTEV073009	SOF Light Aircraft Squadron Operations and MX Facility	FY10	67,490 (Construction) 9,362 and 14,980 (Demolition)	35,000	126,832
FTEV043016	Base Logistics Facility	FY10	155,054 (Construction) 125,647 (Demolition)	87,741	368,442
FTEV073010	SOF Fuel Cell MX Hangar	FY13	48,651 (Renovation)	0	48,651

Source: Hurlburt Field personnel

Add/Alter and Repair Building 90815 for 319 SOS – The Alternative to this Proposed Action would be to utilize existing hangars, Bldgs 91262 and 91266 [construction date 1999, both facilities] (**Figure 1-4**), for the maintenance of the 319 SOS aircraft and the CV-22 aircraft. No construction or renovation would take place under this Alternative. This Alternative, while feasible, would create logistical problems since the existing hangars are continuously used to capacity for CV-22 aircraft maintenance.

New Hot Cargo Taxiway – The Alternative to this Proposed Action would be to construct a new hot cargo loading ramp northwest of Taxiway Alpha (**Figure 1-5**). This would provide unrestricted access to the departure end of Runway 18 for other aircraft. The area northwest of Taxiway Alpha is low-lying wetland that would require substantial backfill and is within the 100-year floodplain. The necessary area of such a ramp would be twice that of the Preferred Alternative Hot Cargo Taxiway (approximately 97,500 ft² or 2.2 acres), and costs are estimated at approximately three times that of the Preferred Alternative. This location would impact approximately 2.2 acres of wetlands and floodplain.

Light Aircraft Squadron Operations and Maintenance Facility – The Alternative to this Proposed Action would be to demolish Bldgs 90812 [construction date 1988] (9,362 ft²) and 90815 [construction date 1968] (14,980 ft²) (**Figure 1-6**) to create a site for the Light Aircraft Squadron Operations and Maintenance facility. The new facility and parking lot would be the same size as the Preferred Alternative (102,490 ft²). This Alternative, while feasible, would create a problem due to lack of available constraint-free space along the airfield to move the current users and aircraft associated with Bldg 90812 and 90815 in order to sequence the demolition and new construction.

Base Logistics Facility – The Alternative to this Proposed Action Construction Projects would be to construct the new Base Logistics Facility on the south side of Tully Street south of Bldg 90531 (**Figure 1-7**). The total area constructed would be the same as the Preferred Alternative (368,442 ft²). This Alternative would also include the demolition of the warehouse portion of Bldg 90710. This Alternative, while feasible, would not be as close to the majority of users as it is outside the aircraft operations/industrial area on the west side of the airfield, and inadequate roads to the alternate location limit accessibility. This location would impact approximately three acres of wetlands.

Fuel Cell Maintenance Hangar for CV-22 – The Alternative to this Proposed Action would be to renovate Bldg 91262 (48,651 ft²) to be able to accommodate fuel cell maintenance, including fire suppression, explosive proofing the hangar bay, the installation of exhaust vents, and other renovations (**Figure 1-8**). This Alternative, while feasible, would create short- and long-term logistical issues for scheduling regular maintenance for the CV-22, since Bldg 91262 is currently used to capacity for this purpose.

2.2.2 No-Action Alternative

The No-Action Alternative is carried forward for analysis as a baseline against which the impacts of the Proposed Action and Alternatives can be evaluated. Under the No-Action Alternative, Hurlburt Field would not implement the proposed Planned Growth, as described in this EA. In general, implementation of the No-Action Alternative would

require Hurlburt Field to operate under substandard, inefficient, and in some cases unsafe conditions. In addition, Hurlburt Field would not be able to ensure its readiness for future national defense and homeland security requirements.

2.3 Alternatives Eliminated from Further Study

Four additional Alternatives were considered and eliminated from further study:

- 1) Partial increase in personnel and aircraft
- 2) New hangar construction in lieu of add/alter and repair at Bldg 90815
- 3) Use of Taxiway Alpha in lieu of New Hot Cargo Taxiway
- 4) Continued lease of an off-base hangar for light aircraft maintenance

The following sections discuss each Alternative and why they were eliminated from further study.

2.3.1 Partial Increase in Personnel and Aircraft

A partial increase in the number of personnel and aircraft was considered, but determined not to be feasible for operational reasons. The need for special operations personnel has increased over the years, particularly for the “Overseas Contingency Operations,” to the point that existing personnel cannot handle the current and foreseeable future workload. The personnel and aircraft increases identified in **Section 2.1.1** represent the minimum number of personnel required to accomplish activities to meet current and foreseeable future mission requirements.

2.3.2 Add/Alter and Repair Building 90815 for 319 SOS

Construction of a new hangar for the 319 SOS was an Alternative that was considered, but determined not to be reasonable due to mission requirements. The 319 SOS is a new squadron that began initial operation in 2005. The creation of the 319 SOS was directed as an immediate combat need. No funding for design and construction for a hangar was authorized when the squadron was created. The 319 SOS required hangar space immediately to maintain their aircraft. Without the modification to Bldg 90815, the 319 SOS would not be able to accomplish the necessary aircraft maintenance and thus would not be able to accomplish their mission. Therefore, waiting for the construction of a new hangar for the 319 SOS in lieu of the add/alter and repair of Bldg 90815 is not a reasonable alternative.

2.3.3 New Hot Cargo Taxiway

Hurlburt Field considered utilizing Taxiway Alpha, the northernmost taxiway on the airfield, as the only hot cargo taxiway, but determined this was not reasonable for

operational reasons. This option would support the mission if no other taxi operations were expected during the thirty minutes or more that ordnance loading is in progress. However, during peak training periods, using Taxiway Alpha for thirty minutes or more four to eight times daily would be unacceptable, as that would prevent other aircraft from taxiing to the departure end of Runway 18 to use the entire length of runway, which is required for the larger aircraft based at Hurlburt Field and larger transient aircraft. Absence of the full runway length would be a flight safety hazard. Since this Alternative is not reasonable under all conditions, it was not carried further in evaluation.

2.3.4 Light Aircraft Squadron Operations and Maintenance Facility

2.3.4.1 Continued Lease of Maintenance Hangar

The 319 SOS currently leases an aircraft maintenance hangar located approximately 100 miles from Hurlburt Field. The continued lease of this maintenance hangar was considered, but determined not to be reasonable due to logistical, operational, and security reasons as it creates significant logistical impediments and a loss of operational control in addition to security concerns. The leased facility and parking area would require renovations to meet the current DoD AT/FP standards found in *Unified Facilities Criteria, DoD Minimum Antiterrorism Standards for Buildings* (DoD, 2007) and AFI 31-210, *The Air Force Antiterrorism/Force Protection Program Standards*. Additionally, as shown in Table 2-2, the 319 SOS aircraft inventory will increase from ten in FY07 to 25 in FY13. The existing facilities both on Hurlburt Field and the leased hangar would not accommodate the proposed personnel and aircraft growth of the 319 SOS. Therefore, this Alternative is not reasonable since the 319 SOS would not be able to accomplish their mission in the existing facilities.

2.4 Decision to be Made and Identification of the Preferred Alternative

In this PGEA, Hurlburt Field will evaluate whether the Proposed Action would result in any significant impacts. If such impacts are predicted, Hurlburt Field would mitigate to reduce impacts below the level of significance, undertake the preparation of an EIS addressing the Proposed Action, or abandon the Proposed Action. The PGEA will also be used to guide Hurlburt Field in implementing the Proposed Action in a manner consistent with USAF standards for environmental stewardship. The Preferred Alternative for the Proposed Action is the implementation of all the Planned Growth activities identified in Sections 2.1.1 and 2.1.2.

3.0 AFFECTED ENVIRONMENT

This section presents information on environmental conditions for resources potentially affected by the Proposed Action and the Alternative Action described in **Section 2.0**. Under the NEPA, analysis of environmental conditions should address only those areas and environmental resources with the potential to be affected by the Proposed Action or Alternatives. Locations and resources with no potential to be affected need not be analyzed. The topics evaluated in this section and subsequently analyzed in **Section 4.0** were selected based on their relevance, as described in **Section 1.0**. For the analyses in this EA, baseline conditions represent the status of Hurlburt Field in 2007.

3.1 Air Quality

3.1.1 Definition

Air Pollutants and Regulations

The CAA of 1970 directed the United States Environmental Protection Agency (USEPA) to develop, implement, and enforce strong environmental regulations that would ensure cleaner air for all Americans. In order to protect public health and welfare, the USEPA developed concentration-based standards called National Ambient Air Quality Standards (NAAQS). The USEPA established both primary and secondary NAAQS under the provisions of the CAA. Primary standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary standards define air quality levels necessary to protect public welfare (i.e., soils, vegetation, property, and wildlife) from any known or anticipated adverse effects. NAAQS currently are established for six air pollutants (known as criteria air pollutants) including carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O₃), sulfur oxides (SO_x), measured as sulfur dioxide [SO₂], lead (Pb), and particulate matter. Particulate matter standards incorporate two particulate classes: (1) particulate matter with an aerodynamic diameter less than or equal to 10 micrometers [PM₁₀] and (2) particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers [PM_{2.5}].

The CAA does not make the NAAQS directly enforceable; however, the CAA does require each state to promulgate a State Implementation Plan (SIP) that provides for implementation, maintenance, and enforcement of the NAAQS in each air quality control region (AQCR) in the state. The CAA Amendments of 1990 are currently the comprehensive Federal legislation regulating the prevention and control of air pollution. Title I of the CAA requires Federal actions to conform to the provisions of the approved SIP, which is developed and maintained by the FDEP under Chapter 62 of the FAC. Title V of the CAA requires identification and characterization of emissions from all minor sources, including aircraft maintenance facilities, fuel storage tanks, and emissions from aircraft and motor vehicles.

The USEPA classifies the air quality within an AQCR according to whether or not the concentration of criteria air pollutants in the atmosphere exceeds primary or secondary NAAQS. All areas within each AQCR are assigned a designation of attainment, nonattainment, maintenance, unclassifiable attainment, or not designated attainment for each criteria air pollutant. An attainment designation indicates that the air quality within an area is as good as or better than the NAAQS. Nonattainment indicates that air quality within a specific geographical area exceeds applicable NAAQS. Maintenance indicates that an area was previously designated nonattainment but is now attainment. Unclassifiable and not designated indicate that the air quality cannot be or has not been classified on the basis of available information as meeting or not meeting the NAAQS. Areas designated as unclassifiable or not designated are treated as attainment (CAA, 1990).

As promulgated in the FAC 62-204.240, the State of Florida has adopted each of the NAAQS as the Florida standards except for SO₂, for which state standards are more restrictive than the NAAQS, as listed in **Table 3-1**. The standards are reported in parts per million (ppm) or milligram per cubic meter (mg/m³).

Table 3-1 National and State Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Primary NAAQS ^{a,b,c}	Secondary NAAQS ^{a,b,d}	Florida Standards ^{a,b,e}
Carbon Monoxide	8-hour 1-hour	9 ppm (10 mg/m ³) 35 ppm (40 mg/m ³)	No standard No standard	9 ppm (10 mg/m ³) 35 ppm (40 mg/m ³)
Lead	Quarterly	1.5 µg/m ³	1.5 µg/m ³	1.5 µg/m ³
Nitrogen Oxides	Annual	0.0543 ppm (100 µg/m ³)	0.0543 ppm (100 µg/m ³)	0.0543 ppm (100 µg/m ³)
Ozone	1 hour ^e	0.12 ppm (235 µg/m ³)	0.12 ppm (235 µg/m ³)	0.12 ppm (235 µg/m ³)
PM ₁₀ ^e	Annual 24-hour	50 µg/m ³ 150 µg/m ³	50 µg/m ³ 150 µg/m ³	50 µg/m ³ 150 µg/m ³
Sulfur Oxides (measured as SO ₂)	Annual 24-hour 3-hour	0.03 ppm (80 µg/m ³) 0.14 ppm (365 µg/m ³) No standard	No standard No standard 0.50 ppm (1,300 µg/m ³)	0.02 ppm (60 µg/m ³) 0.10 ppm (260 µg/m ³) 0.50 ppm (1300 µg/m ³)

ppm- parts per million

PM₁₀ Particles with aerodynamic diameters less than or equal to a nominal 10 micrometers

µg/m³ microgram per cubic meter

^a The 8-hour primary and secondary ambient air quality standards are met at a monitoring site when the average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.08 ppm.

^b The NAAQS and Florida standards are based on standard temperature of 0 degrees Celsius and standard pressure of 760 millimeters of mercury.

^c National Primary Standards: The levels of air quality necessary to protect the public health with an adequate margin of safety. Each state must attain the primary standards no later than three years after the SIP is approved by the USEPA.

^d National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the SIP is approved by the USEPA.

^e PM_{2.5} Standard is in effect, but PM_{2.5} SIPs are not anticipated to be final until mid-2008.

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 result in the following: 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% of the AQCR’s total emissions inventory for that nonattainment pollutant. If a Federal action does not meet or exceed the *de minimis* thresholds and is not considered regionally significant, then a full Conformity Determination is not required. Okaloosa County is in attainment for all criteria pollutants; therefore, the Conformity Rule does not apply to Hurlburt Field.

Title V of the CAA requires state 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 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” O₃ nonattainment area is 10 tpy of potential Volatile Organic Compound (VOC) or NO_x emissions. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality.

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be “significant” if (1) a proposed project is within 10 kilometers of any Class I area and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1.0 micrograms per cubic meter (µg/m³) or more (40 CFR 52.21(b)(23)(iii)). PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s designation as Class I, II, or III (40 CFR 52.21(c)). Hurlburt Field is not within 10 kilometers of a Class I area; therefore, the PSD regulations do not apply.

Greenhouse Gases

Other Air Pollutants of concern generated at Hurlburt Field are greenhouse gases. Many gases found in the Earth’s atmosphere act as greenhouse gases. These gases allow sunlight to enter the atmosphere freely. When sunlight hits the Earth’s surface, some of sunlight is reflected back towards space as infrared radiation (heat). Greenhouse gases trap the heat in the atmosphere. Over time, the amount of energy sent from the sun to the Earth’s surface should be about the same as the amount of energy radiated back into space, leaving the temperature of the Earth’s surface roughly constant. Some greenhouse gases occur naturally and are emitted into the atmosphere through natural processes. Other greenhouse gases, created and emitted only through human activity, have increased over 25% in the last 150 years of industrial activity. Rising concentrations of greenhouse gases produce an increase in the average surface temperature of the Earth over time.

Rising temperatures may, in turn, produce changes in precipitation patterns, storm severity, and sea level, all of which are collectively referred to as “climate change.”

The primary greenhouse gases that enter the atmosphere from activities at Hurlburt Field are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. The sources of CO₂ are created through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products and as a result of other chemical reactions (e.g., manufacture of cement). Plants and oceans absorb and remove CO₂ from the atmosphere. The production and transportation of coal, natural gas, and oil release CH₄ into the atmosphere. The decay of organic waste in municipal solid waste landfills also releases CH₄ into the atmosphere. Emission sources of N₂O result from industrial activities, the combustion of fossil fuels and solid waste, agricultural activities, and through reactions with fertilizers containing nitrogen. Fluorinated gases (such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are powerful synthetic greenhouse gases that are released into the atmosphere from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone depleting substances. Even though these gases are emitted in small quantities, they are potent greenhouse gases and are sometimes referred to as High Global Warming Potential Gases (National Energy Information Center [NEIC], 2004).

Global Warming Potential (GWP) is defined as follows:

The total impact over time of adding a unit of a greenhouse gas to the atmosphere. It is calculated by multiplying effect of the instantaneous radiative forcing by the concentration of gas added and integrating over time from 0 to some arbitrary time period, *T*. Carbon dioxide, for instance, has relatively low radiative forcing but a very high volume of gas annually added to the atmosphere and a long atmospheric lifetime, so it has a very high GWP. Fluorinated gases on the other hand have low concentrations but very high radiative forcing factors and very large lifetimes, so they also have very high GWPs. (Takle, E. S., 1997)

Greenhouse gas emissions are sometimes expressed as CO₂ equivalent emissions. The Intergovernmental Panel on Climate Change (IPCC) states a carbon dioxide equivalent emission is “The amount of CO₂ emission that would cause the same radiative forcing as an emitted amount of a well mixed greenhouse gas, or a mixture of well mixed greenhouse gases, all multiplied with their respective GWPs to take into account the differing times they remain in the atmosphere” (IPCC, 2007).

In April 2007, the US Supreme Court concluded (*Massachusetts v. EPA*, 549 U.S. 497) that greenhouse gases meet the definition of air pollutants under the CAA and that the

EPA has the authority to regulate these types of emissions. Regulations for automobile and other sources of greenhouse gases under the CAA are pending (USEPA, 2009).

3.1.2 Existing Conditions

Hurlburt Field is located in Okaloosa County and is within the jurisdiction of the FDEP Northwest District. Okaloosa County is located in the Mobile (Alabama), Pensacola-Panama City (Florida), Southern Mississippi Interstate AQCR, as defined in 40 CFR Part 81.68, also known as AQCR 5. Okaloosa County, including Hurlburt Field, is designated as in attainment for O₃, CO, SO₂, and NO_x and is unclassifiable for PM₁₀ and Pb (USAF, 2005a). Therefore, for the purposes of this analysis, the region of influence (ROI) is Okaloosa County.

Aircraft, on- and off-road vehicles, and aerospace ground equipment represent the major mobile source of air emissions at Hurlburt Field. Major stationary sources of air pollution on Hurlburt Field include aircraft refueling, storage tanks, vehicle refueling, architectural and industrial maintenance coatings, aircraft engine test cells, natural gas-fired boilers, fugitive emissions, and auxiliary power generators. Currently, Hurlburt Field is classified as a “synthetic minor air pollution source.” The synthetic minor source designation applies to sources that have the physical and operational capability to emit major source levels of pollutants, but are not considered major sources because the owner/operator has accepted an enforceable limitation. This designation allows Hurlburt Field to operate without a Title V permit at reduced levels of regulatory screening, and it limits allowable emissions to levels below the major source value (USAF, 2005a). Hurlburt Field was issued a Federally enforceable State Air Operating Permit, Permit No. 0910064-008-AF, effective on September 5, 2007 (expiration September 5, 2012). Hurlburt Field emissions are limited to 41.2 tpy of NO_x and 16.9 tpy of VOCs, excluding emissions from exempt activities. This permit has the following throughput limits per consecutive 12-month period:

- 50,000,000 gallons of jet fuel
- 1,000,000 gallons of diesel
- 62,500 gallons of jet fuel for aircraft engine testing
- 4,600 gallons of surface coating applied at the paint booths
- 1,880,000 kW hours for auxiliary generator power at the training exercise facility

An air emissions inventory is an estimate of total mass emissions of pollutants generated from a source or sources over a period of time, typically a year. The quantity of air pollutants is generally measured in tons or pounds per year. Emission sources are categorized as point, area, or mobile emission sources. Point sources are stationary sources which can be identified by name and operated at a fixed location. Area sources are stationary sources of emissions too small to track individually, such as gas stations,

small office buildings, or open burning associated with agriculture, forest management, and land clearing activities. Mobile sources are vehicles or equipment with gasoline or diesel engines, e.g., an airplane or a ship. Mobile sources are divided into two types, on-road and non-road. On-road mobile sources are vehicles such as cars, light trucks, heavy trucks, buses, engines, and motorcycles. Non-road sources are aircraft, locomotives, diesel and gasoline boats and ships, personal watercraft, lawn and garden equipment, agricultural and construction equipment, and recreational vehicles. The 2002 emission inventory data for Okaloosa County, which includes Hurlburt Field (USEPA, 2002) are provided in **Table 3-2** and include point, area, and mobile data.

Table 3-2 Estimated 2002 Baseline Emissions Inventory, Okaloosa County

Criteria Air Pollutant	CO (tpy)	NO _x (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	SO ₂ (tpy)	VOC (tpy)
Point Sources	28	49	8	6	12	79
Area Sources	35,379	645	7,522	3,441	998	12,357
On-road Mobile	45,439	5,715	153	113	256	4,182
Non-road Mobile	15,776	1,505	171	157	165	2,619
Total	96,622	7,914	7,854	3,717	1,431	19,237

Source: Okaloosa County data summarized from USEPA's AirData for 2002 (<http://www.epa.gov/air/data/index.html>)

The FDEP has prepared a preliminary inventory of greenhouse gas emissions during the period from 1990 to 2005 (FDEP, 2008). The preliminary inventory includes greenhouse gas emissions from the following sectors:

- Energy sector (CO₂ emissions from fossil fuel combustion)
- Industrial processes
- Natural gas and oil systems
- Coal mining
- Solid waste disposal
- Domesticated animals
- Manure management
- Flooded rice fields
- Agricultural soils
- Forest management
- Burning of agricultural crop wastes

- Municipal wastewater
- Methane and N₂O emissions from mobile source combustion
- Methane and N₂O emissions from stationary source combustion

The estimated 2005 summary of greenhouse gas emissions for the State of Florida is presented in **Table 3-3**. The values in Table 3-3 are expressed in million metric tons of CO₂ equivalent (MMT_{CO₂E}). A greenhouse gas emission inventory has not been completed for Hurlburt Field.

Table 3-3 Estimated 2005 Summary of Greenhouse Gas Emissions for the State of Florida

Greenhouse Gases	CO ₂ (MMT _{CO₂E})	CH ₄ (MMT _{CO₂E})	N ₂ O (MMT _{CO₂E})	Fluorinated Gases (MMT _{CO₂E})
State of Florida	268.65	10.23	6.45	8.33

Source: FDEP, 2008

3.2 Noise

3.2.1 Definition

Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. The meaning of noise for this analysis is undesirable sound that interferes with verbal communication and hearing or is otherwise annoying (unwanted sound). Human response to increased noise levels varies according to the source type, characteristics of the noise source, distance between source and receptor, receptor sensitivity, and time of day.

Sound is measured with instruments that record instantaneous sound levels in decibels (dB). Sound level measurements used to characterize sound levels that can be sensed by the human ear are designated “A-weighted” (dBA). A-weighted denotes the adjustment of the frequency content of a noise event to represent the way in which the average human ear responds to the noise event. All sound levels analyzed in this EA are A-weighted.

Noise levels used to characterize community noise effects from such activities as aircraft or building construction are measured in the day-night average A-weighted sound level (DNL). The DNL metric accounts for the greater annoyance of noise during nighttime

hours and is calculated by averaging hourly sound levels for a 24-hour period and adding a weighting factor to the nighttime values.

In June 1980, the Federal Interagency Committee on Urban Noise (FICUN) published *Noise Fundamentals Training Document Highway Noise Measurement and Guidelines for Considering Noise in Land Use Planning and Control* (FICUN, 1980) relating DNL values to compatible land uses. Most Federal agencies have identified 65 dB DNL as a criterion that protects those most affected by noise and that can often be achieved on a practical basis.

Most people are exposed to sound levels of DNL 50 to 55 dBA or higher on a daily basis. Noise levels in residential areas vary depending on the housing density and location. As shown on **Table 3-4**, a normal suburban area is about 55 dBA, which increases to 60 dBA for an urban residential area and 80 dBA in the downtown section of a city.

Table 3-4 Typical Outdoor Noise Levels

Day-Night Noise Level	Location
50 dBA	Residential area in a small town or quiet suburban area
55 dBA	Suburban residential area
60 dBA	Urban residential area
65 dBA	Noisy urban residential area
70 dBA	Very noisy urban residential area
80 dBA	City noise (downtown of major metropolitan area)
88 dBA	3rd floor apartment in a major city next to a freeway

Source: Federal Highway Administration, 1980

3.2.2 Existing Conditions

The primary sources of noise at Hurlburt Field are airfield operations, industrial activities, and vehicular traffic. A noise study was conducted at Hurlburt Field in 2005 to construct noise contours for airfield operations at the installation. The facility is exempt from a formal Air Installation Compatibility Use Zones (AICUZ) study, as noise levels above an established threshold are confined to properties of Hurlburt Field or Eglin AFB (Lattanze, 2008). A noise study is currently underway at Hurlburt Field. The 2005 and 2008 noise contours for Hurlburt Field are presented in dBA DNL as provided in **Figure 3.1**. The noise guidelines established for land use planning at Hurlburt Field are essentially the same as those published in the June 1980 FICUN publications. Based on these guidelines, the maximum acceptable noise level for most residential land uses is considered to be 65 dBA DNL (USAF, 2007c).

Aircraft noise generally presents little problem in relation to land use on Hurlburt Field. The existing 65 dBA noise contours from aircraft activities on the Hurlburt Field airfield are shown as completely contained on the installation, a small unpopulated portion of Eglin AFB just north of Hurlburt Field, or extending to the south over water areas and a portion of Santa Rosa Island that is owned by Eglin AFB and into the Gulf of Mexico, as provided in **Figure 3.1**. The corresponding average daily airfield operations for 2005 and 2008 are provided in **Tables 3-5** and **3-6**, respectively. These noise contours do not affect any off-installation developed areas but could impact recreational boaters in the area (USAF, 2005a).

Table 3-5 Hurlburt Field 2005 Average Aircraft Daily Operations

Aircraft	Arrivals			Departures			Closed Patterns			Total Daily Operations		
	0700-2200	2200-0700	Total	0700-2200	2200-0700	Total	0700-2200	2200-0700	Total	0700-2200	2200-0700	Total
AC-130U	2.2350	2.9150	5.1500	4.6350	0.5150	5.1500	4.1980	1.6460	5.8440	15.2660	6.7220	21.9880
Fixed Wing Aircraft	1.8830	0.2090	2.0920	2.0920	0.0000	2.0920	3.0000	0.0000	3.0000	9.9750	0.2090	10.1840
Helicopters	1.0380	0.1160	1.1540	1.1540	0.0000	1.1540	9.2310	0.0000	9.2310	20.6540	0.1160	20.7700
MC-130H Talon II	1.6000	1.2000	2.8000	2.8000	0.0000	2.8000	4.9460	0.6000	5.5460	14.2920	2.4000	16.6920
C-130E	0.1260	0.0140	0.1400	0.1400	0.0000	0.1400	1.3530	0.0000	1.3530	2.9720	0.0140	2.9860
AC-130H	0.8450	1.2270	2.0720	2.0720	0.0000	2.0720	1.5170	0.8260	2.3430	5.9510	2.8790	8.8300
PC-12	2.2500	0.2500	2.5000	2.5000	0.0000	2.5000	9.0000	0.0000	9.0000	22.7500	0.2500	23.0000
MH-53	3.2000	0.0000	3.2000	3.2000	0.0000	3.2000	20.5630	1.1370	21.7000	47.5260	2.2740	49.8000
Transient Aircraft	2.0820	0.2270	2.3090	2.1110	0.1980	2.3090	8.3350	0.6650	9.0000	20.8630	1.7550	22.6180
Total	15.2590	6.1580	21.4170	20.7040	0.7130	21.4170	62.1430	4.8740	67.0170	160.2490	16.6190	176.8680

Source: Lester, 2009

Total Daily Operations = Total Arrivals + Total Departures + (2 X Total Closed Patterns)

Table 3-6 Hurlburt Field 2008 Average Aircraft Daily Operations

Aircraft	Arrivals			Departures			Closed Patterns			Total Daily Operations		
	0700-2200	2200-0700	Total	0700-2200	2200-0700	Total	0700-2200	2200-0700	Total	0700-2200	2200-0700	Total
AC-130U	3.8300	0.3200	4.1500	3.8300	0.3200	4.1500	3.1160	0.3040	3.4200	13.8920	1.2480	15.1400
UH-1H	0.4750	0.0250	0.5000	0.5000	0.0000	0.5000	3.1580	0.0000	3.1580	7.2910	0.0250	7.3160
UH-1N	0.4750	0.0250	0.5000	0.5000	0.0000	0.5000	3.1580	0.0000	3.1580	7.2910	0.0250	7.3160
MI17 & other Helos	0.4385	0.0231	0.4616	0.4615	0.0000	0.4615	2.9150	0.0000	2.9150	6.7300	0.0231	6.7531
C-130E	0.6295	0.0305	0.6600	0.6520	0.0080	0.6600	1.9800	0.0000	1.9800	5.2415	0.0385	5.2800
AN-26/BT67	0.1620	0.0080	0.1700	0.1620	0.0080	0.1700	0.5100	0.0000	0.5100	1.3440	0.0160	1.3600
Casa 212	0.1620	0.0080	0.1700	0.1620	0.0080	0.1700	0.5100	0.0000	0.5100	1.3440	0.0160	1.3600
MC-130H Talon II	1.9400	0.0000	1.9400	2.0000	0.0000	2.0000	4.0560	0.0240	4.0800	12.0520	0.0480	12.1000
AC-130H	2.1000	0.1000	2.2000	2.2000	0.0000	2.2000	4.1080	0.3120	4.4200	12.5160	0.7240	13.2400
RC-26	2.4168	0.0244	2.4412	2.4046	0.0366	2.4412	9.0000	0.0000	9.0000	22.8214	0.0610	22.8824
PC-12/U-28A	5.9230	0.4800	6.4030	6.0510	0.3520	6.4030	8.5500	0.4500	9.0000	29.0740	1.7320	30.8060
CV-22	3.3800	0.0000	3.3800	3.3330	0.0000	3.3330	0.3330	0.0000	0.3330	7.3790	0.0000	7.3790
Transient Aircraft	3.7230	0.1020	3.8250	3.7400	0.0850	3.8250	4.0730	0.0000	4.0730	15.6090	0.1870	15.7960
Total	25.6548	1.1460	26.8008	25.9961	0.8176	26.8137	45.4670	1.0900	46.5570	142.5849	4.1436	146.7285

Source: Lester, 2009

Total Daily Operations = Total Arrivals + Total Departures + (2 X Total Closed Patterns)

3.3 Land Use

3.3.1 Definition

Land use refers to the classification of land on the basis of natural conditions and the types of human activity occurring thereon. Land use planning integrates natural environments and the human activities that take place in and around them. Proper land use planning considers the functional interrelationship between natural conditions and human activities in addition to the types of human activities in and the land use of adjacent and proximal areas (Hurlburt Field, 2007a).

3.3.2 Existing Conditions

Off-Base Land Use

The areas immediately surrounding Hurlburt Field (Florosa, Mary Esther, and Fort Walton Beach) have been designated as partially or fully developed low-density, single-family residential, and mixed use. A thin section of commercial land borders Highway 98. The region of influence for land use impacts of the Proposed Action is primarily those areas surrounding Hurlburt Field for which long-range land use plans are classified as low-density, single-family residential with a small area slated to remain undeveloped.

Hurlburt Field works continuously with Okaloosa County and the cities of Fort Walton Beach and Mary Esther to ensure that the Hurlburt Field mission has limited impact on local development and to ensure that off-base development does not impact the mission. Additionally, these local governments work closely with Hurlburt Field staff to ensure the military mission remains strong and has a positive impact locally. Hurlburt Field representatives participate on several local government boards, including the Fort Walton Beach Transportation Planning Organization, the Okaloosa Comprehensive Planning Committee, and the Okaloosa County Aviation Advisory Board. Hurlburt Field partners with Eglin AFB to ensure that off-base agencies and local governments only have to coordinate with one Air Force organization. The Eglin Encroachment Committee, now known as Eglin Mission Enhancement Committee, was created many years ago to act as the single point of contact with off-base agencies and governments to ensure a consistent Air Force voice (Hurlburt Field, 2007a).

On-Base Land Use

Hurlburt Field utilizes a Land Use Component Plan (Hurlburt Field, 2007a) to establish a framework for decision-making on future growth and development on-base. Preparation of the plan entailed identifying Hurlburt Field goals and objectives, documenting existing on-base land use patterns and trends, conducting a functional relationship analysis, and identifying composite natural and built constraints.

The September 2007 Land Use Component Plan (Hurlburt Field, 2007a) recognized that Hurlburt Field is operating under a variety of land use constraints including the following:

- Operational Constraints:
 - Airfield Clearance
 - Noise
 - Explosive Safety Zones
 - Environmental Cleanup Program
- Natural Constraints:
 - Surface Drainage, Floodplains, and Wetlands
 - Fish and Wildlife
 - Cultural Resources

The plan identified the following Land Use areas at Hurlburt Field (**Figure 3-2**):

- Administrative
- Air Accident Zone
- Airfield Operations and Pavement
- Community Commercial
- Community Service
- Housing
- Industrial
- Medical
- Open Space
- Outdoor Recreation

The plan stresses that land uses on Hurlburt Field should be located to maximize their functional relationships and to minimize conflicts. Areas with similar functions are often the most successful when co-located. Aircraft and support operations are most efficient when located together along areas that border the airfield. Administrative and housing areas work best when they are co-located amongst themselves in areas away from the noise and activity associated with the airfield.

Hurlburt Field Runway 18/36 is oriented north-south and is located towards the eastern portion of the installation. Airfield operations and maintenance facilities are located on

either side of the runway, along with other industrial facilities. Administrative facilities tend to be located away from the airfield area behind industrial areas. The majority of the residential housing is located near the center of Hurlburt Field, 3,500 feet or more west of the runway. Other accompanied housing is located in the soundside area and Commando Village housing is located in the far northeastern corner of the base. The commissary and BX are located on the east side of the runway, near the medical complex. Smaller commercial areas are oriented towards housing areas and administrative facilities. Recreational areas are interspersed across the installation with several around the residential areas, the soundside area, east of the commissary and BX, and the golf course, which is located in the northeastern portion of the base east of the runway.

Functional relationships need to be considered when siting future facilities to ensure long-term benefits. Areas should be reserved for specific land use types to ensure positive relationships and to provide flexibility for the base in the future. Currently, the majority of the facilities are located in appropriate land use areas.

3.4 Safety

3.4.1 Definition

A safe environment is one in which there is an absence of 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 (Headquarters Air Mobility Command [AMC], 2007).

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 on-site 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.

3.4.2 Existing Conditions

All contractors performing construction activities are responsible for following ground safety and OSHA regulations and are required to conduct construction activities in a manner that does not pose a risk to workers or installation personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and use and availability of Material Safety Data Sheets. Industrial hygiene is the

responsibility of contractors and USAF personnel, as applicable. Contractor responsibilities are to review potentially hazardous workplaces; 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 or engaged in hazardous waste work.

Several areas are constrained by QD arcs at Hurlburt Field. QD arcs are buffers that are generated around facilities that contain high explosive munitions or flammable elements. The size and shape of these arcs depend on the type of facility and net explosive weight of the munitions being housed. QD arcs are established to ensure that a minimum safe distance is present within areas where explosions may occur. To minimize the potential for the loss of human life and property damage in the event of an explosion, no non-munitions related development may occur within the QD arcs. The QD arcs associated with the EOD Range and munitions storage area creates the largest area constrained by a QD arc on the installation. Other QD arcs on Hurlburt Field are in conjunction with the small arms and grenade range, the hot cargo taxiways, the flare ramp, and other explosive loading and parking areas associated with the airfield (Hurlburt Field, 2007a and Poynor, 2008). Combined, the QD arcs total approximately 1,600 acres as shown in **Figure 1-9**.

3.5 Geologic Resources

3.5.1 Definition

Geological resources consist of materials from the earth's surface and subsurface. Relevant geological resources at Hurlburt Field can be described in terms of the installation's topography, soils, stratigraphy, and mineral resources.

Topography

Topography is the term used to describe the three-dimensional shape or texture of land surface that allows for identification of specific landforms. Topographic maps include contour lines that show land surface elevations and illustrate physiographic features.

Soils

Soil is the naturally occurring, unconsolidated or loose mixture of mineral and organic matter that covers land surface and is capable of supporting life. It is formed by the combined effect of physical, chemical, and biological processes on parent material. Soils are a key component of any ecosystem, often controlling the form of the ecosystem and habitat.

Geology

Geology is the science and study of the earth and the materials of which it is made. It is the study of the composition, structure, physical properties, history, and processes that shape the earth's components. Hydrogeology is a branch of geology that studies how water interacts with geological systems. It considers the distribution and movement of ground water in the soil and rocks beneath the earth's surface.

Mineral Resources

Mineral resources are supplies of rocks, minerals (metallic and non-metallic), fluids, and gases extracted or mined from the earth for man's benefit. In the Florida Panhandle, important resources include phosphate, limestone (crushed rock), sand, gravel, clay, peat, heavy minerals, oil, and natural gas.

3.5.2 Existing Conditions

Topography

Hurlburt Field's topography is relevant to installation activities in several ways. It has direct influence on erosion, stormwater, and surface water drainage systems and the successful management of those matters. It has indirect effect on the distribution of flora and fauna. It is also an important consideration in the selection of suitable locations for infrastructure and development.

Land surface within the 10.4-square mile (6,643 acre) installation is relatively flat, with elevations ranging from sea level along Santa Rosa Sound to just over 40 feet above mean sea level (msl) approximately three miles inland at the installation's northern boundary (United States Geological Survey [USGS], 1994) (**Figure 3-3**).

Much of southern Okaloosa County, Hurlburt Field included, coincides with the Gulf Coastal Lowlands physiographic province, a flat topographic region that extends inland from Florida's coastline to land surface elevations of about 100 feet msl. The lowlands are strongly influenced by marine processes, with terraces or wave-cut platforms defining the general landscape. Landforms include positive relief features such as barrier islands, dunes, relic spits and bars, coastal ridges, and some flatwoods. Negative relief features include estuaries, lagoons, swamps, and lower-lying ground between coastal ridges (Randazzo and Jones, 1997).

Most of Hurlburt Field coincides with the Talbot marine terrace, which is mapped at an elevation of 25 to 42 feet msl and includes the highest ground in the area. The terrace includes the installation's major topographic feature, a mile-wide, coast-parallel strip of relatively higher ground (35 feet msl) that accommodates most of the installation's

development. Land surface slopes to the north and south from this modestly elevated plain. To the north, land surface declines almost imperceptibly (0.5% grade) toward the East Bay River and associated swamp that occurs at elevations of 20 to 30 feet msl. Southward to Santa Rosa Sound, land surface declines to sea level at an average grade of about 1%, revealing a well-defined escarpment or erosional slope between the Talbot and Pamlico terraces.

Except for construction of the installation’s airfield, development at Hurlburt Field has been accomplished without substantial change to the overall landscape or natural topographic regime. In most instances, changes that have occurred are of a localized nature that involved site-specific re-grading or augmentation for immediate control of surface runoff and drainage. Swales and shallow ditches are commonly employed for stormwater management adjacent to infrastructure.

Soils

At Hurlburt Field, soil types, properties, and distribution are relevant to installation activities as they have influence on urban development, project siting and construction requirements, stormwater management, surface water drainage, erosion control, pollution abatement, and ecosystem management.

Twelve different soil types have been mapped at Hurlburt Field. They are identified and generally characterized in **Tables 3-7** and **3-8** (Overing, 1995). The soil type distribution at Hurlburt Field is presented in **Figure 3-4**.

Table 3-7 Distribution of Soils at Hurlburt Field

Soil Unit	General Occurrence	Acreage (approximate)	Percentage of Installation (approximate)
Dorovan Muck, frequently flooded	hardwood swamps and floodplains along drainageways	2,683	40.4%
Chipley & Hurricane Soils	low ridges in flatwoods; borders drainageways in uplands	1,273	19.2%
Rutlege Fine Sand, depressional	shallow depressions in both uplands and lowlands	1,013	15.2%
Foxworth Sand	uplands and elevated areas in flatwoods	245	3.7%
Leon Sand	broad, nearly level flatwoods	177	2.7%
Resota Sand	moderately elevated ridges of the flatwoods	119	1.8%
Kureb Sand	undulating ridges and upland side slopes	48	0.7%
Lakeland Sand	on broad ridgetops in uplands	31	0.5%
Pickney Loamy Sand	drainageways and in flatwoods depressions	22	0.3%
Beaches	narrow strips along the coast	16	0.2%
Mandarin Sand	broad, nearly level, slightly elevated flatwoods	7	0.1%
Lucy Loamy Sand	ridgetops and upland sideslopes	1	0.0%
Urban Land	disturbed, altered, or covered by anthropogenic activities	982	14.8%
Water (fresh)	Hurlburt Lake and golf course lakes	26	0.4%
Total		6,643	100%

Source: Overing, 1995

Table 3-8 General Characteristics of Soils at Hurlburt Field

Soil Type	Acreage (approx.)	Slope	Drainage	Runoff	Permeability	Depth to Water Table	Water Capacity	Fertility	Development Potential
Soils of the Upper Coastal Plain									
Lucy Loamy Sand	1	0-5%	well drained	slow	rapid	> 7 feet	low	low	well suited
Soils of the Barrier Islands and the Coastal Plain									
Beaches	16	---	excessively drained	little occurs	very rapid	0 - 4 feet	low	low	poor
Kureb Sand	48	0-8%	excessively drained	little occurs	rapid	> 6 feet	low	low	slightly limited
Lakeland Sand	31	0-5%	excessively drained	little occurs	rapid	> 6 feet	low	low	well suited
Resota Sand	119	0-5%	moderately - well drained	little occurs	rapid	> 3 feet	low	low	slightly limited
Soils of the Flatwoods, Low Knolls, and Ridges									
Foxworth Sand	245	0-5%	well drained	slow	very rapid	3 - 6+ feet	low	low	well suited
Chipley & Hurricane Soils	1,273	0-5%	somewhat poorly drained	slow	rapid - very rapid	2 - 3 feet	low	low	moderately suited
Leon Sand	177	---	poorly drained	slow	rapid	1 - 3+ feet	low	low	severely limited
Mandarin Sand	7	0-3%	somewhat poorly drained	slow	rapid	1 - 4+ feet	very low - low	low	moderately limited
Rutlege Fine Sand, depressional	1,013	---	very poorly drained	slow	rapid	< 1 foot - saturated	high	medium	severely limited
Soils of the Freshwater Swamps, Drainageways, and Floodplains									
Dorovan Muck, frequently flooded	2,683	---	very poorly drained	slow	moderate	saturated - flooded	high	medium	unsuited
Pickney Loamy Sand	22	---	very poorly drained	slow	rapid	saturated - flooded	low	medium	unsuited
Other									
Urban Land	982	---	---	---	---	---	---	---	---
Water Bodies (fresh)	26	---	---	---	---	---	---	---	---

Source: Overing, 1995

The soils of the Gulf Coastal Lowlands physiographic province, where Hurlburt Field is located, are predominantly light gray to drab soils derived from sedimentary deposits of fluvial and marine origin (Cooke, 1945). While erosion potential across the installation is considered slight due to its low relief, significant differences in soil characteristics accompany the relatively small changes in elevation. Lower-lying ground is blanketed with very poorly drained organic soils of a hydric nature. Higher ground is occupied by well-drained sandy soils with a water table that is usually several feet or more below land surface. Most soils at the installation are considered unsuitable for cultivation and moderately to well-suited for silviculture.

The predominant soil type at the installation is Dorovan muck, which occupies low ground (elevations lower than about 30 feet msl) within the East Bay River drainage basin. The northern half of the installation is principally Dorovan muck, and the soil unit covers approximately 40% of the entire installation. These very poorly drained, well-decomposed organic soils are typically saturated or flooded and are generally unsuited for construction projects and development. Their hydric nature conveys wetland implications.

Chiple and Hurricane soils cover about 19% of the installation. These soils are found primarily on the side slopes of the main upland plain that parallels the coast, enveloping the high ground and separating upland soils from low land soils. These sandy, somewhat poorly drained, rapidly permeable soils occupy ground at elevations of about 30 to 35 feet msl. They are moderately suited for development.

Atop the nearly-level upland plain where most of Hurlburt Field’s development has occurred at elevations from about 35 to 40 feet msl, the dominant soil types are well-drained and rapidly permeable sands of the Foxworth, Kureb, Resoto, and Lakeland type. Rutledge fine sand commonly occupies depressional areas interspersed among these upland sands. The upland soils on Hurlburt Field’s main ridge account for roughly 40% of the installation’s total acreage. They are typically suited for development with few limitations. Through development, the urban land unit currently masks the natural footprint of these upland soils.

Geology

Hurlburt Field is underlain by sedimentary deposits many thousands of feet thick. The near-surface deposits, those down to approximately 1,000 feet, are most relevant to the installation’s activities. As summarized in **Table 3-9**, and as graphically depicted in **Figure 3-5**, the shallow stratigraphic section of interest consists of a number of geologic units and their hydrogeologic equivalents.

Table 3-9 Shallow Stratigraphy of Hurlburt Field

Geologic Unit	Hydrogeologic Equivalent	Structural Top		Thickness	Lithologic Description	
		feet bls	feet msl	feet		
Pliocene-Recent Sands	Sand & Gravel Aquifer	Outcrop	0 to 42	100 to 150	unconsolidated body of white to gray quartz sand; occasional clay lenses and layers of organic debris; typically unfossiliferous	
Citronelle Formation					non-indurated, multi-colored quartz sand with discontinuous layers of gravel, clay, and limonite; typically unfossiliferous	
Intracoastal Formation	Intermediate System Confining Unit	100 to 150	-80 to -120	375 to 475	clayey, sandy, microfossiliferous (foraminiferal) limestone and grayish, poorly consolidated, sandy, clayey, sediment with abundant shell material	
Bruce Creek Limestone		Upper Floridan Aquifer	475 to 575	-450 to -550	150 to 170	white to light gray moderately indurated, granular, fossiliferous, occasionally calcarenitic limestone
Chattahoochee - Chickasawhay Limestone			625 to 775	-600 to -700	250 to 300	tan sucrosic dolomite and fossiliferous limestone
Bucatunna Clay		Bucatunna Clay Confining Unit	925 to 1,000	-900 to -975	100 to 125	brown clay with modest quartz sand content; limestone accessory (?); sparsely fossiliferous
Ocala Group Limestones		Lower Floridan Aquifer	-1,025 to -1,125	-1,000 to -1,100	150 to 175	white to light gray chalky fossiliferous limestone & tan sucrosic dolomite
Lisbon Formation	Sub-Floridan System	-1,200 to -1,275	-1,175 to -1,250	?	cream, sandy, pyritic, glauconitic limestone & light gray clay & sand	

bls = below land surface; msl = mean sea level
 Sources: Schmidt, 1982; Pratt, 1996; Barr, 1985; Hayes, 1983

The geology of Hurlburt Field is influenced by the Chattahoochee Anticline, a regional flexure or folding of Florida's Panhandle sediments that crests some 75 miles to the northeast in Jackson County, Florida. Hurlburt Field lies on the western flank of this structure; hence, the geologic units beneath the installation dip to the southwest toward the Gulf of Mexico sedimentary basin at an incline of about 15 to 25 feet per mile (Schmidt, 1982).

Outcropping sediment at Hurlburt Field is ascribed to the Pliocene-Recent Sands unit, a wedge-shaped deposit of unconsolidated quartz sand that thins from approximately 150 feet thick along the coast to approximately 100 feet thick in the installation's northern extremes. Moving northward, the unit overlaps and intergrades with the multicolored sands, gravels, and clays of the Citronelle Formation.

Together, the Pliocene-Recent Sands and the Citronelle Formation make up the Sand & Gravel Aquifer informally referred to as the "shallow aquifer" or "water table aquifer." Depth to the shallow ground water table at Hurlburt Field varies from land surface in topographically low areas to approximately 10 to 15 feet beneath the installation's highest ground. Local rainfall (about 64 inches per year) replenishes the aquifer. The aquifer commonly occurs as a single, unconfined hydraulic unit but is sometimes divided into an upper zone and a lower zone by intervening sediment of relatively lower permeability. The aquifer is drained or depleted upon discharge to surface water bodies that it contacts (Santa Rosa Sound, East Bay River, ponds, creeks, and swamps). The shallow ground water generally flows to the north and south from the installation's coast-parallel upland plain, moving at rates usually within the range of 0.5 to 2 feet per day. Local perturbations in this general flow pattern occur in response to installation activities such as percolation of stormwater, pumping of irrigation wells, and construction of drainage ditches that intersect and lower the water table.

Ground water in the Sand & Gravel Aquifer is described in detail in **Section 3.6.2**.

The Sand & Gravel Aquifer at Hurlburt Field is bounded at its base by nearly 400 feet of poorly consolidated, sandy, clayey limestone that makes up the Intracoastal Formation. These low-permeability sediments effectively restrict the exchange of ground water between the overlying Sand & Gravel Aquifer and the underlying Floridan Aquifer System, thus its hydrogeologic assignment as the Intermediate System Confining Unit.

The Floridan Aquifer System occurs at approximately 500 feet beneath the installation. It consists of approximately 700 feet of limestone and dolomite that is divided into an upper aquifer and a lower aquifer by a 125-foot thick layer of intervening clay. The Upper Floridan Aquifer (450 feet thick) provides Hurlburt Field and southern Okaloosa County with high-quality drinking water. The Lower Floridan Aquifer (175 feet thick) occurs

beneath the Bucatunna Clay and is saline and therefore unused in this part of the county. The Floridan Aquifer System is recharged in southern Alabama and the northern parts of Okaloosa and Walton counties, where it approaches land surface. The aquifer discharges its ground water to the Gulf of Mexico and to the numerous large-diameter public supply wells that intercept it en route.

Ground water in the Floridan Aquifer is described in detail in **Section 3.6.2**.

With respect to geologic hazards, no faults or fault zones have been interpreted in the vicinity of Hurlburt Field. The nearest fault is mapped in northeastern Santa Rosa County, Florida, approximately 50 miles northeast of the installation (Schmidt, 1982). No sinkholes (karst terrain) have been identified in the vicinity of Hurlburt Field. This portion of northwest Florida is not prone to sinkhole development due to the substantial depth at which carbonate sediments occur and the thick layer of cohesive sediments that overlie them (Sinclair, 1985). Hurlburt Field is not located in or near a seismic impact zone (Frankel, 1996). No unstable areas (such as areas with fissures, areas where the ground is prone to mass movement, or areas with highly expansive soils) have been identified at Hurlburt Field.

Mineral Resources

Although not typically thought of as a mining state, Florida ranks fifth nationally in industrial mineral production (Florida Geological Survey [FGS], 2008). Resource potential in the Florida Panhandle includes phosphate, limestone, sand and gravel, clay, fuller's earth, peat, oil, and natural gas as well as heavy minerals such as ilmenite, rutile, zircon, leucoxene, staurolite, monazite, and tourmaline.

At Hurlburt Field and in Florida's western Panhandle in general, commercial deposits of phosphate have not been identified. Limestone (used in the crushed stone industry) occurs at great depth and is not recoverable. Commercial deposits of fuller's earth occur only in the eastern Panhandle. Peat does exist within the installation's boundaries, but economic deposits have not been identified and are unlikely to exist. Oil and natural gas exploration has occurred in the vicinity of Hurlburt Field, but reserves have not been identified. Heavy minerals associated with marine sand deposits are often concentrated by wave action along coastal beaches. They are likely to exist at Hurlburt Field, although significant accumulations have not been identified.

Sand, gravel, and clay are mined throughout the Florida Panhandle. Substantial commercial deposits are mined from the Pliocene-Recent Sands unit and the Citronelle Formation in the vicinity of Hurlburt Field and southern Okaloosa County. Beneath the installation, gravel and clay typically occur as either minor, disseminated constituents or as thin, discontinuous lenses and layers. The probability of these materials occurring in

commercially viable quantities is low. Quartz sand, however, is available in large quantities from the Pliocene-Recent Sands unit and could be mined (or dredged) from any portion of the installation where permitted. Common uses for the material are fill material for local construction projects and beach re-nourishment.

3.6 Water Resources

3.6.1 Definition

Water resources are those waters both above and below the surface of the Earth that are potentially useful to humans and the environment. The CWA of 1977 is the primary Federal law that protects the nation's water resources, including lakes, rivers, aquifers, and coastal areas. Water resources relevant to Hurlburt Field are drainage basins, floodplains, surface water, wetlands, and ground water.

Drainage basin

A drainage basin is a specific tract of land that gathers water originating as precipitation and directs it to a particular stream channel or system of channels or to a lake, reservoir, or other body of water. The topography of the land is the key feature that defines and divides these catchment areas, whose acreage increases in hierarchal form as smaller sub-basins join and contribute water to terrain at diminishing elevations.

Floodplain

Floodplains are lands bordering rivers and streams that normally are dry but are covered with water during floods. They occur in both inland and coastal areas. Risk of flooding typically hinges on local topography, the frequency of precipitation events, size of the watershed above the floodplain, and, in the case of coastal areas, storm surge intensity. The direct function of a floodplain is to absorb water and energy from storms. Indirect benefits are ground water recharge from stormwater absorption, nutrient cycling, waste disposal, carbon sequestration, wildlife habitat, vegetative diversity, and aesthetic qualities. Any development in floodplains would require justification through development of a FONPA signed by HQ AFSOC.

Surface water

Surface water is water collected on the ground. It is any body of water at land's surface and includes natural features such as wetlands, swamps, streams, rivers, ponds, lakes, marshes, bayous, and oceans. Man-made surface waters include impoundments, canals, drainage ditches, and stormwater catchments. Wetlands are described in detail separately below and stormwater is described in detail in **Section 3.11.2**.

Wetlands

Wetlands are transitional areas of land between well-drained uplands and permanently flooded or aquatic systems. They include swamps, marshes, and bogs and are found in both coastal and inland settings. Their soils are typically hydric, and the water table is commonly at or near land surface for much of the year. Wetlands filter water to remove nutrients, contaminants, and sediment, thereby improving water quality. They recharge water supplies, reduce risk of flood because of storage capacity, and provide important habitat for fish and wildlife. Any development in wetlands would require justification through development of a FONPA signed by HQ AFSOC.

Ground Water

Ground water is classically defined as subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated (i.e., the pore spaces in the subsurface materials are completely filled with water). It is part of the hydrologic cycle, originating as precipitation that infiltrates or seeps into the subsurface and then moves toward surface water bodies, where it discharges to complete the hydrologic cycle.

3.6.2 Existing Conditions

Drainage Basins

Hurlburt Field is partially in two USGS hydrologic cataloging units: the Choctawhatchee Bay unit, which encompasses 699 square miles of land, and the Pensacola Bay unit, which encompasses 543 square miles of land (Seaber, 1987). Hurlburt Field's highest ground is along the coast-parallel upland plain and the airstrip that extends northward (perpendicular) from this plain. These dominant topographic features direct the installation's surface drainage north toward the East Bay River, south toward the Santa Rosa Sound, and east toward Cinco Bayou (**Figure 3-6**). These drainage sub-basins coincide with approximately 62.5%, 33.5%, and 3% of the installation's total land mass, respectively. In the extreme western part of the installation, a small tract of land (64 acres or 1% of the installation land mass) coincides with the Live Oak Creek drainage basin. The installation's relationship to these drainage units is summarized in **Table 3-10**.

Table 3-10 Drainage Basins of Hurlburt Field

Region	Subregion	Accounting Unit	Cataloging Unit	Sub-basin	Hurlburt Field's Relationship to Sub-basins
03 South Atlantic - Gulf	14 Choctaw- hatchee - Escambia	01 Florida Panhandle Coastal	02 Choctawhatchee Bay 699 sq. mi.	Cinco Bayou 7.2 sq. mi.	3% of installation (199 acres) coincides with sub-basin installation comprises 4% of land mass in sub-basin
			05 Pensacola Bay 543 sq. mi.	Live Oak Creek 28.2 sq. mi.	1% of installation (66 acres) coincides with sub-basin installation comprises 0.3% of land mass in sub-basin
				East Bay River 28.1 sq. mi.	62.5% of installation (4,152 acres) coincides with sub-basin installation comprises 23% of land mass in sub-basin
				Santa Rosa Sound 12.5 sq. mi.	33.5% of installation (2,226 acres) coincides with sub-basin installation comprises 28% of land mass in sub-basin
	15,000 sq. mi.	6,060 sq. mi.			

Sources: Seaber, 1987; FDEP, 1998

Modest changes to the natural drainage patterns at Hurlburt Field have accompanied the installation's development. The changes that have occurred are of a localized nature involving site-specific re-grading or augmentation for immediate control of stormwater runoff and improved drainage. Drainage has been improved by linking isolated, poorly-drained depressional areas in the upland plain and routing the collected water through culverts, swales, and shallow ditches toward natural drainage courses. Hurlburt Field is divided into 27 internal stormwater management units ranging from less than one acre to approximately 500 acres in size (Hurlburt Field, 2007c). Stormwater ponds of both detention and retention design are used to prevent flooding, downstream erosion, and to improve water quality. The stormwater management units and ponds are presented in **Figure 3-7**.

Floodplains

Nearly 40% (2,575 acres) of Hurlburt Field's land mass coincides with the "100-year floodplain" mapped by the Federal Emergency Management Agency (FEMA) (Hurlburt Field, 2007d). The 100-year floodplain is any area where the potential for flooding is 1% chance or greater in any given year. As might be expected, a strong correlation exists between those areas mapped as wetlands and the 100-year floodplain.

The bulk of the installation's floodplain area is in the northern half of the installation at elevations below 25 msl. Flood waters that occur in this portion of the installation drain primarily to the East Bay River, although a small section of floodplain near the installation's eastern boundary drains toward Cinco Bayou (**Figure 1-11**).

Floodplain is also mapped on the southern end of the installation south of U.S. 98 along Santa Rosa Sound. Generally mapped at elevations below 10 ft msl, this 115-acre fringe of floodplain is subject to flooding from storm surge (**Figure 3-8**).

Some of Hurlburt Field's upland acreage is mapped in the 100-year floodplain. These areas commonly occur as isolated map units of about 10 to 50 acres in size which generally correspond to the poorly-drained depressional areas scattered across the installation's upland plain.

In order to develop floodplains, the agency must comply with the procedures and practices outlined in EO 11988, 44 CFR 9.6, AFI 32-7064 and 32 CFR 989 as detailed in **Section 1.8.3**.

Surface Water

Surface waters on Hurlburt Field consist of the East Bay Swamp, East Bay River, Turtle Creek, Live Oak Creek, Hurlburt Lake, small golf course ponds, and other man-made surface waters including impoundments, drainage ditches, and stormwater catchments.

The massive East Bay Swamp encompasses nearly 20 square miles of land in southern Okaloosa and Santa Rosa counties. Approximately two square miles of the swamp lie within Hurlburt Field's boundaries, overlapping the installation in a quarter to one-half mile wide stretch of land along its northern and western borders. In the vicinity of Hurlburt Field, the swamp is drained by three separate creek channels (East Bay River, Turtle Creek, and Live Oak Creek) with dimensions typically about 20 feet wide by two to five feet deep. These channels eventually merge near the installation's western boundary, where the waterway regains the East Bay River name and continues its westerly course for another eight to nine miles before discharging to Pensacola's East Bay.

East Bay River represents the southern-most fork or channel in the swamp. Approximately 3.6 miles of river run occur within the installation's boundaries. An unnamed yazoo stream occurs just south of East Bay River. This small stream originates near the northwest corner of the installation's airfield and flows westerly along the edge of the floodplain for about two miles before joining the East Bay River. Turtle Creek is the swamp's middle channel or fork. It parallels East Bay River to the north and runs along the installation's northwestern boundary line. Approximately one mile of river run occurs within the installation. Turtle Creek's confluence with East Bay River occurs on installation property about one-half mile from the western border. Live Oak Creek is the swamp's northern fork. It nips the northwestern corner of the installation and then joins the East Bay River about one-half mile downstream of the Hurlburt Field property boundary.

The creeks are gaining in nature as they intersect the water table and are largely sustained by discharge of ground water from the Sand & Gravel Aquifer. Direct runoff and overland flow contribute the bulk of water after rainfall events. Base stream flows (stream flow coming from ground water seepage) have been estimated for these creeks in the upper reaches of East Bay Swamp about four miles north of the installation. Base flow for Live Oak Creek has been estimated at 63.7 cubic feet/second (cfs) or about 28,600 gallons per minute (gpm). Base flow at Turtle Creek, which is reunited with East Bay River in this locale, has been estimated at 51.2 cfs (about 23,000 gpm). Two miles downstream of the installation on the unified East Bay River, base flow has been estimated at 230 cfs (about 103,200 gpm) (Vecchioli, 1990).

Water quality in these creeks is acceptable for most uses. The FDEP categorizes them as Class III fresh surface water bodies, meaning the designated uses are for recreation and for propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Surface water quality resembles that of ground water in the Sand & Gravel Aquifer, which provides the creeks most of their water. The water is characteristically acidic (pH is about 6.5 standard units or less) and has low nutrient and dissolved solids content. Under base flow conditions, it is transparent with a brownish, tea-colored stain caused by tannins leached from organic material in soils and decaying vegetation in the swamp (Trapp, 1977). When flooded, the creeks can become roiled and turbid, displaying a brownish color caused by the suspended cloud of silt and clay.

No natural ponds or lakes occur within the installation's boundaries. A number of man-made reservoirs exist in the vicinity of the golf course. Ten small ponds ranging from about one-tenth to two acres in size are scattered about the golf course as water hazards. Collectively, they encompass about seven acres. The ponds were created by digging down to and then below the water table of the Sand & Gravel Aquifer. They are shallow water bodies, typically no more than a few feet deep.

Between the golf course and the northern end of the flightline, a 25-acre reservoir known as Hurlburt Lake was created by excavating into the water table. As with the smaller golf course ponds, the lake is a shallow water body. Drainage from much of the golf course area is directed toward the lake. Hurlburt Lake is used as a source of water for golf course irrigation. Withdrawals from three surface water intakes are authorized by NFWFMD Individual Water Use Permit No. 19910115 (issued May 25, 2000 and expiring May 26, 2010). The permitted limits are presented in **Table 3-11**.

Table 3-11 Permitted Withdrawals from Hurlburt Lake for Golf Course Irrigation

Intake ID#	Intake Diameter	Pump Horsepower	Pump Capacity	Permitted Withdrawal Limits		
				Average Day	Maximum Day	Maximum Month
	(inches)	(hp)	(gpm)	(gal/day)	(gal/day)	(gal/mo)
HF/SW #1	6	75	1,180	303,000	724,000	17,300,000
HF/SW #2	6	75	1,180			
HF/SW #3	4	25	590			

hp – horsepower
 gpm – gallons per minute
 gal/day – gallons per day
 gal/mo – gallons per month
 Source: NFWFMD, 2000
 Lynd, 2008

Current withdrawals for golf course irrigation are within permitted limits. Daily withdrawals average 186,909 gallons per day (gal/day). Monthly withdrawals average 5,685,000 gallons per month (gal/mo) (Lynd, 2008). Naturally, the irrigation needs vary seasonally with the highest demand occurring in May when vegetative growth is vigorous and diminished rainfall is received across the Florida Panhandle.

Wetlands

AFI 32-7064, *Integrated Natural Resources Management*, directs that all installations shall develop and maintain current inventories of wetlands in order to plan for long-term protection or mitigation. Formal delineations of state and Federal jurisdictional wetlands were conducted at Hurlburt Field between 1995 and 1997 and were confirmed by the USACE Panama City office and the FDEP (USAF, 2005a). As depicted in **Figure 1-10**, approximately 52% (3,431 acres) of Hurlburt Field’s land mass lies within areas mapped as jurisdictional wetlands (Hurlburt Field, 2007d). They represent a significant limitation to expansion of Hurlburt Field facilities beyond currently developed areas.

The most common wetland types within the installation include, in order of greatest to the least acreage, Floodplain Swamp (Palustrine/Floodplain wetlands), Bottomland Forest (Palustrine/Floodplain wetlands), Dome Swamp (Palustrine/Basin wetlands), Baygall (Palustrine/Seepage wetlands), and Depression Marsh (Palustrine/Basin wetlands). Floodplain Swamp and Bottomland Forest in the northern half of the installation represent the majority of wetland acreage at Hurlburt Field. Scattered areas of Dome Swamp are found in the northeastern and far western portions of the installation. Small areas of Baygall occur throughout the developed areas of the installation and are common near the golf course and in the area southeast of the BX and commissary. Three small areas of Depression Marsh are found on the installation, two in the south-central portion and one near the far western border of the installation (**Figure 1-10**).

In order to develop wetlands, the agency must comply with the procedures and practices outlined in EO 11990, 44 CFR 9.6, AFI 32-7064 and 32 CFR 989 as detailed in **Section 1.8.3**.

Wetlands management and permitting at Hurlburt Field is governed by agreements made between Hurlburt Field, the State of Florida, and the USACE. In a Memorandum of Agreement (MOA) dated July 13, 2000, the FDEP issued Hurlburt Field wetland permit No. 17-0151212-001-DF, which covers actions planned 10 years forward of permit issue date (FDEP, 2000). Federal regulations applicable to wetlands at Hurlburt Field include EO 11990 and Section 404 of the CWA. Hurlburt Field has been issued a Section 404 permit (Number 199900679 (IP-DH)), which expires on September 24, 2010. Development beyond these permits would require new agreements and permits from the USACE and FDEP.

Ground Water

Hurlburt Field's ground water resources come from the Sand & Gravel Aquifer, which extends from land surface down to 100 to 150 feet below land surface, and the Upper Floridan Aquifer (or simply Floridan Aquifer), which is a 300-foot thick sequence of limestone and dolomite that begins at a depth of approximately 500 feet below land surface. The former is a quartz-sandy water table or unconfined aquifer. The latter is a confined aquifer, meaning that it is sandwiched between relatively impermeable strata with its water under pressure.

Significant quantities of ground water are available from the Sand & Gravel Aquifer beneath Hurlburt Field. The water table is usually within 10 feet of land surface at any location on the installation, which gives it a saturated thickness of 90 feet or more. The aquifer commonly occurs as a single unconfined hydraulic unit, but is sometimes divided into an upper zone and a lower zone by intervening sediment of relatively lower permeability. Aquifer potentiality is classified as moderate to high as transmissivities are commonly in the range of 2,500 to 7,500 square feet per day. Yields of greater than 500 gpm are possible.

Ground water quality is generally good. It usually meets state and Federal drinking water quality standards and is classified by the State of Florida as G-II, meaning it is designated for potable use and comes from an aquifer which has a total dissolved solids content of less than 10,000 milligrams per liter (approximately equal to parts-per-million). Despite the quality of its ground water, the Sand & Gravel Aquifer is not used for public supply at Hurlburt Field (or elsewhere in southern Okaloosa County). The water can have concentrations of hydrogen sulfide high enough to be corrosive and cause objectionable odor; iron content is occasionally high; and the water is characteristically acidic, with pH frequently as low as 4 to 5 standard units (Hayes, 1983). Because of these detriments and

the aquifer’s vulnerability to contamination from activities at land surface, Hurlburt Field uses the Floridan Aquifer for its public water supply.

Ground water from the Sand & Gravel Aquifer is used at Hurlburt Field for landscape irrigation. Hurlburt Field uses a network of more than 100 independently operated, shallow, small diameter wells to meet irrigation needs across the installation. Withdrawals are authorized by NFWFMD Individual Water Use Permit No. 19910115. The permitted limits are presented in **Table 3-12**.

Table 3-12 Permitted Withdrawals from the Sand & Gravel Aquifer for Landscape Irrigation

Wells	Intake Diameter	Depths	Capacity	Permitted Withdrawal Limits		
				Average Day	Maximum Day	Maximum Month
	(inches)	(feet bls)	(gpm)	(gal/day)	(gal/day)	(gal/mo)
108 listed wells	2 to 6	25 to 150	35 to 60	163,000	448,000	10,500,000

Notes: Two of the 108 wells are listed as 4-inch diameter Intermediate System wells at depths of 175 & 230 feet bls.
 Source: NFWFMD, 2000

Average daily use for irrigation is currently 131,734 gal/day. Average monthly usage is 4,006,916 gal/mo. The highest maximum monthly usage in recent record was May 2007 at 6,420,000 gal/mo (Lynd, 2008).

Hurlburt Field and southern Okaloosa County rely exclusively on ground water from the Floridan Aquifer for public consumption. The aquifer provides large quantities of high quality water from wells producing more than 1,000 gpm. The aquifer is well-developed in southern Okaloosa County. The aquifer’s pre-World War II potentiometric surface (the level to which water would rise in a well tapping the Floridan Aquifer) was as much as 30 feet above land surface in coastal Okaloosa County. Increased water demand that has accompanied the area’s growth has been met by the Floridan Aquifer, but the withdrawals have lowered the potentiometric surface nearly 200 feet in the Fort Walton Beach area (NFWFMD, 2006). The result is a regionally significant cone-of-depression that has introduced concern for risk of saltwater intrusion. Hurlburt Field lies on the western side of this cone-of-depression and has experienced approximately 135 to 165 feet of drawdown in the Floridan Aquifer beneath the site.

The decline in water levels is ubiquitous along northwest Florida’s populated coastal areas, leading to increased regulation of the Floridan Aquifer’s ground water supplies and prompting the NFWFMD to designate much of the Panhandle as an Area of Special Concern (ASC). ASC status is reserved for areas with an identified water supply problem or areas considered susceptible to development of future problems. Within this ASC, coastal Okaloosa County (Hurlburt Field included) and neighboring Santa Rosa and

Walton counties are further identified as a Water Resource Caution Area (WRCA). Permitting requests in a WRCA are subjected to more rigorous scrutiny to ensure that the proposed withdrawals do not result in unacceptable impacts to the resource. Water use permits granted within a WRCA contain provisions requiring more reporting, implementation of water conservation measures, improved water use efficiency, and a requirement to evaluate the feasibility of employing reclaimed water for reuse.

At Hurlburt Field, ground water from the Floridan Aquifer is withdrawn under NFWFMD Individual Water Use Permit No. 19842711 (expiration date July 1, 2012). The permitted limits are presented in **Table 3-13**.

Table 3-13 Permitted Withdrawals from the Floridan Aquifer

Wells	Building Number	Depths (feet bls)	Capacity (gpm)	Permitted Withdrawal Limits		
				Average Day (gal/day)	Maximum Day (gal/day)	Maximum Month (gal/mo)
				HF #1 (AAA9342)	90308	757
HF #2 (AAA9343)	90601	807	410	---	720,000	
HF #5 (AAA9344)	90355	867	480	---	720,000	
HF #7 (AAA9345)	91136	871	700	---	1,008,000	
HF #8 (AAA4796)	91546	786	800	---	1,440,000	
Combined Limits:				800,000	1,630,000	31,000,000

Source: NFWFMD, 2000

Average daily withdrawal for public supply is currently 664,500 gal/day. Average monthly usage is 20,211,000 gal/mo (Lynd, 2008).

3.7 Biological Resources

3.7.1 Definition

Biological resources include native or naturalized plants and animals and the habitats, such as wetlands, forests, grasslands, and estuaries, in which they exist. Sensitive and protected biological resources include plant and animal species listed as threatened or endangered by the USFWS or the State of Florida. Determining which species occur in an area affected by a Proposed Action can be accomplished through literature reviews and coordination with appropriate Federal and state regulatory agency representatives, resource managers, and other knowledgeable experts.

Under the ESA (16 USC 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. The USFWS also maintains a list of species considered to be candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, the USFWS has attempted to advise government agencies, industry, and the

public that these species are at risk and could warrant protection under the ESA. The FWC oversees the protection and management of state-protected fauna under the Florida Endangered and Threatened Species Act (Florida Statute 372.072). Within the FAC, protection is provided to endangered species (FAC 68A-27.003), threatened species (FAC 68A-27.004), and species of special concern (FAC 68A-27.005). The Florida Department of Agriculture and Consumer Services maintains the state list of plants designated as endangered, threatened, and commercially exploited (FAC 5B-40) as defined under Florida Statute (FS) 581.185(2).

3.7.2 Existing Conditions

Natural Communities

In 1997, Florida Natural Areas Inventory (FNAI) conducted a comprehensive survey of Hurlburt Field’s natural vegetative communities. FNAI updated this survey and released it as the *Rare Plant and Animal Inventory of Air Force Special Operations Command, Hurlburt Field, Florida: Final Report* in September 2003 (Hipes and Norden, 2003). Their final report depicts the natural community types found on Hurlburt Field with descriptions of their vegetative composition (Hipes and Norden, 2003). The natural communities identified on Hurlburt Field are Baygall, Bottomland Forest, Depression Marsh, Dome Swamp, Floodplain Swamp, Maritime Hammock, Mesic Flatwoods, Sandhill, Scrub, Scrubby Flatwoods, and Wet Prairie (Hurlburt Field, 2007d). The communities are represented in **Figure 3-9**. The prominent features of each of the community types are provided in **Table 3-14**.

Table 3-14 Natural Community Types

Community Type	Description
Baygall	<i>Palustrine / Seepage Wetlands</i>
Characterization	Densely forested, peat-filled seepage depressions often at the base of sandy slopes.
Associations	Located on the edges of floodplains or in other flat areas where high lowland water tables help maintain soil moisture. Baygall is often associated with and may grade into Seepage Slope, Floodplain Forest, or Floodplain Swamp.
Soils	Generally peat with an acidic pH of 3.5-4.5.
Fire Relationship	Normal fire interval is ~ 50-100 years or more. After a fire, bay trees usually re-sprout from the roots and replace themselves, but severe fires may change Baygall into a different community.

Community Type	Description
Feature	
Strengths / Threats	Dependent upon seepage flow and high water table. Alterations in local or regional hydrology could impact Baygall communities.
Bottomland Forest	<i>Palustrine / Floodplain Wetlands</i>
Characterization	Low-lying closed canopy forest of tall, straight trees with either a dense shrubby understory and little ground cover, or an open understory and ground cover of ferns, herbs, and grasses. Occurs on low-lying flatlands that border streams with distinct banks such that inundation is rare.
Associations	Bottomland Forest is often associated with and grades into Floodplain Forest, Hydric Hammock, Mesic Flatwoods, Upland Mixed Forest, Upland Hardwood Forest, Slope Forest, Maritime Hammock, Baygall, or Wet Flatwoods. There may be much species overlap among these communities.
Soils	Mixture of clay and organic materials.
Fire Relationship	n/a
Strengths / Threats	Their locations on substrates that occasionally are inundated or saturated make Bottomland Forests generally unsuitable for development.
Depression Marsh	<i>Palustrine / Basin Wetlands</i>
Characterization	Small, isolated shallow areas that are usually rounded depressions in sand substrate with herbaceous vegetation in concentric bands. May occur as isolated wetlands within larger upland areas.
Associations	Depression Marshes are often associated with and grade into Wet Prairie, Seepage Slope, Wet Flatwoods, Mesic Flatwoods, Dome Swamp, or Bog. They also may occur in association with various types of lakes, such as Sandhill or Flatwoods.
Soils	Acidic sand with deepening peat toward the center.
Fire Relationship	Fire is important to maintaining this community type by restricting invasion of shrubs and trees and the formation of peat.
Strengths / Threats	Extremely important in providing breeding or foraging habitat. / Depression Marshes are threatened by drainage, agriculture, pollution, fire suppression, and invasion of exotic species.

Community Type Feature	Description
Dome Swamp	<i>Palustrine / Basin Wetlands</i>
Characterization	Shallow, forested, usually circular depressions that generally present a domed profile because of shorter trees on the periphery and taller trees at the center.
Associations	Dome Swamps typically grade into Wet Prairie or Marl Prairie around the periphery, but they may also be bordered by Bottomland Forest or Swale.
Soils	Peat, underlain with acidic sands followed by limestone. Possible associated clay lense that helps retain water.
Fire Relationship	Essential to keep out hardwood invasion and avoid peat accumulation. The normal fire cycle might be as short as 3 to 5 years along the outer edge and as long as 100 to 150 years towards the center.
Strengths / Threats	Function as reservoirs that recharge aquifers when adjacent water tables drop during drought. / Dome Swamps may be degraded by pollution and the invasion of exotic plants.
Floodplain Swamp	<i>Palustrine / Floodplain Wetlands</i>
Characterization	Occur on flooded soils along stream channels and in low spots and oxbows within river floodplains and are flooded for most of the year, with sites along channels inundated by aerobic flowing water while those of sloughs and back swamps are flooded with anaerobic water for extensive periods of time. Soils and hydro-periods determine species composition and community structure. Dominant trees are usually buttressed hydrophytic trees such as cypress and tupelo; the understory and ground cover are generally very sparse.
Associations	Associated with and grade into Floodplain Forest or Hydric Hammock, and occasionally Baygall.
Soils	Highly variable mixtures of sand, organic, and alluvial materials, with possible peat accumulation.
Fire Relationship	n/a

Community Type	Description
Feature	
Strengths / Threats	Harbor a diverse array of animals including both temporary and permanent residents. Many plant and animal species, both onsite and down river, depend upon the presence and natural fluctuations of these swamps for survival and reproduction. / Alteration of the hydroperiod by impoundments or river diversions and the disruption of floodplain communities by forestry or agriculture have devastating consequences to entire river and bay systems.
Maritime Hammock	<i>Terrestrial / Coastal Uplands</i>
Characterization	Occurs on old coastal dunes that have been stabilized long enough for the growth of forest. It appears as narrow bands of hardwood forest just inland of Coastal Strand community.
Associations	Closely associated with and often grades into Coastal Strand, Scrub, Hydric Hammock, or Prairie Hammock.
Soils	Well drained due to underlying sands.
Fire Relationship	The generally mesic conditions and insular locations of well-developed Maritime Hammock communities inhibit natural fires, which occur no more frequently than once every 26 to 100 years. Nutrient recycling is generally accomplished by detrital organisms instead of by fire.
Strengths / Threats	Maritime Hammock is reasonably resilient so long as the canopy remains intact and the landform stable. / Maritime Hammock is prime resort and residential property because of its relatively protected location along the coast.
Mesic Flatwoods	<i>Terrestrial / Mesic Flatlands</i>
Characterization	Characterized as an open canopy forest of widely spaced pine trees with little or no understory but a dense ground cover of herbs and shrubs, occurring on relatively flat, moderately to poorly drained terrain.
Associations	Closely associated with and often grade into Wet Flatwoods, Dry Prairie, or Scrubby Flatwoods.
Soils	1-3 feet of acidic sands generally overlying an organic hardpan or clayey subsoil.

Community Type Feature	Description
Fire Relationship	Nearly all plants and animals inhabiting this community are adapted to periodic fires; several species depend on fire for their continued existence. Without relatively frequent fires, will succeed into hardwood-dominated forests whose closed canopy can essentially eliminate the ground cover herbs and shrubs.
Strengths / Threats	One of the most widespread biological communities in Florida, occupying an estimated 30 to 50% of the state's uplands. Often fairly resilient, and with proper management they can generally be restored. / Very few undisturbed areas exist because of habitat mismanagement and silvicultural, agricultural, or residential development.
Sandhill	<i>Terrestrial / Xeric Uplands</i>
Characterization	Forest of widely spaced pine trees with a sparse understory of deciduous oaks and a fairly dense ground cover of grasses and herbs on rolling hills of sand
Associations	Associated with and grade into Scrub, Scrubby Flatwoods, Mesic Flatwoods, Upland Pine Forest, or Xeric Hammock.
Soils	Well-drained and relatively sterile deep, marine-deposited, yellowish sands.
Fire Relationship	Fire is a dominant factor in the ecology of this community. Sandhills are a fire climax community, being dependent on frequent ground fires to reduce hardwood competition and to perpetuate pines and grasses. The natural fire frequency appears to be every 2 to 5 years.
Strengths / Threats	Important aquifer recharge areas because the porous sands allow water to move rapidly through with little runoff and minimal evaporation. / Sandhills were widespread throughout the Coastal Plain, but most have been degraded by timbering, overgrazing, plowing, fire exclusion, and other disturbances.
Scrub	<i>Terrestrial / Xeric Uplands</i>
Characterization	Closed to open canopy forest of sand pines with dense clumps or vast thickets of scrub oaks and other shrubs dominating the understory. Ground cover is generally very sparse and open patches of barren sand are common.

Community Type	Description
Feature	
Associations	Associated with and grades into Sandhill, Scrubby Flatwoods, Coastal Strand, and Xeric Hammock.
Soils	Well-washed, loose, rapidly draining deep sands that are often brilliant white at the surface.
Fire Relationship	Scrub is essentially a fire maintained community. When a fire does occur, an abundance of high branches act as a fuel supply, in combination with the resinous needles and high stand density, which ensures a hot, fast burning fire. Such fires allow for the regeneration of the Scrub community which might otherwise succeed to Xeric Hammock. However, Hurlburt Field documentation indicates that Hurricanes and other storm events have been the major influential force in shaping local scrub communities.
Strengths / Threats	Occurs on high dry ground and is home for many endangered and threatened species. / Rapidly being lost to development and readily damaged by off-road vehicle traffic or foot traffic, which destroys the delicate ground cover and allows the loose sand to erode.
Scrubby Flatwoods	<i>Terrestrial / Mesic Flatlands</i>
Characterization	Open canopy forest of widely scattered pine trees with a sparse shrubby understory and numerous areas of barren white sand. This community is essentially a Mesic Flatwoods with a Scrub understory.
Associations	Generally occur intermingled with Mesic Flatwoods along slightly elevated relict sandbars and dunes.
Soils	Deep, rapidly draining white sandy soil.
Fire Relationship	Several species of plants in Scrubby Flatwoods are typical scrub plants which endure only when long intervals between fires occur. The periodicity of approximately 8 to 25 years between fires appears to be natural for this community.
Strengths / Threats	Generally resilient

Community Type Feature	Description
Wet Prairie	<i>Palustrine / Wet Flatlands</i>
Characterization	Treeless plain with a sparse to dense ground cover of grasses and herbs, including wiregrass, toothache grass, maidencane, spikerush, and beakrush. Occurring on low, relatively flat, poorly drained terrain of the coastal plain.
Associations	Wet Prairie is closely associated with and often grades into Wet Flatwoods, Depression Marsh, Seepage Slope, Mesic Flatwoods, or Dry Prairie.
Soils	Sands with a substantial clay or organic component.
Fire Relationship	The most important physical factors are hydrology and fire. Wet Prairie is seasonally inundated or saturated for 50 to 100 days each year and burns every 2 to 4 years.
Strengths / Threats	Prairie is vulnerable to hydrological and fire regime alterations, overgrazing, and soil disturbances by off-road vehicles. Recovery from disturbances is often poor and slow.

Source: Hipes and Norden, 2003
 FNAI, 1990

Appendix D includes a partial inventory of flora and fauna found or potentially found on Hurlburt Field. **Appendix D** is divided into five sections:

- Partial list of floral species possible within Hurlburt Field
- Endangered Flora Potentially Occurring on Hurlburt Field
- Master list of trees, shrubs, and accent flowers for landscape use on Hurlburt Field
- Vertebrate Faunal Species Possible on Hurlburt Field
- Listing of the endangered fauna potentially occurring on Hurlburt Field

As off-installation development impacting natural communities continues, preservation of many of these communities within the boundaries of Hurlburt Field is of regional and, in some cases, national interest. As part of environmental stewardship, preservation efforts and ecosystem restoration is on-going on Hurlburt Field. Invasive plant species management is an important issue on Hurlburt Field, particularly in the disturbed transitional areas between developed and undeveloped areas. Specific procedures to treat and eradicate invasive non-native species are included in the Hurlburt Field Land Management Plan (Hurlburt Field, 2007d).

Fauna

A variety of wildlife is found within Hurlburt Field's boundaries. Fish species are found in Hurlburt Lake, golf course ponds, the East Bay River, and in several large drainage ditches. Terrestrial vertebrate fauna that occur within the installation include many species of amphibians, reptiles, mammals, and birds, both resident and migrant (USAF, 2005a).

Deliberate management of wildlife populations is necessary to sustain and enhance biological diversity and the viability of wildlife populations, and to maximize the compatibility of wildlife and human activities. To achieve these goals, it is vital that habitat management activities be coordinated with other land management and mission-related activities (Hurlburt Field, 2007d).

The FWC manages the fish and wildlife resources for the State of Florida and has jurisdiction over resident fish and wildlife throughout the state, including Hurlburt Field. The USFWS has jurisdiction over migratory birds, Federally listed T&E species, certain marine mammals, and freshwater and anadromous fish. Hurlburt Field is required to comply with Federal fish and wildlife laws, such as the ESA, which prohibits the unauthorized taking of a Federally listed T&E species and requires Federal agencies to conserve those species and consult with the USFWS on actions that may affect them. The USFWS has been a strong conservation partner to Hurlburt Field and has worked closely with the installation's natural resources managers. The USFWS's main role on the installation has been to assist the natural resources staff in the conservation and management of the Federally listed T&E species occurring on the installation in a manner that sustains and supports Hurlburt Field's diverse military mission (Hurlburt Field, 2007d)

Endangered Species, Threatened Species, and Species of Special Concern

The ESA of 1973 (Public Law 93-205) requires military installations to protect and conserve Federally listed T&E plants and animals and their habitats. In addition, the ESA requires that installations having listed species develop specific plans for preservation of these species and their habitats. AFI 32-7064 further requires that all installations must prepare and maintain a current inventory of T&E species and their habitats as part of the installation habitat inventory (Hurlburt Field, 2007d).

If listed species or their habitats are present, formal consultation under Section 7 of the ESA must be undertaken with the USFWS or National Marine Fisheries Service, as appropriate. Consultation procedures are in 50 CFR Part 402.

AFI 32-7064 encourages biodiversity management to include the conservation of state-listed and other rare species. However, biodiversity management is not an Air Force mandate and, as such, is not considered a “must fund” area in the Air Force budgetary system. The Air Force is currently not providing funding to installations for conservation of state-listed and rare species unless those species are also Federally listed. Nonetheless, the conservation of state-listed species and other rare, but unlisted species is encouraged and, in some cases, critical to ensuring continued mission flexibility. Any potential impacts identified to state-listed species are addressed through consultation with FWC.

Surveys for rare species in recent years include those documented in Flowers (1997), FNAI (1993; 1994b), Labat-Anderson (1994), Printiss and Hipes (1997, 2000), U.S. Air Force (1996), and Hipes and Norden (2003), as presented in **Table 3-15**.

Table 3-15 Species Surveys

Survey Type	Timeframe
Rare Plant Survey	1991, 1992, 2003
Flatwoods Salamander	1992, 1994, 1999, 2000, 2002, 2003
Gopher Frog Survey	1992, 1994
Invertebrate Survey	1996, 1997
Comprehensive Rare Species Survey	1996, 1997, 2003

Note – in some cases year of study differs from year of publication

An installation-wide comprehensive survey for all rare T&E species and their habitats is scheduled to be conducted in 2008-2009. (When the 2008 -2009 survey is complete, a copy will be forwarded to the FWC. If listed species are present that may be impacted by the Proposed Action, consultation with FWC would be initiated.) In the 2003 survey, a total of 11 rare plant species and five rare animal species (including invertebrates) were documented at Hurlburt Field (Hipes and Norden, 2003). *Of these, only the Reticulated Flatwoods Salamander (Ambystoma bishopi) has Federal status; it is classified as Threatened / Proposed Endangered.* Several of the other identified rare species are either being considered for listing or not currently listed but of management concern to the USFWS.

The T&E species associated with Hurlburt Field are shown below in **Table 3-16**. Federal and State status and the areas near which the species has been found on the installation are provided.

Table 3-16 Rare, Threatened and Endangered Species – Hurlburt Field

Rare Species	Federal Status	State Status
hairy wild indigo	MC	LT
On Hurlburt Field, several individuals of this species occur scattered throughout the sandhill community east of the airfield, in the southeastern corner of the installation near the fence line.		
Curtis' sandgrass	MC	LT
On Hurlburt Field, this species remains abundant throughout the mosaic of mesic flatwoods, wet prairie, and dome swamps south of East Bay Swamp as well as in other areas of the installation.		
many-flowered grass pink	MC	LE
On Hurlburt Field, one flowering individual was found in a strip of mesic flatwoods near the border of a dome swamp, south of the EOD range.		
upland spreading pogonia	N	N
On Hurlburt Field, this species occurs in a wet prairie east of the EOD range.		
spoon-leaved sundew	N	LT
On Hurlburt Field, this species persists submerged in and along the margins of two dome swamps within the mesic flatwoods south of East Bay Swamp as well as in a wet prairie east of the EOD range.		
West Florida cowliily	MC	N
On Hurlburt Field, this species occurs in the East Bay River.		
Chapman's butterwort	N	LT
On Hurlburt Field, many occurrences of this butterwort persist in dome swamps scattered throughout the mesic flatwoods south of East Bay Swamp.		
rose pogonia	N	LT
On Hurlburt Field, this species occurs in a wet prairie just east of the EOD range.		
white-top pitcher plant	MC	LE
On Hurlburt Field, this species remains common throughout the mosaic of mesic flatwoods, wet prairie, and dome swamps south of East Bay Swamp, in an area north of Heritage Road, along the northern boundary, and in a wet prairie in the northeastern corner of the installation.		
parrot pitcher plant	N	N
On Hurlburt Field, this species occurs around the margins of dome swamps scattered throughout the mesic flatwoods south of East Bay Swamp.		
purple pitcher plant	N	LT
On Hurlburt Field, this species was found along the edge of a dome swamp, southwest of the EOD range.		

Rare Species	Federal Status	State Status
Reticulated flatwoods salamander	T, PE	LS
On Hurlburt Field, evidence of this species was found in the wet prairie and dome swamps south of East Bay Swamp near the southeastern border of the installation.		
coal skink	N	N
On Hurlburt Field, evidence of this species was found in one spot near the wet prairie and dome swamps south of East Bay Swamp near the southeastern border of the installation and in one location northeast of the airfield near the northernmost tip of the installation.		
Bachman's sparrow	N	N
On Hurlburt Field, this species was found throughout the mosaic of mesic flatwoods, wet prairie, and dome swamps south of East Bay Swamp as well as in an area just northeast of the northern end of the airfield.		
least tern	N	LT
On Hurlburt Field, this rooftop nesting species was observed at Bldg 9710 at 123 Bennet Ave.		
Florida black bear	N	LT
On Hurlburt Field, evidence of this species was found in one spot near the wet prairie and dome swamps south of East Bay Swamp near the southeastern border of the installation and in one location northeast of the airfield near the northernmost tip of the installation.		

Source: Hipes and Norden, 2003

Federal Status:

MC - Not currently listed, but of management concern to USFWS.
 N - Not currently listed, nor currently being considered for listing as Endangered or Threatened.
 T - Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
 LE - Defined as any species which is in danger of extinction throughout all or a significant portion of its range.
 PE - Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.

State Plant Status:

N - Not currently listed, nor currently being considered for listing.
 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 ESA.
 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.

State Animal Status:

N - Not currently listed, nor currently being considered for listing.
 LS - Species of Special Concern is a species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.
 LT - Threatened: species, subspecies, or isolated population facing a very high risk of extinction in the future.

Other species of note historically reported as occurring on or near Hurlburt Field include the red cockaded woodpecker (RCW), gopher tortoise, and bald eagle.

No RCW nesting activity has been identified on Hurlburt Field for at least 10 years, and no active RCW cavity trees found in over 15 years. Although a few scattered former cavity trees still exist in the vicinity of Commando Village and the Permanent Exercise Facility, the USFWS has indicated that no additional consultation under Section 7 of the ESA is needed prior to conducting activities or undertaking construction in these former RCW areas.

Two gopher tortoise populations formerly on Hurlburt Field reportedly no longer exist (Printiss and Hipes, 1997). The small, isolated population in the southwestern section of the installation apparently died out or migrated out of the area. Tortoises from the isolated population east of Loop Road were relocated into a larger population within Eglin AFB.

The bald eagle breeds in coastal marshes and areas adjacent to rivers and lakes where large isolated trees provide nest sites (Printiss and Hipes, 1997). Due to dramatic population recovery the bald eagle was removed from the Federally Threatened Species list in August 2007 and was removed as a State classified species in April 2008. It is widely recognized that continued recovery of the species is dependent upon the monitoring and protection of nesting sites. Current protections are provided to the bald eagle and their nesting sites under the Federal Bald and Golden Eagle Protection and Migratory Bird Treaty Acts and the Florida Bald Eagle Rule, FAC 68A-16.002 (FWC, April 2008). The FWC tracks nest sites in the state of Florida and currently, there are no identified bald eagle nests at Hurlburt Field.

Due to the variety of habitats found on Hurlburt Field, the installation supports a rich diversity of flora and fauna (**Figure 1-13**).

3.8 Cultural Resources

3.8.1 Definition

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and any other physical evidence of human activity considered important to a culture or community for scientific, traditional, religious, or other reasons. Numerous laws and regulations address the management of these cultural resources (Hurlburt Field, 2007b). As a Federal agency, Hurlburt Field is required by law to consider the effects of its actions on historic properties. Mandating regulations include the following:

- Antiquities Act of 1906
- Historic Sites Act of 1935
- NEPA of 1969
- NHPA of 1966 (as amended 36 CFR Part 800)

- Archaeological and Historic Preservation Act of 1974
- Archaeological Resources Protection Act of 1979
- Native American Graves and Repatriation Act of 1990
- American Indian Religious Freedom Act of 1978

The act most directly related to cultural resources management at Hurlburt Field is the NHPA. Section 106 of the NHPA requires that Federal agencies analyze the impacts of Federal activities on historic properties or cultural resources included in, or eligible for inclusion in, the NRHP. Section 110 of the NHPA requires that Federal agencies inventory any cultural resources located on their property or within their control and nominate those found to be significant for inclusion into the National Register.

Areas potentially impacted by continuing mission activities are surveyed through the Air Force EIAP. Mitigation measures are developed to minimize potential impacts. By defining zones of archaeological or historic high probability, project planners and managers are able to make decisions whether to relocate a proposed activity from an area of high probability to an area of low probability, therefore avoiding costly adjustments later in the project.

Traditional cultural resources include archaeological resources, historic buildings, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the continuance of traditional cultures. Archaeological resources (prehistoric and historic) are located where human activity measurably altered the earth or left deposits of physical remains (e.g., villages, middens, campsites, tools, arrowheads, roads, fences, trails, battlegrounds, mines, and a variety of other features). Prehistoric refers to resources that predate the advent of written records in a region. These resources can range from a scatter composed of a few artifacts to village sites. Historic refers to resources that postdate the advent of written records in a region.

No legal criteria have been established for assessing the importance of traditional cultural resources. These criteria must be established through consultation with Native Americans or other potentially affected groups, in accordance with the requirements of the NHPA. This also can be accomplished using 36 CFR Part 60.4 and the Advisory Council on Historic Preservation Guidelines. The Native American Graves Protection and Repatriation Act (1990) defines the procedures for consultation on and treatment of Native American burials and burial artifacts.

3.8.2 Existing Conditions

The most recent Hurlburt Field Integrated Cultural Resource Management Plan (ICRMP) was completed in May 2007 (Hurlburt Field, 2007b). This document is updated every five years per Federal regulations. The ICRMP explains laws which govern cultural resources; outlines the goals, responsibilities, and objectives of the installation's cultural program; provides the existing cultural resources inventory; reviews Standard Operating Procedures (SOPs); and discusses various procedural, management, and budgeting issues.

The entire land area of Hurlburt Field has been evaluated and designated as either high probability, low probability, or previously surveyed for the likelihood of cultural resources. These probability areas have been reviewed by and agreed upon by the SHPO for the State of Florida. All high probability areas have been intensively surveyed for cultural resources. For project areas within previously surveyed low probability areas, it has been determined those areas do not need intensive survey. For the low probability areas that have not been inventoried, a formal, intensive survey has not been recommended. However, according to Hurlburt Field SOPs, anyone conducting ground-disturbing activities at Hurlburt Field must follow established procedures for inadvertent discovery of cultural resources. A summary of prehistoric and historic periods in the region that encompasses Hurlburt Field is provided in the ICRMP (Hurlburt Field, 2007b).

Previous cultural resource investigations at Hurlburt Field include those conducted from 1982 to 1990 as part of the large-scale Historic Preservation Plan for Eglin AFB. Other investigations include a National Park Service survey of five project areas in 1988 and several surveys conducted by the USACE between 1991 and 1994. Ten archaeological sites were identified on the installation during these past surveys (Pruitt, 2008). These surveys made recommendations for additional investigations at several sites to determine eligibility for listing on the NRHP. Phase II testing was conducted at five sites in 1997 by Brockington and Associates to determine eligibility of sites 80K61, 80K133, 80K126, 80K380, and 80K5. The Phase II surveys found these five sites to be eligible for nomination to the NRHP (Hurlburt Field, 2007b).

In addition to potential cultural resources, Hurlburt Field contains several buildings that may be potentially eligible for inclusion on the NRHP. According to the NHPA and guidelines established by the NRHP, a property normally must be at least 50 years old to be considered eligible for the NRHP. As time progresses the potential exists for more buildings to become eligible for listing. Therefore, in accordance with Section 110 of the NHPA, buildings that meet the 50-year age minimum are evaluated every five years based on the potential need to demolish or rehabilitate the buildings in order to maximize the use of government property.

The first architectural reconnaissance survey at Hurlburt Field was conducted by Prentice Thomas and Associates and Historic Property Associates in 1995. Ten buildings were surveyed, and none were found eligible for listing to the NRHP. The survey concluded that most of Hurlburt Field's World War II era buildings had been extensively modified, thus reducing their overall historic significance. In 2004, M&P Services International Corporation and R.S. Webb & Associates conducted an inventory to evaluate 36 structures at Hurlburt Field. None of the 36 structures evaluated were found to be eligible for nomination to the NRHP. In 2006, e²M, Inc. evaluated eight buildings and structures at Hurlburt Field that would turn 50 years old during the period covered by the ICRMP (2007–2011). None of the surveyed buildings were recommended as eligible for listing in the NRHP (Hurlburt Field, 2007b). Overall, cultural and archaeological surveys have located relatively few historically significant cultural resources at Hurlburt Field.

3.9 Coastal Zone Management

3.9.1 Definition

The CZMA of 1972 was instituted to preserve, protect, develop, and, where possible, to restore or enhance the resources of the Nation's coastal zone. The coastal zone in the Florida Panhandle and along Hurlburt Field's southern boundary is rich in a variety of natural, commercial, recreational, ecological, industrial, and aesthetic resources of immediate and potential value to the present and future well-being of the Nation (CZMA, 1972).

The habitat areas of the coastal zone and the fish, shellfish, other living marine resources, and wildlife therein are ecologically fragile and consequently extremely vulnerable to damage by coastal alterations. Additionally, the special natural and scenic characteristics of coastal zones in the U.S. are being damaged by ill-planned development that threatens these values. Land uses in the coastal zone and the uses of adjacent lands which drain into the coastal zone may significantly affect the quality of coastal waters and habitats. Efforts to control coastal water pollution from land use activities must be improved (CZMA, 1972).

3.9.2 Existing Conditions

In response to the Federal CZMA, Florida enacted the Florida Coastal Management Program (FCMP) (Florida Statutes, Chapter 380, Part II) to manage, protect, and maintain the coastal zone and its resources. The geography of Florida is such that the entire state is considered to be within the coastal zone and therefore subject to oversight by the FCMP. As a result, the state has the authority to review Federal actions for consistency with the program (USAF, 2005a).

The FCMP consists of a network of agencies implementing 23 Florida Statutes that protect and enhance the state's natural, cultural, and economic coastal resources. **Section 8.0** includes a listing of the 23 applicable Florida Statutes. The goal of the program is to coordinate local, state, and Federal agency activities using existing laws to ensure that Florida's coast is as valuable to future generations as it is today. The FCMP operates the Florida State Clearinghouse, which circulates applications for Federal activities, including Federal permits and funding, to government agencies that have statutory authority over some part of the activity (State of Florida, 2008). The office of Intergovernmental Programs serves as the Florida's single point-of-contact for the Florida State Clearinghouse program and coordinates FDEP's position on the consistency of Federal projects and Federally funded activities with departmental policies and regulations. FDEP provides comments to the Florida State Clearinghouse in accordance with EO 12372, *Intergovernmental Review of Federal Programs*; NEPA; CZMA; and other Federal laws and policies (FDEP, 2005).

Under Florida's program, permits are required for any erosion control devices, excavations, or erection of structures within the CCCL. This line extends landward from the shores along the Gulf of Mexico, excluding Choctawhatchee Bay, and its potential inland extent of erosion due to a 100-year storm event. The mainland area of Hurlburt Field that borders the Santa Rosa Sound has no designated CCCL; however, Okaloosa County regulations require a 50-foot setback from the mean high water line for all new principal structures.

Federal applicants seeking a FCMP consistency determination submit their own preliminary consistency determination to the maximum extent practicable along with an EA to the Florida State Clearinghouse, which coordinates the review process. Consistency reviews of projects which require permits from the USACE, U.S. Coast Guard, or require a Florida Environmental Resource Permit are conducted during the state permit review and must include an evaluation on the project based upon Florida's 23 statutes.

3.10 Socioeconomics/Environmental Justice

3.10.1 Definition

Socioeconomics is the study of the relationship between economic activity and social life. It involves the attributes and resources associated with the human environment, particularly population and economic activity. Population levels are affected by regional birth and death rates, immigration, and emigration. Employment, personal income, and industrial or commercial growth are attributes of economic activity. Changes in the economic activity indicators might be accompanied by changes in other components, such as housing and public service availability. Socioeconomic data at county, state, and national levels enable characterization of baseline conditions.

Data on economic activity helps provide insight into socioeconomic conditions that may be affected by a Proposed Action. Employment data identifies gross numbers of employees, employment (by industry and trade), or unemployment status and trends. Personal income data 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 growth in industrial, commercial, or other sectors helps provide baseline and trend line information about the economic health of a region. Data on the installation’s expenditures helps to identify the relative importance of an installation in terms of its purchasing power and job base in the regional economy.

Demographics identify the levels and changes in regional population levels. Demographics data can also be obtained to identify a region’s characteristics in terms of race, ethnicity, poverty status, educational attainment level, and other broad indicators as appropriate to evaluation of a Proposed Action. Analysis of regional demographics in relation to potential effects on minority and low-income populations located near proposed Federal actions is termed Environmental Justice Analysis. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Population*, issued by the President on February 11, 1994, includes the development of Federal agency implementation strategies for the identification of minority and low-income populations where proposed Federal actions have disproportionately high and potentially adverse human health and environmental effects on minority and low-income populations. Accompanying EO 12898 was a Presidential Memorandum that referenced existing Federal statutes and regulations to be used in conjunction with EO 12898. The memorandum addressed the use of the policies and procedures of the NEPA. Specifically, the memorandum indicates that, “each Federal agency shall analyze the environmental effects, including human health, economic, and social effects of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the NEPA 42 USC section 4321, et seq.” Although an environmental justice analysis is not mandated by NEPA, the Air Force has directed that the EIAP will be used for the compliance of the provisions of the Executive Order, as stated in 32 CFR Part 989.33.

Socioeconomic data shown in this section are presented at the U.S. Census Bureau Tract, MSA, and state levels to characterize baseline socioeconomic conditions in the context of regional, state, and national trends. An MSA is a geographic entity defined for use by Federal statistical agencies based on the concept of a core urban area with a high degree of economic and social integration with surrounding communities. 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).

EO 12898 provides no guidelines on how to determine concentrations of minority or low-income populations. The “Guide for Environmental Justice Analysis with the EIAP” dated November 1997 (USAF, 1997) was developed by the Department of the Air Force

to give guidance in conducting environmental justice analyses. A demographic analysis provides information on the approximate locations of minority and low-income populations in the area potentially affected by the Proposed Action at Hurlburt Field. Socioeconomic impacts would occur in Okaloosa and Santa Rosa Counties, the ROI for this EA.

On April 21, 1997, the President issued EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This EO requires Federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. The EO further requires Federal agencies to ensure that their policies, programs, activities, and standards address these disproportionate risks. The order defines environmental health and safety risks as “risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink and use for recreation, the soil we live on, and the products we use or are exposed to).” Such information aids in evaluating whether a Proposed Action would adversely impact children afforded protection by the EO.

3.10.2 Existing Conditions

Hurlburt Field lies within Okaloosa County close to the Okaloosa - Santa Rosa County border. Current statistics for which counties Hurlburt Field personnel reside in are not available, but due to proximity it is reasonable to expect a substantial percentage reside in both counties. Analysis of recent traffic studies indicates that over 40% of Hurlburt Field personnel reside west of the installation in Santa Rosa County or beyond.

The Fort Walton Beach-Crestview-Destin MSA corresponds to Okaloosa County. The adjacent MSA, Pensacola-Ferry Pass-Brent encompasses both Santa Rosa and Escambia counties. The populations for these MSAs are 180,291 and 439,987, respectively. The 2006 population estimates for Okaloosa County and Santa Rosa counties are 180,291 and 144,561, respectively. The two cities in Okaloosa County closest to Hurlburt Field are Mary Esther and Fort Walton Beach with 2006 population estimates of 3,976 and 19,339 respectively (U.S. Census Bureau). The closest city in Santa Rosa County is Navarre; its 2000 Census population was 21,505, and it has 2005 population estimate of 28,652 (TEAM Santa Rosa, 2007). Both counties have experienced considerable growth from 2000 to 2006 with a 5.4% increase in Okaloosa and an 18.5% increase in Santa Rosa.

As of January 31, 2008, Hurlburt Field had 7,588 military personnel. The total civilian labor force of Okaloosa County in 2007 was 99,895. Of this number, 10,961 civilians were employed at Eglin AFB and Hurlburt Field. The 2007 labor force statistics for Hurlburt Field and the surrounding area are provided in **Table 3-17**.

Table 3-17 Labor Force Statistics for Hurlburt Field and Surrounding Area

Labor Force	Number of People Employed
Military	
Hurlburt Field	7,588
Eglin AFB	11,000
Duke Field	1,200
Civilian	
Hurlburt Field	900
Eglin AFB	10,061
Duke Field	300
Okaloosa County	99,895
Santa Rosa County	66,650
Walton County	33,857

Hurlburt Field Source: Hurlburt Field Public Relations Feb 2008 (Personnel numbers provided by Hurlburt Field Public Relations do not include contractors or reservists as Hurlburt Field Public Relations does not track those statistics.)

Eglin AFB and Duke Field Source: Economic Development Council for Okaloosa County, 2007

Civilian Source: Economic Development Council of Okaloosa County, 2007

The 2005/2006 mean, median, and per capita income for the Fort Walton Beach, Navarre, Okaloosa County, Santa Rosa County, and the State of Florida are provided in **Table 3-18**.

Table 3-18 2005/2006 Income Levels

Income	Fort Walton Beach	Navarre (measured as zip code 32566)	Okaloosa County (2006 data)	Santa Rosa County (2006 data)	State of Florida
Mean Household	\$61,449	\$64,753	NA	NA	NA
Median Household	\$45,248	\$53,013	\$54,422	\$53,086	\$45,495
Income per Capita	\$24,575	\$23,589	\$29,546	\$22,852	\$25,297

Fort Walton Beach information - Fort Walton Beach Chamber of Commerce

Navarre information –TEAM Santa Rosa County Economic Development Council (TEAM Santa Rosa, 2007)

Okaloosa and Santa Rosa Counties and State of Florida – U.S. Census Bureau, 2006 American Community Survey

NA – Not Available

Resident minority and poverty estimates are available through the U.S. Bureau of Census. Minority populations included in the census are identified as African American; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; Hispanic; or Other. Poverty status is reported as the number of families with income below poverty level of \$20,000 for a family of four in 2006, or \$17,050 in 2000 (as reported at <http://aspe.hhs.gov/poverty/07poverty.shtml> [U.S. Department of Health & Human Services, 2008]).

The population demographics for Okaloosa and Santa Rosa counties and the State of Florida for 2000 and 2006 are provided in **Table 3-19**.

Table 3-19 2000 and 2006 Demographics

Year	Okaloosa County		Santa Rosa County		State of Florida	
	2000	2006	2000	2006	2000	2006
Population	170,498	180,291	117,743	144,561	15,982,378	18,089,889
Percent White	83.4	82.6	90.7	90.2	78.0	76.1
Percent African American	9.1	9.5	4.2	5.1	14.6	15.4
Percent Asian	2.5	2.8	1.3	1.9	1.7	2.2
Percent Hispanic/Latino	4.3	5.3	2.5	3.3	16.8	20.1
Percent American Indian / Alaskan Native	0.6	0.4	1.0	0.9	0.3	0.3
Percent Hawaiian / Pacific Islander	0.1	0.1	0.1	0.0	0.1	0.1
Percent minority	16.6	18.1	9.1	11.2	33.5	38.1
Percent measured as families – income below poverty level	6.6	7.8	7.9	8.0	9.0	9.0
Percent measured as individuals – income below poverty level	8.8	9.7	9.8	11.6	12.5	12.6

Source: US Census Bureau

Although the 2006 data is more recent, information obtained from the 2000 Census is a more complete data set which includes data reporting and tracking for census tracts and blocks. Review of Okaloosa County census tracts located adjacent to Hurlburt Field revealed poverty rates, when measured as families (versus individuals), is below the county average at 2.7 to 5.6%. However, one non-adjacent tract located approximately one-mile east of Hurlburt Field had a listed poverty rate measured as families with

income below poverty level at 14.9 %, which is slightly greater than the county and state averages. The easternmost census tract in Santa Rosa County, which is approximately 3.5 miles west of Hurlburt Field, had a listed poverty rate below the county and state averages with values of 6.5 – 7.5%. Current actions at Hurlburt Field do not appear to be negatively economically impacting the ROI when compared to county and state economic statistics.

3.11 Infrastructure

3.11.1 Definition

Infrastructure is the basic facilities, services, and installations needed for the functioning of a community or society. Infrastructure is completely human-made. A high correlation exists 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 economic growth of an area. The infrastructure components to be discussed in this section include the airfield, communications, electrical, liquid fuel, natural gas, wastewater, stormwater, and transportation systems.

3.11.2 Existing Conditions

Airfield

The Hurlburt Field airfield pavements system includes the runway, paved overruns, parking/maintenance aprons, aircraft taxiways, and arm/disarm pads. The installation's one runway, Runway 18/36, is 9,600 feet in length and runs north to south with a parallel taxiway. Secondary taxiways linking the parallel taxiway to the runway are identified alphabetically from the north to the south. Taxiway Alpha is at the approach end of runway 18 and Taxiway Foxtrot is at the approach end of runway 36. The west apron and the hot cargo apron are adjacent to the parallel taxiway. The east apron is connected by Taxiways Charlie and Delta (Hurlburt Field, 1999).

Communications

The communication system on Hurlburt Field includes telephone, data networking, radio, and security systems. The installation telephone system consists of copper cable and manhole/conduit systems. The current communication system is primarily copper wiring. The installation telephone switches are government-owned and operated. The main switch services the west side of the airfield and is at 86% capacity which exceeds the manufacturers recommended maximum of 85%. The existing free lines are reserved for emergency requirements only. A remote switch services the east side of the installation and, with ongoing additions to the installation, is adequate for existing requirements. The remote switch is at 47% capacity. Note that both base switches have adequate Integrated Services Digital Network ports to support Secure Terminal Equipment.

To overcome the main switch load limitations, Hurlburt Field is beginning to implement Voice over Internet Protocol (VoIP) for eligible users. Eligibility is determined by the robustness of the user's facility backup power and network connections. VoIP is a technology that converts your voice into a digital signal that travels over the local data network. User implementation at Hurlburt Field will require a network connection and a VoIP telephone set as well as a backup power source. The Hurlburt Field solution will use the same network connection for both the user's telephone and workstation. A local gateway at Hurlburt Field will ensure VoIP users can transparently connect with other VoIP, local commercial, Defense Switching Network and long distance commercial users.

The data network system at Hurlburt Field consists of a robust 10 node backbone interconnected using one giga bits per second (Gbps) Ethernet over fiber. End buildings tie into a local backbone node also using one Gbps Ethernet over fiber.

Electrical

Gulf Power Company provides electrical power to Hurlburt Field. Hurlburt Field has one substation. Gulf Power owns the incoming transmission line to the substation, and Hurlburt Field owns the low-voltage distribution lines on the installation. The installation distribution system is primarily above-ground power lines (Hurlburt Field, 2002).

Liquid Fuel

The primary liquid fuel used at Hurlburt Field is aviation fuel (JP-8) and is delivered by barge at the Soundside Marina. The fuel is transferred from the marina by 3,500 feet of underground pipeline to the two bulk aboveground storage tanks (ASTs), each with a capacity of 845,000 gallons. Current fuel delivery to aircraft is limited to the use of refueling trucks (R-11 refueling units) and two flightline fill stands (USAF, 2005a).

Natural Gas

Okaloosa Gas District provides natural gas for Hurlburt Field. The company owns and operates the system up to the meters. All systems within the buildings are the responsibility of Hurlburt Field. The primary use of natural gas is for hot water generation and heating of facilities (USAF, 2005a).

Wastewater

With the exception of Commando Village Housing (which is connected to the Okaloosa County wastewater treatment plant), Hurlburt Field discharges its domestic and industrial wastewater to the installation wastewater treatment plant. Approximately 5% of the total flow is industrial wastewater mainly originating from wash racks located in

aircraft maintenance areas (USAF, 2005a). The current NPDES permit (Permit No. FL0003174) allows a maximum flow of 1.0 million gallons per day (MGD). The treatment plant is currently operating at about 0.7 MGD.

The wastewater treatment plant is an advanced biological treatment facility divided into several major categories: pretreatment, Orbal Process (biological treatment), clarification, tertiary (sand filter) treatment, chlorination, wetland application, and sludge handling facilities (Hurlburt Field, 2008b). Currently, approximately 32,000 gallons per day (gpd) of reuse water are utilized at the plant (Stefanik, 2009). Infrastructure to transport reuse water to the Clearwater Rinse Facility and additional points of use on Hurlburt Field is scheduled to be completed in September 2009 (Tabor, 2009). When complete, approximately 10,000 gpd will be available for use at the Clearwater Rinse Facility. Other potential reuse options include irrigation, wash/rinse water, cooling towers, and fire crew training. An additional 545,000 gpd of reuse water could be utilized on Hurlburt Field if all potential reuse sites are brought online.

Treated effluent not utilized as reuse water is discharged into receiving wetlands of an unnamed arm of East Bay Swamp (FDEP Class III fresh waters) at a discharge location comprised of four discharge surface structures approximately 0.5 miles northeast of the wastewater treatment plant and approximately 18,000 to 20,000 cubic feet of dried sludge are disposed of annually by contract and used as an agricultural amendment.

Stormwater

For stormwater compliance, military installations are required to attain Municipal Separate Stormwater Sewer System (MS4) permits under Phase II of the NPDES stormwater permitting program. Under these MS4 permits, Hurlburt Field has established and is required to implement a number of mitigations, each of which has measurable goals, a schedule for implementation/completion, and a list of responsible entities/departments. The FDEP issued Permit No. FLR04E002 to Hurlburt Field for the discharge of stormwater from Phase II MS4 under the provisions of FS Section 403.0885, 40 CFR Part 122.32-37, and FAC 62-624, *Municipal Separate Storm Sewer System*.

For stormwater compliance in industrial areas, military installations are required to attain MSGPs under the NPDES stormwater permitting program. Under the MSGP program, installations are required to prepare and implement a SWP3. Hurlburt Field is covered under a NPDES MSGP administered by the FDEP (Permit No. FLR05B132) under the provisions of FS Section 403.0885, 40 CFR Part 122.28, and FAC 62-621, *Generic Permits*. This permit covers the industrial parts of the installation, including the maintenance hangars, runways, aprons, bulk fuel storage areas, and other vehicle/aircraft maintenance and storage areas.

The Hurlburt Field Environmental Flight has developed a Stormwater Program Management Plan which fulfills the requirements for a SWP3 required by the FDEP MS4 NPDES Permit and MSGP. The plan identifies and evaluates potential stormwater pollution sources and describes measures to prevent and/or contain accidental discharges of materials or releases to the environment (Hurlburt Field, 2007c).

The 1 SOCES handles all applications for stormwater permits and considers issues associated with the increased volume and velocity of stormwater runoff. The Environmental Flight identifies methods to reduce the potential for negative impacts to water resources from these activities. During the design phase for future construction, in accordance with United Facilities Criteria (UFC) 3-210-1 *Low Impact Development* (LID), specific stormwater management practices would be incorporated into building and site design and landscape plans. LID is a stormwater management strategy to help reduce the rate of runoff, reduce water pollution, and increase localized ground water recharge by emulating natural drainage patterns and hydrology. Additionally, in accordance with FAC 62-621, erosion and sediment control best management practices (BMPs) such as silt fencing, sediment traps, application of water sprays, and revegetation of disturbed areas would be implemented to minimize the potential water resource impacts during active construction.

Stormwater collected on the installation is discharged by a series of drainage ditches and storm sewers to major discharge points. Hurlburt Field has 27 stormwater sub-basins and 24 outfalls (**Figure 3-7**). The stormwater ultimately flows into Santa Rosa Sound to the south and East Bay Swamp to the north. The majority of the stormwater departing south goes through one of five regional stormwater ponds, where water is filtered and potential contaminants are removed before entering the Santa Rosa Sound. Much of the stormwater generated on the north side of Hurlburt Field is treated in locally constructed stormwater ponds prior to discharge in East Bay Swamp (Hurlburt Field, 2007c). Some areas in both the northern and southern parts of the base that were developed prior to stormwater regulations still discharge untreated stormwater.

Transportation

Traffic

Access to the base is provided by two gates: the Main Gate at Cody Avenue and U.S. 98 and the East Gate at Martin Luther King Jr. Boulevard and Independence Road/Freedom Way. The majority of people access the base using the main gate at U.S. 98. Primary roads on Hurlburt Field include Independence Road, Freedom Way, and the first section of Cody Avenue upon entering the installation. Collector roads include Cruz Avenue, Simpson Avenue, Terry Avenue, Tully Street, and the latter section of Cody Avenue.

In March 2008 Hurlburt Field completed a Transportation System Study and subsequent publication of a Transportation Plan (Hurlburt Field, 2008a). The plan summarized the findings and recommendations for the traffic and parking conditions at Hurlburt Field based on extensive studies and site observations and identified several transportation system deficiencies and recommendations. Deficiencies identified included several intersections that had turning movements with poor Level of Service (LOS) capacity.

The intersection LOS refers to the adequacy or the ability of the intersections in the study area to accommodate peak-hour traffic volumes. Motorists making movements through intersections are required to wait for gaps in the opposing traffic stream, and the LOS is a measure of that delay. The methodology used for determining LOS is based on industry accepted analysis techniques as described in the Highway Capacity Manual (HCM) by the Transportation Research Board. The HCM defines six LOS for determining the operating characteristics of an intersection; these are quantified in terms of the delay a motorist experiences at the intersection (**Table 3-20**). They are measures of driver discomfort, excess fuel consumption, and lost travel time (Hurlburt Field, 2008a).

Table 3-20 Level of Service Defined for Intersections

Delay Per Vehicle (seconds)			
LOS	Signalized	Un-signalized	Expected Delay
A	0-10	0-10	Little or no delay
B	10-20	10-15	Short traffic delays
C	20-35	15-25	Average traffic delays
D	35-55	25-35	Long traffic delays
E	55-80	35-50	Very long traffic delays
F	Greater than 80	Greater than 50	Congestion

Source: Hurlburt Field Transportation Plan, March 2008

In the Transportation Plan, the LOS for 11 intersections was analyzed (**Figure 3-10**). The Transportation Plan states that the entry gates support the current volumes with some congestion during rush hours. The LOS for the morning and evening peak hour (rush hour) for the intersections is summarized in **Table 3-21**.

Table 3-21 Intersection Level of Service Summary

Intersection	Peak Hour	Existing LOS (2007)
Martin Luther King Jr. Blvd. and Freedom Way	AM	F
	PM	F
Cody Avenue and Independence Road	AM	F
	PM	F
Cody Avenue and Simpson Avenue	AM	F
	PM	F
Independence Road and Lielmanis Avenue	AM	C
	PM	D
Independence Road and Brimms Road	AM	D
	PM	F
Cody Avenue and Tully Street	AM	C
	PM	C
Tully Street and Terry Avenue	AM	C
	PM	B
Independence Road and O'Neil Avenue	AM	F
	PM	F
Independence Road and Terry Avenue	AM	F
	PM	F
Independence Road and Tully Street	Mid day	D
	-	-
Main Gate: US98 and Cody Avenue	AM	F
	PM	F

Source: Hurlburt Field Transportation Plan, March 2008

Parking

The Transportation Plan also studied the parking situation at Hurlburt Field. In general, some parking lots have inadequate capacity and drivers park illegally in grassy areas. In the parking study portion of the plan, the installation was divided into seven regions as shown in **Figure 3-11**.

Typically, the standard convention is that the practical capacity of a long-term parking lot is 90%. In addition, capacity over 90% is considered over utilized while 80% to 90% capacity is considered adequately utilized. Below 80% capacity is under utilized. However, at the time of the parking utilization study approximately 33% of the military personnel were deployed. To account for the number of military personnel deployed, a utilization rate of 80% was used as practical capacity of the parking lots. Within each region, parking lots are under utilized, adequately utilized, and over utilized. The predominate areas with high parking utilization rates are as follows:

- Central core administrative area along Lukasik Avenue between Cody Avenue and Terry Avenue (Study Region 3)
- Some selected parking areas along Tully Street that serve airfield operations personnel (Study Regions 1 and 3)
- Parking areas serving the administrative facilities along O’Neil Avenue (Study Region 4)

The existing parking lot utilization rate in the administrative areas of the Study Regions 3 and 4 are close to their design capacities. In total, the installation has 10,616 parking stalls available, during the field data collection 7,156 were occupied, and 187 cars were illegally parked. The parking utilization data for each region is presented in **Table 3-22**.

Table 3-22 Parking Utilization Data

Regions	1	2	3A	3B	4	5	6	7	Totals
Parking Stalls Available	2,791	1,727	1,374	931	946	444	972	1,431	10,616
Number of Stalls Occupied	1,788	1,153	1,165	705	723	200	649	773	7,156
Illegally Parked Vehicles	46	24	47	55	0	0	15	0	187
Utilization Rate	66%	68%	88%	82%	76%	45%	68%	54%	69%

Source: Hurlburt Field Transportation Plan, March 2008

AT/FP requirements call for controlled perimeters to limit the likelihood of planted explosives or that a vehicle carrying explosives could penetrate a controlled perimeter. A minimum standoff distance of 33 feet of unobstructed space is required for AT/FP around the building perimeter and 82 feet of standoff distance from parking and roadways for a primary gathering building. All future parking areas should be located outside of the building restriction lines as established by AT/FP requirements. A total of 2,182 parking stalls could be removed for implementation of AT/FP requirements (Hurlburt Field, 2008a). Therefore, larger centrally located parking lots are recommended for construction, while smaller lots adjacent to buildings should be eliminated (Hurlburt Field, 2008a).

Transportation Plan Recommendations

Multiple recommendations were made in the Transportation Plan to improve the parking and traffic circulation at Hurlburt Field. The recommendations were divided into short-range (0-5 years) and long-range (5+ years) recommendations. The major short-range recommendations and the estimated FY of construction are presented in **Table 3-23**.

Table 3-23 Transportation Plan Short-Range Recommendations

Recommendation	Project Number	FY
Roundabout at Independence Road and Tully Street intersection	FTEV071187	FY09
Realign Terry Avenue and O’Neil Avenue to form a signalized intersection at Independence Road	FTEV962010	FY09
Storm Rideout Shelter and parking structure	FTEV073023	FY15
Miscellaneous additional surface parking lots	Multiple	Varies
Widen Independence Road to four lanes in phases	FTEV033013	FY15
Realign Cruz Avenue in phases (Phase I completed)	FTEV033015	FY15
Main Gate Improvements	Completed	

Source: Hurlburt Field Transportation Plan, March 2008, and Hurlburt Field personnel

3.12 Hazardous Materials and Waste

3.12.1 Definition

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC Sections 9601-9675), as amended by the Superfund Amendments and Reauthorization Act (SARA) and TSCA, defines hazardous materials. The Solid Waste Disposal Act, as amended by RCRA, which was further amended by the Hazardous and Solid Waste Amendment (HSWA), defines hazardous wastes. Hazardous material is defined as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that could cause an increase in mortality, serious irreversible illness, or incapacitating reversible illness or that might pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

Special hazards are those substances that might pose a risk to human health, but are not regulated as contaminants under hazardous waste statutes. Included in this category are asbestos-containing materials (ACM), radon, and lead-based paint (LBP). The presence of special hazards or controls over them might affect, or be affected by, a Proposed Action. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of a Proposed Action.

Management of waste generation and disposal is managed through the Hurlburt Field Environmental Flight. Historical releases of waste to the environment that occurred prior to 1984 are managed through Hurlburt Field’s Environmental Cleanup Program. The Environmental Cleanup Program at Hurlburt Field is managed by AFSOC. The Environmental Cleanup Program provides a uniform, thorough methodology to evaluate past disposal sites, to control the migration of contaminants, to minimize potential

hazards to human health and the environment, and to clean-up contamination. Description of Environmental Cleanup Program 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 ground water usage might be foreclosed where a ground water contaminant plume remains to complete remediation).

3.12.2 Existing Conditions

Hazardous Materials

AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. It 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. The 1 SOW has established a hazardous materials management program in accordance with AFI 32-7086. The hazardous materials management program ensures that only the smallest quantities of hazardous materials necessary to accomplish the mission are purchased and used.

Hazardous and toxic material procurements are currently managed through a centralized base Hazardous Materials Pharmacy (HAZMART) using an Environmental Management Information System (EMIS) tracking system. The EMIS tracks acquisition and inventory control of hazardous materials and health and safety information.

Wastes

Requirements for waste management at Hurlburt Field are established through AFI 32-7042, *Solid and Hazardous Waste Compliance*. Hurlburt Field implements waste management activities in accordance with several waste-specific management plans (USAF, 2005a).

At Hurlburt Field, two classifications of wastes are generated: nonhazardous solid waste and hazardous waste. Both wastes are removed by a contractor for off-site disposal. In addition, recyclable materials are removed from the base by a contractor.

Hazardous Waste

Hazardous wastes, as defined per RCRA, are substances with strong physical properties of ignitability, corrosivity, reactivity, or toxicity that may cause an increase in mortality, a serious irreversible illness, an incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous materials and wastes are those substances defined as hazardous by CERCLA, the TSCA, and the Solid Waste Disposal Act, as amended by RCRA. In general, this includes substances that, because of their

quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or to the environment when released into the environment. In addition, hazardous substances and hazardous chemicals are regulated by the Emergency Planning and Community Right-to-Know Act (EPCRA) (42 USC Sections 11001-11050). Transportation of hazardous materials is regulated by the U.S. Department of Transportation (DOT) regulations within 49 CFR.

Normal operations at Hurlburt Field generate hazardous wastes, as defined by the USEPA Implementing Regulations Identifying Hazardous Wastes (40 CFR Part 261). Facilities that generate more than 2,200 pounds of hazardous waste annually are regulated as a large-quantity generator. Hurlburt Field is a large-quantity generator of hazardous waste under EPA identification number FL7570024375. Hurlburt Field's Hazardous Waste Management Plan ensures the proper handling, accumulation, and disposal of all hazardous/special wastes generated at Hurlburt Field (Hurlburt, 2006a).

Hazardous wastes generated at Hurlburt Field include waste paint-related materials, waste oils, fuels, hydraulic fluid, adhesives, photo developers, and lubricants. The responsibility for managing hazardous waste lies with the generating organization and 1 SOCES. The waste is stored at or near the point of generation at initial hazardous waste accumulation points. The waste is transferred to the 90-day accumulation point (Bldg 80523) on Hurlburt Field within 72 hours of the accumulation of 55 gallons of hazardous waste or one quart of acute waste. The Eglin AFB Defense Reutilization and Marketing Office serves as the contracting agent between Hurlburt Field and the hazardous waste transportation and disposal contractor for off-site disposal (Hurlburt Field, 2006a).

Emergency response to spills or releases of hazardous materials is governed by the requirements of CERCLA, EO 12580, *Superfund Implementation*, and EPCRA. Under CERCLA, the resident agencies at Hurlburt Field and contractors are responsible for reporting releases of reportable quantities to the National Response Center within 24 hours.

Used oil is accumulated at sites around the base and periodically picked up by an outside contractor for recycling. An AST for waste oil is located at Building 90126, and 34 oil/water separators are located at various locations on base.

Solid Wastes

The availability of existing landfills to support a population's residential, commercial, and industrial needs is integral in evaluating municipal solid waste (MSW). Alternative means of waste disposal might involve waste-to-energy programs or incineration. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduce reliance on landfills for disposal.

In some localities, landfills are designed specifically for, and are limited to, disposal of construction and demolition (C&D) debris. At least ten C&D landfills and at least four Class I MSW landfills are located within 50 miles of Hurlburt Field.

In accordance with the Hurlburt Field Integrated Solid Waste Management Plan, nonhazardous solid waste is removed by a contractor for off-site disposal (Hurlburt Field, 2005a). Recyclables are also removed from the base by a contractor. Reuse, recycling, and disposal requirements for recoverable and used lubricants are detailed in the Hurlburt Field Hazardous Waste Management Plan (Hurlburt Field, 2006a).

Stored Fuel

Hurlburt Field has 41 ASTs that store fuel. Their capacities range from 200 to 845,000 gallons. These tanks store primarily aviation fuel (JP-8), gasoline, or diesel fuel. The JP-8 is delivered by barge at the Soundside Marina. The fuel is transferred from the barges by 3,500 feet of underground pipelines to the two bulk ASTs, each with a capacity of 845,000 gallons. Gasoline and diesel is delivered to the base by tank trucks. All underground storage tanks (USTs) were removed from Hurlburt Field by April 1995. Hurlburt Field's SPCC Plan addresses control and clean-up of fuel and lubricant spills (Hurlburt Field, 2007e).

Asbestos

Asbestos is regulated by FDEP, EO 12088, *Federal Compliance with Pollution Control Standards*, and AFI 32-1052, *Facility Asbestos Management*. The current Air Force policy is to manage or abate ACM in active facilities and remove ACM, following regulatory requirements, before facility demolition. ACM is abated when there is a potential for asbestos fiber release that would affect the environment or human health.

The 2007 Asbestos Management and Operations Plan identifies procedures for management and abatement of asbestos (Hurlburt Field, 2007f). In the event that an asbestos inspection has not been performed on a specific facility, or that additional sampling is determined to be necessary prior to renovation or demolition, the presence of ACM must be established by an accredited inspector. Prior to renovations or demolition of all existing non-residential buildings, asbestos sampling is performed by a contractor to determine the percent and type of asbestos in the material, if any. ACM would be removed prior to the demolition or renovation of any facility in accordance with applicable Federal, state, and local regulations (Hurlburt Field, 2007f).

Lead-based paint

Air Force Policy and Guidance on Lead Based Paint in Facilities (USAF, 1993) ensures that LBP hazards are avoided or abated during building modifications. Hurlburt Field

manages LBP in accordance with the December 2005 Hurlburt Field Lead-based Paint Management Plan (Hurlburt Field, 2005b). The existing buildings and structures proposed for renovation may contain LBP. According to the Plan, buildings would be tested when renovations or maintenance projects that may impact LBP surfaces are scheduled. Buildings constructed before 1985 potentially contain LBP, whereas buildings constructed after 1985 are assumed to be LBP-free and are exempt from testing. LBP abatement is accomplished in accordance with applicable Federal, state, and local regulations prior to demolition or renovation activities to prevent any health hazards.

Environmental Cleanup Program

The ERP, formerly known as the Installation Restoration Program, was initiated by the DoD in 1981 to investigate and mitigate environmental contamination that may have been present at DoD facilities as a result of past management or disposal of potentially hazardous materials prior to 1984. The ERP was initiated in response to CERCLA, which was passed in 1980. The ERP requires each DoD installation to identify, investigate, and clean-up historical hazardous waste disposal or release sites.

The MMRP was formalized in September 2001 when the DoD published new management guidance for ERP. A new program category under ERP, MMRP addresses environmental health and safety hazards associated with unexploded ordnance, discarded military munitions, and munitions constituents on current and former military sites as a complement to the highly successful ERP.

A total of 51 sites have been identified at Hurlburt Field. Of these 26 are ERP sites, four are non-ERP Compliance sites, four are MMRP sites, and 17 are AOCs. All 17 AOCs have been closed with NFA required. Of the 26 ERP sites, 10 are closed with NFA required, 11 sites are in LTM and/or LUC, and the remaining five sites are undergoing cleanup. Of the four non-ERP Compliance sites, two are closed with NFA required, and two are in LTM with LUC. The Phase I site evaluations have been completed, and the Phase II site evaluations are in process for all four of the MMRP sites. Funding for the Environmental Cleanup sites are managed using Environmental Compliance funds or Defense Environmental Restoration Account funds. The location of the AOCs and sites on Hurlburt Field are provided in **Figure 1-12** (Hurlburt Field, 2006b and Steele, 2008).

FDEP oversees the RCRA corrective action program under HSWA in the State of Florida and the petroleum cleanup program under FAC 62-770. In 1999, Hurlburt Field entered into a MOA with FDEP regarding the petroleum cleanup program. Of the 47 total non-munitions sites, 39 are addressed under the RCRA corrective action program, and eight are addressed under the petroleum cleanup program. Of the 39 RCRA corrective action program sites, 16 are under investigation or clean-up, while 23 sites have been closed with NFA. Of the eight petroleum cleanup program sites, two are under investigation or clean-up, and six have been closed with NFA (Hurlburt Field, 2006b and Steele, 2008).

LUC are restrictions to protect human health and the environment by limiting exposure to contaminated media. LUC can include access controls, prohibitive directives, or institutional controls. In 1999, Hurlburt Field, USEPA, and FDEP entered into a MOA for LUC management. The MOA requires site-specific implementation plans, routine monitoring, an annual compliance inspection, and close coordination with regulatory agencies. Hurlburt Field has 10 sites with LUC: LF-13, LF -14, LF -15, LF-16, LF-17, LF-18, LF-19, SS-122, SS-130, and SS-139.

4.0 ENVIRONMENTAL CONSEQUENCES

This section presents the analysis of the potential environmental consequences of the Proposed Action on the topics evaluated in **Section 3.0**. The general approach followed in this section is to describe the criteria for determining the significance of the impacts under each resource area and then provide a discussion of the potential impacts from the Proposed Action and the No-Action Alternative. The criteria for determining significance for most impacts were obtained from Federal, state, or local agency guidelines and/or requirements or legislative criteria. The significance of an impact is measured in terms of its intensity and context. Intensity refers to the severity of the impact, which might be beneficial or adverse. The significance of impacts might also depend on the degree of their being controversial or posing highly uncertain, unique, or unknown risks. Significance can also be found where an action sets a precedent for future actions having significant impacts as well as in cases involving cumulative impacts.

4.1 Air Quality

Impacts from proposed Federal actions on the local and regional air quality conditions are determined by the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the impact in NAAQS attainment areas would be considered significant if the net increase 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 ten percent or more in an affected ROI emissions inventory
- Exceed any evaluation criteria established by a SIP

As discussed in **Section 3.1.1**, Okaloosa County and Hurlburt Field, is in attainment or unclassifiable for all criteria pollutants. Therefore, the General Conformity Rule requirements are not applicable. Additionally, Hurlburt Field is not within 10 kilometers of a Class I area; therefore, the PSD regulations do not apply.

4.1.1 Basewide Personnel and Aircraft Increases

4.1.1.1 Proposed Action

The Proposed Action, an installation-wide increase of 1,340 personnel and one aircraft over a five-year period, would generate mobile emissions from additional vehicles and the new combination of aircraft which would produce emissions at a different rate than the current combination of assigned aircraft. The Proposed Action would also generate

area source emissions from ordinary equipment and processes such as: water heaters, lawn maintenance equipment, and the application of paints and lacquers. These types of area sources individually emit fairly small quantities of air pollutants but collectively may represent large quantities of emissions.

Calculations for the emissions were completed using the U.S. Air Force Air Conformity Applicability Model (ACAM), version 4.3.3. The ACAM provides estimated air emissions from proposed Federal actions in areas designated as non-attainment and/or maintenance for each specific criteria and precursor pollutant as defined in the NAAQS. Personnel increases presented in **Table 2-1** and the aircraft increases and decreases presented in **Table 2-2** were input into ACAM to calculate mobile (vehicle and aircraft) and area emissions. As discussed in **Section 3.1.1**, a conformity determination is not required since Okaloosa County is designated as “attainment.”

The mobile (vehicle and aircraft) and area source emissions summary, as calculated by ACAM, associated with the Proposed Action for the increase in personnel and aircraft is presented in **Table 4-1**.

Table 4-1 Estimated Mobile and Area Source Emissions for the Proposed Action

Description	CO (tpy)	NO _x (tpy)	SO ₂ (tpy)	VOC (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
Area Sources	3.18	1.58	0.58	11.90	1.69	0.00
Mobile Sources						
Aircraft Flying Operations	-4.26	-39.63	-2.85	0.04	-6.38	0.00
Aircraft Engine Testing	-0.08	-0.30	-0.04	-0.02	-0.08	0.00
Vehicles	201.47	11.09	0.16	14.28	0.23	0.00
Total Mobile Sources	197.13	-28.84	-2.73	14.30	-6.23	0.00
Grand Total	200.32	-27.27	-2.15	26.21	-4.55	0.00
ROI Emissions	96,623	7,914	1,431	19,237	7,854	3,717
Percentage of ROI Emissions	0.21%	-0.34%	-0.15%	0.14%	-0.06%	0.00%

Source: ACAM, 2007

The operational emissions associated with the Proposed Action would not result in an adverse impact on air quality, as shown in **Table 4-1**. The total emissions for the Proposed Action for the personnel increases are well below the 10% inventory threshold for the ROI. Therefore, no significant impact on regional or local air quality would result from implementation of the Proposed Action.

Greenhouse gas emissions would also be generated by the Proposed Action. Greenhouse gases are typically expressed in carbon dioxide equivalent emissions. The USEPA has developed a method to calculate personnel emissions expressed as carbon dioxide equivalent emissions (http://www.epa.gov/climatechange/emissions/ind_calculator.html). The following assumptions were made: an average family size of 2.5 (U.S. Census 2000 Demographic Profile), natural gas for heating, an average driving distance of 231 miles/week/family, an average fuel economy of 27.5 miles per gallon, an average monthly gas bill of \$105, an average monthly electric bill of \$100, and no recycling. Based on these assumptions, each family would generate approximately 38,549 pounds of carbon dioxide equivalent emissions per year or a total of 51,655,660 pounds (25,828 tons) of carbon dioxide equivalent emissions per year. However, greenhouse gas emissions are of global concern, and these families would be generating the greenhouse gas emissions even if they would not move to Hurlburt Field. The Proposed Action would have a negligible contribution towards statewide greenhouse gas inventories. Therefore, the personnel increases would not result in an adverse impact on greenhouse gas emissions.

In summary, the Proposed Action for the personnel and aircraft increases would have an insignificant adverse impact on air quality at Hurlburt Field.

4.1.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the installation air quality conditions would remain the same, as described in **Section 3.1.2**.

4.1.2 Construction Projects

The Proposed Action for the construction projects and Alternatives would generate temporary air pollutant emissions as a result of grading, filling, compacting, trenching, demolition, and construction operations. Fugitive dust from ground-disturbing activities, combustive emissions from construction equipment, and emissions from asphalt paving operations would be generated during the construction projects. Fugitive dust contains total suspended particulates, PM_{2.5} and PM₁₀. Fugitive dust would be generated from activities associated with site clearing, grading, cut and fill operations, and from vehicular traffic moving over the disturbed site. These 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 Section 11.9 dated

October 1998 and Section 13.2 dated December 2003. These estimates assume that 230 working days are available per year for construction (accounting for weekends, weather, and holidays). Using data from the National Oceanic and Atmospheric Administration, the average soil percent moisture was estimated to be 65% (NOAA, 2003). Wind speed of greater than 12 miles per hour is recorded 16.7% of the time during O₃ season (April 1 to October 31), based on a personal communication with Richard Henning, Meteorologist, GS-12, 46 Weather Squadron (WS)/WST, Eglin AFB, Florida (Henning, 2008). The USEPA estimates that the effects of fugitive dust from construction activities would be reduced significantly with an effective watering program. Watering the disturbed area of the construction site twice per day with approximately 3,500 gallons per acre per day would reduce total suspended particulate emissions as much as 50% (USEPA, 1995). If the construction activities dictate watering, it may be possible to drill and utilize a shallow Sand & Gravel Aquifer well, or to use an existing shallow well, or to transport water to the construction site in order to reduce fugitive dust emissions.

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 Sacramento Metropolitan Air Quality Management District (SMAQMD) has developed a *Guide to Air Quality Assessment* that addresses the emissions of criteria pollutants from the construction of proposed projects. The emissions factors and estimates were generated based on this guidance (SMAQMD, 2004).

4.1.2.1 Proposed Action

The estimated project durations and affected project areas that would be disturbed as part of the Proposed Action, as presented in **Section 2.1.2**, were used to estimate fugitive dust and all other criteria pollutant emissions. Construction emissions are presented by the FY of construction in **Table 4-2**.

Table 4-2 Estimated Annual Construction Emissions for the Proposed Action

Description	CO (tpy)	NO _x (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	VOC (tpy)
FY08 Construction Projects	0.007	0.005	0.070	0.000	0.001
FY09 Construction Projects	0.045	0.031	0.422	0.001	0.005
FY10 Construction Projects	5.177	4.395	14.761	0.128	1.191
FY13 Construction Projects	0.524	0.452	1.421	0.013	0.196
Total Construction Projects Emissions	5.753	4.883	16.674	0.142	1.393
ROI Emissions	96,623	7,914	1,431	19,237	7,854
Percentage of ROI Emissions	0.01%	0.06%	0.01%	0.01%	0.21%

As shown in **Table 4-2**, the Proposed Action for the construction projects would generate emissions well below 10% of the emissions inventory for the ROI. In addition, the emissions would be short-term. Therefore, no significant impact on regional or local air quality would result from implementation of the Proposed Action for the construction projects.

4.1.2.2 Alternative to the Proposed Action

The estimated project durations and affected project site areas that would be disturbed as part of the Alternative to the Proposed Action, as presented in **Section 2.2.1**, were used to estimate fugitive dust and all other criteria pollutant emissions. Construction emissions are presented by the FY of construction in **Table 4-3**.

Table 4-3 Estimated Annual Construction Emissions for the Alternative to the Proposed Action

Description	CO (tpy)	NO _x (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	VOC (tpy)
FY08 Construction Projects	0.000	0.000	0.000	0.000	0.000
FY09 Construction Projects	0.000	0.000	0.000	0.000	0.000
FY10 Construction Projects	5.281	4.468	16.819	0.129	1.204
FY13 Construction Projects	0.145	0.100	1.368	0.002	0.017
Total Construction Projects Emissions	5.426	4.568	18.187	0.131	1.221
ROI Emissions	96,623	7,914	1,431	19,237	7,854
Percentage of ROI Emissions	0.01%	0.06%	1.27%	0.00%	0.02%

As shown in **Table 4-3**, the Alternative to the Proposed Action for the construction projects would generate emissions well below 10% of the emissions inventory for the ACQR 5, and the emissions would be short-term. Therefore, no significant impact on regional or local air quality would result from implementation of the Alternative to the Proposed Action for the construction projects.

4.1.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the installation air quality conditions would slightly degrade. The Light Aircraft Squadron Operations and Maintenance Facility for the 319 SOS would not be available for aircraft maintenance, which would result in the 319 SOS aircraft continuing to have to fly to the leased hangar approximately 100 miles away. This would increase the amount of average daily operations for the PC-12 and U-28A aircraft. The new Fuel Cell Maintenance Hangar would not be available, which would result in the CV-22 aircraft having to fly to another Air Force Base for fuel cell maintenance thereby increasing the average daily operations for the CV-22 aircraft. The additional flights resulting from the No Action Alternative would result in a negligible increase in air emissions. Therefore, the Alternatives to the Proposed Action for the construction projects would have no significant impact on air quality at Hurlburt Field.

4.2 Noise

Human response to noise depends on a variety of circumstances including the time of day, the individual's sensitivity, distance from the source, and environment. The maximum acceptable noise level for most residential land uses is generally considered to be 65 dBA DNL. Noise impact analysis evaluates potential changes to the existing noise environment that would result from implementation of a Proposed Action. Beneficial changes in the noise environment would be achieved by reducing the number of sensitive receptors exposed to unacceptable noise levels. Negligible changes in the noise environment would be observed when the number of sensitive receptors exposed to unacceptable noise levels is essentially unchanged. Adverse changes in the noise environment would be observed when the number of sensitive receptors exposed to unacceptable noise levels is increased.

4.2.1 Basewide Personnel and Aircraft Increases

4.2.1.1 Proposed Action

The Proposed Action, an installation-wide increase of 1,340 personnel over a five-year period is expected to increase traffic, and thus would create additional noise. However, the proposed increase in personnel is only approximately 13%, and the additional noise would mainly occur during rush hour.

The 2005 *Noise Study for Hurlburt Field* analyzed airfield noise levels and established noise contours. The existing 65 dBA noise contours from aircraft activities on the Hurlburt Field airfield are shown as completely contained on the installation, a small unpopulated portion of Eglin AFB just north of Hurlburt Field, or extending to the south over water areas. Hurlburt Field has established operational constraints based on these DNL contours (USAF, 2005a). The 2005 and 2008 noise contours are depicted in **Figure 3-1**. The 2008 65 dBA DNL average noise contour from aircraft activities is smaller than the 2005 contour due to a different mix of aircraft, including quieter turboprop aircraft. The total number of aircraft at Hurlburt Field in 2005 was 54 aircraft, and in 2008 there are 86 (for the baseline year, 2007, there were 74 aircraft). The proposed level for 2013 is 75 aircraft. The numbers of average daily airfield operations for 2008 shown in Table 3-6 are not expected to change in 2013. Therefore, considering the same level of aircraft operations with fewer aircraft, the noise contours should be approximately the same in 2013. The potential noise impacts at Hurlburt Field resulting from the installation aircraft increases, decreases, and changes would be contained within the existing noise contours. This is obtained through use of operational constraints (jets are instructed to track to the west in order to avoid pushing noise into the community) within the 65 dBA noise contours. The overall net increase of one aircraft would be minimal and the effect on the overall installation noise levels would be negligible. Therefore, the Proposed Action for the personnel and aircraft increases would have an insignificant impact on noise at Hurlburt Field.

4.2.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the noise conditions at Hurlburt Field would remain the same, as described in **Section 3.2.2**.

4.2.2 Construction Projects

Building construction, modification, and demolition work can cause noise impacts above ambient sound levels. A variety of sounds result from graders, pavers, trucks, welders, and other work processes. Typical construction work generates noise levels in the range of 78 to 89 dBA approximately 50 feet from the construction area. Since a typical urban neighborhood is usually around 60 to 70 dBA, noise emissions from construction projects can cause intermittent short-term impacts.

Based on the EPA publication, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, PB 206717* (USEPA, 1971), noise levels from a construction source decrease by approximately 3 dBA every 50 feet over a hard, unobstructed surface such as asphalt. Noise levels from a construction source decrease by approximately 4.5 dBA every 50 feet over a soft surface such as vegetation.

4.2.2.1 Proposed Action

The Proposed Action for the construction projects would require grading, paving, demolition, and building construction. The closest Proposed Action construction project to the on-base military family housing (MFH) is the Base Logistics Facility, which would be approximately 3,000 feet from the MFH. Based on information presented in the EPA publication and subsequent analysis, the on-base MFH would not be affected by the construction noise. Nearby offices and vehicular and pedestrian traffic would experience intermittent short-term impacts on noise. The construction projects would have no impact on areas beyond the boundaries of Hurlburt Field.

Once the Proposed Action construction projects are completed, the ambient noise level would return to a normal level. All of the Proposed Action construction projects are within compatible land uses; therefore, the noise generated from the daily activities at these buildings would be typical of existing buildings and would not increase the noise intensity. No long-term impacts on the ambient noise level would occur as a result of the Proposed Action. Therefore, the Proposed Action for the construction projects would have an insignificant impact on noise at Hurlburt Field.

4.2.2.2 Alternatives to the Proposed Action

The potential affect on noise due to the Alternatives to the Proposed Action for the six construction projects described in **Section 2.2.1** would be the similar to those considered with the Proposed Action, with the exception that the Base Logistics Facility, in the proposed alternate location, would be approximately 800 feet from the MFH. A decrease of at least 3dBA for every 50 feet in distance away from construction noise would allow for adequate noise dissipation and MFH would not be affected by the construction noise. Therefore, the Alternatives to the Proposed Action for the construction projects would have an insignificant impact on noise at Hurlburt Field.

4.2.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the installation noise conditions would slightly increase. The Light Aircraft Squadron Operations and Maintenance Facility for the 319 SOS would not be available for aircraft maintenance, which would result in the 319 SOS aircraft having to fly to the leased hangar approximately 100 miles away. This would increase the amount of average daily operations for the PC-12 and U-28A aircraft. The new Fuel Cell Maintenance Hangar would not be available, which would result in the CV-22 aircraft having to fly to another Air Force Base for fuel cell maintenance thereby increasing the average daily operations for the CV-22 aircraft. The additional flights resulting from the No Action Alternative would result in a negligible increase in noise. Therefore, the Alternatives to the Proposed Action for the construction projects would have an insignificant impact on noise at Hurlburt Field.

4.3 Land Use

The significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a Proposed Action and compatibility of Proposed Actions with existing conditions. In general, a land use impact would be significant if it were to:

- Be inconsistent or in noncompliance with existing land use plans or policies
- Preclude the viability of existing land use
- Preclude continued use or occupation of an area
- Be incompatible with adjacent land use to the extent that public health or safety is threatened
- Conflict with planning criteria established to ensure the safety and protection of human life and property

4.3.1 Basewide Personnel and Aircraft Increases

4.3.1.1 Proposed Action

The Proposed Action, an installation-wide increase of 1,340 personnel and one aircraft over a five-year period, would not impact land use conditions.

4.3.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the land use conditions at Hurlburt Field would remain the same, as described in **Section 3.3.2**.

4.3.2 Construction Projects

4.3.2.1 Proposed Action

The Proposed Action for the construction projects would not substantially change land use on Hurlburt Field. The Base Logistics Facility, Fuel Cell Maintenance Hangar, and the Light Aircraft Squadron Operations and Maintenance Facility would be constructed on land currently designated as open space adjacent to aircraft operation and industrial areas (**Figure 3-2**). Facilities planned for the airfield, QD arcs, and industrial areas would have waivers for working in those areas.

The construction of the New Hot Cargo Taxiway would create new taxiway surface associated with the airfield. The construction would occur within the existing QD arc and is intended to move the current QD arc north to allow for the construction of the Light Aircraft Squadron Operations and Maintenance Facility or other future facilities. The proposed renovation of Bldg 90815 would return its use to an active hangar. This

would correct the land use category for this building. Therefore, the Proposed Action for the construction projects would have an insignificant beneficial impact on land use at Hurlburt Field.

4.3.2.2 Alternatives to the Proposed Action

The potential effect on land use due to the Alternatives to the Proposed Action for the six construction projects described in **Section 2.2.1** would be similar to those considered with the Proposed Action, with the exceptions that the alternate placement of the Light Aircraft Squadron Operations and Maintenance Facility would be on land currently designated as aircraft operations and the alternate placement of the Base Logistics facility is adjacent to unaccompanied housing/outdoor recreation areas versus aircraft operations/industrial land use areas. Therefore, the Alternatives to the Proposed Action for the construction projects would have an insignificant impact on land use at Hurlburt Field.

4.3.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the installation land use conditions would remain the same, as described in **Section 3.3.2**. However, not constructing the New Hot Cargo Taxiway would have a minor impact on land use due to the decrease in the airfield area available for use that Hurlburt Field would gain through its construction and the subsequent movement of the associated QD arc. Additionally, not renovating Bldg 90815 would have a minor impact on land use as its current use is not the proper land use category. Therefore, the No-Action Alternative would have an insignificant impact on land use at Hurlburt Field.

4.4 Safety

Impacts were assessed based on direct effects from construction activities and personnel and aircraft increases as well as secondary effects, such as environmental contamination. Impacts on safety would be considered significant if human health would be placed in jeopardy or undue risk by the implementation of the Proposed Action.

4.4.1 Basewide Personnel and Aircraft Increases

4.4.1.1 Proposed Action

Day-to-day operations and maintenance activities conducted at Hurlburt Field are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders and standards prescribed by Air Force Occupational Safety and Health (AFOSH) requirements. Compliance with these safety regulations and standards will ensure the protection of the personnel. Therefore, the Proposed Action for the

personnel and aircraft increases would have an insignificant impact on safety at Hurlburt Field.

4.4.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the safety conditions at Hurlburt Field would remain the same, as described in **Section 3.4.2**.

4.4.2 Construction Projects

4.4.2.1 Proposed Action

Construction and demolition activities associated with the Proposed Action could pose short-term safety hazards to construction workers and Hurlburt personnel. Hazards generated during demolition and construction projects are generally industrial in nature. This would pose the greatest risk to Hurlburt personnel that remain and continue to work in facilities undergoing renovation or those who remain in the immediate vicinity of the construction work. Safety hazards associated with construction and demolition activities typically include exposure to falls, slips, excavations and trenches, noise, dusts, heavy equipment operations, congested working spaces and parking areas, and constantly changing work environments. Any non-Air Force personnel performing work on Hurlburt Field are subject to the Occupational Safety and Health Administration regulations to ensure the protection of construction workers, Hurlburt personnel, and the general public during construction; thereby alleviating this potential safety hazard.

Construction of the Light Aircraft Squadron Operations and Maintenance Facility for the 319 SOS would have a beneficial impact on safety, as it would consolidate several facilities and negate the need for continued travel to a leased maintenance hangar located 100 miles off base which lacks AT/FP. Long-term beneficial impacts would be realized by the implementation of AT/FP requirements for the construction of the Base Logistics Facility, Fuel Cell Maintenance Hangar, and Light Aircraft Squadron Operations and Maintenance Facility. These projects include AT/FP requirements, which reduce the likelihood of planted explosives that could penetrate the facilities.

Therefore, the Proposed Action for the construction projects would have a long term beneficial impact on safety at Hurlburt Field.

4.4.2.2 Alternatives to the Proposed Action

The potential effects on safety due to the Alternatives to the Proposed Action for the construction projects would be the same as those discussed under the Proposed Action.

Therefore, the Alternatives to the Proposed Action for the construction projects would have a long term beneficial impact on safety at Hurlburt Field.

4.4.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the safety conditions at Hurlburt Field would remain the same, as described in **Section 3.4.2**.

4.5 Geological Resources

Protection of unique geological and topographical features, minimization of soil erosion, and siting of facilities in relation to potential geologic hazards (such as sinkholes) should be considered when evaluating potential impacts of a Proposed Action on the installation's geological resources. Generally, impacts can be avoided or minimized if proper siting, construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

4.5.1 Basewide Personnel and Aircraft Increases

4.5.1.1 Proposed Action

The Proposed Action, an installation-wide increase of 1,340 personnel and one aircraft over a five-year period, would not impact the condition of geological resources on Hurlburt Field.

4.5.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the condition of geological resources at Hurlburt Field would remain the same, as described in **Section 3.5.2**.

4.5.2 Construction Projects

4.5.2.1 Proposed Action

Under the Proposed Action, construction activities such as grading, excavating, and re-contouring of the soils and shallow geologic sediments, would result in some minor disturbance. Development in areas of low topography or wetlands may require excavation of material to a geotechnically stable zone and the application of fill material to raise the overall topography of the site to equal surrounding areas. The predominant surficial soil type in wetland areas potentially developed as part of the Proposed Action is Dorovan muck, which covers approximately 40% of the installation. The development of the proposed approximately 9 acres represents less than 0.4% of the installation's 2,683 acres of this soil type. Removal of this small amount of surficial soil

during construction would have a minor long term effect on the geological resources of Hurlburt Field.

During construction, erosion and sediment disturbances resulting from normal construction activities will be managed through the implementation of BMPs (e.g., silt fencing, sediment traps, application of water sprays, and revegetation of disturbed areas) in compliance with Florida Administrative Code 62-621 and 62-346 permit requirements.

Therefore, the Proposed Action for the construction projects would have long-term insignificant impact on geological resources at Hurlburt Field.

4.5.2.2 Alternatives to the Proposed Action

The potential effect on geological resources due to the Alternatives to the Proposed Action for the six construction projects described in **Section 2.2.1** would be the similar to those considered with the Proposed Action, with the exception that the predominant surficial soil type in wetland areas associated with the Alternatives to the Proposed Action is Rutledge fine sand. This soil type covers approximately 15% of the installation and the development of the proposed approximately 8 acres represents less than 0.8% of the installation's 1,013 acres of this soil type. Removal of this small amount of surficial soil during construction would have a minor long term effect on the geological resources of Hurlburt Field.

Therefore, the Alternatives to the Proposed Action for the construction projects would have long-term insignificant impact on geological resources at Hurlburt Field.

4.5.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the condition of geological resources at Hurlburt Field would remain the same, as described in **Section 3.5.2**.

4.6 Water Resources

Impacts on water resources are based on water availability, quality, and use; existence of wetlands or floodplains; and associated regulations. Evaluation criteria for the Proposed Action include the following:

- Water availability or supply
- Potential for aquifer overdraft

- Water quality
- Aesthetic or recreational value of surface waters
- Unique hydrologic characteristics
- Potential for violation of established laws or regulations adopted to protect water resources
- Flooding potential
- Potential for alteration of a wetland without mitigation

General Construction

Potential water resource impacts (with the exception of wetlands impacts which are addressed separately) from the construction phase of the Proposed Action shall be minimized by the employment of construction BMPs in accordance with FAC 62-621. The potential impacts listed below only address the potential impacts associated with the operation of completed facilities.

4.6.1 Basewide Personnel and Aircraft Increases

4.6.1.1 Proposed Action

The Proposed Action, an installation-wide increase of 1,340 personnel and one aircraft over a five-year period, would not impact drainage basins, floodplains, surface water, or wetlands. Therefore, these resources are not discussed below.

Ground Water

The Proposed Action, an installation-wide increase of 1,340 personnel and one aircraft over a five-year period, would not affect the surficial Sand & Gravel Aquifer but would affect the installation's potable water system and its source, the Floridan Aquifer. Typical water usage for an office setting is 15 gallons per day per person, restaurants are 13 gallons per day per patron, and a gymnasium is 10 gallons per day per person (Corbitt, 1999). Assuming all personnel eat at a restaurant and go to the gymnasium each day, the total increase in water usage requirement would be 50,920 gallons per day.

The increase of one aircraft over a five-year period would affect the potable water system as the Clearwater Rinse Facility is currently connected to the potable water supply. Current potable water usage rates for the Facility range from 50,000 to 120,000 gallons per month (Lynd, 2008b). Increases at the Clearwater Rinse Facility associated with the Proposed Action could result in an increased consumption of up to 2,400 gpd (max increase of twelve aircraft). The Clearwater Rinse Facility is currently undergoing alterations to have its water source changed from the Floridan Aquifer to reuse water generated at the Hurlburt Field wastewater treatment plant. The construction completion

date is set for September 2009. Once the water source is changed, the Facility will no longer affect the Floridan Aquifer.

The total maximum consumptive usage impacts for the Proposed Actions are as follows:

- Current (2007) total rate = 664,500 gallons
- Proposed Action personnel increase = 50,920 gallons
- Proposed Action aircraft increase (max) = 2,400 gallons
- Maximum total projected daily Consumptive Use = 717,820 gallons
- Projected daily Consumptive Use after Clearwater Rinse Facility water source conversion = 715,420 gallons

Hurlburt Field currently has Consumptive Use Permits through NFWMD that allow withdrawal up to 800,000 gallons per day from the Floridan Aquifer. Based on the calculations above, the projected daily consumptive use for the Proposed Action for the personnel and aircraft does not exceed the current NFWMD-permitted ground water withdrawal amounts. In addition, measures to reduce Hurlburt Field's dependence on the use of ground water from the Floridan Aquifer for anything other than potable purposes (non-human consumption) could be instituted. Therefore, the Proposed Action for the personnel and aircraft increases would have an insignificant impact on ground water at Hurlburt Field.

4.6.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the drainage basin, floodplains, surface water, wetlands, and ground water conditions at Hurlburt Field would remain the same, as described in **Section 3.6.2**.

4.6.2 Construction Projects

Operation of the completed facilities could potentially impact the following water resources on Hurlburt Field.

4.6.2.1 Proposed Action

Drainage Basin

Under the Proposed Action 10.19 acres located in the East Bay River drainage sub-basin, would be developed. To minimize the impact to the drainage basin, LID techniques would be incorporated into building, site, and landscape design plans; and erosion and sediment control BMPs would be utilized during active construction.

A total of 4,152 acres on Hurlburt is in the East Bay River sub-basin (the sub-basin itself is 17,984 acres). Approximately 950 acres of this sub-basin are developed within Hurlburt Field boundaries. An additional ten acres is a small portion (0.24%) of the total drainage sub-basin present on Hurlburt Field and represents a small increase (0.01%) in developed acreage in this sub-basin on Hurlburt Field. The Proposed Action construction projects represent very small changes to the amount of developed acreage in the East Bay River sub-basin.

Therefore, the Proposed Action for the construction projects would have an insignificant long-term impact on drainage basins at Hurlburt Field.

Floodplains

Two of the six Proposed Action construction projects are planned in a floodplain. The Fuel Cell Maintenance Hangar would be located north to northwest of Bldg. 91262 and 91266 and would impact approximately 1.1 acres of floodplain. The Base Logistics Facility would be located just west of Bldg 90802 at the intersection of Red Horse Road and Hamby Place and would impact approximately one acre of floodplain.

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 construction in floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, the agency must comply with procedures and practices outlined in EO 11988, 44 CFR 9.6, AFI 32-7064 and 32 CFR 989 as detailed in **Section 1.8.3**.

A total of 39% (2,575 acres) of Hurlburt Field is in the 100-year floodplain, and land available for development is limited. The 2.1 acres of floodplain proposed for development is a small portion (0.08%) of the floodplain on Hurlburt Field. The Proposed Action would have minor adverse effects on the floodplain because a net gain of impervious surfaces would increase stormwater runoff and the potential for storm-related damage to infrastructure, facilities, and possibly human safety. However, Hurlburt Field is proactive in managing floodplain constraints. In accordance with EO 11988 and the standards and criteria promulgated under the National Flood Insurance Program, these facilities would be designed and constructed in accordance with the Federal, state, and local floodplain protection standards and accepted flood-proofing and protection measures so as to minimize impacts to the floodplain.

Therefore, the Proposed Action for the construction projects would have an insignificant long-term impact on floodplains at Hurlburt Field.

Surface Water

None of the Proposed Action construction projects would create direct discharge to surface water, thus there would be no effect on surface water due to the Proposed Action. Potential impacts to wetlands are discussed below and stormwater is discussed in **Section 4.11.2**.

Wetlands

Three of the six Proposed Action construction projects are planned in a wetland: the Light Aircraft Squadron Operations and Maintenance Facility, the Base Logistics Facility, and the Fuel Cell Maintenance Hangar. The Light Aircraft Squadron Operations and Maintenance Facility would be located east of the vicinity of Bldg 90809 and would impact approximately two acres of Bottomland Forest (Palustrine/Floodplain Wetlands). The Base Logistics Facility would be located just west of Bldg 90802 at the intersection of Red Horse Road and Hamby Place and would impact approximately seven acres of Bottomland Forest (Palustrine/Floodplain Wetlands). The Fuel Cell Maintenance Hangar would be near the northeast corner of the eastside aircraft parking apron and north of Bldg 91262 and would impact approximately 0.5 acres of previously permitted Dome Swamp wetlands (Palustrine/Basin Wetlands).

EO 11990, *Protection of Wetlands*, directs agencies to consider alternatives to avoid adverse impacts 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. If Proposed Actions are in wetlands, the agency must comply with procedures and practices outlined in EO 11990, 44 CFR 9.6, AFI 32-7064 and 32 CFR 989 as detailed in **Section 1.8.3**.

A total of 52% (3,431 acres) of Hurlburt Field is designated as wetlands. For the Proposed Action the area of wetlands (approximately 9.5 acres) potentially impacted is on the edge of historically industrialized areas. The areas potentially impacted are not in or near areas of protected plant or animal species. The nine acres of Bottomland Forest are a small portion of approximately 475 acres of similar wetland type, so the loss would be a very small percentage (1.89%) of the total habitat type available on the installation. The 0.5 acres of Dome Swamp is a small portion of approximately 533 acres of similar wetland type, so the loss would be a very small percentage (0.09%) of the total habitat type available on Hurlburt Field. It is expected that the more tolerant wildlife species

initially affected by noise or construction activities would relocate to the undisturbed areas adjacent to the construction areas. Erosion and sediment control BMPs would be implemented during construction to minimize the impact to adjacent wetlands. As a part of the Proposed Action, native vegetative species could be planted along the disturbed border to the greatest extent practicable, thereby restoring as much of the ecological community of the wetlands as possible.

Additionally, construction within wetlands requires mitigation measures to be implemented, where applicable. The 0.5 acres of wetlands impacted by the Fuel Cell Maintenance Hangar construction was previously mitigated under a 10-year Memorandum of Agreement with USACE and FDEP, dated July 13, 2000, and permitted under the FDEP Permit Number 17-0151212-001-DF and USACE Section 404 Permit Number 199900679 (IP-DH), which expires on September 24, 2010. The remaining nine acres of wetlands are proposed to be mitigated with participation in a mitigation partnership with Eglin AFB. Mitigation options being explored include restoration of three to four flatwoods salamander pond habitats and up to three bridge crossings on Eglin AFB. All ponds and crossings under consideration are in the same drainage basin as the wetland impacts at Hurlburt Field. The mitigation process begins with functional assessments of the wetlands impacted and the flatwoods salamander pond habitats chosen for possible restoration. Completed assessments, an Application for Works in the Waters of Florida, and supporting documentation will be submitted to the USACE and FDEP. Hurlburt Field personnel plan to have the submittal package to the agencies on Oct 1, 2009. The agencies must then determine whether the proposed habitat restoration would provide sufficient functional gain to offset the functional loss created at the impact site. Once the mitigation requirements are identified, a Joint Environmental Resource Permit application and CWA Section 404 Permit application will be submitted to the FDEP and USACE.

The adverse impacts on wetlands at Hurlburt Field would be fully mitigated as a condition of the Joint Environmental Resource Permit and CWA Section 404 Permit. Therefore, the Proposed Action would have an insignificant adverse impact to the overall wetland resource of 3,431 acres at Hurlburt Field.

Ground Water

Sand & Gravel Aquifer. In order to minimize irrigation requirements, the Proposed Action construction facilities would utilize to the extent possible, landscaping techniques involving native or exotic species approved in the Master List of Trees, Shrubs, and Accent Flowers for Use in the Developed Areas of Hurlburt Field (Appendix D). However, these techniques would not preclude the need for irrigation completely. Maximum expected irrigation requirements are shown in **Table 4-4**.

Table 4-4 Proposed Action Construction Maximum Irrigation Requirements

Facility	Acreage Requiring Irrigation	Irrigation Rate	gal/yr
Light Aircraft Squadron Operations and Maintenance Facility	0.25	0.5 inch per week (irrigating 26-weeks per year)	88,242
Base Logistics Facility	0.75		264,725
Fuel Cell Maintenance Facility	0.125		44,121
Total:			397,088

Proposed Action construction may require up to an additional 397,088 gallons of irrigation water per year. This increase combined with the current average yearly usage rate of 48,083,000 gallons in calendar year 2007 totals 48,480,088 gallons which would be well below the yearly permitted limit of 126,000,000 gallons (calculated as twelve times the maximum monthly amount) from the Sand & Gravel Aquifer. Therefore, the Proposed Action would have an insignificant long-term impact to the Sand & Gravel Aquifer.

Floridan Aquifer. Due to the surficial nature of the Proposed Action, the Proposed Action construction activities would not affect the Floridan Aquifer.

4.6.2.2 Alternative to the Proposed Action

Drainage Basin

The potential effects on drainage basins due to the Alternatives to the Proposed Action for the six construction projects described in **Section 2.2.1** would be the similar to those considered with the Proposed Action, with the exception that under the Alternatives to the Proposed Action 2.23 acres located in the East Bay River drainage basin, and 5.57 acres located in an area that has direct runoff to Santa Rosa Sound would be developed.

A total of 4,152 acres on Hurlburt is in the East Bay River sub-basin (the sub-basin itself is 17,984 acres). Approximately 950 acres of this sub basin are developed within Hurlburt Field boundaries. An additional 2.23 acres is a small portion (0.05%) of the total East Bay River sub-basin present on Hurlburt Field and represents a small increase (0.002%) in developed acreage in this sub-basin on Hurlburt Field.

A total of 2,226 acres on Hurlburt Field has direct runoff to Santa Rosa Sound (there are 8,000 acres in the area with direct runoff to the Sound). Approximately 750 acres of this area is already developed on Hurlburt Field. An additional 5.57 acres is a small portion (0.25%) of the total acreage present on Hurlburt Field and represents a small increase (0.007%) in developed acreage on Hurlburt Field having direct runoff to the sound.

The Alternatives to the Proposed Action construction projects represent very small changes to the amount of developed acreage in the East Bay River sub-basin and Santa Rosa Sound drainage areas. Therefore, the Alternatives to the Proposed Action construction projects would have an insignificant long-term impact on drainage basins at Hurlburt Field.

Floodplains

The potential effects on floodplains due to the Alternatives to the Proposed Action for the six construction projects described in **Section 2.2.1** would be the similar to those considered with the Proposed Action, with the exception that only one of the six Alternatives to the Proposed Action construction projects is planned in a floodplain. The alternative location for the New Hot Cargo Taxiway northwest of Taxiway Alpha would impact approximately 2.2 acres of floodplain. The 2.2 acres of floodplain proposed for development is a small portion (0.09%) of the floodplain on Hurlburt Field. In accordance with the standards and criteria promulgated under the National Flood Insurance Program, any development within the floodplain would be designed and constructed in accordance with the Federal, state, and local floodplain protection standards and accepted flood-proofing and protection measures so as to minimize impacts to the floodplain.

Therefore, the Alternative to the Proposed Action for the construction projects would have an insignificant long-term impact on floodplains at Hurlburt Field.

Surface Water

None of the Alternatives to the Proposed Action construction projects would create direct discharge to surface water, thus there would be no effect on surface water due to the Alternatives to the Proposed Action. Potential impacts to wetlands are discussed below and stormwater is discussed **Section 4.11.2**.

Wetlands

The potential effects on wetlands under the Alternatives to the Proposed Action would be the similar to those presented under the Proposed Action, with the exception that the New Hot Cargo Taxiway would be located northwest of Taxiway Alpha and would impact approximately 2.2 acres of Floodplain Swamp (Palustrine/Floodplain Wetlands).

The Base Logistics Facility would be located on the south side of Tully Street, south of Bldg 90531, and would impact approximately three acres of Palustrine Wetlands associated with Mesic Flatwoods. The 2.2 acres of Floodplain Swamp is a small portion of approximately 1,300 acres of similar wetland type; the loss would be a very small percentage (0.17%) of the total habitat type available in the area. The three acres of Palustrine Wetlands associated with Mesic Flatwoods is a small portion (0.29%) of the approximately 1,044 acres of Mesic Flatwoods and a smaller portion of the total Palustrine Wetlands available on Hurlburt Field. The Alternative siting for the Fuel Cell Maintenance Hangar would not impact wetlands.

Mitigation requirements would be based on the amount and type of wetland acreage impacted, and mitigation options would be the same as those for the Proposed Action.

The impacts on wetlands at Hurlburt Field would be fully mitigated as a condition of the Joint Environmental Resource Permit and CWA Section 404 Permit. Therefore, the Proposed Action would have an insignificant adverse impact to the overall wetland resource of 3,431 acres at Hurlburt Field.

Ground Water

Sand & Gravel Aquifer. In order to minimize irrigation requirements, the Alternatives to the Proposed Action construction facilities would utilize to the extent possible, landscaping techniques involving native or exotic species approved in the Master List of Trees, Shrubs, and Accent Flowers for Use in the Developed Areas of Hurlburt Field (Appendix D). However, these techniques would not preclude the need for irrigation completely. Maximum expected irrigation requirements are shown in **Table 4-5**.

Table 4-5 Alternatives to the Proposed Action Construction Maximum Irrigation Requirements

Facility	Acreage Requiring Irrigation	Irrigation Rate	gal/yr
Light Aircraft Squadron Operations and Maintenance Facility	.25	0.5 inch per week (irrigating 26-weeks per year)	88,242
Base Logistics Facility	.75		264,725
Total:			352,967

Alternatives to the Proposed Action construction would require an additional 352,967 gallons/year in irrigation water. This increase combined with the current average yearly usage rate of 48,083,000 gallons in calendar year 2007 totals 48,435,967 gallons which would be well below the yearly permitted limit of 126,000,000 gallons (calculated as twelve times the maximum monthly amount) from the Sand & Gravel Aquifer. Therefore, the Alternatives to the Proposed Actions would have an insignificant impact to the Sand & Gravel Aquifer.

Floridan Aquifer. Due to the surficial nature of the construction projects, the Alternatives to the Proposed Action would not impact the Floridan Aquifer.

4.6.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the drainage basin, floodplain, surface water, wetlands, and ground water conditions at Hurlburt Field would remain the same, as described in **Section 3.6.2**.

4.7 Biological Resources

Evaluation criteria for the importance or degree of impacts on biological resources are based on the following:

- The importance (legal, commercial, recreational, ecological, or scientific) of the resource
- The proportion of the resource that would be affected relative to its occurrence in the region
- The sensitivity of the resource that would be affected relative to its occurrence in the region
- The duration of the ecological ramifications
- Potential for reduction in population size or distribution in a species of high concern

4.7.1 Basewide Personnel and Aircraft Increases

4.7.1.1 Proposed Action

It would be expected that personnel interaction with natural species would be limited to encounters along the edges of the developed areas of Hurlburt Field. Hunting is not allowed on Hurlburt Field, and fishing is regulated by permits handled through Eglin AFB. Other types of encounters with plant or animal species are not expected to be exceedingly disruptive or lethal to the species involved.

Potential aircraft impacts would be limited to a minimal increase in noise disturbance or BASH incidents. Hurlburt Field has an active BASH program to assist pilots in preventing bird strikes on aircraft (USAF, 2000). The program provides established guidance and advisory procedures for bird avoidance, both around the base and on low-altitude flying routes to minimize adverse impacts.

Therefore, the Proposed Action for the personnel and aircraft increases would have an insignificant impact on biological resources at Hurlburt Field.

4.7.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the biological resources conditions at Hurlburt Field would remain the same, as described in **Section 3.7.2**.

4.7.2 Construction Projects

4.7.2.1 Proposed Action

All proposed construction projects would take place in or near previously developed areas away from protected species habitat and water bodies. It is not likely that the Proposed Action would affect protected species, as they are found primarily on unimproved areas of Hurlburt Field. Ground disturbance and noise associated with construction can directly or indirectly cause potential impacts on biological resources. Direct impacts from ground disturbance were evaluated by identifying the types and locations of potential ground-disturbing activities regarding existing biological resources.

None of the Proposed Action construction projects would take place in or near areas of protected vegetation or in areas of sensitive species. Birds, mammals, or reptiles may visit the proposed construction areas, but are more likely to spend the majority of their time in other undeveloped portions of Hurlburt Field. It would be expected that any wildlife affected by noise disturbance or construction activities would return to their normal routine once construction activities have ceased.

The Proposed Action construction project New Hot Cargo Taxiway would be in an area with minimal existing vegetation or wildlife habitat. The vegetative community affected by the proposed taxiway is unimproved/mowed grassland. No intact native communities exist in the associated area. Wildlife species affected by the loss or alteration this type of habitat would be those species typically associated with human habitation or those species that inhabit disturbed places. Such species are generally tolerant and would re-establish in the available adjacent habitat.

The Proposed Action construction projects potentially affecting wetland habitat are located as follows: the Light Aircraft Squadron and Operations Maintenance Facility is proposed for approximately two acres of wetlands located west of the airfield and east of Bldg 90809; the Base Logistics Facility is proposed for an approximately seven acres of wetlands located just west of Bldg 90802 at the intersection of Red Horse Road and Hamby Place; and the Fuel Cell Maintenance Hangar is proposed for an approximate 0.5 acre of wetlands located on the northeast corner of the eastside aircraft parking apron and north of Bldg 91262. Collectively, the Proposed Action construction projects will affect 9.5 acres of wetland habitat. No protected species are documented in the vicinity of any of the Proposed Action project areas. Wetland impacts would be offset and mitigated, as discussed in **Section 4.6.2.1**.

The only Federally listed organism documented on Hurlburt Field is the Reticulated Flatwoods Salamander (*Ambystoma bishopi*); as such, it is the species of highest concern for the installation. The proposed locations for these facilities are not located near known salamander breeding or habitation sites. Additionally, the proposed locations do not contain the necessary hydrological conditions to be suitable habitat for this species (fringe vegetation, native groundcover in uplands surrounding wetlands, or adequate amounts of canopy closure).

As a requirement under the ESA, Federal agencies are required to provide documentation that ensures that agency actions would not adversely affect the existence of any 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 the USFWS that concludes with USFWS concurrence or a determination of species jeopardy by way of a Federal agency project. Documentation of coordination with the USFWS and the response received is provided in **Appendix B**.

No protected species or habitat or water bodies are documented in the vicinity of the Proposed Action project areas. It is expected that any wildlife affected by noise due to construction activities would return to their normal routine once construction activities have ceased. Therefore, the Proposed Action for the construction projects would have an insignificant impact on biological resources at Hurlburt Field.

4.7.2.2 Alternatives to the Proposed Action

The potential effects on biological resources under the Alternatives to the Proposed Action would be similar to those presented under the Proposed Action, with the exception that the Alternatives to the Proposed Action construction projects potentially affecting wetland habitat are located as follows: the Alternative New Hot Cargo Taxiway is proposed for approximately 2.2 acres of wetlands located northwest of Taxiway Alpha; and the Alternative Base Logistics Facility is proposed for approximately three acres of

wetlands located on the south side of Tully Street, south of Bldg 90531. Collectively the Alternatives to the Proposed Action construction projects would impact 5.2 acres of wetland habitat. No protected species are documented in the vicinity of any of the Alternatives to the Proposed Action project areas. Wetland impacts would be offset and mitigated, as discussed in **Section 4.6.2.2**.

No protected species or habitat or water bodies are documented in the vicinity of the Alternatives to the Proposed Action project areas. It is expected that any wildlife affected by noise due to construction activities would return to their normal routine once construction activities have ceased. Therefore, the Alternatives to the Proposed Action for the construction projects would have an insignificant impact on biological resources at Hurlburt Field.

4.7.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the biological resources conditions at Hurlburt Field would remain the same, as described in **Section 3.7.2**.

4.8 Cultural Resources

Potential adverse impacts on cultural resources might include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; or neglecting the resource to the extent that it deteriorates or is destroyed.

4.8.1 Basewide Personnel and Aircraft Increases

4.8.1.1 Proposed Action

The Proposed Action, an installation-wide increase of 1,340 personnel and one aircraft over a five-year period, would not affect cultural resources.

4.8.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the cultural resources conditions at Hurlburt Field would remain the same, as described in **Section 3.8.2**.

4.8.2 Construction Projects

4.8.2.1 Proposed Action

According to Mr. Philip Pruitt (1 SOCES/Natural Resources Element [SOCES/CEAN]), cultural resources are not located within or near the immediate vicinity of the Proposed Action construction projects areas, and no buildings planned for remodel are potentially eligible for the NRHP. Documentation of coordination with the SHPO and the response received is provided in **Appendix B**. Therefore, the Proposed Action construction projects would not affect cultural resources at Hurlburt Field.

4.8.2.2 Alternatives to the Proposed Action

Potential effects on cultural resources under the Alternative to the Proposed Action would be similar to those presented under the Proposed Action. Therefore, the Alternatives to the Proposed Action for the construction projects would not affect cultural resources at Hurlburt Field.

4.8.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the cultural resources conditions at Hurlburt Field would remain the same, as described in **Section 3.8.2**.

4.9 Coastal Zone Management

4.9.1 Proposed Action and Alternative to the Proposed Action

Federal applicants seeking a FCMP consistency determination are required to submit their own preliminary consistency determination along with an EA to the Florida State Clearinghouse. The preliminary consistency determination addresses the Proposed and Alternative Actions and is presented in **Appendix A**. The Draft PGEA will be submitted to the Florida State Clearinghouse for a FCMP consistency determination from FDEP. The Clearinghouse solicits comments from appropriate state, regional, and local reviewers to determine Federal consistency with the FCMP. Based on an evaluation of comments and recommendations, FDEP makes the state's final consistency determination.

4.9.2 No-Action Alternative

The No-Action Alternative would result in no increase in aircraft or personnel and no new construction. Using this Alternative, the coastal zone management conditions at Hurlburt Field would remain the same, as described in **Section 3.9.2**.

4.10 Socioeconomics/Environmental Justice

The significance of personnel and aircraft increases and construction expenditure impacts are assessed in terms of direct impacts on the local economy and related impacts on the other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary greatly, depending on the location of a Proposed Action. If potential socioeconomic changes were to result in substantial shifts in population trends or in adverse impacts on regional spending and earning patterns, they would be considered significant.

4.10.1 Basewide Personnel and Aircraft Increases

4.10.1.1 Proposed Action

Socioeconomics

The Proposed Action would include the gradual and permanent increase in the number of personnel stationed at Hurlburt Field. This would involve a small long-term beneficial effect on the local workforce. In addition to the active duty personnel, the associated accompanying family members would require employment and participate in local commerce. An estimated 800 additional students would also require educational facilities, primarily within Okaloosa or Santa Rosa County school systems. Hurlburt Field personnel are likely to live in geographically diverse areas ranging from western Santa Rosa County to north central Okaloosa County. Therefore, the local housing market and school systems could accommodate the increased population.

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls and local procurement contribute to the economic base for the ROI. In this regard, changes in personnel at Hurlburt Field would have a multiplier effect on the local and regional economy. The Proposed Action for personnel increases would create direct jobs, generating new income and increasing personal spending. This spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services. Therefore, the Proposed Action for the personnel and aircraft increases would have an insignificant beneficial impact on socioeconomics in the associated ROI.

Environmental Justice

As discussed in **Section 3.10**, the USAF has issued guidance on environmental justice analysis for EAs. To comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Population*, ethnicity and poverty status in the study area have been examined and compared to regional and state statistics to determine if minority or low-income groups could be disproportionately affected by the Proposed Action. The review indicates that residents living within Tract 220 have lower per capita incomes and higher percentages of residents living below the poverty level than regional or state averages (U.S. Census Bureau, 2000). The review further indicates

that the percentage of minority residents is slightly less than state or county averages (77.26% as compared to 78.0 and 83.4%, respectively).

In addition, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires that Federal agencies identify and assess environmental health and safety risks that might disproportionately affect children. The Proposed Action would not pose any adverse or disproportionate environmental health or safety risks to children living in the vicinity of the installation.

The environment around Hurlburt Field is influenced by USAF operations, land management practices, vehicle traffic, and emissions sources outside the base. Increased traffic from additional personnel and construction activities would affect local air quality, but the impacts would be widely dispersed and affect area residents and base employees equally and nearly imperceptibly. No disproportionate impacts on minority or low-income populations from the Proposed Action were identified.

Excess noise is confined to Hurlburt Field and air emissions due to personnel and aircraft increases have been determined to be well below the 10% air emission inventory threshold for Okaloosa County, as discussed in **Section 4.1.1**. The Proposed Action for the personnel and aircraft increase would not pose any adverse or disproportionate environmental health or safety risks to those living in the vicinity of the base. Therefore, the Proposed Action for the personnel and aircraft increases would not impact environmental justice.

4.10.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the socioeconomic and environmental justice conditions at Hurlburt Field and the ROI would remain the same, as described in **Section 3.10.2**.

4.10.2 Construction Projects

4.10.2.1 Proposed Action

Socioeconomics

The Proposed Action involves a limited amount of construction activities, which would result in a short-term, temporary increase in the number of personnel working on Hurlburt Field. Total construction costs over the entire implementation of the Proposed Action for the construction projects are estimated to be approximately \$83.3 million between FY08 and FY13, which would be a direct, beneficial impact on the local economy. Construction workers would be drawn from the local workforce, resulting in short-term direct beneficial impacts on employment in the construction industry and local

economy. Census data for 2000 showed that Okaloosa County has 8,884 construction employees, and Santa Rosa County has 6,695 construction employees. The number of construction workers required for the proposed construction projects would be relatively small compared to the available work force in the ROI, and should not negatively impact local employment.

Indirect impacts from the proposed construction projects would be short-term and beneficial on local employment and the local economy. No permanent or long-term effects on employment, population, personal income, or poverty levels or other demographic or employment indicators in the ROI would be related directly to proposed construction projects.

The Proposed Action for the construction projects would not substantially change land use on Hurlburt Field, and there would be no impacts on any of the census tracts outside of the installation. Any changes to land use under the Proposed Action for the construction projects would be imperceptible to the public and no effects on social conditions would be anticipated. Therefore, the Proposed Action for the construction projects would have an insignificant short-term beneficial impact on socioeconomics in the associated ROI.

Environmental Justice

The potential effects on Environmental Justice under the Proposed Action for the construction projects would be the same as those under the personnel and aircraft increases. In addition, the likelihood of the presence of children at construction sites where the Proposed Action would occur would be minimal, which further limits the potential for impacts. Therefore, the Proposed Action construction projects would not impact environmental justice.

4.10.2.2 Alternatives to the Proposed Action

Socioeconomics

The potential effects on socioeconomics under the Alternatives to the Proposed Action would be similar to those presented under the Proposed Action, with the exception that the total construction costs over the entire implementation of the Alternatives to the Proposed Action for construction projects are estimated to be approximately \$90.9 million between FY08 and FY13. This would be a slight increase in the overall beneficial impact on the local economy as compared to the Proposed Action. Therefore, the Alternative to the Proposed Action for the construction projects would have an insignificant short-term beneficial impact on socioeconomics in the associated ROI.

Environmental Justice

The potential effects on environmental justice under the Alternatives to the Proposed Action would be the same as those presented under the Proposed Action. Therefore, the Alternatives to the Proposed Action construction projects would not impact environmental justice.

4.10.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the socioeconomic and environmental justice conditions at Hurlburt Field and the ROI would remain the same, as described in **Section 3.10.2**.

4.11 Infrastructure

Impacts on infrastructure are evaluated based on their potential to deteriorate or improve existing levels of service. Potential changes may increase airfield use and basewide energy consumption (including electrical, liquid fuel, and natural gas), require increased communications availability, and stress the transportation system. Impacts may arise from physical changes to traffic patterns, construction activities, introduction of construction-related traffic on local roads, or changes in daily or peak-hour traffic volumes. Increased communication needs and energy demands may be created by either direct or indirect workforce or population changes related to installation activities. An effect would be considered adverse if a Proposed Action exceeded the capacity of an infrastructure component.

4.11.1 Basewide Personnel and Aircraft Increases

The infrastructure elements potentially affected by increases in aircraft are airfield and liquid fuels. Communications, electrical, natural gas, stormwater, wastewater, and transportation would not be impacted by the increase in aircraft, and these infrastructure components are not discussed. Impact due to the proposed personnel increase would be interrelated with the proposed construction projects and the discussion of these potential impacts to infrastructure are discussed in **Section 4.11.2.1**.

4.11.1.1 Proposed Action

Airfield

The one net additional aircraft by FY13 would require space on the aircraft parking apron. Available space on the apron is at a premium. The Proposed Action would lessen the ability of Hurlburt Field to beddown additional aircraft in the future. However, Hurlburt Field actively manages the available apron space to accommodate additional aircraft. Therefore, the Proposed Action for the aircraft increases would have an insignificant impact on the airfield infrastructure at Hurlburt Field.

Liquid Fuels

Aircraft fuel delivery is limited by refueling truck availability. The single additional aircraft by FY13 would create additional demand on liquid fuels infrastructure; however, current capacity would be adequate to handle the proposed increased demand. Therefore, the Proposed Action for the aircraft increases would have an insignificant impact on liquid fuels infrastructure at Hurlburt Field.

4.11.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of aircraft. Using this Alternative, the infrastructure at Hurlburt Field would remain the same, as described in **Section 3.11.2**.

4.11.2 Construction Projects

The proposed personnel increases and construction projects are closely related in terms of infrastructure impacts; as such, these Proposed Actions are jointly addressed in this section. The Proposed Actions for personnel increase and construction projects potentially impact all the infrastructure components.

4.11.2.1 Proposed Action

Airfield

The proposed construction project Base Logistics Facility would have no impact to the airfield infrastructure. The proposed construction projects for Bldg 90815 (a hangar) would convert Bldg 90815 back to a usable hangar, ensuring proper use of the airfield infrastructure. The proposed New Hot Cargo Taxiway would create an additional taxiway for Hurlburt Field and would free up otherwise QD-arc constrained open space for additional airfield related facilities, which would have a beneficial impact on airfield infrastructure.

The land adjacent to the westside aircraft parking apron, except for the proposed siting location for the Light Aircraft Squadron Operations and Maintenance Facility, is completely used for other aircraft functions. The Light Aircraft Squadron Operations and Maintenance Facility would be located in the area freed of QD-arc constraints by the proposed New Hot Cargo Taxiway. The land adjacent to the eastside aircraft parking apron, except for the proposed siting location for the Fuel Cell Maintenance Hangar, is completely used for other aircraft functions.

Therefore, the Proposed Action for the personnel increase and construction projects would have an insignificant beneficial impact on airfield infrastructure at Hurlburt Field.

Communications

The current main switch for the telephone system that services the westside of the installation is over capacity. The use of analog phone lines in new facilities or by additional personnel would create an overwhelming demand on the telephone system. To offset this impact, it is expected that the use of VoIP would increase in conjunction with the growth of personnel. Users can be transitioned to VoIP in eligible existing facilities, and proposed new facilities would have VoIP phone lines installed.

The installation communications network is designed to be scalable; therefore, it is anticipated that the existing network infrastructure would support additional users. Therefore, the Proposed Action for the personnel increase and construction projects would have an insignificant impact on communications infrastructure at Hurlburt Field.

Electrical

The electrical distribution on the eastside of the base is hindered by two feeder lines supplying power. The current load cannot be equally divided between the feeders. Hurlburt Field has planned and programmed a project to construct a new East Side Electrical Substation and Distribution System, (FTEV053005) in FY10, which would have a beneficial impact to the electrical distribution system. (FTEV053005 is not evaluated in this EA.) The proposed personnel increases would increase electrical use from the associated office equipment. The proposed construction projects would use sustainable design concepts to the greatest extent possible. Therefore, through the use of sustainable design concepts, the proposed projects would likely result in more efficient use of energy than current facilities. Gulf Power Company has adequate capacity to support the additional load. Therefore, the Proposed Action for personnel increase and construction projects would have an insignificant impact on the electrical infrastructure at Hurlburt Field.

Liquid Fuels

The liquid fuel infrastructure would be adequate to handle the proposed additional personnel, and the proposed construction projects do not affect the liquid fuels infrastructure. Therefore, the Proposed Action for the personnel increase and construction projects would have an insignificant impact on liquid fuels infrastructure at Hurlburt Field.

Natural Gas

The proposed construction projects would tie into existing gas lines that are sufficient to meet demands. The proposed construction projects would use sustainable design concepts to the greatest extent possible. Through the use of sustainable design concepts, the proposed projects would likely result in more efficient use of heating and cooling than

the current facilities. Therefore, the Proposed Action for the personnel increase and construction projects would have an insignificant impact on natural gas infrastructure at Hurlburt Field.

Wastewater

The proposed construction projects would tie into existing sanitary sewer lines that are sufficient to meet demands. The proposed construction projects would use sustainable design concepts to the greatest extent possible. Through the use of sustainable design concepts, the Proposed Action would likely result in more efficient use of sanitary sewers than the current facilities. The increases in the sanitary sewer system flow from the proposed increase of 1,340 personnel would come from several types of establishments. Typical sewage flow from workers at offices is 15 gallons per day per person, restaurants are 13 gallons per day per patron, and gymnasiums are 10 gallons per day per person (Corbitt, 1999). Assuming all personnel eat at a restaurant and go to the gymnasium in a day, the total increase in sewage flow would be 50,920 gallons per day. This represents an increase of approximately 7% and would be well within the permitted capacity of the treatment plant. The wastewater treatment plant is currently operating at about 0.7 MGD with a permitted capacity of 1.0 MGD. Therefore, the Proposed Action for the personnel increase and construction projects would have an insignificant impact on wastewater infrastructure at Hurlburt Field.

Stormwater

The proposed increase in personnel would have no direct effect on stormwater infrastructure. Proposed Action construction activities would be constructed in compliance with FAC 62-621 and FAC 62-346 permit requirements, which would ensure that stormwater is protected during construction with the institution of BMPs and that new runoff is properly treated prior to discharge.

Once constructed, the Proposed Action for the construction projects would result in a net increase of 318,382 square feet of impervious surface. LID stormwater practices instituted during design would keep stormwater volumes to a minimum. Where necessary, the proposed construction projects would tie into existing stormwater controls that are sufficient to meet the proposed increase in demand. Therefore, the Proposed Action for the personnel increase and construction projects would have an insignificant impact on stormwater infrastructure at Hurlburt Field.

Transportation

Currently, Hurlburt Field has seven intersections which experience a LOS F (congestion) during rush hour, as shown in **Table 3-19**. Study Regions 1, 3, and 4 have several areas with exceptionally high parking utilization rates, as discussed in **Section 3.11.2**.

Traffic

According to the *Hurlburt Field Transportation Plan* (Hurlburt Field, 2008a), the entry gates currently have adequate capacity; however, the intersections at the gates experience a LOS F (congestion) during rush hours. Based on proposed growth projections, additional measures at the gates may need to be implemented to maintain pace with future conditions.

The Transportation Plan (Hurlburt Field, 2008a) analyzed future traffic circulation conditions at Hurlburt Field based on the recently updated Long Range Facilities Development Plan (Hurlburt Field, 2007g), which addresses the Planned Growth activities identified in this EA. The recommended traffic circulation improvements presented in **Table 3-21** were assumed to be completed in the analysis. The results of this analysis conclude that the proposed transportation improvements help reduce the delay motorists currently experience, as shown in **Table 4-4**.

Table 4-4 Future Intersection Level of Service Summary

Intersection	Peak Hour	Future LOS
Martin Luther King Jr. Blvd. and Freedom Way	AM	F
	PM	E
Cody Avenue and Independence Road	AM	E
	PM	F
Cody Avenue and Simpson Avenue	AM	F
	PM	F
Independence Road and Lielmanis Avenue	AM	D
	PM	B
Independence Road and Brimms Road	AM	C
	PM	F
Cody Avenue and Tully Street	AM	C
	PM	D
Tully Street and Terry Avenue	AM	C
	PM	B
Independence Road and O'Neil Avenue	AM	B
	PM	B
Independence Road and Terry Avenue	AM	B
	PM	B
Independence Road and Tully Street	AM	B
	PM	B
US98 and Cody Avenue	AM	D
	PM	F

Source: Hurlburt Field Transportation Plan, March 2008

Parking

The proposed parking lots for the Light Aircraft Squadron Operations and Maintenance Facility and the Base Logistics Facility, located in Region 1, would be adequately sized to accommodate the proposed personnel associated with these facilities. The demolition of the warehouse portion of Bldg 90710 associated with the proposed Base Logistics Facility would relocate the warehouse personnel to the new parking lot and free up parking stalls for other personnel to use. The two construction projects for Bldg 90815 are located in also located Region 1 (current parking utilization rate of 66%) and do not have additional parking associated with the proposed construction. However, additional personnel are associated with these construction projects. Additionally, during construction of these facilities, the laydown area would temporarily remove additional parking stalls, which would be a temporary adverse impact to parking stall availability. Therefore, the additional parking demand would negatively affect the localized parking shortage in Region 1 in the short term.

The parking lot for the proposed Fuel Cell Maintenance Hangar, located in Region 6, would be adequately sized to accommodate the proposed personnel associated with the facility. The proposed New Hot Cargo Taxiway does not have any permanent facilities, personnel, or parking associated with the project.

Other proposed personnel increases would be located primarily in Regions 1, 3A, 3B, and 6. This would create additional parking demand in these already over-utilized regions. However, Hurlburt Field has an ongoing process to add additional parking lots in these regions, which will alleviate the majority of the parking shortages in the long-term. Therefore, the Proposed Action for the personnel increase and construction projects would have an insignificant adverse impact on transportation at Hurlburt Field.

4.11.2.2 Alternative to the Proposed Action

No Alternatives to the Proposed Action for personnel increase are considered. This section addresses only the infrastructure impacts of the Alternatives to the Proposed Action for the construction projects.

Airfield

The Alternative for the Light Aircraft Squadron Operations and Maintenance Facility would demolish Bldgs 90812 and 90815 to make room for the new facility. Bldg 90815 is currently being used for non-airfield related functions. This project would ensure the proper use of the airfield infrastructure, which would be a beneficial impact. The Alternative for the Proposed Action New Hot Cargo Taxiway would create an additional taxiway for Hurlburt Field, which would be a beneficial impact. The Alternative for the Fuel Cell Maintenance Hangar would be to renovate the current hangar (Bldg 91262) to function as a fuel cell maintenance hangar, which would have no net impact to the

airfield infrastructure. The other Alternatives to the Proposed Action construction projects have no impact to the airfield infrastructure. Therefore, the Alternatives to the Proposed Action for the construction projects would have an insignificant beneficial impact on airfield infrastructure at Hurlburt Field.

Communications

The potential effects on communications under the Alternatives to the Proposed Action would be the same as those presented under the Proposed Action. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant impact on communications infrastructure at Hurlburt Field.

Electrical

The potential effects on electrical infrastructure under the Alternatives to the Proposed Action would be the same as those presented under the Proposed Action. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant impact on the electrical infrastructure at Hurlburt Field.

Liquid Fuels

The proposed construction projects do not impact the liquid fuels infrastructure. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant impact on liquid fuels infrastructure at Hurlburt Field.

Natural Gas

The potential effects on natural gas infrastructure under the Alternatives to the Proposed Action would be the same as those presented under the Proposed Action. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant impact on natural gas infrastructure at Hurlburt Field.

Wastewater

The potential effects on wastewater infrastructure under the Alternatives to the Proposed Action would be the same as those presented under the Proposed Action. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant impact on wastewater infrastructure at Hurlburt Field.

Stormwater

The potential effects on stormwater infrastructure of the Alternatives to the Proposed Action for the construction projects would be similar to those discussed under the Proposed Action, with the exception that the Alternative construction projects would

create a net increase of 292,796 square feet of impervious surface. The Alternative construction projects would tie into existing stormwater controls that are sufficient to meet the proposed increase in demand. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant impact on stormwater infrastructure at Hurlburt Field.

Transportation

Currently, Hurlburt Field has seven intersections which experience a LOS F (congestion) during rush hour, as shown in **Table 3-21**, and several areas with high parking utilization rates in study regions 1, 3, and 4, as discussed in **Section 3.11.2**.

Traffic

The potential effects on traffic under the Alternatives to the Proposed Action would be the same as those presented under the Proposed Action.

Parking

The proposed parking area for the Alternatives to the Proposed Action construction project Light Aircraft Squadron Operations and Maintenance Facility, located in Region 1, would be adequately sized to accommodate the proposed personnel associated with the facility. The demolition of the warehouse portion Bldg 90710 associated with the Alternatives to the Proposed Action construction project Base Logistics Facility would relocate the warehouse personnel to the new parking lot and free up parking stalls for other personnel to use.

The Alternative for the two construction projects to Add/Alter and Repair Bldg 90815 would be to utilize the existing hangars, Bldgs 91262 and 91266, located Region 6 (current parking utilization rate of 68%); no additional parking spaces would be added with this Alternative. The Alternative for the Proposed Action construction project Fuel Cell Maintenance Hangar (renovate Bldg 91262), also located in Region 6, does not have any parking lot associated with the construction. However, additional personnel are associated with both of these Alternatives. Therefore, these Alternatives would create an additional demand for parking stalls.

The proposed parking lot for the Alternatives to the Proposed Action construction project Base Logistics Facility, located in Region 2, would be adequately sized to accommodate the proposed personnel associated with the facility. The Proposed Action construction project New Hot Cargo Taxiway does not have any permanent facilities, personnel, or parking associated with the project.

Hurlburt Field has an ongoing process to add additional parking lots in these regions, which will alleviate the majority of the parking shortages in the long-term. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant adverse impact on transportation at Hurlburt Field.

4.11.2.3 No-Action Alternative

The No-Action Alternative would result in no personnel increase and no new construction. Using this Alternative, infrastructure conditions at Hurlburt Field would remain the same as described in **Section 3.11.2**.

4.12 Hazardous Materials and Waste

Impacts on hazardous materials and waste are evaluated based on their potential to increase or decrease the amount of materials used or waste generated. Impacts on solid waste, hazardous materials, and waste management would be considered significant if the Proposed Action resulted in noncompliance with applicable Federal and FDEP regulations or an increase in the amounts generated or procured beyond current Hurlburt Field waste management procedures and capacities. Impacts on stored fuels would be significant if the established management policies, procedures, and handling capacities could not accommodate the activities associated with the Proposed Action. Impacts on the Environmental Cleanup Program would be considered significant if the action disturbed (or created) contaminated sites resulting in adverse impacts on human health or the environment.

4.12.1 Basewide Personnel and Aircraft Increases

4.12.1.1 Proposed Action

The Proposed Action, an installation-wide increase of 1,340 personnel and one aircraft over a five-year period, would have no adverse impact to asbestos, LBP, or the Environmental Cleanup Program. These materials, waste, and program sites would not be disturbed by the proposed personnel or aircraft. Therefore, these topics are not discussed below.

Hazardous Waste

The quantity of hazardous wastes generated from proposed personnel increases would be minor and would consist of universal waste from electronic devices and wastes associated with the maintenance of any increase in the number of government-owned vehicles. Management of all hazardous waste will comply with Hurlburt Field Hazardous Waste Management Plan (Hurlburt Field, 2006a). The quantities of hazardous waste generated from the maintenance of the proposed aircraft increases would be reduced due to the advanced type, younger age, and overall size of aircraft proposed for Hurlburt Field.

Therefore, the Proposed Action for the personnel and aircraft increases would have an insignificant impact on hazardous waste at Hurlburt Field.

Solid Waste

Solid waste generated from the proposed personnel increases would consist primarily of office materials. Management of all solid waste will comply with Hurlburt Field Solid Waste Management Plan (Hurlburt Field, 2005a). Installation policy directs personnel to recycle to the greatest extent possible, thus allowing any recycled material to be diverted from landfills. The average solid waste generation rate for Hurlburt Field is 1.0 pound per person per day, which includes recycling (Hurlburt Field, 2005a). The increases in solid waste generation from the proposed increase of 1,340 personnel would be approximately 1,340 pounds per day, assuming the new dependents would be living off-base. Assuming an average family size of 2.5 (U.S. Census 2000 Demographic Profile), the total family size would be 3,350. The average Solid Waste generation rate for households is 4.5 pounds per person per day, and the average recycling rate is approximately 1.5 pounds per person per day (USEPA, 2006). A residential increase of 10,050 pounds per day of solid waste would be expected from the Proposed Action. Based on current usage rates, the local landfills have sufficient operating capacity to handle this amount of waste. Therefore, the Proposed Action for the personnel and aircraft increases would have an insignificant long-term impact on solid waste at Hurlburt Field.

Hazardous Materials

Products containing hazardous materials are regularly procured and used for aircraft maintenance. Management of hazardous materials would be handled in accordance with AFI 32-7086. The quantities of hazardous materials used during the maintenance of the proposed new aircraft would be less due to the advanced type, younger age, and overall size of the various aircraft proposed for Hurlburt Field. Therefore, the Proposed Action for the personnel and aircraft increases would have an insignificant long-term beneficial impact on hazardous materials at Hurlburt Field.

Stored Fuel

The additional personnel may use the on-base service station for fueling their vehicles. The additional aircraft would be refueled using the existing fuel trucks. The existing fuel storage capacity would be adequate for the additional personnel and aircraft. Therefore, the Proposed Action for the personnel and aircraft increases would have an insignificant impact on stored fuels at Hurlburt Field.

4.12.1.2 No-Action Alternative

The No-Action Alternative would result in no increase of personnel or aircraft. Using this Alternative, the hazardous waste and materials usage and generation at Hurlburt Field would remain the same, as described in **Section 3.12.2**.

4.12.2 Construction Projects

4.12.2.1 Proposed Action

Hazardous Waste

The quantity of hazardous wastes generated from proposed construction activities would be negligible. Management of all hazardous waste will comply with Hurlburt Field Hazardous Waste Management Plan (Hurlburt Field, 2006a). Contractors would turn in any hazardous waste to the 1 SOCES/CEAN. Therefore, the Proposed Action for the construction projects would have an insignificant short-term impact on hazardous waste at Hurlburt Field.

Solid Waste

Solid waste generated from the proposed construction activities would consist of building materials, such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. Management of all solid waste will comply with Hurlburt Field Solid Waste Management Plan (Hurlburt Field, 2005a). Installation policy dictates that contractors would be required to recycle C&D debris to the greatest extent possible to keep recyclable C&D waste from being deposited in landfills.

The effects associated with implementation of the Proposed Action construction projects can be estimated using the following three assumptions: (1) approximately 3.89 pounds of construction debris are generated for each square foot of floor area for new structures, (2) approximately 24 pounds of construction debris are generated for each square foot of floor area renovated, and (3) approximately 155 pounds of demolition debris are generated for each square foot of floor area demolished (USEPA, 1998). The estimated tonnage of C&D waste that would be generated under the Proposed Action is presented in **Table 4-5**. The floor area square footage was derived from **Table 2-3** and is summarized below.

- The construction floor area is the sum of Light Aircraft Squadron Operations and Maintenance Facility, Base Logistics Facility, and Fuel Cell Maintenance Hangar square footage.
- The renovation floor area is the sum of Add/Alter and Repair Bldg 90815 square footage.

- The demolition floor area is square footage of the demolition of the warehouse portion of Bldg 90710, which is a subset of the proposed Base Logistics Facility project.

No assumptions were available for estimating C&D debris for parking area and taxiway construction. The C&D waste generated for the parking areas and New Hot Cargo Taxiway would be expected to be negligible. Therefore, the parking areas and the New Hot Cargo Taxiway were not included in **Table 4-5**.

Table 4-5 Construction and Demolition Debris Generation

Type of C&D Waste	Floor Area (ft ²)	Multiplier* (pounds/ft ²)	Total C&D Waste (tons)
Construction	247,538	3.89	481
Renovation	17,480	24	210
Demolition	125,647	155	9,738
Total			10,429

* Calculated using assumptions from USEPA, 1998

As shown in **Table 4-5**, approximately 10,429 tons of C&D waste would be generated over the next five years from the proposed construction projects. Based on current usage rates, the local permitted C&D landfills have sufficient operating capacity to handle this amount of waste. Therefore, the Proposed Action for the construction projects would have an insignificant short-term impact on solid waste at Hurlburt Field.

Hazardous Materials

Products containing hazardous materials would be procured and used during the proposed construction. The quantity of products containing hazardous materials used during construction would be minimal, and their use would be of short duration. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with AFI 32-7086. Therefore, the Proposed Action for the construction projects would have an insignificant short-term impact on hazardous materials at Hurlburt Field.

Stored Fuel

The Proposed Action would include the installation of a new aboveground emergency generator tank at the Light Aircraft Squadron Operations and Maintenance Facility for

the 319 SOS. Emergency generator tanks for this type facility are generally installed above ground and are typically less than 550 gallon capacity. Once installed and operational, the tank should be added to Hurlburt Field's SPCC Plan, and a site-specific spill response plan should be developed for the tank. If the tank has a capacity greater than 550 gallons, it would require registration under FAC 62-762. The other proposed construction projects would not include the installation of new aboveground emergency generator tanks. Therefore, the Proposed Action for the construction projects would have an insignificant long-term impact on stored fuel at Hurlburt Field.

Asbestos

Based on the age of Bldgs 90815 and 90710, it is expected that ACM may be associated with these buildings. According to the 2007 Asbestos Management/Operating Plan, standard procedure for the management and abatement of asbestos dictates that prior to renovation or demolition asbestos inspection and sampling may be necessary. ACM would be removed prior to the demolition or renovation of any facility in accordance with applicable Federal, state, and local regulations (Hurlburt Field, 2007f). The amount of ACM for a 2,500 ft² renovation (Bldg 90815) and a 125,647 ft² demolition (Bldg 90710) would not be expected to exceed 30,000 pounds (Maximum square footage ACM expected is calculated at 13,636 ft² at 2.2 pounds per ft² assuming walls, ceilings, and floors in each building is ACM sheetrock/flooring. The majority of the warehouse space associated with 90710 likely does not contain ACM materials and 123,147 ft² is not included in calculation). Based on current usage rates, the local landfills permitted to accept ACM have sufficient operating capacity to handle this amount of waste. Therefore, the Proposed Action for the construction projects would have an insignificant short-term impact and an insignificant long-term beneficial impact on asbestos at Hurlburt Field.

Lead-Based Paint

According to the December 2005 LBP Management Plan, buildings would be tested when renovations that may impact LBP surface are scheduled. LBP abatement management and disposal is accomplished in accordance with applicable Federal, state, and local regulations to prevent any health hazards. Therefore, the Proposed Action for the construction projects would have an insignificant short-term impact and an insignificant long-term beneficial impact on LBP at Hurlburt Field.

Environmental Cleanup Program

Although none of the Proposed Actions are located within an Environmental Cleanup site, dewatering can remove a substantial amount of water from an area and alter ground water flow patterns. Before dewatering efforts can begin the proper NPDES/FDEP permits (FAC 62-621.300(2)) would be required. The proposed location for the Base Logistics Facility is located adjacent to SD-129 and AOC-211 and within 250 feet of SS-139. The proposed Light Aircraft Squadron Operations and Maintenance Facility would

be located within 500 feet from Sites SS-130 / MMRP Site Gunnery Butt and 700 feet from Site SS-132. Site SS-130 is under LUC and the Gunnery Butt Site is under Phase II site evaluation and is expected to be closed. Site SS-132 is closed. Site SD-129 is under LTM with LUC, and Site SS-139 is under LUC. Therefore, these sites should not impact the construction activities. However, caution should always be exercised when dewatering to ensure that the water is not contaminated prior to removal and discharge. Therefore, the Proposed Action for the construction projects would have an insignificant impact on the Environmental Cleanup Program at Hurlburt Field.

4.12.2.2 Alternative to the Proposed Action

Hazardous Waste

The potential effects on hazardous waste under the Alternatives to the Proposed Action for the construction projects would be the same as those discussed under the Proposed Action. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant short-term impact on hazardous at Hurlburt Field.

Solid Waste

The potential effects on solid waste under the Alternatives to the Proposed Action for the construction projects would be the similar to those discussed under the Proposed Action. Using the same assumptions described in **Section 4.12.2.1**, the estimated tonnage of C&D waste that would be generated under the Alternatives to the Proposed Action is presented in **Table 4-6**. The floor area square footage was derived from **Table 2-4** and is summarized below.

- The construction floor area is the sum of Light Aircraft Squadron Operations and Maintenance Facility and Base Logistics Facility square footages.
- The renovation floor area is the Fuel Cell Maintenance Facility square footage.
- The demolition floor area is the sum of the demolition of Bldgs 90710, 90812, and 90815 square footages, which are a part of the proposed Base Logistics Facility project and Light Aircraft Squadron Operations and Maintenance Facility.

The C&D waste generated for parking areas and the New Hot Cargo Taxiway would be expected to be negligible. Therefore, the parking areas and the New Hot Cargo Taxiway were not included in **Table 4-6**.

Table 4-6 Alternatives Construction and Demolition Debris Generation

Type of C&D Waste	Floor Area (ft ²)	Multiplier* (pounds/ft ²)	Total C&D Waste (tons)
Construction	222,544	3.89	433
Renovation	48,651	24	584
Demolition	149,989	155	11,624
Total			12,641

* Calculated using assumptions from USEPA, 1998

As shown in **Table 4-6**, approximately 12,641 tons of C&D waste would be generated over the next five years from the proposed construction projects. Based on current usage rates, the local permitted C&D landfills have sufficient operating capacity to handle this amount of waste. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant short-term impact on solid waste at Hurlburt Field.

Hazardous Materials

The potential effects on hazardous materials under the Alternatives to the Proposed Action for the construction projects would be the same as those discussed under the Proposed Action. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant short-term impact on hazardous materials at Hurlburt Field.

Stored Fuel

The potential effects on stored fuel under the Alternatives to the Proposed Action for the construction projects would be the same as those discussed under the Proposed Action. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant long-term impact on stored fuel at Hurlburt Field.

Asbestos

Based on the age of Bldgs 90812, 90815, and 90710 it is expected that ACM may be associated with these buildings. As with the Proposed Action, ACM associated with the Alternatives to the Proposed Action would be removed prior to the demolition or renovation of any facility in accordance with applicable Federal, state, and local regulations (Hurlburt Field, 2007f). The amount of ACM for a 48,651 ft² renovation (Bldg 91262) and a 149,989 ft² demolition (Bldg 90710, 90812, and 90815) would not be expected to exceed 204,000 pounds (Maximum square footage ACM expected is calculated at 92,700 ft² at 2.2 pounds per ft² assuming walls, ceilings, and floors in each

building is ACM sheetrock/flooring. Warehouse space associated with 90710 likely not ACM materials and 123,147 ft² is not included in calculation). Based on current usage rates, the local landfills permitted to accept ACM have sufficient operating capacity to handle this amount of waste. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant short-term adverse and insignificant long-term beneficial impact on asbestos at Hurlburt Field.

Lead-Based Paint

The potential effects on lead based paint under the Alternatives to the Proposed Action for the construction projects would be similar to those discussed under the Proposed Action. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant short-term impact and an insignificant long-term beneficial impact on LBP at Hurlburt Field.

Environmental Cleanup Program

The potential effects on the Environmental Cleanup Program under the Alternatives to the Proposed Action for the construction projects would be similar to those discussed under the Proposed Action. The Proposed Alternative location for the Base Logistics Facility is located within 600 feet from LF-16 and AOC-120 and within 1,000 feet from SS-208. The sites AOC-120 and SS-208 are closed, and LF-16 is under LUC; therefore, these Environmental Cleanup sites should not impact the construction activities. The Proposed Alternative location for the Light Aircraft Squadron Operations and Maintenance Facility would be adjacent to sites SS-216 and within 400 feet of SS-215. These sites are under investigation, which may impact the construction activities. Caution should always be exercised when dewatering to insure that the water is not contaminated prior to removal and discharge. Therefore, the Alternatives to Proposed Action for the construction projects would have an insignificant impact on the Environmental Cleanup Program at Hurlburt Field.

4.12.2.3 No-Action Alternative

The No-Action Alternative would result in no new construction. Using this Alternative, the hazardous materials and waste usage and generation at Hurlburt Field would remain the same, as described in **Section 3.12.2**.

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5.0 CUMULATIVE EFFECTS

CEQ implementing guidelines for NEPA require that the direct, indirect, and cumulative impacts of an action be evaluated and published. Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal or Nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time” (40 CFR 1508.7). In other words, an EA must determine if any non-significant direct and indirect impacts caused by implementation of the Proposed Action or any of the Alternatives would become significant if considered in concert with other actions occurring within the area of interest, defined both geographically and temporally. Other actions physically co-located with or in close proximity to the Proposed Action would be expected to have more potential for an incremental impact than those more geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative impacts.

The identification of cumulative impacts focused on whether or not affected resource areas of the Proposed Action or Alternatives might interact with the affected resource areas of past, present, or reasonably foreseeable actions. If such a relationship exists, this analysis considers whether the possibility of potential *significant* impacts exists that were not identified when the Proposed Action or Alternative in this PGEA were considered alone.

For the purposes of this analysis, the temporal span of the Proposed Action is five years. For most resources, the spatial area for consideration of cumulative impacts is Hurlburt Field and the immediate areas surrounding the installation, with the exception of impacts on air quality which considers Okaloosa County as the ROI.

Other actions evaluated along with the Proposed Action for cumulative impacts included, but were not limited to, the projects identified in **Table 2-3 Previously Analyzed Planned Growth Projects** and the following past actions:

- CV-22 Beddown at Hurlburt Field EA (USAF, 2001)
- General Plan EA (USAF, 2005a)
- Hurlburt Field Soundside Infrastructure Improvements EA (USAF, 2005b)
- Five-Year Update EA for CV-22 Beddown (USAF, 2007a)
- EIS for AFSOC Assets Beddown at Cannon AFB, NM (USAF, 2007b)
- Hurlburt Field Soundside Boathouse and Restroom Facility Construction EA (USAF, 2007c)

The following concurrent and reasonable foreseeable future actions were also considered:

- Removal of up to 2,182 parking stalls through the implementation of AT/FP requirements (Hurlburt Field, 2008a)
- Military Housing Privatization Initiative (MHPI) Supplemental Draft EIS, Eglin AFB/Hurlburt Field, Florida (USAF, 2008)

A discussion of the cumulative impacts for each resource area analyzed in **Section 4** follows. The purpose of this discussion is to determine if the impacts of each individual action, while minor and insignificant on their own, could cumulatively result in significant adverse impacts when added incrementally with other projects.

Air Quality

Singularly, PGEA, MHPI, or General Plan EA construction and demolition activities on Hurlburt Field would result in increased criteria pollutant emissions in the short term. Personnel increases and aircraft changes would result in increased criteria pollutant emissions in the long term. In the event that several different demolition, construction, renovation, or infrastructure activities occur simultaneously, cumulative effect could occur. The level of potential effect due to the total air emissions from implementation of all Planned Growth projects as well as all of the General Plan Alternative 1 projects (USAF, 2005a), the CV-22 Osprey Beddown (USAF, 2001), and the MHPI are provided in **Table 5.1**.

Table 5-1 Cumulative Emissions Estimates

Description	CO (tpy)	NO_x (tpy)	PM₁₀ (tpy)	SO₂ (tpy)	VOC (tpy)
All Planned Growth Projects*	5.753	4.883	16.674	0.142	1.393
Planned Growth Mobile and Area Emissions**	200.32	-27.27	-4.55	-2.15	26.21
General Plan EA Alternative 1 Projects	6481.90	679.34	329.99	16.69	831.24
EA for CV-22 Beddown Construction Emissions	6.04	13.83	2.85	1.46	0.98
MHPI***	51.52	16.02	172.16	1.65	46.47
Cumulative Total of All Projects	6,746	687	517	18	906
ROI Emissions	96,623	7,914	7,854	1,431	19,237
Percentage of ROI Emissions	6.98%	8.68%	6.58%	1.26%	4.71%

* Sum of the FY08, FY09, FY10, and FY13 projects from Table 4-2.

** Grand Total from Table 4-1.

*** MHPI Supplement Draft EIS, Table 4-13 (USAF, 2008)

If all these projects were to be implemented simultaneously, the proposed emissions would remain below the 10% of regional emissions threshold; USEPA air quality standards and regulations would not be violated. No significant adverse cumulative impacts on air quality would be expected.

Noise

Noise emanating from the proposed activities at construction sites would be localized, short-term, and intermittent. Construction noise emanating off-site (not off-base) as a result of the construction and demolition activities would likely be noticeable in the immediate vicinity of the construction sites. It is possible that several different demolition, construction, renovation, or infrastructure activities could occur simultaneously, whether Planned Growth, MHPI, or General Plan projects, however, it is likely these projects would occur in different areas. Larger projects would have longer construction periods, and the intermittent noise levels would extend over a longer period of time. Noise levels associated with larger construction projects would be similar to that of a very noisy urban residential area as presented in **Table 3-4**. Regardless of project size or location, the construction equipment would not be operational during the entire construction period, thus limiting the duration of increased noise levels. The typical noise receptors would include people in the airfield area, office buildings, residential areas, schools, recreational areas, and in some cases wildlife. Due to the intermittent nature of construction noise, impacts on the noise environment would not be long term and no significant adverse cumulative impacts on the noise environment would be expected.

The potential noise impacts at Hurlburt Field resulting from the installation aircraft increases and decreases would be contained within the existing noise contours. This is obtained through use of operational constraints (jets are instructed to track to the west in order to avoid pushing noise into the community) within the 65 dBA noise contours. No significant adverse cumulative impacts on the noise environment would be expected.

Land Use

Planned growth of new facilities in functionally compatible areas increases the overall operational capability of the installation. All PGEA, MHPI, or General Plan EA projects would be sited in land use areas that are compatible with future area development plans of the installation. All activities would occur on the installation and would not impact off-installation land. The amount of land made available by demolition projects would allow for construction of some of the new facilities and, therefore, limit the increase in impervious surface. Hurlburt Field seeks to avoid operational and environmental constraints that would result in land use conflicts, and plans to correct existing land use conflicts through the demolition and modernization of facilities, where possible. The proposed Planned Growth projects described in this PGEA and those anticipated under the MHPI and General Plan EA projects would have beneficial impacts on the

installation's organizational functions. No significant adverse cumulative impacts on land use would be expected.

Safety

Construction and demolition activities associated with the proposed PGEA projects, MHPI activities, and the General Plan EA projects, along with the proposed personnel and aircraft increases would cumulatively increase safety risks. Additional risks could come directly from increases in personnel and aircraft, construction activities, or through secondary effects such as environmental contamination. Day-to-day operations and maintenance activities conducted at Hurlburt Field would be performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by AFOSH requirements. Several transportation improvement projects are identified in the General Plan EA and, if implemented, would help improve the safety of the transportation system. Ground disturbing activities have the potential to expose workers to contamination from Environmental Cleanup sites, while demolition activities could expose workers to ACM or LBP. Construction and demolition activities would be accomplished in accordance with Federal, state, and local regulations to minimize general construction hazards as well as those associated with hazardous materials, wastes, and substances. No significant adverse cumulative impacts on safety would be expected.

Long-term cumulative beneficial impacts would be realized by the implementation of AT/FP requirements throughout Hurlburt Field. AT/FP requirements which reduce the likelihood of planted explosives that could penetrate the facilities.

Geological Resources

The grading and excavating of soils and removal of geotechnically incompatible soils for construction site preparation would affect geological resources. It is estimated that the proposed PGEA projects would disturb approximately 438,050 ft² (10.1 acres), while the MHPI projects may disturb approximately 6.8 million ft² (157 acres) at Hurlburt Field, and the General Plan EA projects could disturb as much as five million ft² (114.97 acres), for a cumulative ground disturbance of approximately 12.2 million ft² (282.1 acres). However, much of this acreage has been previously developed. Some projects would occur simultaneously, but likely in different areas of the installation; these projects would also be spread out over several years. Hurlburt Field would ensure that BMPs are employed during these activities to minimize effect on soil and prevent erosion and sediment runoff. All activities would comply with the installation's SWP3 and would employ erosion-control techniques, such as silt fencing, sediment traps, and application of water sprays. In addition, Hurlburt Field would revegetate, according to the current landscape management plan, which helps with erosion control and soil stability. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state,

and local regulations. No significant adverse cumulative impacts on Geological Resources or soils are expected.

Water Resources

Drainage Basins. Completed facilities adds impervious surface which could change the permeability of the drainage basin and increase the flow of water and potentially change flow characteristics. The collective acreage affected by the proposed PGEA, MHPI, and General Plan EA construction projects is minimal when compared to the available acreage in the drainage basin and no significant adverse cumulative impacts on the drainage basin would be expected.

Floodplains. Proposed PGEA, MHPI, and General Plan construction projects in floodplains would conform to applicable floodplain protection standards and accepted flood-proofing and protection measures in accordance with EO 11988 and the National Flood Insurance Program. No significant adverse cumulative impacts on the floodplain would be expected.

Surface Water. None of the proposed construction projects would create direct discharge to surface water. No significant adverse cumulative impacts on surface water due to the proposed construction projects would be expected.

Wetlands. A total of 52% of Hurlburt Field is designated as wetlands making it increasingly more impractical to avoid construction within wetlands. For actions undertaken in areas of wetlands, the agency must comply with procedures and practices outlined in EO 11988, 44 CFR 9.6, AFI 32-7064 and 32 CFR 989 as detailed in **Section 1.8.3**. Construction within wetlands requires mitigation measures to be implemented resulting in a no-net loss of wetlands. Wetlands impacts from FY00 up to and including the Fuel Cell Maintenance Hangar evaluated in this PGEA, were mitigated under a 10-year Memorandum of Agreement with USACE and FDEP, dated July 13, 2000, and were permitted under the FDEP Permit Number 17-0151212-001-DF and USACE Section 404 Permit Number 199900679 (IP-DH), which expires on September 24, 2010. It has been proposed that the remaining wetlands affected by projects in this PGEA will be mitigated with participation in a mitigation partnership with Eglin AFB. Mitigation options being explored include restoration of three to four flatwoods salamander pond habitats and up to three bridge crossings on Eglin AFB. All ponds and crossings under consideration are in the same drainage basin as the wetland impacts at Hurlburt Field. The mitigation process begins with functional assessments of the wetlands impacted and the flatwoods salamander pond habitats chosen for possible restoration. Completed assessments and the Application for Works in the Waters of Florida and required supporting documentation will be submitted to the USACE and FDEP for consideration to determine whether the proposed habitat restoration would provide sufficient functional gain to offset the functional loss created at the impact site. Once the mitigation requirements are

identified, a Joint Environmental Resource Permit application and CWA Section 404 Permit application will be submitted to the FDEP and USACE. No significant adverse cumulative impacts on wetlands would be expected.

Sand & Gravel Aquifer. The proposed PGEA projects, MHPI projects, and General Plan EA projects have the potential to affect the underlying surficial aquifer (Sand & Gravel Aquifer). Short-term effects would be expected on ground water as a result of construction activities. All construction activities would adhere to the BMPs identified in site-specific SWP3s, in compliance with the MS4 NPDES construction permit and would adhere to the existing installation SWP3, Hazardous Materials Management Plan, and SPCC Plan. If dewatering of the Sand & Gravel Aquifer is necessary during construction activities, this could have a minor effect on ground water availability to use for irrigation in the vicinity of the construction area. Additionally, if dewatering is undertaken near potentially contaminated sites, such as Environmental Cleanup sites, measures to prevent worker exposure will be employed. Proper water disposal methods should be used for any dewatering activity. Long term effects on the Sand & Gravel Aquifer could result from the increased need for irrigation water for new facilities. Increased need for irrigation water withdrawal could be minimized by the implementation of alternating watering schedules, xeriscape techniques, or other conservation approaches including greater utilization of reuse water generated at the Hurlburt Field wastewater treatment plant. No significant adverse cumulative impacts on ground water in the Sand & Gravel Aquifer due to the proposed construction projects would be expected.

Floridan Aquifer. Increases in development and population levels create greater consumption of potable water. At Hurlburt Field, the Floridan Aquifer is the source for potable water. The increase in population on Hurlburt Field and corresponding increase in potable water demand would be partially offset by Hurlburt Field's ability to establish a water reuse system, thus minimizing dependence on the Floridan Aquifer for non-potable use. Conversion of the Clearwater Rinse Facility to the water reuse system would save up to 10,000 gpd; and the institution of other reuse projects could further decrease reliance on the Floridan Aquifer. Currently, Hurlburt Field is well within their Consumptive Use Permit volumes. No significant adverse cumulative impacts on the Floridan Aquifer would be expected.

Biological Resources

Effects on Biological Resources due to the implementation of PGEA, MHPI, or General Plan projects would likely be limited to an increase in noise levels or BASH incidents. It is not anticipated that implementation of these projects would result in the incremental loss of valuable habitat because most projects are proposed in previously developed areas of Hurlburt Field and the locations of sensitive habitat are far removed from developed areas. Construction noise would occur which could disturb or aggravate wildlife, but wildlife would likely relocate to other areas on the installation with more suitable habitat

during construction and may return to their normal routine when construction activities cease. Potential for increase in BASH incidents would be kept to a minimum under the established BASH program. No significant adverse cumulative impacts on biological resources would be expected.

Cultural Resources

The proposed Planned Growth, MHPI, and General Plan EA projects would not be expected to affect cultural resources. Archaeological sites or other sites of traditional, cultural, or religious significance would be avoided during all Planned Growth activities. The General Plan EA Alternative 2 includes the potential to affect approximately 4,021 square feet of cultural resources, however, Alternative 1, which did not pose any effects to cultural resources, was the Preferred and selected Alternative. None of the other actions included any impacts to cultural resources. No significant adverse cumulative impacts on cultural resources would be expected.

Socioeconomics/Environmental Justice

Procurement of goods and services would stimulate the local economy and create jobs in the short-term for the Planned Growth, MHPI, and General Plan EA projects, and the Proposed Action would result in personnel authorizations. However, most impacts would be localized on Hurlburt Field and would not be noticeable on a long-term basis in the surrounding ROI. No significant adverse cumulative impacts on socioeconomics and environmental justice would be expected.

Infrastructure

The proposed Planned Growth, MHPI, and General Plan EA projects would affect the infrastructure components. Each of the infrastructure components is discussed below.

Airfield. The additional CV-22 Osprey and proposed additional aircraft in this EA would utilize most of the remaining available aircraft parking aprons. Additionally, the proposed Light Aircraft Squadron Operations and Maintenance Facility and other airfield projects would utilize the remaining constraint-free airfield space. However, Hurlburt Field actively manages the airfield space to accommodate additional aircraft including transient aircraft. No significant adverse cumulative impacts on the airfield would be expected.

Communications. The existing communications infrastructure for the telephone system is at or beyond capacity. The additional personnel and proposed facilities and other approved actions may place an overwhelming demand on the communications (telephone) system. To offset this demand, it is expected that the use of VoIP would increase in conjunction with the growth of personnel. Users can be transitioned to VoIP

in eligible existing facilities and proposed new facilities, and personnel could have VoIP phone lines installed. No significant adverse cumulative impacts on communications would be expected.

Electrical. The Proposed Action along with the other identified approved actions would place a strain on the electrical system on the installation's eastside. The existing electrical distribution on the east side of the base is hindered by two feeder lines supplying power. However, Hurlburt Field has planned and programmed a project to construct a new East Side Electrical Substation and Distribution System (FTEV053005) for FY10. This project, if completed, would have a beneficial impact to the electrical distribution system. No significant adverse cumulative impacts on electrical would be expected.

Liquid Fuels. The liquid fuel infrastructure would be adequate to handle the additional capacity required under the proposed Planned Growth, MHPI, and General Plan EA projects. No significant adverse cumulative impacts on liquid fuels would be expected.

Natural Gas and Wastewater. The replacement of existing facilities with more efficient facilities would be expected to reduce the overall use of natural gas and reduce the production of wastewater. The proposed construction projects would use sustainable design concepts to the greatest extent possible. Through the use of sustainable design concepts, the proposed projects would likely result in more efficient use of heating and cooling and reduced quantities of wastewater generation compared to current facilities. Beneficial cumulative impacts on the natural gas and wastewater would be expected.

Stormwater. The proposed construction projects have stormwater provisions included in design and construction, where necessary, and would tie into existing stormwater controls that are sufficient to meet the proposed increase in demand. No significant adverse cumulative impacts on stormwater would be expected.

Transportation. The existing transportation system experiences congestion during rush hour as well as major parking shortages across much of the base. The General Plan EA identifies several roadway improvements which would help alleviate some congestion. The Hurlburt Field Transportation Plan identifies additional recommendations, which, when implemented, will significantly reduce the remaining congestion on the roadways and would address parking shortages. No significant adverse cumulative impacts on transportation would be expected.

Overall, no significant adverse cumulative impacts on infrastructure would be expected.

Hazardous Materials and Waste

Construction and demolition from the Planned Growth, MHPI, and General Plan EA projects would increase the amount of hazardous materials used and wastes generated, but the use and disposal of these materials would be governed by existing management plans.

Hazardous Waste. The quantity of hazardous wastes generated through proposed increases in personnel (universal and electronic component waste) and by maintenance on proposed increased numbers of government vehicles and aircraft, and that which may be created by proposed construction projects would be minor. Proper disposal procedures for any hazardous waste would be followed by Hurlburt Personnel in accordance with the Hurlburt Field Hazardous Waste Management Plan (USAF, 2006a). No significant adverse cumulative impacts on hazardous waste would be expected.

Solid Waste. Demolition, construction, and infrastructure projects would result in increased solid waste generation. Using the same assumptions described in **Section 4.12.2.1**, the estimated tonnage of C&D waste that would be generated from the PGEA, General Plan EA, MHPI, CV-22 Beddown, and Soundside projects is presented in **Table 5-2**. Data was not available for all actions. As indicated in **Table 5-2**, approximately 443,068 cumulative tons would be generated. When possible, clean C&D debris (e.g., concrete and asphalt) would be ground, recycled, and used for fill and road work. Waste that is landfilled would be the responsibility of the construction contractor and would be hauled to a government-approved landfill off Hurlburt Field.

Table 5-2 Cumulative Construction and Demolition Debris Generation

Type of C&D Waste	Floor Area (ft ²)	Multiplier* (pounds/ft ²)	Total C&D Waste (tons)
PGEA Construction	247,538	3.89	481
PGEA Renovation	17,480	24	210
PGEA Demolition	125,647	155	9,738
General Plan EA Construction ¹	3,812,713	3.89	7,416
General Plan EA Demolition ¹	1,195,656	155	92,663
MHPI projects ²			332,299
CV-22 Beddown Construction	130,000	3.89	253
Soundside Boathouse and Restroom Facility Construction	3,984	3.89	8
Total			443,068

* Estimated using USEPA, 1998

¹ General Plan EA, Table 30 (USAF, 2005)

² MHPI Supplement Draft EIS, Table 4-18 (USAF, 2008)

The quantity of solid waste generated through proposed increases in personnel (office material) would be minor and would be offset by active recycling mandates and programs. No significant adverse cumulative impacts on solid waste would be expected.

Hazardous Material. The quantity of hazardous wastes generated through maintenance on increased numbers of aircraft would be minimized due to the advanced type, younger age and size. Hazardous wastes procured for use during proposed construction projects would be minimal and their use would be of short duration. Management of hazardous materials would be handled in accordance with AFI 32-7086. No significant adverse cumulative impacts on hazardous waste would be expected.

Stored Fuel. Increased numbers of personnel utilizing the on-base service station and increased numbers of aircraft requiring refueling would create the need for increased fuel storage. Current stored fuel infrastructure is adequate to accommodate the proposed growth. Increased numbers of aboveground storage tanks associated with proposed new generators would be managed by updating the installation's SPCC Plan. No significant cumulative impacts on stored fuel would be expected.

Asbestos. Several of the proposed construction projects involve demolition of older buildings which may have ACM. Management of ACM would be handled in accordance with the Hurlburt Field 2007 Asbestos Management/Operating Plan. No significant cumulative impacts on asbestos would be expected.

Lead Based Paint. Several of the proposed construction projects involve demolition of older buildings which may have LBP. Management of LBP would be handled in accordance with the Hurlburt Field 2005 LBP Management Plan. No significant cumulative impacts on LBP would be expected.

Environmental Cleanup Program. None of the Proposed Action construction projects are sited on Environmental Cleanup sites. If the projects outlined in Alternative 1 of the General Plan EA are implemented, approximately 6.29 acres of Environmental Cleanup sites could be affected. Construction on or within an Environmental Cleanup site would require proper approvals from AFSOC and regulatory authorities. To obtain approval it may be necessary to implement complete contaminant removal, administrative controls, and/or proper engineering controls to insure that construction workers and/or site personnel never come into contact with contaminated media (soil, sediment, surface water, ground water, and air). The details and complexity of working within the boundaries of an Environmental Cleanup site would be handled on a case-by-case basis with AFSOC personnel. No significant adverse cumulative impacts on the Environmental Cleanup Program would be expected.

Summary

When Proposed Actions for the personnel and aircraft increases and new construction for Planned Growth at Hurlburt Field are considered in conjunction with past, present, or reasonably foreseeable actions, no significant cumulative impacts would be expected on any resource area.

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FS, Chapter 288, *Commercial Development and Capital Improvements*
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FS, Chapter 339, *Transportation Finance and Planning*
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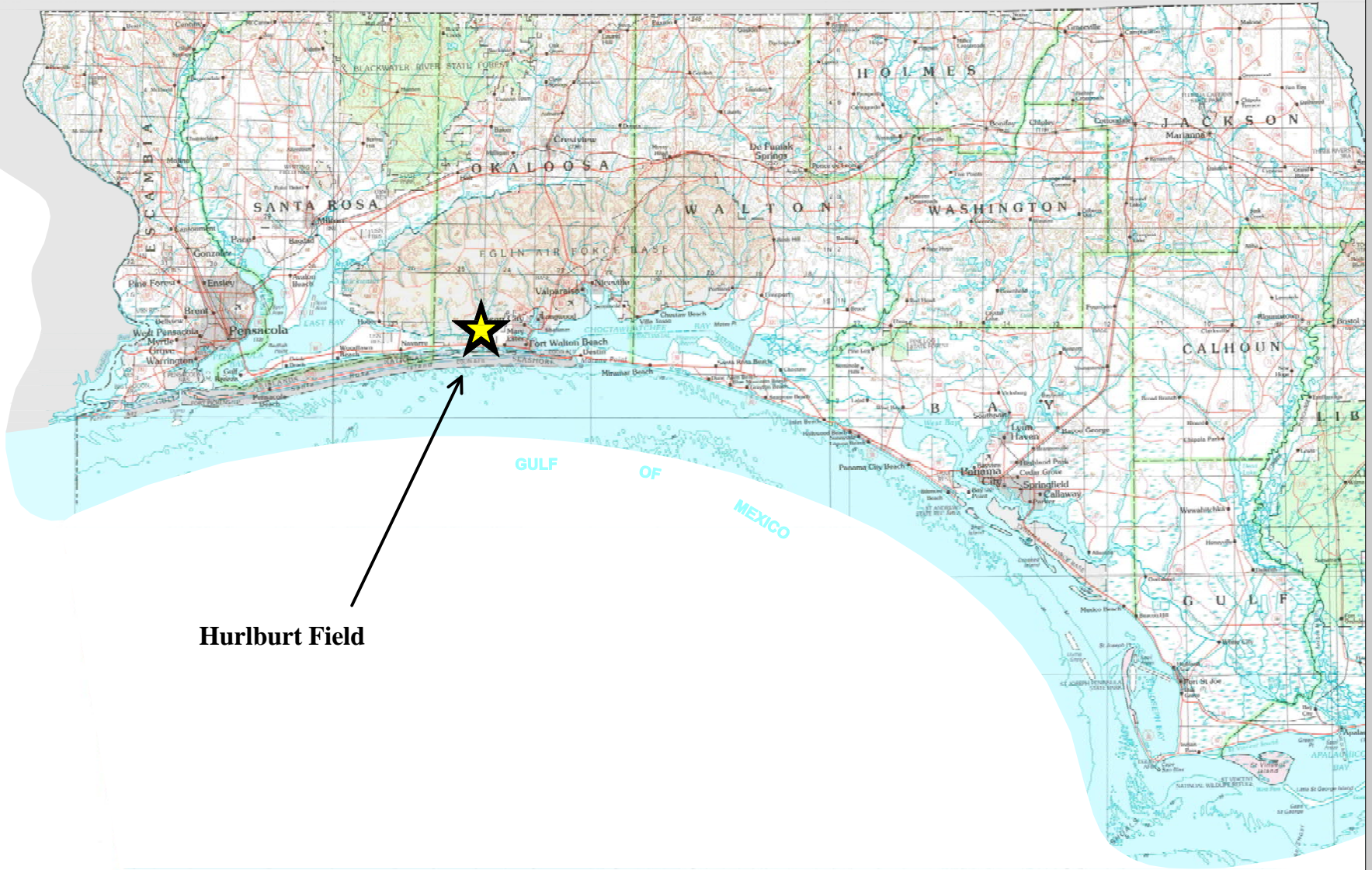
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FIGURES

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ALABAMA



Hurlbert Field

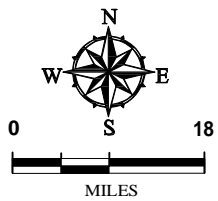


Figure 1 - 1
Site Location Map

Planned Growth
Environmental Assessment
Hurlbert Field, Florida

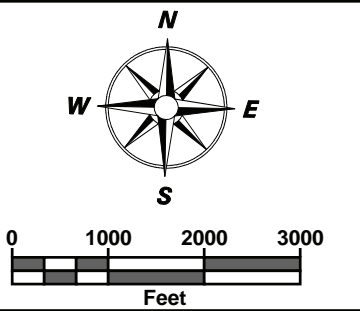


Source: USGS 1:500,000 topographic map



Source:
Florida Department of
Transportation, Surveying,
and Mapping Office, 2007.

Projection: Florida State
PlaneNorth: FIPS 903

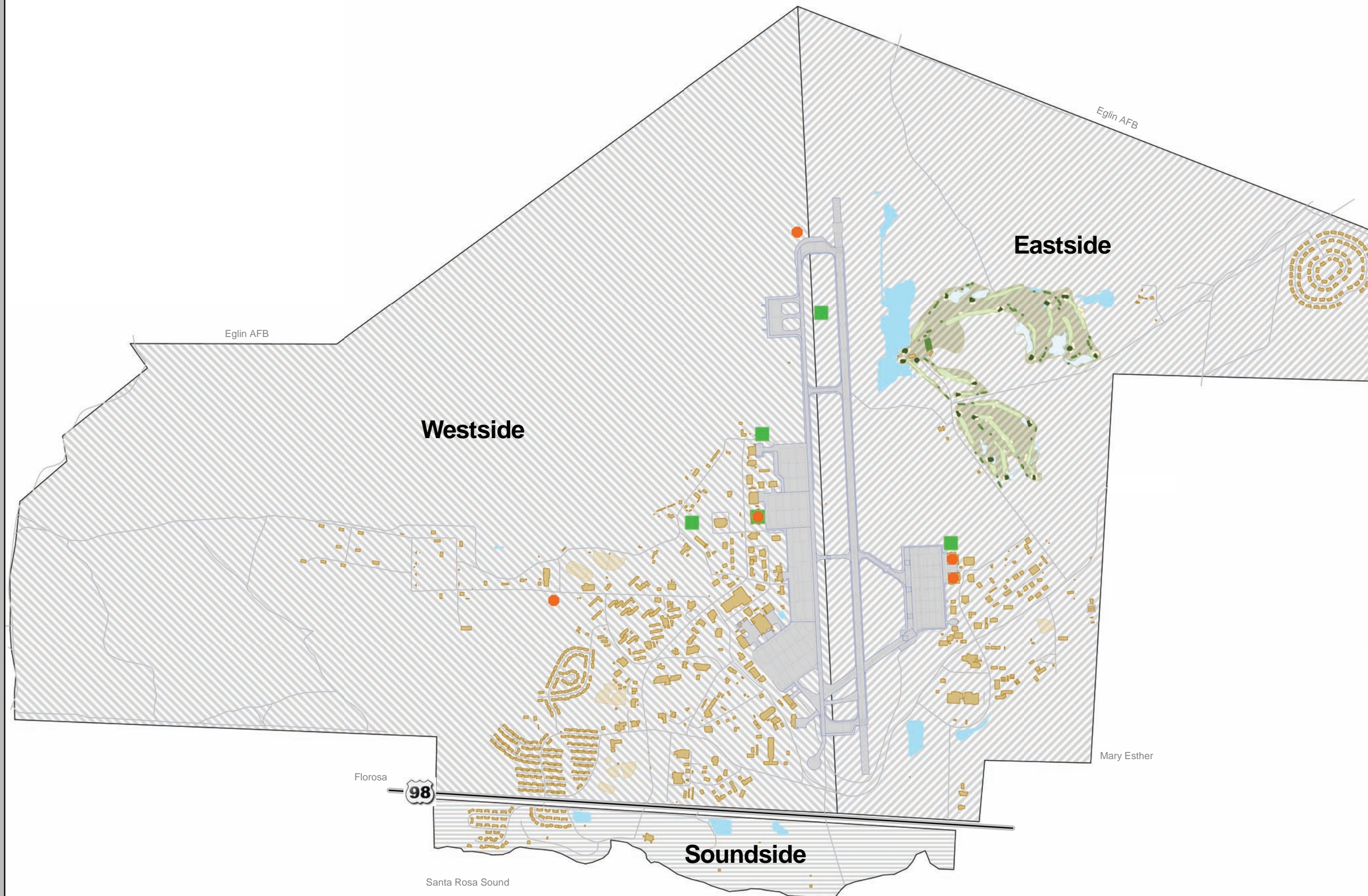


Planned Growth

Environmental Assessment

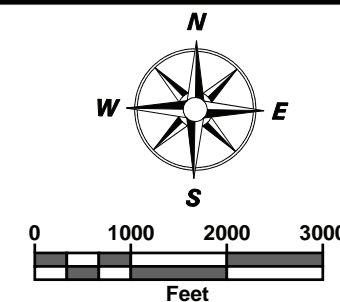
Hurlburt Field, Florida

Figure 1 - 2
Aerial Overview



Overview Features

- Eastside
- Westside
- Soundside
- Airfield Surface
- Existing Structure
- Surface Water Body
- Roadway
- EA Proposed Action
- EA Alternative Action



Planned Growth







Environmental Assessment

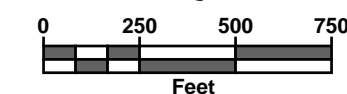
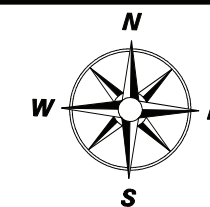
Hurlburt Field, Florida

Figure 1 - 3
Site Overview



Project Site Features

-  EA Proposed Action
-  EA Alternative Action
-  Airfield Surface
-  Existing Structure
-  Golf Course
-  Roadway



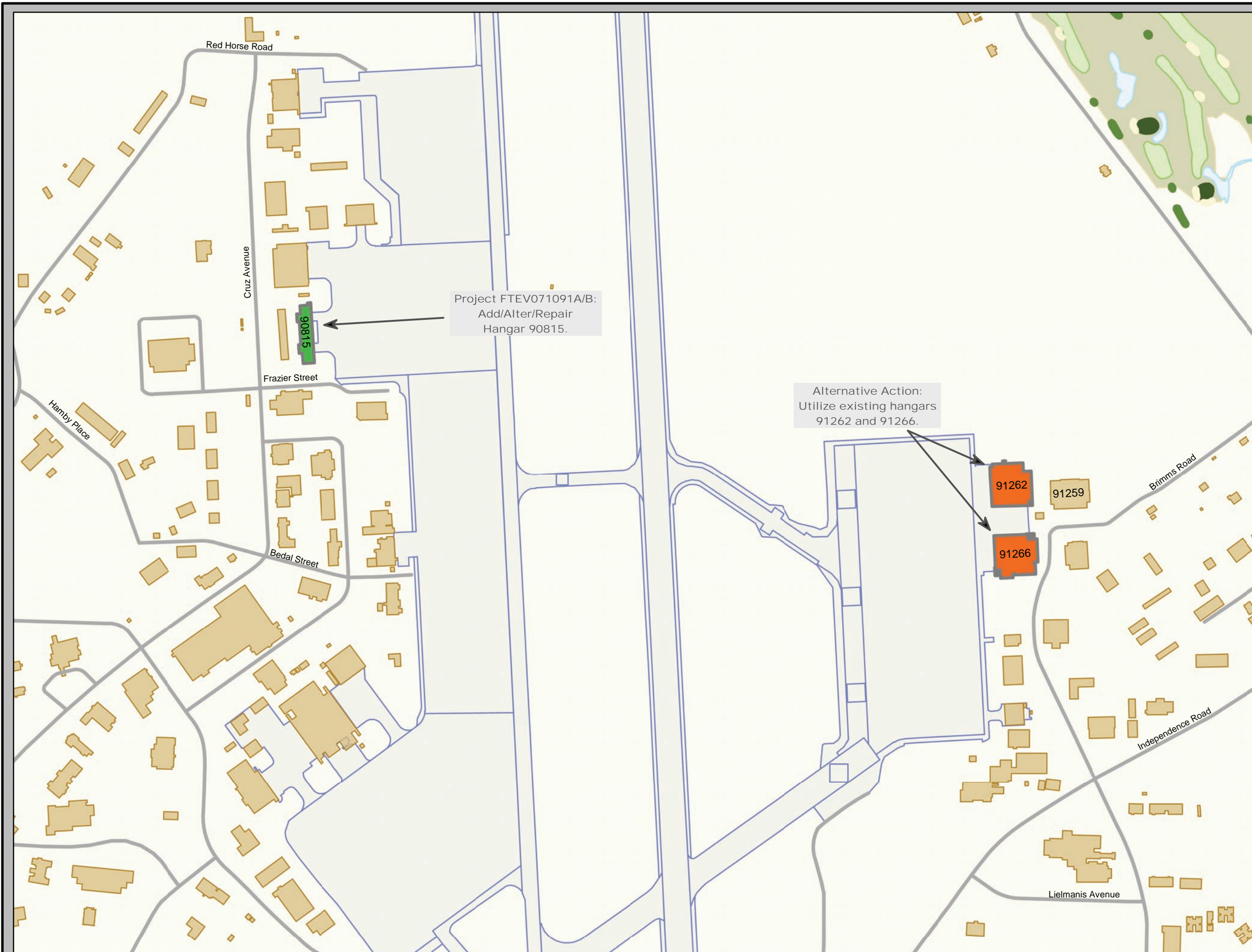
Planned Growth

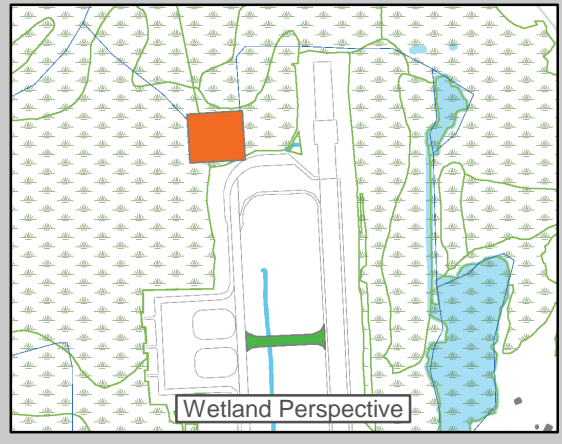
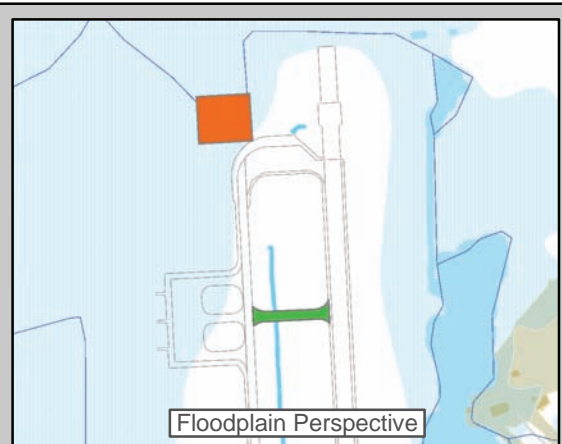
Environmental Assessment

Hurlburt Field, Florida

Figure 1 - 4
Add/Alter/Repair
Hangar 90815

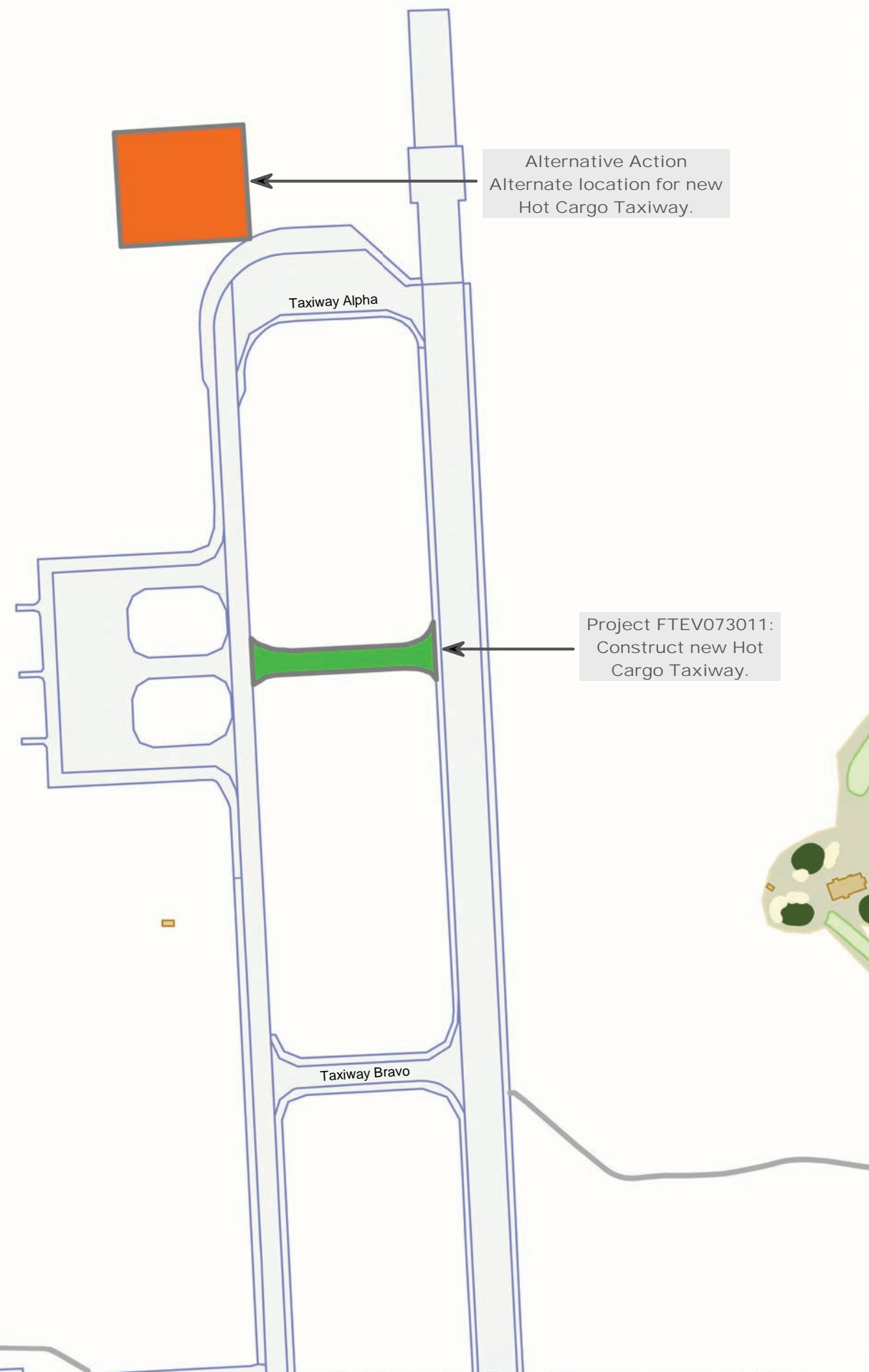
Brown, Burdine & Associates, LLC





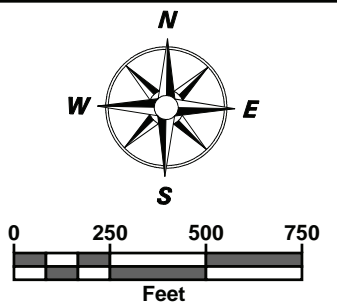
East Bay Swamp

Red Horse Road



Project Site Features

- EA Proposed Action
- EA Alternative Action
- Airfield Surface
- Golf Course
- Roadway

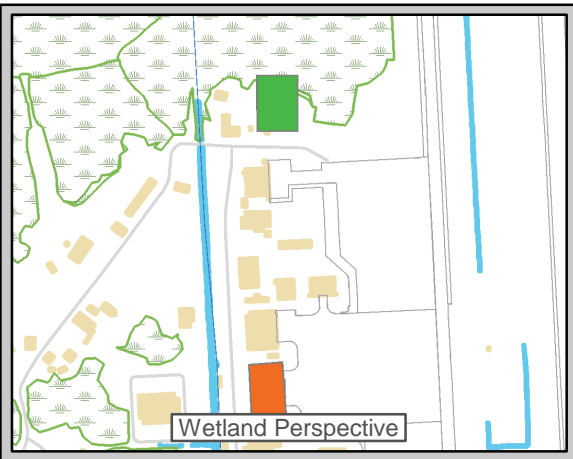


Planned Growth

**Environmental
Assessment**

Hurlburt Field, Florida

**Figure 1 - 5
New Hot Cargo
Taxiway**



Project FTEV073009:
Construct Light Aircraft Squadron
Operations and Maintenance facility.

Shooting Range

90809

Red Horse Road

Cruz Avenue

Alternative Action:
Demolish Buildings 90812 and 90815
and construct Light Aircraft Squadron
Operations and Maintenance facility
in footprint.

90815
90812

Frazier Street

90802

Red Horse Road

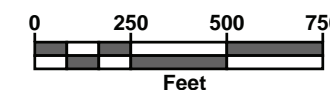
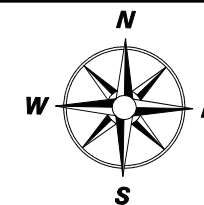
Hamby Place

Bedal Street



Project Site Features

- EA Planned Action
- EA Alternative Action
- Airfield Surface
- Athletic Field
- Existing Structure
- Golf Course
- Roadway



Planned Growth








**Environmental
Assessment**

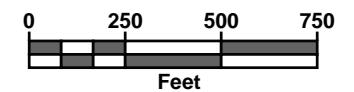
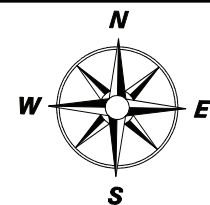
Hurlburt Field, Florida

**Figure 1 - 6
Light Aircraft
Squadron Ops
and Maintenance**



Project Site Features

-  EA Proposed Action
-  EA Alternative Action
-  EA Proposed and/or Alternative Action
-  Airfield Surface
-  Athletic Field
-  Existing Structure
-  Roadway

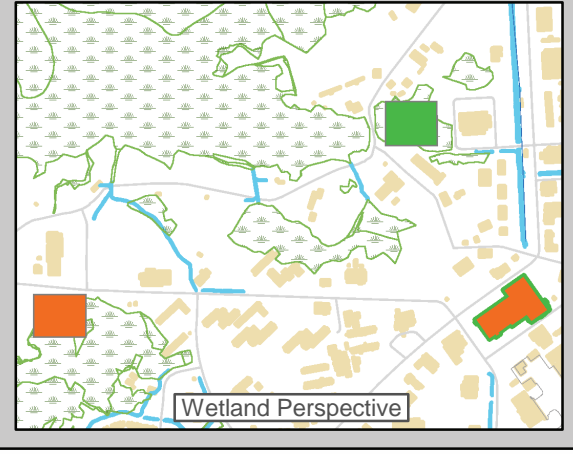
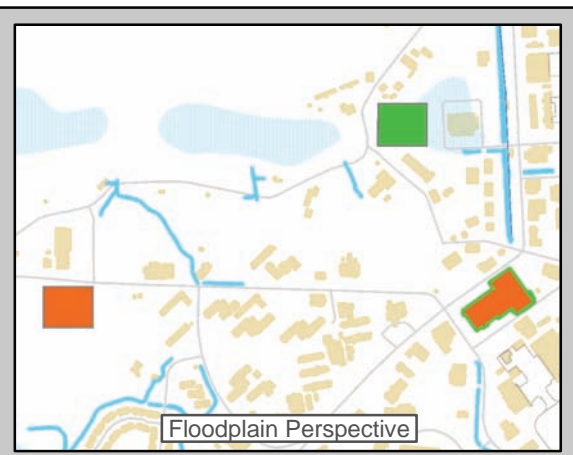


Planned Growth

Environmental Assessment

Hurlburt Field, Florida

**Figure 1 - 7
Base Logistics Facility**



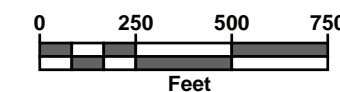
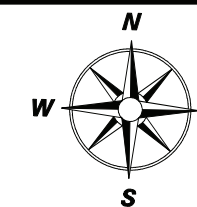
Project FTEV043016:
 1.) Construction of new Base Logistics facility and parking area
 2.) Demolition of Building 90710

Alternative Action:
 1.) Alternate location for Base Logistics facility
 2.) Demolition of Building 90710



Project Site Features

- EA Proposed Action
- EA Alternative Action
- Airfield Surface
- Athletic Field
- Existing Structure
- Golf Course
- Roadway



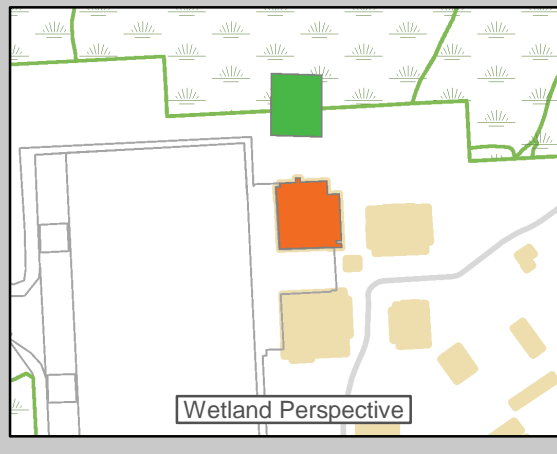
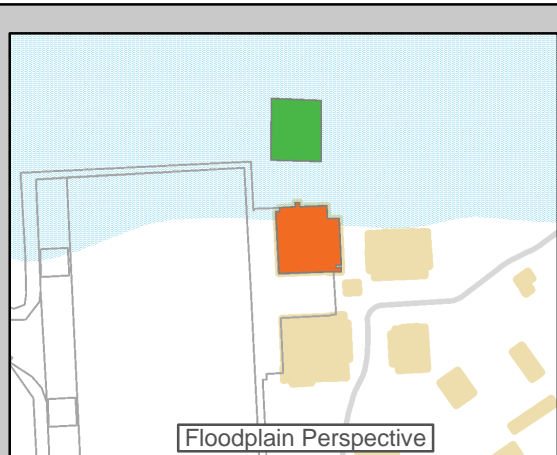
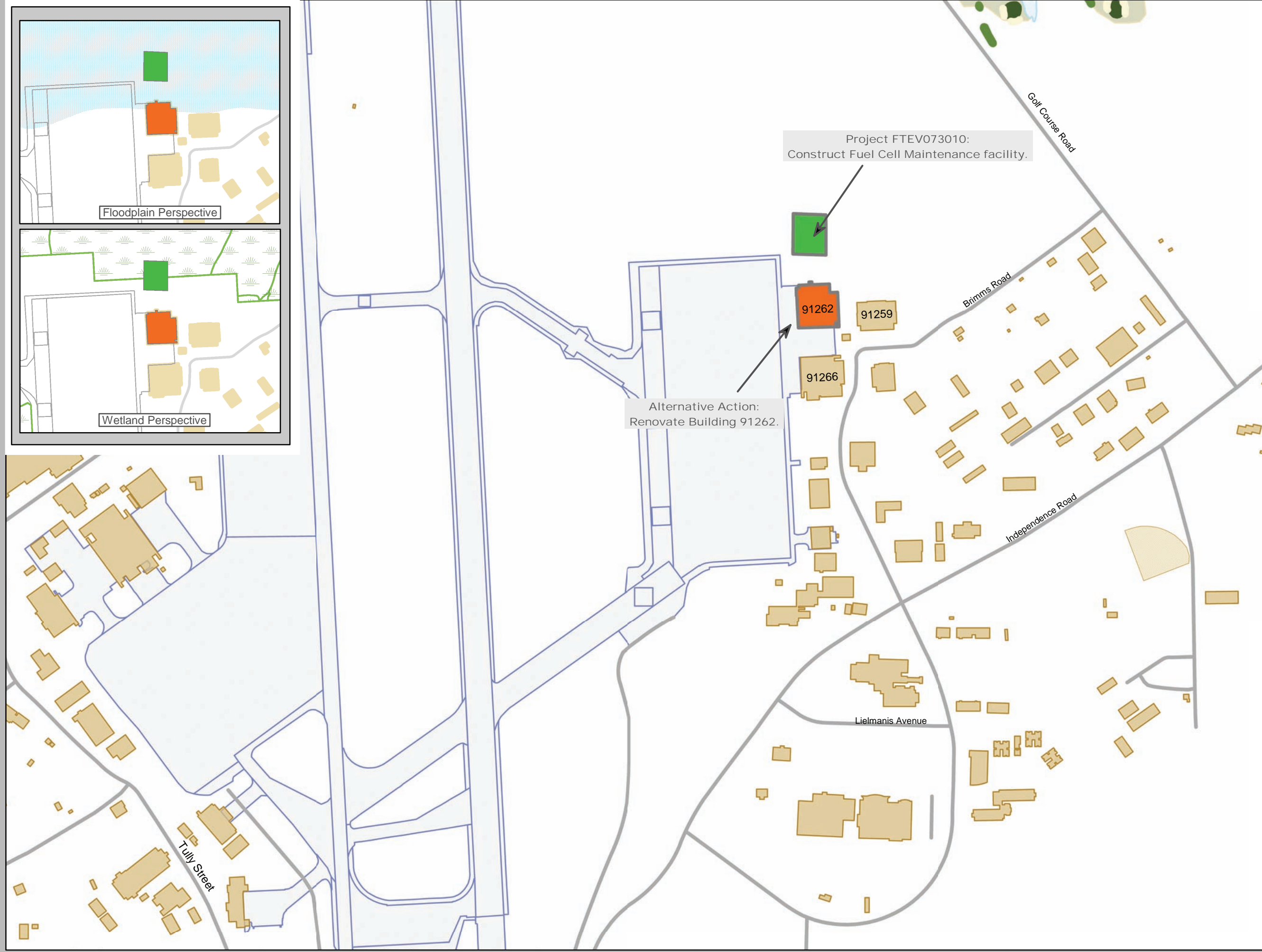
Planned Growth

Environmental Assessment

Hurlburt Field, Florida









Figure 1 - 8

Fuel Cell Maintenance

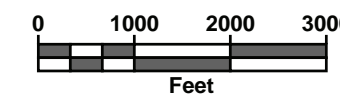
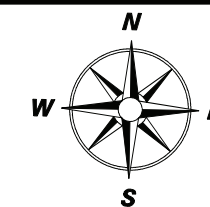




Airfield/QD Features

-  Air Accident Zone
-  Airfield Buffer Zone
-  Airfield Surface
-  Existing Structure
-  QD Arc
-  Roadway
-  EA Proposed Action
-  EA Alternative Action

QD = Quantity Distance



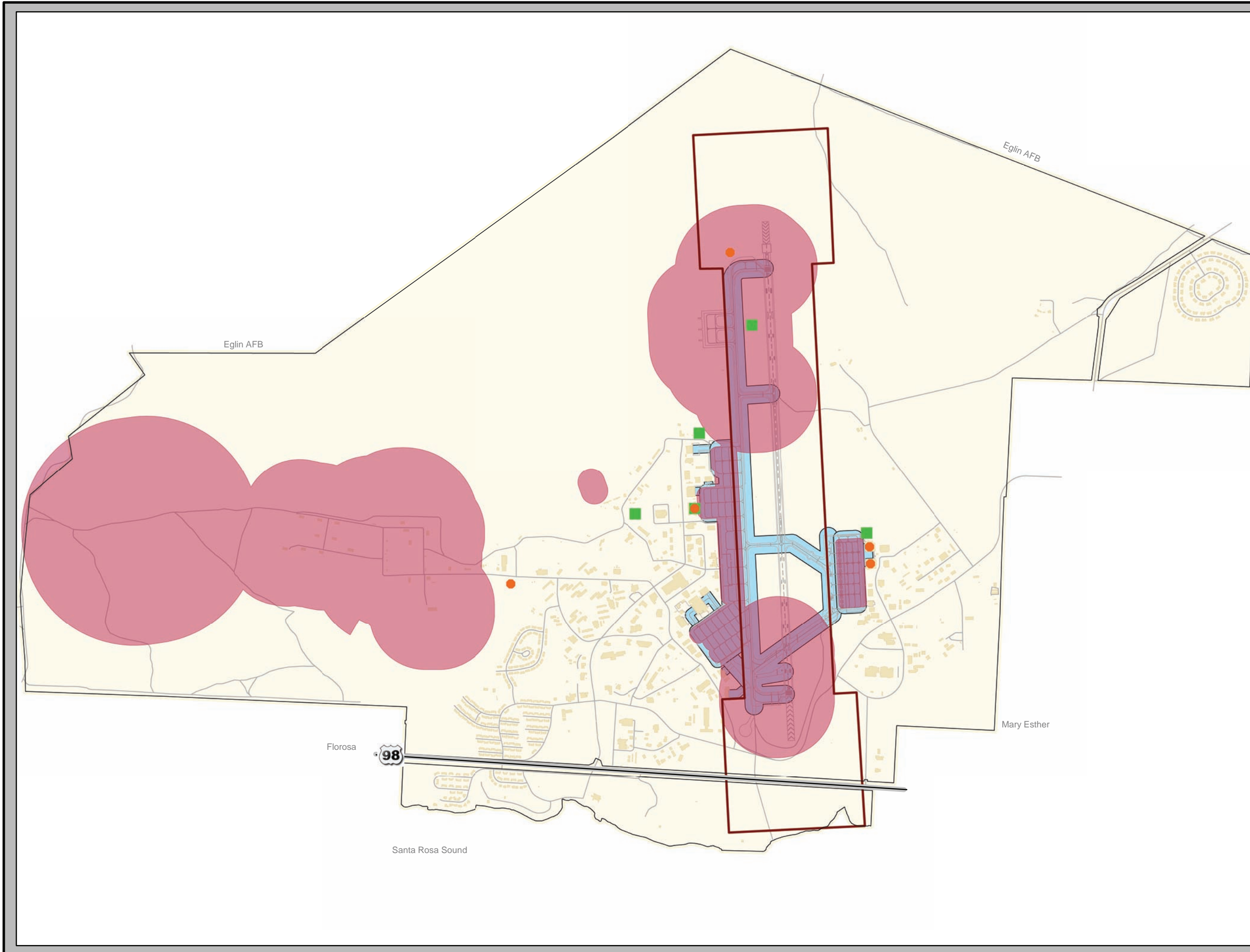
Planned Growth

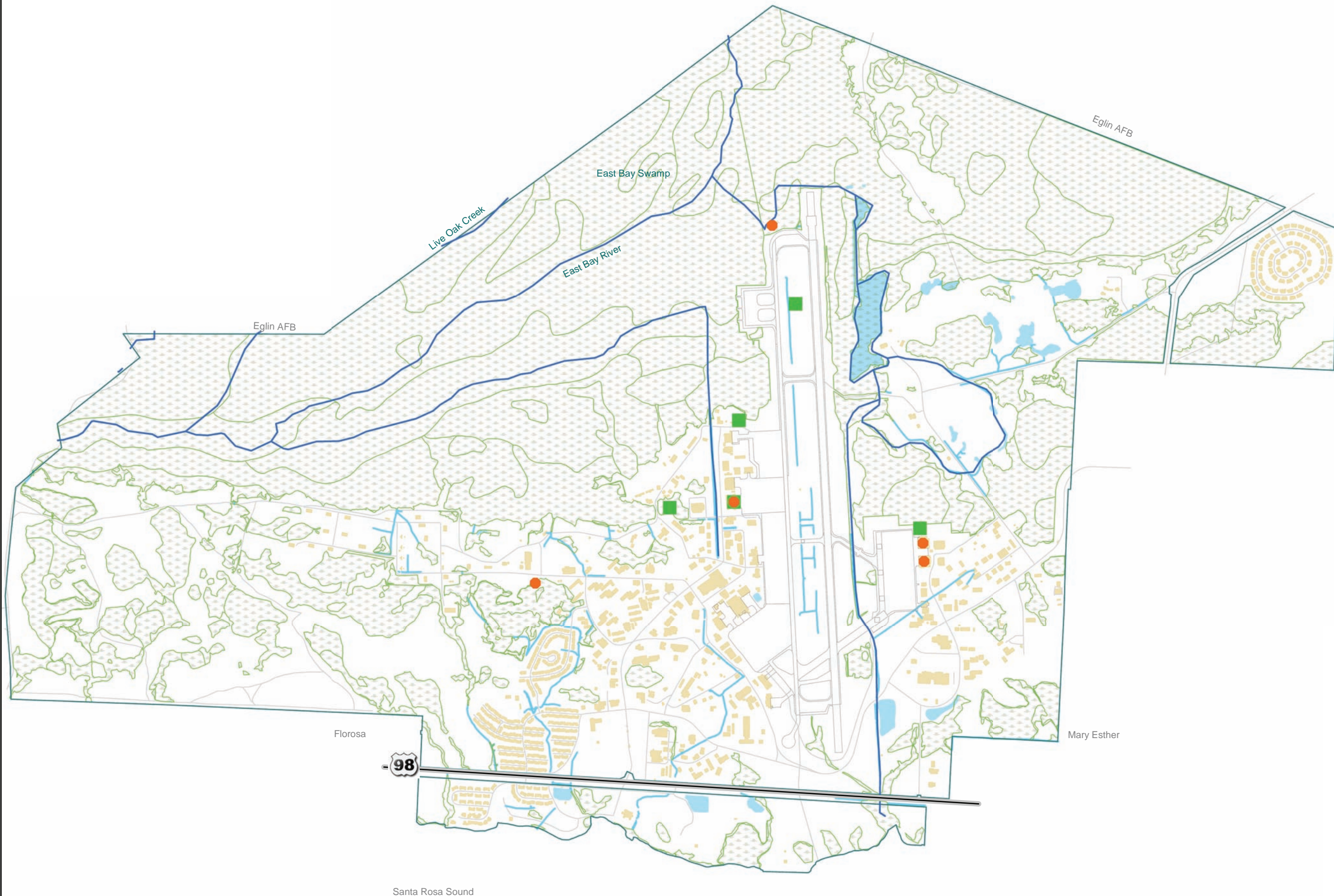
Environmental Assessment

Hurlburt Field, Florida

Figure 1 - 9

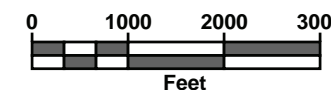
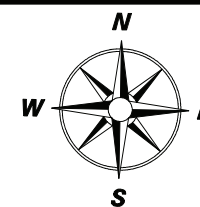
Airfield / QD Arcs





Wetland Features

-  Wetland Area
-  Surface Water Body
-  Airfield Surface
-  Existing Structure
-  Roadway
-  Stream / Ditch
-  EA Proposed Action
-  EA Alternative Action

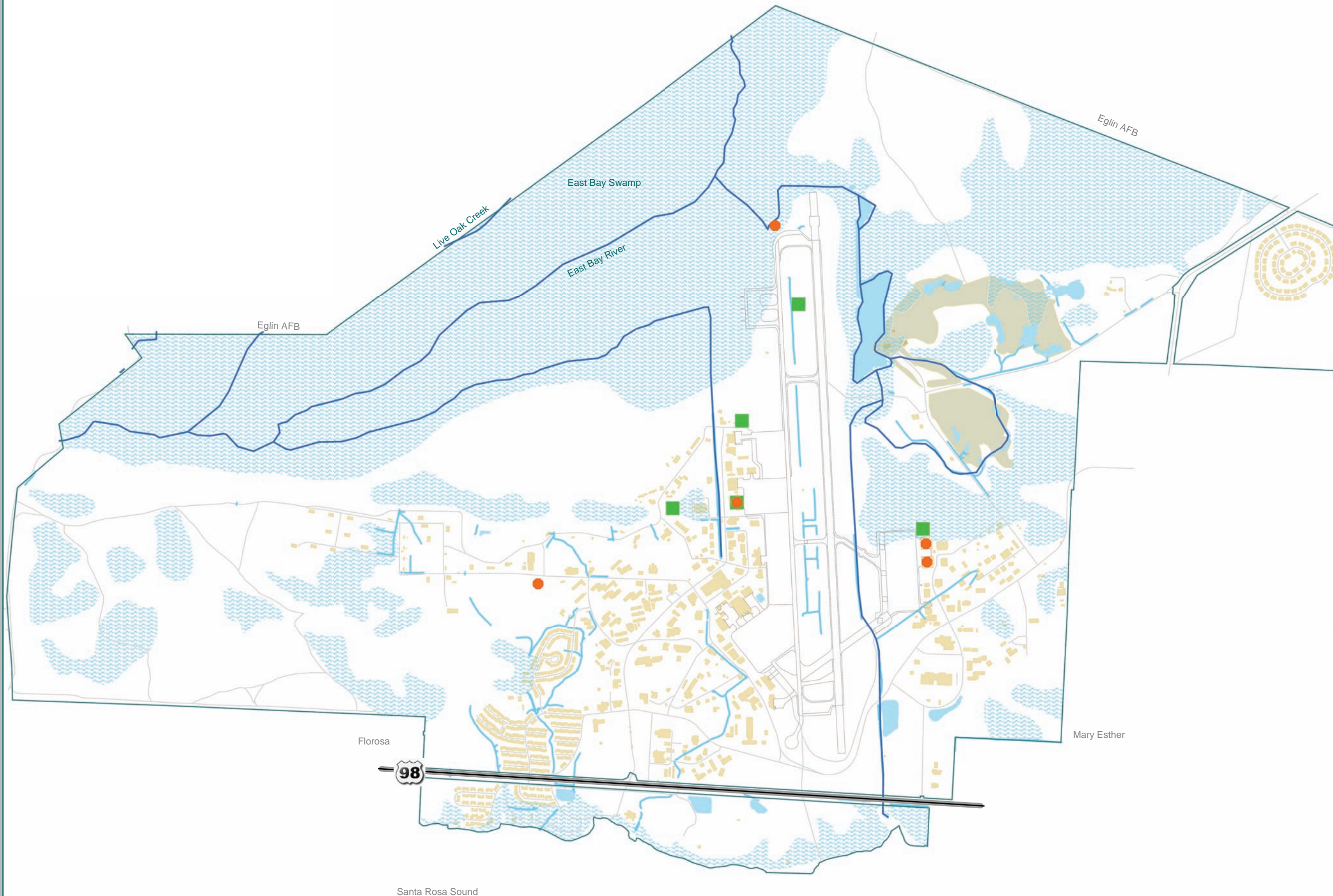


Planned Growth









Environmental Assessment

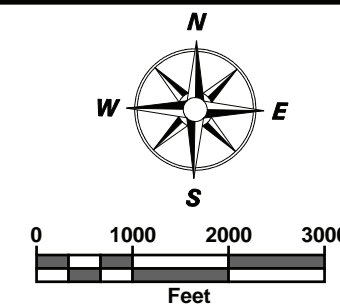
Hurlburt Field, Florida

**Figure 1 - 10
Wetlands and
Surface Water**



Floodplain Features

-  Existing Structure
-  Floodplain
-  Golf Course
-  Roadway
-  Stream / Ditch
-  Surface Water Body
-  EA Proposed Action
-  EA Alternative Action



Planned Growth





Environmental Assessment

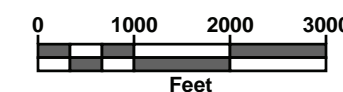
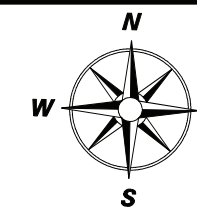
Hurlburt Field, Florida

**Figure 1 - 11
Floodplains and
Surface Water**



Biological Resource Features

-  Fauna
-  Flora
-  EA Proposed Action
-  EA Alternative Action

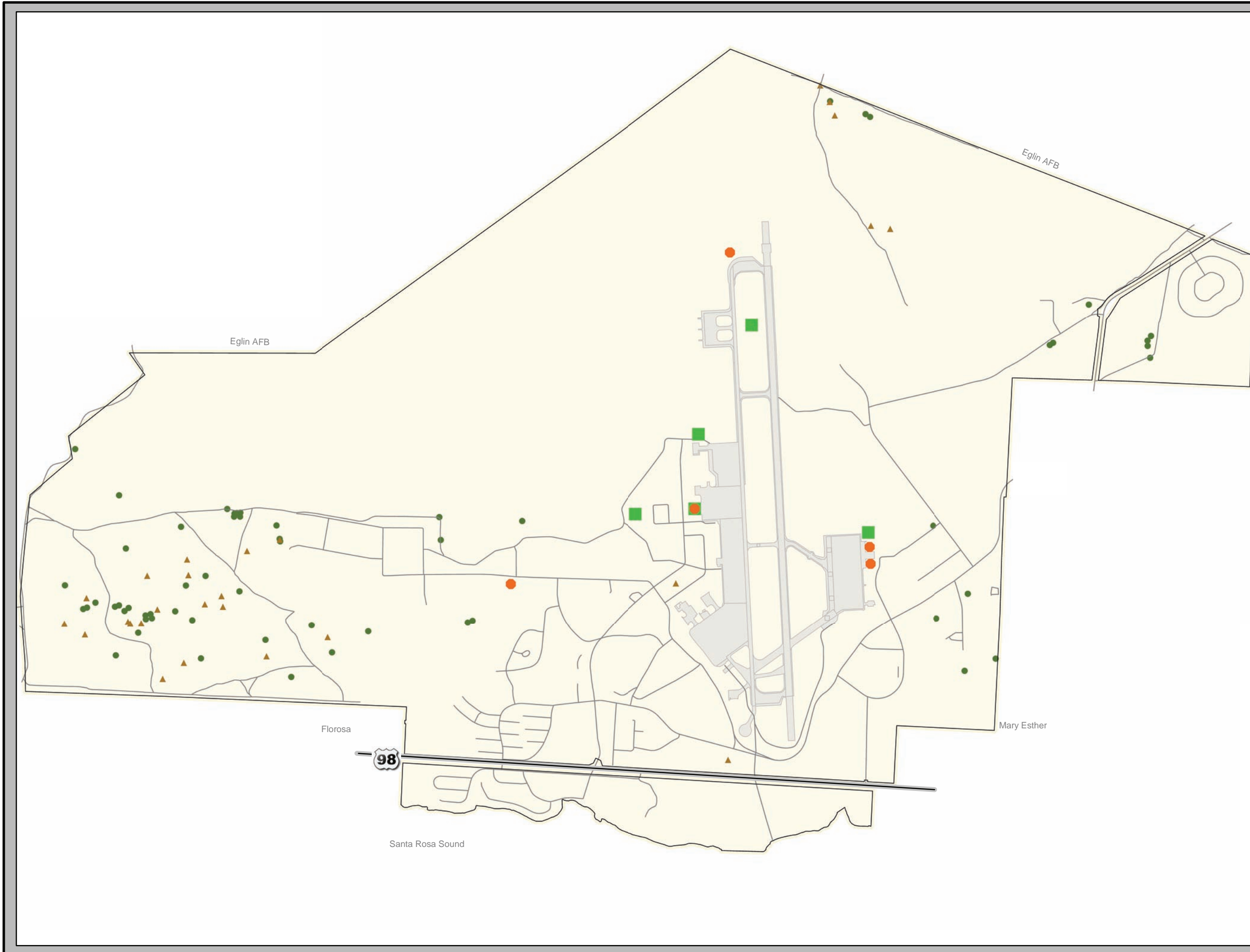


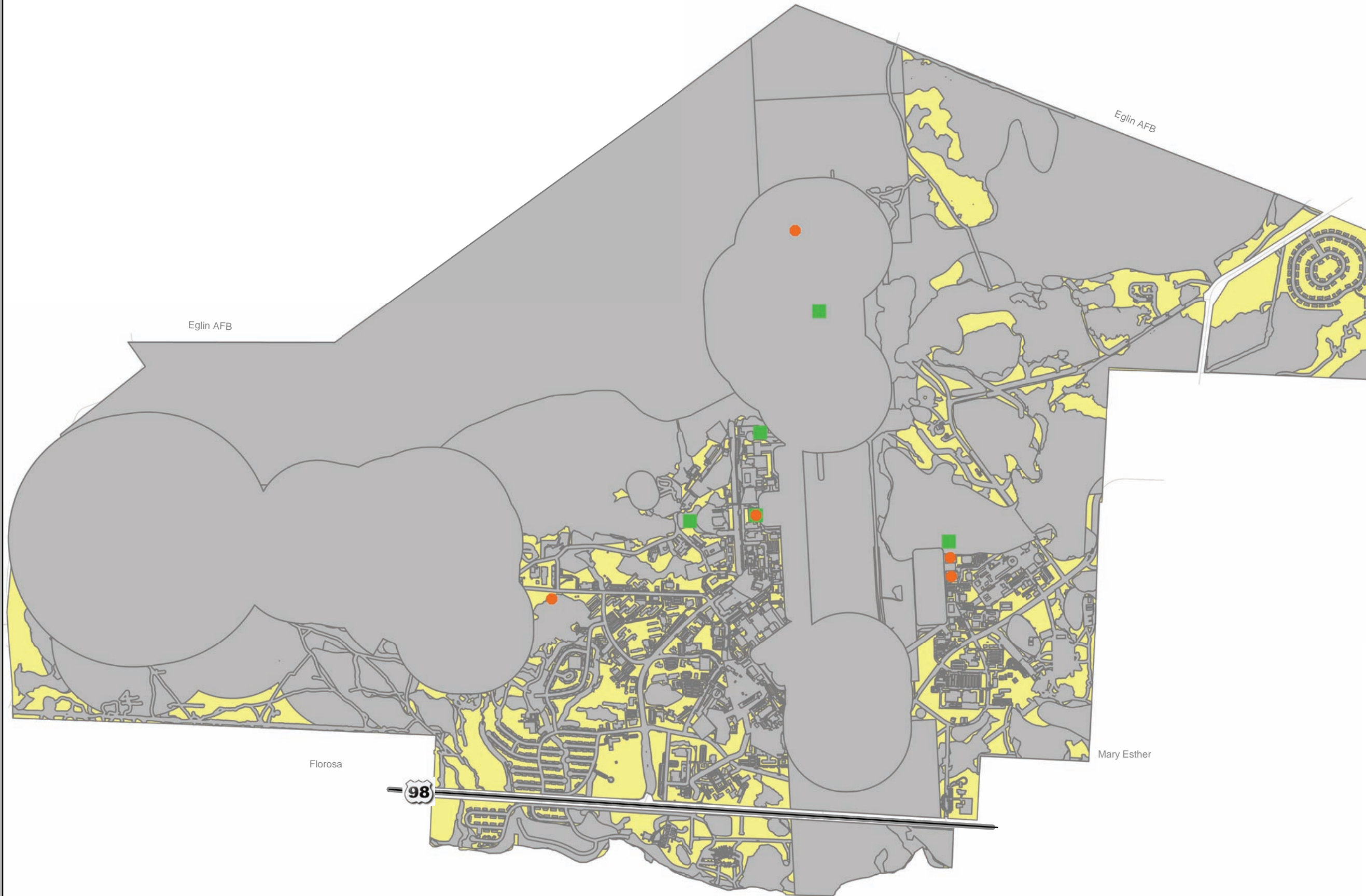
Planned Growth

Environmental Assessment

Hurlburt Field, Florida

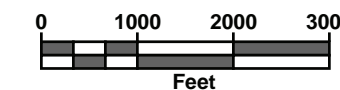
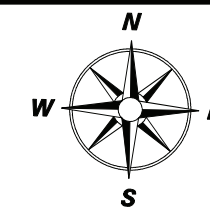
**Figure 1 - 13
Biological Resources of
Special Concern**





Features

- Constrained Space
- Free space subject to routine land use restrictions.
- EA Proposed Action
- EA Alternative Action



Planned Growth

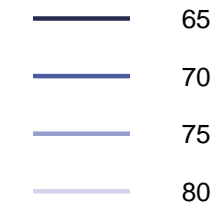
Environmental Assessment

Hurlburt Field, Florida

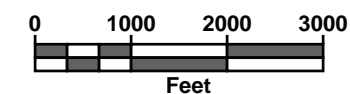
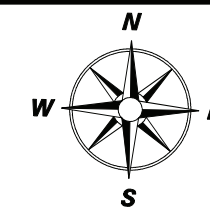
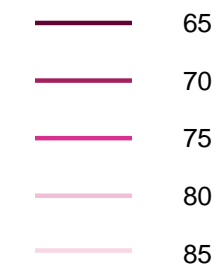
**Figure 1 - 14
Composite Constraints**



2005 Mean Noise Levels (dBA DNL)



2008 Mean Noise Levels (dBA DNL)



Planned Growth

Environmental Assessment

Hurlburt Field, Florida

Figure 3 - 1

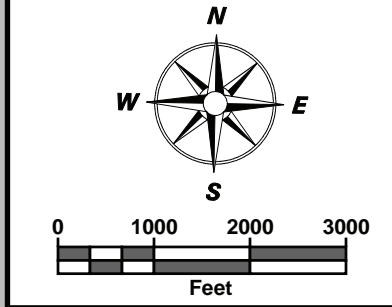
Airfield Noise Zones

Notes:
 ■ EA Proposed Action
 ● EA Alternative Action
 dBA - A weighted decible
 DNL - Day-night level.





- Accompanied Housing
- Administrative
- Air Accident Zone
- Aircraft Operations
- Airfield Pavement
- Community Commercial
- Community Service
- Industrial
- Medical/Dental
- Open Space
- Open Water
- Outdoor Recreation
- Unaccompanied Housing
- EA Proposed Action
- EA Alternative Action



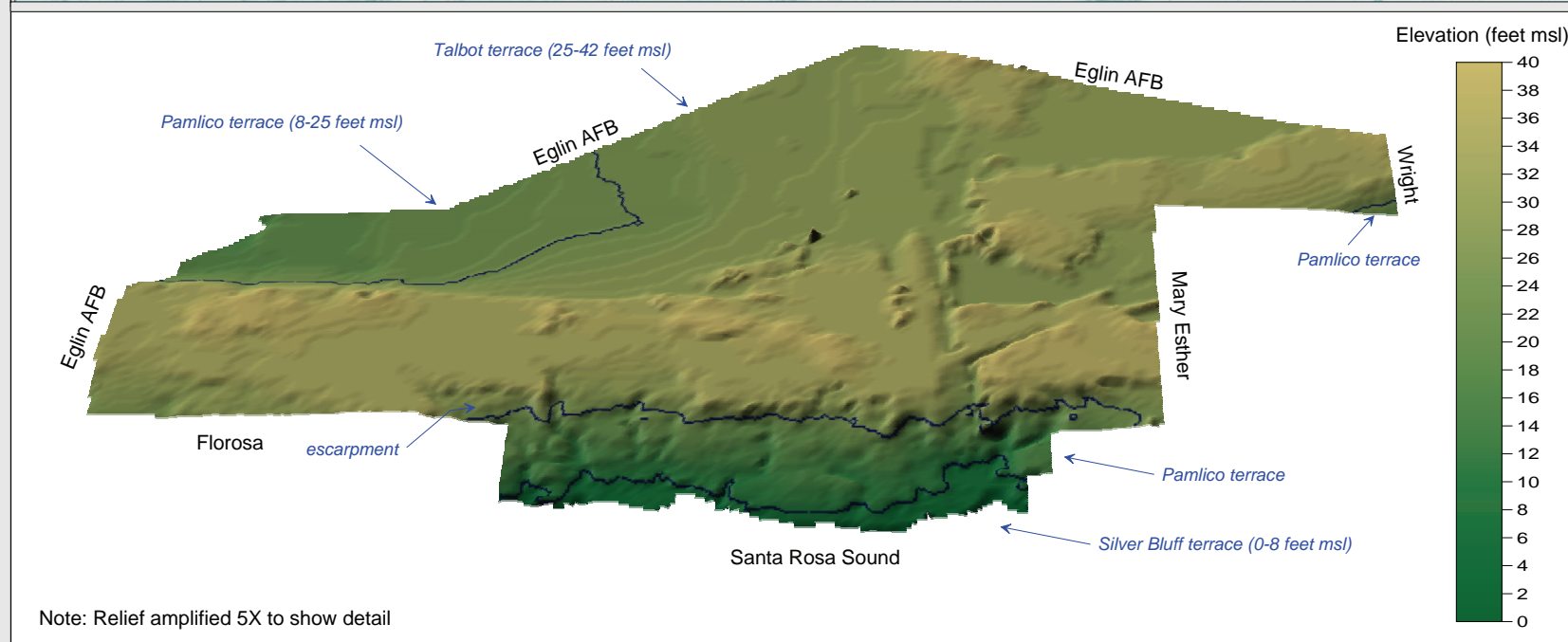
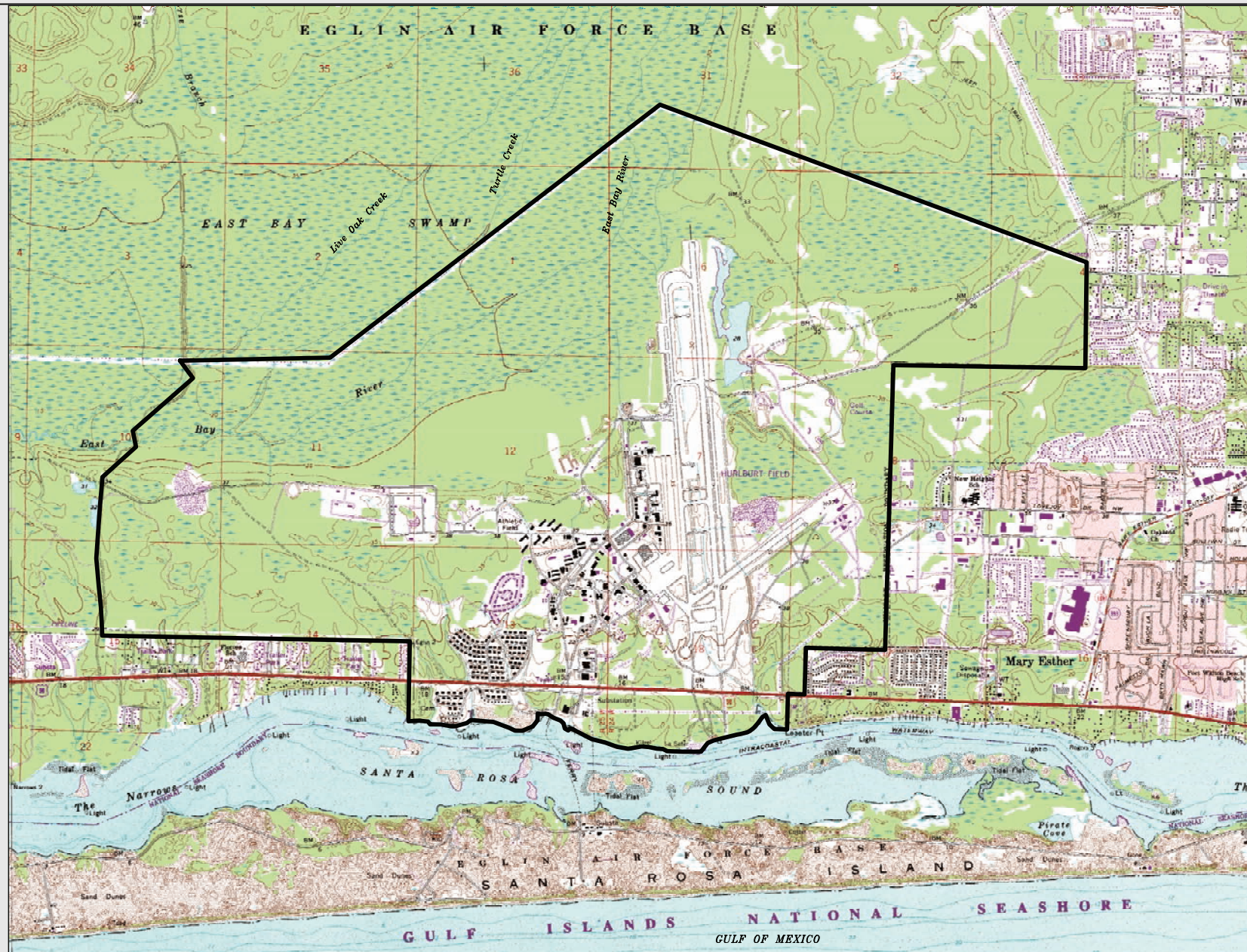
Planned Growth

Environmental Assessment

Hurlburt Field, Florida

Figure 3 - 2

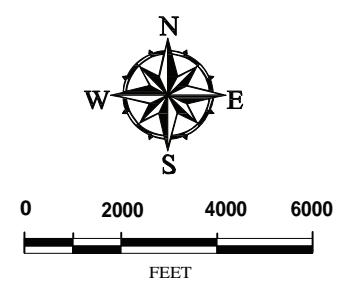
Land Use



Sources:

Upper Figure: United States Geological Survey (USGS), 1994, 7 1/2 minute topographic map, Mary Esther, FL quadrangle. Elevation in feet. Vertical Datum: Mean Sea Level (msl). Contour interval: 5 feet

Lower Figure: United States Geological Survey (USGS), Digital Elevation Model (DEM), Mary Esther, FL quadrangle.



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Environmental Assessment

Hurlburt Field, Florida

Figure 3 - 3

Site Topography

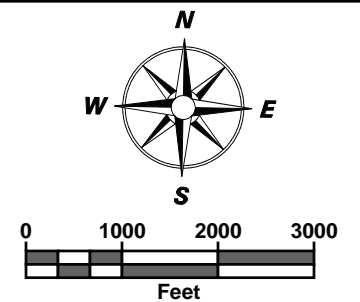


Legend

- Airfield Surface
- Existing Structure
- Roadway
- EA Proposed Action
- EA Alternative Action

See insert for soil type key

Source data: U.S. General Soil Map (STATSGO), National Resources Conservation Service (NRCS)



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Environmental Assessment

Hurlburt Field, Florida

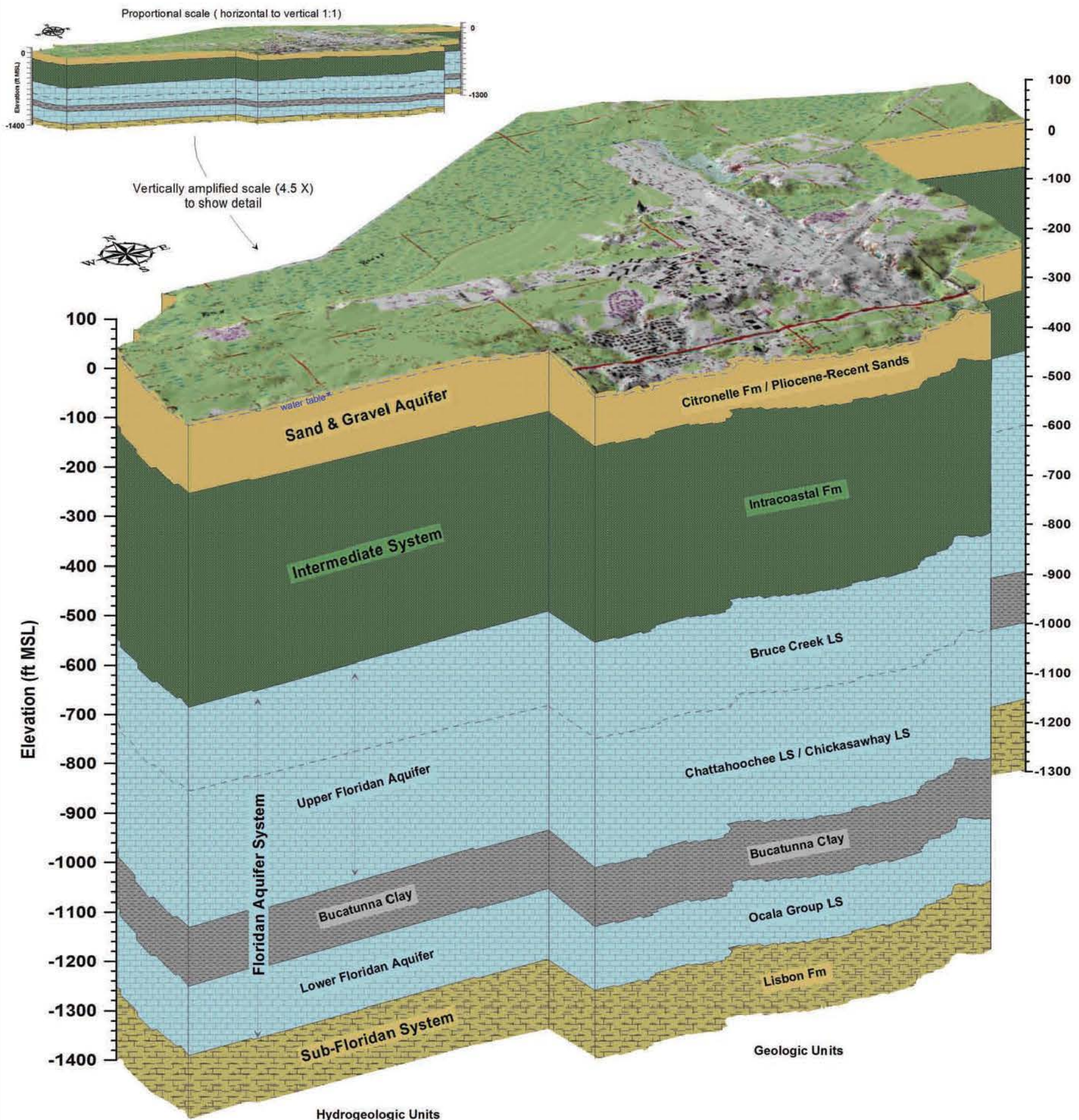
Figure 3 - 4

Site Soils

NRCS Soil Types

- Beaches
- Chipley and Hurricane Soils, 0 to 5 % Slopes
- Dorovan Muck, Frequently Flooded
- Foxworth Sand, 0 to 5 % Slopes
- Kureb Sand, 0 to 8 % Slopes
- Lakeland Sand, 0 to 5 % Slopes
- Leon Sand
- Lucy Loamy Sand, 0 to 5 % Slopes
- Mandarin Sand, 0 to 3 % Slopes
- Pickney Loamy Sand, Depressional
- Resota Sand, 0 to 5 % Slopes
- Rutlege Fine Sand, Depressional
- Urban Land
- Water





Sand & Gravel Aquifer (Citronelle Formation / Pliocene Recent Sands)

- Extends from land surface down to 100 to 150 feet below land surface at Hurlburt Field.
- A large body of unconsolidated white to tan, brown, & gray quartz sand with occasional clay lenses
- Sometimes informally called the "water table aquifer"; the water table is typically within 10 feet of land surface across much of Hurlburt Field.
- In some locales, intervening clayey sediment can divide the aquifer into two water producing zones.
- Aquifer is replenished or recharged by local rainfall.
- Aquifer is depleted by discharge to local surface water bodies (creeks, swamps, Intracoastal Waterway, ditches, & irrigation wells; the rate of ground water movement in the Hurlburt Field area is commonly in the range of 0.5 to 2 feet/day.
- Ground water is generally of good quality and suitable for potable use; however, it is primarily used for domestic, irrigation, & industrial needs; some local detriments include low pH (4.5 – 5.5 units), hydrogen sulfide content that causes odor & corrosion, and high iron content.
- Aquifer is vulnerable to contamination from man's activities.

Intermediate System (Intracoastal Formation)

- Encountered beginning at depths of 100 to 150 feet below land surface at Hurlburt Field; thickness ranges from about 375 to 425 feet.
- A thick unit of poorly consolidated, sandy, clayey, microfossiliferous (foraminiferal) limestone with an intervening phosphatic sand layer
- Commonly referred to as the "regional confining layer" since it extends across much of the Florida Panhandle and restricts the vertical movement of ground water between the overlying Sand & Gravel Aquifer and the underlying Floridan Aquifer
- In the Hurlburt Field vicinity, the low-permeability sediments of the Intermediate System indicate an average vertical hydraulic conductivity of 0.00001 feet/day; the unit provides excellent protection against contamination of drinking water supplies in the underlying Floridan Aquifer.

Floridan Aquifer System

Upper Floridan Aquifer (Bruce Creek, Chattahoochee & Chickasawhay Limestones)

- Encountered beginning at depths of 475 to 575 feet below land surface at Hurlburt Field; a thick sequence of carbonates beginning with approximately 150 to 170 feet of white to light gray, moderately indurated, fossiliferous limestone (Bruce Creek) that overlies another 255 to 300 feet of tan, sucrosic dolomite & fossiliferous limestone (Chattahoochee/ Chickasawhay Limestone).
- The aquifer is primarily recharged in southern Alabama and northern parts of Florida's central panhandle counties where the aquifer is at or near land surface and where the sediments of the Intermediate System are more permeable; discharge to the Gulf of Mexico and the many large-diameter wells in southern Okaloosa County that tap the aquifer for public supply.
- In the Hurlburt Field vicinity, the transmissivity of the Upper Floridan Aquifer ranges from about 1,000 to 5,000 ft²/day.
- The Upper Floridan Aquifer serves as the primary source of drinking water in southern Okaloosa County; all public supply wells at Hurlburt Field draw water from the Upper Floridan Aquifer.
- In 1947, prior to its development, the potentiometric surface of the Floridan Aquifer beneath Hurlburt Field occurred at +35 feet NGVD (i.e., the water level in a well drilled into aquifer would rise naturally to a height of about 35 feet above sea level); in 2006, the potentiometric surface was reduced to about -100 feet NGVD in response to the substantial withdrawals for public supply; Hurlburt Field lies in the western part of a regional cone-of-depression centered around the Fort Walton Beach area.

Bucatanna Clay

- A 100 to 125 foot-thick layer of very dense, brown to gray clay encountered at depths of 925 to 1000 feet below land surface at Hurlburt Field
- Divides the Floridan Aquifer System into an upper aquifer & a lower aquifer; an average vertical conductivity of 0.00001 feet/day has been calculated in the Hurlburt Field vicinity.

Lower Floridan Aquifer (Ocala Group Limestones)

- Approximately 175 feet of brown, dolomitic limestone encountered at depths of about 1025 to 1125 feet below land surface
- In southern Okaloosa County & Hurlburt Field vicinity, ground water is saline with chloride concentrations between 2000 – 3000 mg/L (or parts-per-million, approximately); the aquifer is not used in this portion of Okaloosa County.

Sub-Floridan System (Lisbon Formation)

- Encountered approximately 1200-1275 feet below land surface in the Hurlburt Field vicinity
- Tan sandy pyritic glauconitic limestone and light gray sand & clay confines the Floridan Aquifer System at its base.



Sources:

> Schmidt, Walter, 1982, Shallow Stratigraphy of Okaloosa County and Vicinity, Florida: Florida Bureau of Geology, Report of Investigation No. 92

> Pratt, Thomas R., et al, 1996, Hydrogeology of the Northwest Florida Water Management District: Northwest Water Management District, Water Resources Special Report 96-4

> Barr, Douglas E., et al, 1985, Hydrology of the Southern Parts of Okaloosa and Walton Counties, Northwest Florida, With Special Emphasis on the Upper Limestone of the Floridan Aquifer: U.S. Geological Survey, Water Resources Investigations Report 84-4305

> Hayes, Larry R., 1983 Hydrology of the Sand-and-Gravel Aquifer, Southern Okaloosa and Walton Counties, Northwest Florida: U.S.G.S. Water Resources Investigations Report 82-4110

> Countryman, Roger A., et al, Potentiometric Surface of the Upper Floridan Aquifer, NWFWM District Region II, May/June 2006: Northwest Florida Water Management District Water Resource Map Series 06-2

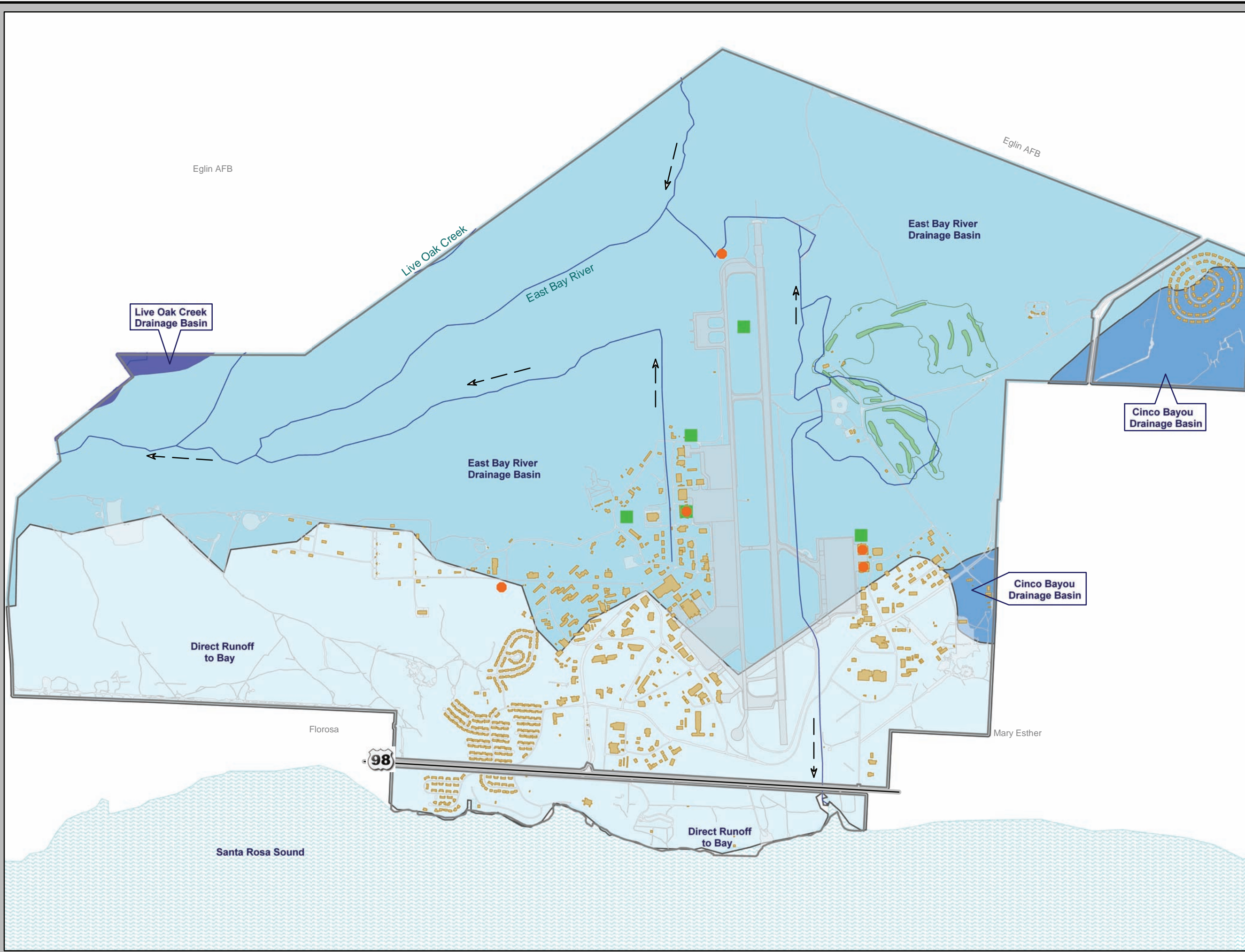
Planned Growth

Environmental Assessment

Hurlburt Field, Florida

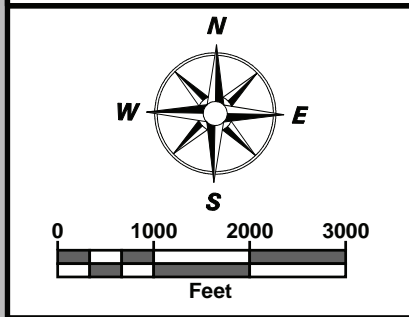
Figure 3 - 5

Site Geology



Drainage Basin Features

- Cinco Bayou Basin
- Direct Runoff to Sound
- East Bay River Basin
- Live Oak Creek Basin
- Santa Rosa Sound
- EA Proposed Action
- EA Alternative Action
- Surface Water Course
- Indicates Flow Direction



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Hurlburt Field, Florida

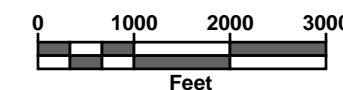
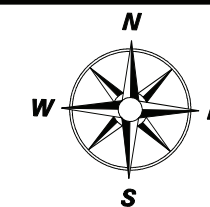
Figure 3 - 6

Drainage Basins



Stormwater Features

-  Stormwater Management Unit
-  Storm Sewer Outfall
-  Surface Water Course
-  Roadway
-  Existing Structure
-  Airfield Surface
-  EA Proposed Action
-  EA Alternative Action



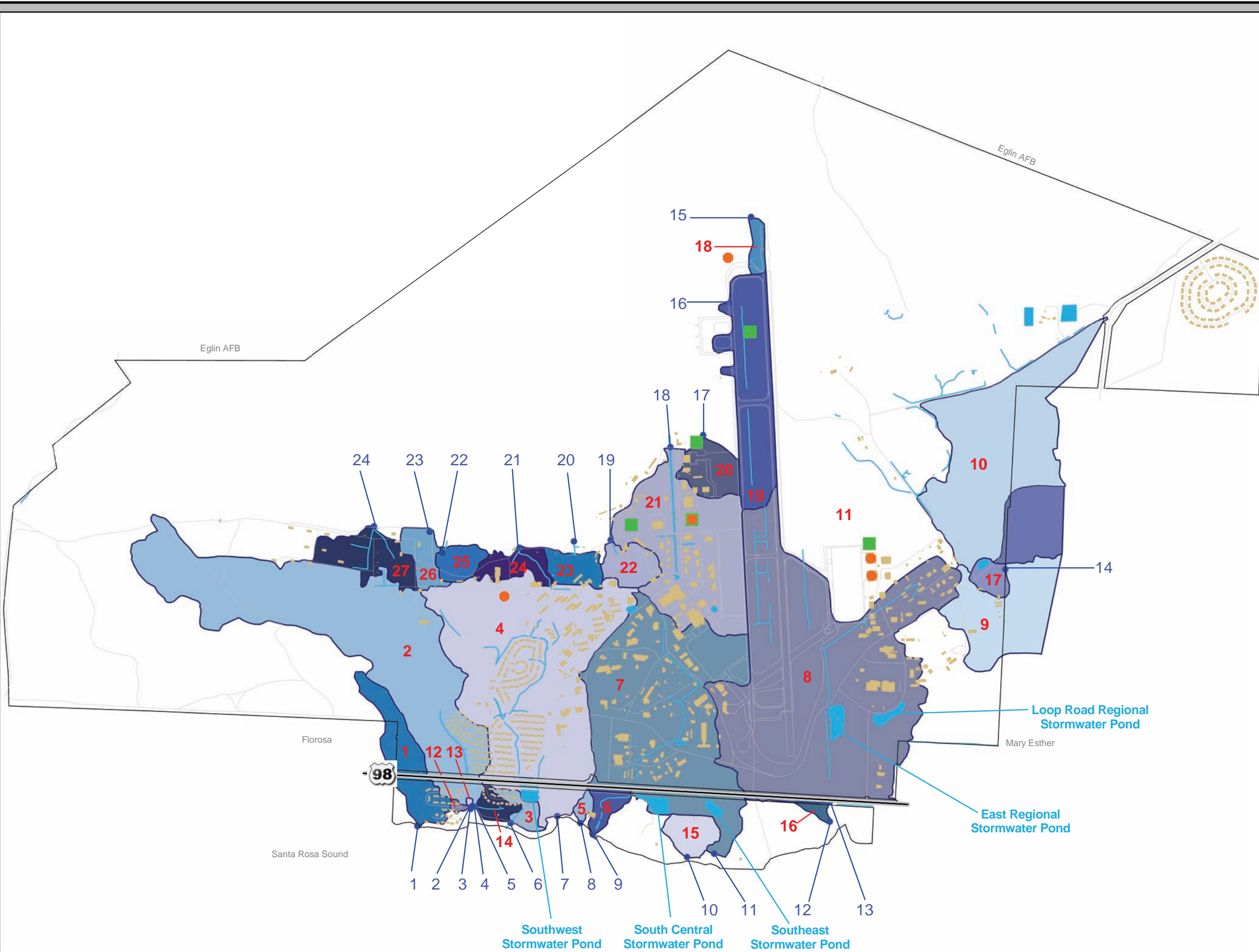
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Environmental Assessment

Hurlburt Field, Florida

Figure 3 - 7

Stormwater

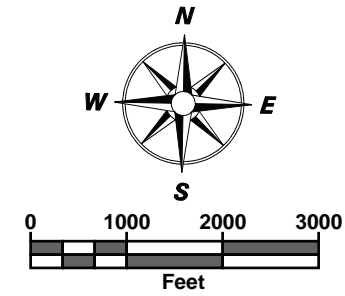




Storm Surge Key *

- Storm Surge 1
- Storm Surge 2
- Storm Surge 3
- Storm Surge 4
- Storm Surge 5
- Santa Rosa Sound
- EA Proposed Action
- EA Alternative Action

*Storm Surge rating correlates to Saffir/Simpson Hurricane Scale (Storm Categories 1 - 5), reflecting vulnerability of zone to storm conditions.



Planned Growth

Environmental Assessment

Hurlburt Field, Florida

**Figure 3 - 8
Storm Surge**

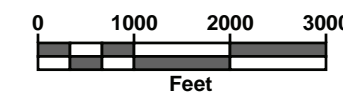
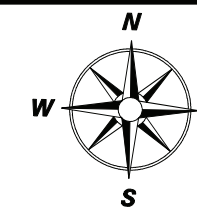


See legend insert for natural community type and key.

- EA Proposed Action
- EA Alternative Action

Natural Community Key

- Baygall
- Bottomland Forest
- Depression Marsh
- Developed
- Dome Swamp
- Floodplain Swamp
- Maritime Hammock
- Mesic Flatwoods
- Open Water
- Sandhill
- Scrub
- Scrubby Flatwoods
- Wet Prairie
- Santa Rosa Sound

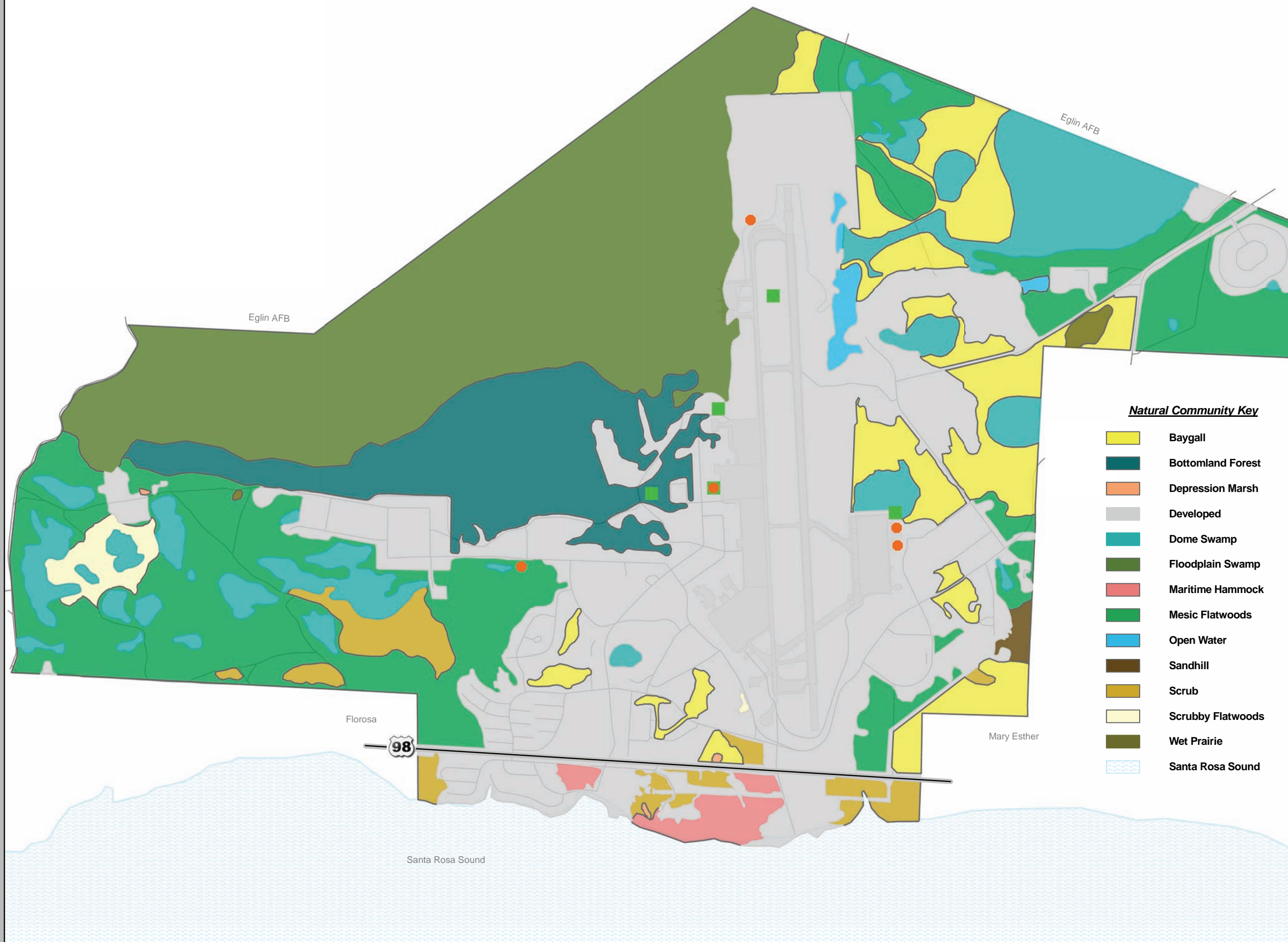


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Environmental Assessment

Hurlburt Field, Florida

**Figure 3 - 9
Natural Communities**



Intersection	Intersection Map I.D.	Peak Hour	Existing LOS (2007)
Martin Luther King Jr. Blvd. and Freedom Way	1	AM PM	F F
Cody Avenue and Independence Road	2	AM PM	F F
Cody Avenue and Simpson Avenue	3	AM PM	F F
Independence Road and Lielmanis Avenue	4	AM PM	C D
Independence Road and Brimms Road	5	AM PM	D F
Cody Avenue and Tully Street	6	AM PM	C C
Tully Street and Terry Avenue	7	AM PM	C B
Independence Road and O'Neil Avenue	8	AM PM	F F
Independence Road and Terry Avenue	9	AM PM	F F
Independence Road and Tully Street	10	Mid-day -	D -
Main Gate: US 98 and Cody Avenue	11	AM PM	F F

Level of Service
 A - Little or no delay
 B - Short traffic delays
 C - Average traffic delays
 D - Long traffic delays
 E - Very long traffic delays
 F - Congestion

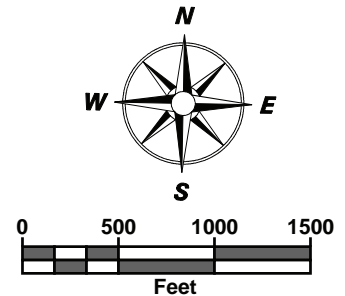
Source: Hurlburt Field Transportation Plan, March 2008



Traffic Study Features

- EA Proposed Action
- EA Alternative Action
- ▲ Gate
- Roadway
- Existing Structure
- Airfield Surface

Traffic Data Source:
 Hurlburt Field Transportation Plan
 March, 2008.



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Hurlburt Field, Florida

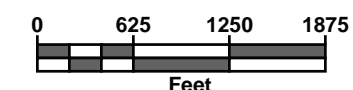
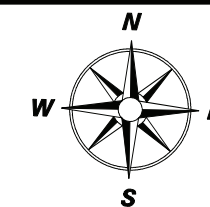
**Figure 3 - 10
 Traffic Study Results**





Parking Study Features

-  Study Region 1
-  Study Region 2
-  Study Region 3A
-  Study Region 3B
-  Study Region 4
-  Study Region 5
-  Study Region 6
-  Study Region 7
-  EA Proposed Action
-  EA Alternative Action
-  Gate

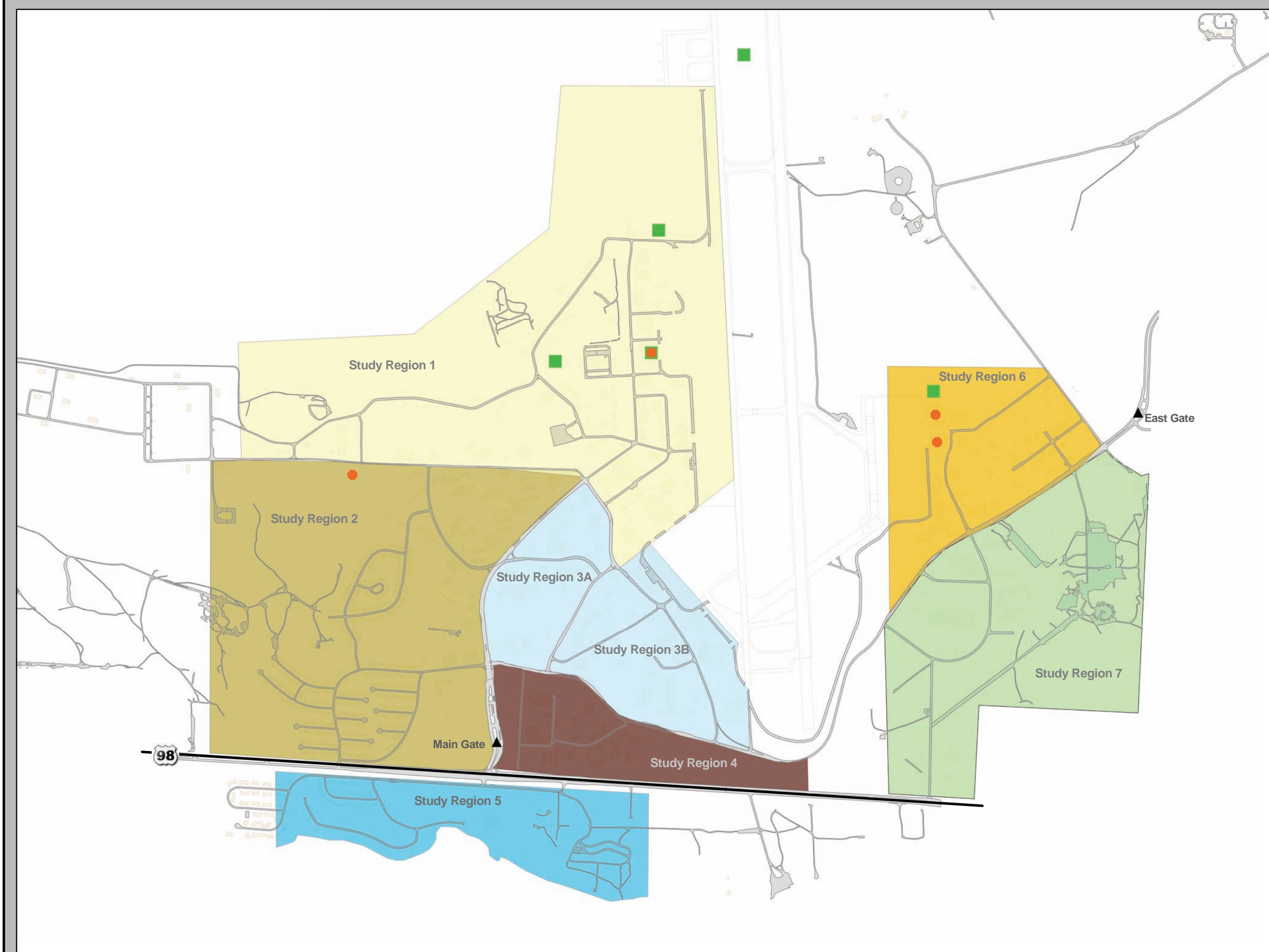


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Environmental Assessment

Hurlburt Field, Florida

**Figure 3 - 11
Parking Study Regions**



APPENDIX A CONSISTENCY STATEMENT

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APPENDIX A

CONSISTENCY STATEMENT

This Consistency Statement will examine the potential environmental consequences of the Proposed Action and ascertain the extent to which the consequences of the Proposed Action are consistent with the objectives of Florida Coastal Management Program.

Statute	Consistency	Scope
Chapter 161 <i>Beach and Shore Preservation</i>	The Proposed Action would not affect beach and shore management, specifically as it pertains to: <ul style="list-style-type: none"> • The Coastal Construction Permit Program. • The Coastal Construction Control Line (CCCL) Permit Program. • The Coastal Zone Protection Program. 	Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the States' beaches.
Chapter 163, Part II <i>Growth Policy; County and Municipal Planning; Land Development, Regulation</i>	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 <i>State and Regional Planning</i>	The Proposed Action, which occurs on federal property, would not affect state plans for water use, off-base land development or transportation.	Details state-level planning efforts. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 <i>Emergency Management</i>	The Proposed Action would not affect the state's vulnerability to natural disasters. 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.

Statute	Consistency	Scope
Chapter 253 <i>State Lands</i>	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 <i>State Parks and Preserves</i>	The Proposed Action would not affect state parks, recreational areas, or aquatic preserves.	Addresses administration and management of state parks and preserves.
Chapter 259 <i>Land Acquisition for Conservation or Recreation</i>	The Proposed Action would not affect tourism and/or outdoor recreation.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.
Chapter 260 <i>Florida Greenways and Trails Act</i>	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 267 <i>Historical Resources</i>	The Proposed Action is not anticipated to impact cultural resources. However, in the event that resources are inadvertently discovered during construction, ISOCES / CEAN 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 <i>Commercial Development and Capital Improvements</i>	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 <i>Transportation Administration</i>	The Proposed Action would not affect transportation.	Addresses the state's policy concerning transportation administration.
Chapter 339 <i>Transportation Finance and Planning</i>	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.

Statute	Consistency	Scope
Chapter 370 <i>Saltwater Fisheries</i>	The Proposed Action would not affect saltwater fisheries.	Addresses management and protection of the state's saltwater fisheries.
Chapter 372 <i>Wildlife</i>	Impacts to biological resources would be minimal. Some vegetation would be removed and temporary intermittent construction noise may aggravate wildlife. No threatened or endangered species would be affected. Therefore, the Proposed Action would not adversely affect wildlife resources.	Addresses the management of the wildlife resources of the state.
Chapter 373 <i>Water Resources</i>	Hurlburt Field would coordinate all applicable permits in accordance with the Florida Administrative Code (FAC). 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. To minimize the impact to water resources, Low Impact Development (LID) techniques would be incorporated into building, site, and landscape design plans; and erosion and sediment control Best Management Practices (BMPs) would be utilized during active construction in accordance with United Facilities Criteria (UFC) 3-210-1 and FAC 62-621, respectively. Any Proposed Action construction project requiring dewatering will require a National Pollutant Discharge Elimination System (NPDES) Generic Permit for discharge of produced ground water from any non-contaminated site activity in accordance with FAC 62-621-300(2). 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). Construction within wetlands would involve mitigation measures to be implemented resulting in a no-net loss of wetlands. (cont'd next page)	Addresses the state's policy concerning water resources.

Statute	Consistency	Scope
<p>Chapter 373 <i>Water Resources</i> (Cont'd)</p>	<p>The 0.5 acres of wetlands impacted by the Fuel Cell Maintenance Hangar construction was previously mitigated under a 10-year Memorandum of Agreement with USACE and FDEP, dated July 13, 2000, and permitted under the FDEP Permit Number 17-0151212-001-DF and USACE Section 404 Permit Number 199900679 (IP-DH), which expires on September 24, 2010.</p> <p>The remaining nine acres of wetlands are proposed to be mitigated with participation in a mitigation partnership with Eglin AFB. Mitigation options being explored include restoration of three to four flatwoods salamander pond habitats and up to three bridge crossings on Eglin AFB. All ponds and crossings under consideration are in the same drainage basin as the wetland impacts at Hurlburt Field. The mitigation process begins with functional assessments of the wetlands impacted and the flatwoods salamander pond habitats chosen for possible restoration. Completed assessments, an Application for Works in the Waters of Florida, and supporting documentation would be submitted to the USACE and FDEP. Hurlburt Field personnel plan to have the submittal package to the agencies on Oct 1, 2009. The agencies must then determine whether the proposed habitat restoration would provide sufficient functional gain to offset the functional loss created at the impact site. Once the mitigation requirements are identified, a Joint Environmental Resource Permit application (cont'd next page) and CWA Section 404 Permit application will be submitted to the FDEP and USACE.</p> <p>Potential increases in water consumption from the Sand & Gravel and Floridan Aquifers due to the Proposed Action were calculated, and the increased requirements will not exceed the currently permitted capacity for either aquifer. Additionally, infrastructure to support utilization of reuse water generated at the Hurlburt Field WWTP is being constructed. (cont'd next page)</p>	

Statute	Consistency	Scope
Chapter 373 <i>Water Resources</i> <i>(Cont'd)</i>	<p>The use of reuse water will directly offset ground water withdrawals and will help minimize Hurlburt Field's dependence on both aquifers.</p> <p>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding water resources of the State.</p>	
Chapter 375 <i>Multipurpose Outdoor Recreation; Land Acquisition, Management, and Conservation</i>	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 376 <i>Pollutant Discharge Prevention and Removal</i>	<p>Any construction area larger than one acre would require a 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. No impacts are anticipated from the presence of Environmental Restoration Program sites. Planned construction activities would avoid all ERP sites. Should any unusual odor, soil, or ground water coloring be encountered during development activities in any areas, construction would cease and the Hurlburt Field Environmental Management Restoration branch would be contacted immediately.</p> <p>Asbestos debris may be generated as a result of proposed building demolition or renovation activities. Proper disposal of asbestos wastes would be conducted as directed by the National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR 61.40–157]. Contractor personnel would be trained and certified.</p> <p>Lead-based paint debris may be generated as a result of proposed building demolition or renovation activities. (cont'd next page)</p>	Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.

Statute	Consistency	Scope
<p>Chapter 376 <i>Pollutant Discharge Prevention and Removal (Cont'd)</i></p>	<p>Proper disposal of lead containing wastes would also be conducted in accordance with state and federal regulations, including the Toxic Substances Control Act of 1976 (TSCA) and Occupational Safety and Health Administration (OSHA).</p> <p>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the transfer, storage, or transportation of pollutants.</p>	
<p>Chapter 377 <i>Energy Resources</i></p>	<p>Coordination with all utility providers prior to demolition or construction would minimize any potential impacts to existing utility infrastructure associated with disruption of buried utility lines. Areas with existing utilities would provide tie-ins for new lines, and new utility infrastructure would be coordinated with utility providers.</p> <p>There would be no adverse impact to electricity or natural gas utility infrastructure associated with the implementation of the Proposed Action.</p>	<p>Addresses regulation, planning, and development of oil and gas resources of the state.</p>
<p>Chapter 380 <i>Land and Water Management</i></p>	<p>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.</p>	<p>Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.</p>
<p>Chapter 381 <i>Public Health, General Provisions</i></p>	<p>The Proposed Action would not affect the state's policy concerning the public health system.</p>	<p>Establishes public policy concerning the state's public health system.</p>
<p>Chapter 388 <i>Mosquito Control</i></p>	<p>The Proposed Action would not affect mosquito control efforts.</p>	<p>Addresses mosquito control effort in the state.</p>
<p>Chapter 403 <i>Environmental Control</i></p>	<p>Hurlburt Field would coordinate all applicable permits in accordance with the Florida Administrative Code (FAC). The Proposed Action may require an Environmental Resource Permit from the Northwest Florida Water Management District (NFWFMD). (cont'd next page)</p>	<p>Establishes public policy concerning environmental control in the state.</p>

Statute	Consistency	Scope
<p>Chapter 403 <i>Environmental Control (cont'd)</i></p>	<p>Hurlburt Field would take reasonable precautions to minimize fugitive particulate (dust) emissions during any demolition, construction, or renovation activities in accordance with FAC 62-296.</p> <p>Coordination of contractors with all local county and private landfill operators prior to construction would minimize any potential impacts associated with disposal of demolition or construction debris and materials will be recycled when possible.</p> <p>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.</p>	
<p>Chapter 582 <i>Soil and Water Conservation</i></p>	<p>Major impacts to soils and sediments are not anticipated. Some soil disturbance would occur from construction, but transportation of soil off-site would be controlled through BMPs.</p> <p>Therefore, the Proposed Action would not affect soil and water conservation efforts.</p>	<p>Provides for the control and prevention of soil erosion.</p>

CONCLUSION

The Air Force finds that the conceptual Proposed Action and No Action Alternative plans presented in the EA are consistent with Florida's Coastal Management Program to the maximum extent practicable.

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APPENDIX B
INTERAGENCY COORDINATION AND PUBLIC
REVIEW

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AGENCY NOTIFICATION AND REVIEW

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May 7, 2009

Ms. Lauren P. Milligan
Environmental Manager
Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Blvd, M.S. 47
Tallahassee, FL 32399-3000

RE: **Draft Planned Growth Environmental Assessment**
Hurlburt Field, Florida

Dear Ms. Milligan,

Please find enclosed twelve electronic copies of the Draft Hurlburt Field Planned Growth Environmental Assessment for your review and distribution to relevant state agencies. We respectfully request comments within 30-days.

Please send agency comments to:

Brown, Burdine and Assoc
90 NW Beal Parkway, Suite A2
Fort Walton Beach, FL 32548

If you require additional information, please contact me at (850)243-0072.

Sincerely,
Brown, Burdine & Associates, LLC



Melissa A. Hoover, MS
Environmental Scientist / Project Manager



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

July 7, 2009

' RECEIVED JUL 09 2009

Ms. Melissa A. Hoover, M.S.
Brown, Burdine & Associates, LLC
90 NW Beal Parkway, Suite A-2
Fort Walton Beach, FL 32548

RE: Department of the Air Force – Draft Environmental Assessment for Planned
Growth at Hurlburt Field – Okaloosa County, Florida.
SAI # FL200905084739C

Dear Ms. Hoover:

The Florida State Clearinghouse has coordinated a review of the Draft Environmental Assessment (EA) under the following authorities: Presidential Executive Order 12372; Section 403.061(40), *Florida Statutes*; 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.

The Florida Department of Environmental Protection's (DEP) Northwest District staff advises that the following permits may be required for the proposed projects:

- An Environmental Resource Permit (ERP) for stormwater, per Rule 62-346, *Florida Administrative Code*, may be required. Under the current operating agreement, projects would be reviewed by the Northwest Florida Water Management District (NFWFMD) if no wetland impacts will occur due to project activities. If unavoidable wetland impacts are anticipated, then the project would most likely be reviewed by the DEP Northwest District for both stormwater and wetland impacts. For further information on these requirements, please contact Mr. Lee Marchman, NFWFMD, by phone at (850) 921-2986 or Mr. Cliff Street, DEP, at (850) 595-8300, ext. 1135.
- Wastewater system construction and/or connections will require a permit from either DEP's Domestic Wastewater program or the Okaloosa County Health Department, depending on the type and size of system used. The DEP contact for permitting questions is Mr. Bill Evans at (850) 595-8300, ext. 1168.

Ms. Melissa A. Hoover, M.S.

July 7, 2009

Page 2 of 3

- The potable water line extensions will require a distribution system general permit. For more information on potable water permitting requirements, please contact Mr. John Pope at (850) 595-8300, ext. 1145.

The Northwest Florida Water Management District (NFWFMD) notes that the proposed increase in personnel and aircraft on base will result in an increase in water consumption to 717,820 gallons per day (GPD) from the Floridan Aquifer. Hurlburt Field is currently permitted to withdraw up to 800,000 GPD. Since coastal Okaloosa County is a Water Resource Caution Area (WRCA), conversion of the aircraft Clearwater Rinse Facility from potable to non-potable water supply is strongly recommended.

NFWFMD also recommends that any new or modified facilities demonstrate leadership in water use efficiency and water conserving devices. Landscape irrigation usage under the Proposed Action would also increase withdrawal from the Sand and Gravel Aquifer to 48,693,929 gallons per year (GPY) or 133,408 GPD. The yearly permitted withdrawal limit from the Sand and Gravel Aquifer is 126,000,000 GPY. The NFWFMD notes that water usage for irrigation seems unnecessarily high. Further critical evaluation and alternatives should be considered to ensure long-term sustainability of water supplies.

In addition, staff recommends the use of low impact development methods to minimize stormwater runoff and non-point source pollution into the East Bay River and Santa Rosa Sound and to maintain natural recharge function to the degree possible. Santa Rosa Sound is designated Outstanding Florida Waters (Gulf Islands National Seashore), a NFWFMD Surface Water Improvement and Management priority waterbody, critical habitat for the Gulf sturgeon, and a U.S. Fish and Wildlife Service West Indian manatee consultation area. Please see the enclosed NFWFMD memo for more information.

The Florida Fish and Wildlife Conservation Commission (FWC) advises that the base is located within the U.S. Fish and Wildlife Service's consultation zones for the red-cockaded woodpecker. A number of other federally and state-listed species are likely found on base as well. Staff recommends that the scheduled listed species survey, noted in the draft environmental assessment, be completed and results forwarded to the FWC. Depending upon the findings of the survey, permits from the FWC may be necessary for proposed impacts to those species. Please refer to the enclosed FWC letter for further comments, on-line information, and contacts.

The West Florida Regional Planning Council (WFRPC) staff notes that Best Management Practices should be used to avoid and minimize wetland impacts and protect groundwater resources, natural systems, listed species and conservation lands to the greatest extent practicable. Additionally, WFRPC has provided a number of

Ms. Melissa A. Hoover, M.S.
July 7, 2009
Page 3 of 3

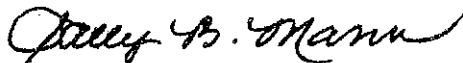
recommendations to ensure the projects' consistency with the *Strategic Regional Policy Plan for West Florida*. Please see the enclosed WFRPC memo for additional information.

The Florida Department of State (DOS) has reviewed information provided by the project consultant regarding the potentially affected buildings and determined that they do not appear to meet the criteria for listing in the *National Register of Historic Places*. DOS also notes that the U.S. Air Force has a contingency plan in case fortuitous finds or unexpected discoveries are encountered during construction. The DOS, therefore, advises that the proposed undertaking will have no effect on historic properties. Please see the enclosed DOS letters for additional information.

Based on the information contained in the Draft EA and the enclosed state agency comments, the state has determined that, at this stage, the proposed activities are 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. Lori E. Cox at (850) 245-2187.

Yours sincerely,



Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lec
Enclosures

cc: Darryl Boudreau, DEP, Northwest District
Duncan Cairns, NFWFMD
Mary Ann Poole, FWC
John Gallagher, WFRPC
Laura Kammerer, DOS



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Department of Environmental Protection

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Project Information	
Project:	FL200905084739C
Comments Due:	06/19/2009
Letter Due:	07/07/2009
Description:	DEPARTMENT OF THE AIR FORCE - DRAFT ENVIRONMENTAL ASSESSMENT FOR PLANNED GROWTH AT HURLBURT FIELD - OKALOOSA COUNTY, FLORIDA.
Keywords:	USAF - DEA FOR FOR PLANNED GROWTH AT HURLBURT FIELD - OKALOOSA CO.
CFDA #:	12.200
Agency Comments:	
WEST FLORIDA RPC - WEST FLORIDA REGIONAL PLANNING COUNCIL	
The WFRPC has provided a number of recommendations to ensure the projects' consistency with the Strategic Regional Policy Plan for West Florida. Best Management Practices should be used to avoid and minimize wetland impacts and protect groundwater resources, natural systems, listed species and conservation lands to the greatest extent practicable.	
COMMUNITY AFFAIRS - FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS	
FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION	
The FWC notes that the base is located within the U.S. Fish and Wildlife Service's consultation zones for the red-cockaded woodpecker. A number of other federally and state-listed species are likely found on base as well. Staff recommends that the scheduled listed species survey be completed and results forwarded to the FWC - permits from the FWC may be necessary for proposed impacts to those species. Please refer to the enclosed FWC letter for further comments, on-line information and contacts.	
STATE - FLORIDA DEPARTMENT OF STATE	
The DOS has reviewed information provided by the project consultant on the potentially affected buildings and determined that they do not appear to meet the criteria for listing in the National Register of Historic Places. DOS also notes that the U.S. Air Force has a contingency plan in case fortuitous finds or unexpected discoveries are encountered during construction. Therefore, the DOS advises that the proposed undertaking will have no effect on historic properties.	
TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION	
No Comments	
ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	
DEP Northwest District staff advises that the following permits may be required for the proposed projects: - An Environmental Resource Permit (ERP) for stormwater, per Rule 62-346, Florida Administrative Code, may be required. Under the current operating agreement, projects would be reviewed by the Northwest Florida Water Management District (NFWFMD) if no wetland impacts will occur due to project activities. If unavoidable wetland impacts are anticipated, then the project would most likely be reviewed by the DEP Northwest District for both stormwater and wetland impacts. For further information on these requirements, please contact Mr. Lee Marchman, NFWFMD, by phone at (850) 921-2986 or Mr. Cliff Street, DEP, at (850) 595-8300, ext. 1135. - Wastewater system construction and/or connections will require a permit from either DEP's Domestic Wastewater program or the Okaloosa County Health Department, depending on the type and size of system used. The DEP contact for permitting questions is Mr. Bill Evans at (850) 595-8300, ext. 1168. - The potable water line extensions will require a distribution system general permit. For more information on potable water permitting requirements, please contact Mr. John Pope at (850) 595-8300, ext. 1145.	
NORTHWEST FLORIDA WMD - NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT	
The NFWFMD notes that the proposed increase in personnel and aircraft on base will result in an increase in water consumption to 717,820 gallons per day (GPD) from the Floridan Aquifer - Hurlburt Field is currently permitted to withdraw up to 800,000 GPD. Since coastal Okaloosa County is a Water Resource Caution Area, conversion of the aircraft Clearwater Rinse Facility from potable to non-potable water supply is strongly recommended. Staff also recommends that any new or modified facilities demonstrate leadership in water use efficiency and water conserving devices. Landscape irrigation usage under the Proposed Action would also increase withdrawal from the Sand & Gravel Aquifer to 48,693,929 gallons per year (GPY) or 133,408 GPD. The yearly permitted limit is 126,000,000 GPY. The NFWFMD notes that water usage for irrigation seems unnecessarily high. Further critical evaluation and alternatives should be considered to ensure long-term sustainability of water supplies. In addition, staff recommends the use of low impact development methods to minimize stormwater runoff and non-point source pollution into the East Bay River and Santa Rosa Sound and to maintain natural recharge function to the degree possible. Santa Rosa Sound is designated Outstanding Florida Waters (Gulf Islands National Seashore), a NFWFMD Surface Water Improvement and Management priority waterbody, critical habitat for the Gulf sturgeon, and a USFWS West Indian manatee consultation area.	

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NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

JUN 12 2009

MEMORANDUM

DEP Office of
Intergovt'l Programs

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

FROM: Leigh Brooks, Water Resource Planner *LB*

THRU: Paul Thorpe, Director, Resource Planning Section

DATE: June 10, 2009

SUBJECT: U.S. Air Force, Draft Environmental Assessment for Planned Growth, Hurlburt Field, Florida, SAI #: FL200905084739C

The Proposed Action is for planned growth in the Air Force Special Operations Command over the next five years consisting of an increase in 1,340 personnel (13 percent), increase of one aircraft, and six building construction projects. The construction projects propose a combination of building on undeveloped sites and replacing or modifying existing structures. The projects are: Add/Alter Hangar, Building 90815; Repair Hangar, Building 90815; New Hot Cargo Taxiway; Light Aircraft Squadron Operations and Maintenance Facility; Base Logistics Facility; and, Fuel Cell Maintenance Hangar. The Proposed Action and Alternative to the Proposed Action were evaluated in the Draft Environmental Assessment (EA).

The EA shows no significant impact on water resources from personnel and aircraft increases other than minor long-term impact to the potable water system (Floridan Aquifer), and no significant impact from construction projects considering mitigation for adverse wetland impacts and minor long-term impacts to drainage basin, floodplains, and the Sand & Gravel Aquifer. The EA acknowledges minor intermittent short-term impact to biological resources and no significant impact.

The increase of personnel is estimated to result in an increase in water usage of 50,920 gallons per day (GPD) from the Floridan Aquifer. The increase of aircraft could result in additional consumption of 2,400 GPD at the Clearwater Rinse Facility, which currently uses potable water. Adding those numbers to current consumption, total projected consumptive use is 717,820 GPD. Hurlburt Field is permitted to withdraw up to 800,000 GPD, so projected use is within the permitted amount. Coastal Okaloosa County is a Water Resource Caution Area due to a depression in the Floridan Aquifer caused by groundwater withdrawals and resulting saltwater intrusion. Converting the rinse facility to non-potable water supply is strongly recommended. It is also recommended that any new or modified facilities demonstrate leadership in water use efficiency and water conserving devices.

Hurlburt Field uses water from the Sand & Gravel Aquifer for landscape irrigation needs. Irrigation usage under the Proposed Action would increase by 610,020 gallons per year (GPY) post construction for a total of 48,693,929 GPY. This equates to 133,408 GPD. Slightly less would be used under the Alternative to the Proposed Action. The yearly permitted limit is 126,000,000 GPY. Water usage for irrigation seems unnecessarily high. The EA, in fact, recognizes potential long-term effects to the aquifer from the additional irrigation needs. It is recommended that irrigation needs be critically evaluated and alternatives be considered to ensure long-term sustainability of water supplies. Alternatives could include retaining plants on construction sites, selecting landscape plants with low to no supplemental water needs and trees that will create shade, landscaping practices that conserve water such as mulching, limiting turf areas, reuse of reclaimed water, and more.

Regarding construction criteria, the NFWFMD encourages the use of Florida-friendly landscaping practices to conserve water, protect water quality, and promote use of plants native to the site. Many plants listed in the master list for landscape use are excellent choices. Non-native, or exotic, plants that are invasive or potentially so should be avoided due to the possibility that they could become naturalized in undeveloped areas and impact natural systems. Plants from the master list we do not recommend using because of their tendency to invade natural areas or because they are toxic to wildlife are *Feijoa sellowiana*, *Hedera helix*, *Lantana*, *Lilium candidum*, *Ligustrum lucidum*, *Nandina domestica*, *Pennisetum alopecuroides*, *Pinus thunbergiana*, *Pistache chinensis*, and *Pyracantha*.

Wastewater would be managed by tying into existing sanitary sewer lines. The wastewater treatment plant on base discharges treated effluent to wetlands of East Bay Swamp under an NPDES permit. The plant is permitted to treat up to 1.0 MGD. It currently operates at about 0.7 MGD. The increase in personnel is estimated to increase sewage flow by 50,920 GPD and is within the permitted plant capacity. There would be some beneficial impact from construction of new, more efficient facilities replacing old ones. If the wastewater treatment plant could be adapted for beneficial reuse, it would help sustain water supplies and reduce wetland impacts.

The EA states that construction of facilities under the Proposed Action would add 10.19 acres of impervious surface in the East Bay drainage sub-basin for buildings, parking lots and roads. The Alternative to the Proposed Action would shift most of the drainage effects to Santa Rosa Sound. It is recommended that low impact development (LID) methods be employed to minimize stormwater runoff and non-point source pollution into the East Bay River and Santa Rosa Sound and to maintain as much natural recharge function as possible. Stormwater treatment should be planned for any runoff from impervious surfaces. Santa Rosa Sound has special designations that merit additional protection efforts: Gulf Islands National Seashore, Outstanding Florida Water, Federally-designated critical habitat for the Gulf sturgeon, Federal West Indian manatee consultation area, and NFWFMD Surface Water Improvement and Management (SWIM) program priority waterbody. The East Bay River drains to Pensacola Bay, also a SWIM priority waterbody and habitat for Gulf sturgeon and manatee. The additional impervious area and other alterations affecting stormwater will need to be added to the Stormwater Pollution Prevention Plan in accordance with the base's stormwater permit.

It will be important to manage stormwater during construction to prevent exposed soils from eroding and impacting water resources. A stormwater construction permit will be necessary which requires a Stormwater Pollution Prevention Plan. BMPs described in the most current Erosion and Sediment Control Manual by FDEP and FDOT should be followed. An item of note in the manual is that hay bale barriers are ineffective at controlling sediment.

Two of the construction projects would impact 2.1 acres of floodplain under the Proposed Action, while one project would impact 2.2 acres under the Alternative to the Proposed Action. Facilities would be designed in accordance with applicable floodplain protection standards and accepted flood-proofing and protection measures to minimize impacts. Employing LID methods is recommended as described above.

Three of the construction projects would impact a total of 9.5 acres of wetlands under the Proposed Action: 9.0 acres of bottomland forest and 0.5 acres of previously permitted dome swamp wetlands. Under the Alternative to the Proposed Action, two construction projects would impact 5.2 wetland acres: 2.2 acres of floodplain swamp and 3.0 acres of palustrine wetlands. Mitigation for wetland losses is proposed to be in a mitigation partnership with Eglin AFB in the same drainage basin.

The Fuel Cell Maintenance Hangar would impact 1.1 acres of floodplain and 0.5 dome swamp wetland acres under the Proposed Action. The alternative site would not impact wetlands. It is not clear if liquid

fuels would be involved. If so, due to the possibility of fuel leaks and spills that could contaminate soils and water resources, it is recommended that the alternative site be used. It is further recommended that secondary containment measures be taken and the facility added to the Spill Prevention, Control, and Countermeasures Plan.

Removal of asbestos-containing materials and lead-based paint, if required, will need to be done very carefully to avoid environmental contamination. Measures to protect water resources during wind or rain events while hazardous materials removal is in progress should be strictly adhered to.

Construction activity could also entail dewatering of sites, which would require an NPDES permit for discharge of the water. The EA acknowledges that dewatering can remove a substantial amount of water and alter groundwater flow patterns and that the potential exists for contamination from nearby environmental cleanup program sites. There are 51 such sites on base. It is not clear if construction activity would impact any sites that remain contaminated. The EA reports only insignificant impact. This matter should be clarified and fully addressed prior to construction to prevent movement of contaminants and protect water resources.



Bill Dozier, Chairman
Cindy Frakes, Vice-Chairman

Terry A. Joseph, Executive Director

MEMORANDUM

To: Lauren Milligan, Environmental Manager-Clearinghouse Coordination, FDEP
3900 Commonwealth Boulevard M.S. 47, Tallahassee, FL 32399

From: Mary F. Gutierrez, Environmental Planner, West Florida Regional Planning Council

Date: Tuesday, May 26, 2009

Subject: Draft Environmental Assessment for Planned Growth at Hurlburt Field, Okaloosa
County, Florida, SAI # FL200905084739C,
RPC # OK 107-5-19-09

Project: The Proposed Action is to implement the base-wide planned growth at Hurlburt Field. The planned growth includes personnel increases, aircraft increases and changes, along with facility renovation and construction, as summarized below:

- Personnel increase of 1,340 personnel (current baseline 10,166 [fiscal year 2007] to 11,506 by the end of fiscal year 2013)
- Net increase of 1 aircraft (including the retirement of the MH-53J/M Pave Low IIIE/IV, the addition of CV-22 Osprey's and other aircraft additions/subtractions/substitutions)
- Add/Alter and Repair Building 90815
- Construct New Hot Cargo Taxiway between current taxiways Alpha and Bravo
- Construct Light Aircraft Squadron Operations and Maintenance Facility
- Construct Base Logistics Facility and demolish a portion of the existing Logistics Facility (Building 90710)
- Construct Fuel Cell Maintenance Hangar

Based on the information provided, the Council would like to make the following recommendations. Please note that the recommendations below are based on the Strategic Regional Policy Plan, established under Chapter 93-206, Laws of Florida. Responses to these recommendations are not required.

Priority 1 - Protection of the Region's Surface Water Resources:

Policy 1.1: Prohibit development activities that structurally impair or reduce the flow of the Region's rivers, creeks, branches, streams, (tributaries and surface waters) and standing waters such as ponds and lakes.

Policy 1.4: Protect all surface waters from pollution and degradation, with particular emphasis on SWIM priority water bodies, Class I and II waters, Outstanding Florida Waters and State Aquatic Preserves.

Policy 1.5: Protect wetlands from pollution and unnatural degradation due to development.

Policy 1.7: Require buffer zones around water bodies, landscaping techniques that minimize erosion and proper maintenance of onsite domestic waste treatment facilities so as to protect water quality.

Recommendation 1: Bridge all road crossings over waterways that may be adversely impacted during construction and as applicable.

Recommendation 2: Development shall be constructed in a manner that does not structurally impair or reduce the flow of any on-site rivers, creeks, branches, streams, tributaries and surface waters at any time.

Recommendation 3: Construction buffers shall be maintained at all time and may include, but is not limited to staked hay bales, staked filter cloth, and planting of native species.

Recommendation 4: All landscaping should consist of native species known to that particular area.

Priority 2 – Protection of the Region’s Ground Water Resources:

Policy 1.3: Allow the use of reclaimed wastewater for irrigation.

Policy 1.5: Investigate the development and use of alternative sources of water in areas where currently used sources are steadily declining and develop and implement strategies for use of alternative water supplies.

Policy 1.7: Prohibit or require mitigation for all developments that have the potential to cause or increase saltwater intrusion, interfere with legal water users or damage important ecosystems.

Policy 1.9: Prevent all development activities that would structurally impair the function of high volume recharge areas, or reduce the availability and flow of good quality water to recharge areas.

Policy 1.15: Prohibit the mining of water, where use exceeds historical recharge.

Policy 1.16: Prohibit any activities that would introduce wastes or other by-products into the groundwater system via recharge areas.

Recommendation 1: Use reclaimed water and/or rainwater for commercial and residential irrigation as well as for bathroom facilities in commercial and residential settings.

Recommendation 2: Avoid impacts and development in areas with and/or exhibiting seepage streams, ponds, karst topography, steephead ravines, sandhill lakes, cypress river swamps, and other surface water.

Recommendation 3: Plant native species in all areas and avoid the use of fertilizers, pesticides, and herbicides.

Recommendation 4: Leave as much native species in place during construction as opposed to clear cutting and replanting once construction is completed.

Priority 4 - Protection of Natural Systems:

Policy 1.2: Require land development applications to establish buffer zones around estuarine systems, wetlands, and unique uplands that protect these areas from degradation by adjacent land uses, where feasible.

Recommendation 1: Development should protect and conserve the natural function of wetlands, unique uplands, flood plains, bayous and other important wildlife habitats.

Recommendation 2: Maintain, at a minimum, 30-foot buffers around all wetland, flood plains, bayous/surface water, estuarine systems, unique uplands, and other important wildlife habitats. These buffer areas should also be included in conservation easements. All conservation easements should be granted in perpetuity.

Recommendation 3: Maintain connectivity of conservation lands as opposed to a piece meal approach. Connectivity will ensure the continuation of a healthy habitat for animal and plant species.

Priority 5 - Protection of Endangered, Threatened, and Rare Species:

Policy 1.1: Identify habitats of threatened or endangered plant and animal species throughout the region. Although a Habitat Assessment Report was conducted and indicated no findings, the following recommendations should still be considered.

Recommendation 1: Use native plants, including threatened or endangered species and use landscaping to provide habitat for wildlife native to the area.

Recommendation 2: Maintain buffers around areas currently occupied by threatened, endangered or rare species as applicable.

Recommendation 3: Avoid impacts, direct or secondary, to areas inhabited by rare and endangered species and species of special concern.

Priority 6 – Land Management and Use:

Policy 1.2: Conserve and protect the natural functions of soils, wildlife habitat, floral habitat and wetlands.

Policy 1.3: Provide for the protection of wildlife natural systems in the development approval process.

Recommendation 1: All conservation easements area should be adjacent to existing conservation lands. All conservation easements should be granted in perpetuity.

Recommendation 2: All mitigation property should be of the same quality or higher of wetlands being impacted. Impacts should be avoided and/or minimized at all cost. Impacts to floodplains should be avoided.



June 11, 2009

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JUN 24 2009

DEP Office of Intergov't Programs

Florida Fish and Wildlife Conservation Commission

Ms. Lauren P. Milligan
Florida State Clearinghouse
Department of Environmental Protection
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, FL 32399-3000

RE: SAI #FL 200905084739C, Draft Environmental Assessment for the Planned Growth of Hurlburt Field, Okaloosa County

Commissioners
Rodney Barreto
Chair
Miami

Kathy Barco
Vice-Chair
Jacksonville

Ronald M. Bergeron
Fort Lauderdale

Richard A. Corbett
Tampa

Dwight Stephenson
Delray Beach

Kenneth W. Wright
Winter Park

Brian S. Yablonski
Tallahassee

Dear Mrs. Milligan:

The Division of Habitat and Species Conservation, Species Conservation Planning Section, of the Florida Fish and Wildlife Conservation Commission (FWC) has coordinated agency review of the Hurlburt Field draft Environmental Assessment, and provides the following comments and recommendations.

Project Description

Hurlburt Field is a United States Air Force installation and home to the Air Force Special Operations Command, the Air Force component of United States Special Operations Command. The installation is located in Okaloosa County in the Florida Panhandle. The draft Environmental Assessment of Hurlburt Field includes projections for five years of proposed planned growth. The proposed projects on Hurlburt Field include adding a hanger and/or altering an existing hanger, repairing a hangar, and constructing a new hot cargo taxiway, light aircraft squadron operations and maintenance facility, base logistics facility, and fuel cell maintenance hangar. Wetlands are the dominant land cover within the project area, covering 52%. A total of approximately 9.5 acres of wetlands would be impacted. The hangers and base logistics facility are located on the 100-year floodplain. According to the draft Environmental Assessment, the applicant will mitigate the remaining wetlands through a partnership with Eglin Air Force Base (AFB). The mitigation options include restoring three to four flatwoods salamander ponds and constructing up to three bridge crossings on Eglin AFB. An installation-wide comprehensive survey for all rare threatened and endangered species and their habitats is scheduled to be conducted in 2008-2009.

Potentially Affected Resources

According to a GIS analysis of the property and vicinity, the site is located in the U.S. Fish and Wildlife Service's (USFWS's) consultation zones for the red-cockaded woodpecker (Picoides borealis). It is possible that there are additional listed species such as the reticulated flatwoods salamander (Ambystoma bishopi, Federal-Endangered), Florida black bear (Ursus americanus floridanus, FL-Threatened), least tern (Sterna antillarum, FL-Threatened), gopher frog (Rana capito, FL-Species of Special Concern), and gopher tortoise (Gopherus polyphemus, FL-Threatened) on the property.

Executive Staff
Kenneth D. Haddad
Executive Director
Nick Wiley
Assistant Executive Director
Karen Ventimiglia
Deputy Chief of Staff

Office of Policy and Stakeholder Coordination
Mary Ann Poole
Director
(850) 410-5272
(850) 922-5679 FAX

Managing fish and wildlife resources for their long-term well-being and the benefit of people.

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32399-1600
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(800) 955-8770 (V)

MyFWC.com

Recommendations

The FWC recommends that the scheduled listed species survey be completed and results forwarded to the FWC. If the findings of the survey indicate that listed species are on the property and may be impacted, then the applicant should be aware that permits from the FWC may be necessary. FWC may have additional recommendations and comments after reviewing the survey. The species that are State-designated as endangered, threatened, or of special concern are listed in Chapter 68A-27, Florida Administrative Code, and can be accessed on-line at <https://www.flrules.org/gateway/ChapterHome.asp?Chapter=68A-27>.

If you or your staff would like to coordinate further on the recommendations contained in this report, please contact Caly Murphy at 850-488-3831 or by email at Caly.Murphy@MyFWC.com.

Sincerely,



Mary Ann Poole, Director
Office of Policy and Stakeholder Coordination

map/cmm
Hurlburt Field EA_2193_061109
ENV 1-3-2



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JUN 12 2009

FLORIDA DEPARTMENT OF STATE
Kurt S. Browning
Secretary of State
DIVISION OF HISTORICAL RESOURCES

DEP Office of
Intergov't Programs

Ms. Lauren Milligan
Director, Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, Florida 32399-3000

June 9, 2009

RE: DHR Project File Number: 2009-2615-B
SAI #: 200905084739C – Department of the Air Force
Additional Information - *Draft Environmental Assessment for Planned Growth at Hurlburt Field*
Okaloosa County

Dear Ms. Milligan:

This office reviewed additional information for the referenced project for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, *36 CFR Part 800: Protection of Historic Properties* and the *National Environmental Policy Act of 1969*, as amended.

Based on the additional information provided by Ms. Melissa Hoover (Brown, Burdine & Associates, LLC), it is the opinion of this office that the Buildings 90815, 91262, 91266, and 90812 do not appear to meet the criteria for listing in the *National Register*. In addition, we note that the United States Air Force has a contingency plan in the case of fortuitous finds or unexpected discoveries during ground disturbing activities within the project area. Therefore, it is the opinion of this office that the above-referenced undertaking will have no effect on historic properties.

If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail sedwards@dos.state.fl.us, or at 850-245-6333 or 800-847-7278.

Sincerely,

Frederick P. Gaske, Director, and
State Historic Preservation Officer

XC: Melissa Hoover, Brown, Burdine & Associates, LLC

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

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Historic Preservation
(850) 245-6333 • FAX: 245-6437



FLORIDA DEPARTMENT OF STATE
Kurt S. Browning
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Ms. Lauren Milligan
Director, Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, Florida 32399-3000

RECEIVED May 28, 2009

JUN 02 2009

DEP Office of
Intergov't Programs

RE: DHR Project File Number: 2009-2615
SAI #: 200905084739C -- Department of the Air Force
Draft Environmental Assessment for Planned Growth at Hurlburt Field
Okaloosa County

Dear Ms. Milligan:

This office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, *36 CFR Part 800: Protection of Historic Properties* and the *National Environmental Policy Act of 1969*, as amended.

This office has reviewed the Proposed and Alternative Actions of this undertaking and has the following comments and recommendations.

- **Add/Alter and Repair Building 90815:** This office does not have sufficient information to make a determination on the eligibility of Building 90815 for listing in the *National Register*. We will complete our review when we are provided additional information.
- **The Alternative to this Proposed Action would be to utilize existing hangars, Buildings 91262 and 91266:** This office does not have sufficient information to make a determination on the eligibility of Buildings 91262 and 91266 for listing in the *National Register*. We will complete our review when we are provided additional information.
- **Construction of New Hot Cargo Taxiway:** Based on the information provided, it is the opinion of this office that the above-referenced undertaking will have no effect on historic properties.
- **The Alternative to this Proposed Action would be to construct a new hot cargo loading ramp northwest of Taxiway Alpha:** Based on the information provided, it is the opinion of this office that the above-referenced undertaking will have no effect on historic properties.
- **Construction of a Light Aircraft Squadron Operations and Maintenance Facility:** Based on the information provided, it is the opinion of this office that the above-referenced undertaking will have no effect on historic properties.

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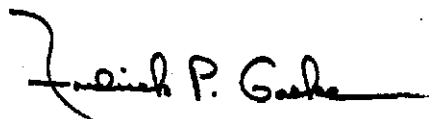
- *The Alternative to this Proposed Action would be to demolish Buildings 90812 and 90815 and construct a new facility:* This office does not have sufficient information to make a determination on the eligibility of Buildings 90812 and 90815 for listing in the *National Register*. We will complete our review when we are provided additional information.
- **Construction of a Base Logistics Facility:** Based on the information provided, it is the opinion of this office that the above-referenced undertaking will have no effect on historic properties.
 - *The Alternative to this Proposed Action Construction Projects would be to construct the new Base Logistics Facility on the south side of Tully Street and include the demolition of the warehouse portion of Bldg 90710:* Based on the information provided, it is the opinion of this office that the referenced undertaking at the alternative location will have no effect on historic properties. In addition, this office has previously determined that Building 90710 does not appear to meet the criteria for listing in the *National Register*, therefore, no historic properties will be affected by its demolition.
- **Construction of a Fuel Cell Maintenance Hangar:** Based on the information provided, it is the opinion of this office that the above-referenced undertaking will have no effect on historic properties.
 - *The Alternative to this Proposed Action would be to renovate Building 91262:* This office does not have sufficient information to make a determination on the eligibility of Building 90815 for listing in the *National Register*. We will complete our review when we are provided additional information.

This office also recommends that United States Air Force needs to make contingency plans in the case of fortuitous finds or unexpected discoveries during ground disturbing activities within the project area:

- If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with early Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The applicant shall contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333. Project activities shall not resume without verbal and/or written authorization.
- In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, *Florida Statutes*.

If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail sedwards@dos.state.fl.us, or at 850-245-6333 or 800-847-7278.

Sincerely,



Frederick P. Gaske, Director, and
State Historic Preservation Officer

XC: Melissa Hoover, Brown, Burdine & Associates, LLC

May 7, 2009

Ms. Gail Carmody
Field Supervisor
U.S. Fish and Wildlife Service
Panama City, FL Field Office
1601 Balboa Ave.
Panama City, FL 32405

RE: Draft Planned Growth Environmental Assessment
Hurlburt Field, Florida

Dear Ms. Carmody,

Please find enclosed one hard copy and one electronic copy of the Draft Hurlburt Field Planned Growth Environmental Assessment for your review. We respectfully request comments within 30-days.

Please send agency comments to:

Brown, Burdine and Assoc
90 NW Beal Parkway, Suite A2
Fort Walton Beach, FL 32548

If you require additional information, please contact me at (850)243-0072.

Sincerely,
Brown, Burdine & Associates, LLC



Melissa A. Hoover, MS
Environmental Scientist



U.S. Fish and Wildlife Service
Panama City Field Office
1601 Balboa Ave.
Panama City, FL 32405
Tel: 850/769-0552
Fax: 850/763-2177



FAX NOTE FAX NOTE FAX NOTE

Date: 6/25/09
 To: Melissa Norder
 From: Ted Martin
 No. Pages to Follow: 3
 Subject: Draft Environmental Assessment

Original was mailed on June 5, 2009.



Nature is not only more complex than we think,
it is more complex than we can think. - Frank Egler



IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Field Office

1601 Balboa Avenue

Panama City, FL 32405-3721

Tel: (850) 769-0552

Fax: (850) 763-2177

June 5, 2009

Ms. Melissa A. Hoover
Environmental Scientist
Brown, Burdine & Associates
90 NW Beal Parkway, Suite A2
Fort Walton Beach, FL 32548

Re: FWS No. 41410-2009-FA-0139
May 2009
Draft Environmental Assessment
For Planned Growth
Hurlburt Field, Florida

Dear Ms. Hoover:

This letter acknowledges the U.S. Fish and Wildlife Service's (Service) May 08, 2009, receipt of your May 7, 2009 letter and May 2009 Draft Hurlburt Field Planned Growth Environmental Assessment (EA). Below you will find our response to your request for comments on the submitted EA. Your proposed projects are located in Okaloosa County, Florida at approximate coordinates 30° 25' 54.44" N and 86° 41' 41.11" W. The following comments are provided in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e), the Migratory Bird Treaty Act (16 U.S.C. 703, *et seq.*) and section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531-1543).

The Proposed Action is to implement the base-wide planned growth at Hurlburt Field. The planned growth includes personnel increases, aircraft increases and changes, along with facility renovation and construction, as summarized below:

- Personnel increase of 1,340 personnel (current baseline 10,166 [fiscal year 2007] to 11,506 by the end of fiscal year 2013)
- Net increase of 1 aircraft (including the retirement of the MH-53J/M Pave Low IIIE/IV, the addition of CV-22 Osprey's and other aircraft additions/subtractions/substitutions)
- Add/Alter and Repair Building 90815
- Construct New Hot Cargo Taxiway between current taxiways Alpha and Bravo

Ms. Melissa A. Hoover

2

- Construct Light Aircraft Squadron Operations and Maintenance Facility
- Construct Base Logistics Facility and demolish a portion of the existing Logistics Facility (Building 90710)
- Construct Fuel Cell Maintenance Hangar

For the Proposed Action approximately 9.5 acres of wetlands are potentially impacted on the edge of historically industrialized areas. Three of the six Proposed Action construction projects are planned in a wetland: the Light Aircraft Squadron Operations and Maintenance Facility (2 acres), the Base Logistics Facility (7 acres), and the Fuel Cell Maintenance Hangar (0.5 acre). As stated in the EA, areas potentially impacted are not in or near areas of protected plant or animal species.

Wetlands management and permitting at Hurlburt Field is governed by agreements made between Hurlburt Field, the State of Florida, and the USACE. In a Memorandum of Agreement (MOA) dated July 13, 2000, the FDEP issued Hurlburt Field wetland permit No. 17-0151212-001-DF, which covers actions planned 10 years forward of permit issue date (FDEP, 2000). Federal regulations applicable to wetlands at Hurlburt Field include EO 11990 and Section 404 of the CWA. Hurlburt Field has been issued a Section 404 permit (Number 199900679 (IP-DH)), which expires on September 24, 2010. Development beyond these permits would require new agreements and permits from the USACE and FDEP.

Construction within wetlands requires mitigation measures to be implemented resulting in a no-net loss of wetlands. The portion of wetlands affected by the Fuel Cell Maintenance Hangar construction was previously mitigated under a 10-year Memorandum of Agreement with Army Corps of Engineers (USACE), and Florida Department of Environmental Protection, dated July 13, 2000, and permitted under the Florida Department of Environmental Protection Permit Number 17-0151212-001-DF and USACE Section 404 Permit Number 199900679 (IP-DH), which expires on September 24, 2010. It has been proposed that the remaining wetlands will be mitigated with participation in a mitigation partnership with Eglin Air Force Base. Mitigation options being explored include restoration of three to four flatwoods salamander pond habitats and up to three bridge crossings on Eglin. All ponds and crossings under consideration are in the same drainage basin as the wetland impacts at Hurlburt Field. The mitigation process will begin with functional assessments of the wetlands impacted and the flatwoods salamander pond habitats and bridge crossings chosen for possible restoration. Completed assessments will be submitted to the United States Corps of Engineers and Florida Department of Environmental Protection for consideration to determine how much acreage must be mitigated and how much credit can be awarded for each restoration project. Once the mitigation requirements are identified, a Joint Environmental Restoration Permit and Clean Water Act Section 404 Permit will be submitted to the Florida Department of Environmental Protection and USACE, thereby mitigating the adverse impacts on wetlands.

Melissa A. Hoover

3

Based on our review of your May 2009 Draft Hurlburt Field Planned Growth Environmental Assessment and your Wetland Preservation Area Agreement with the Florida Department of Environmental Protection (FDEP), we would like to point out that there may be some overlap between your Light Aircraft Squadron Operations and Maintenance facility conceptual development plans and the area covered under the Wetland Preservation Area Agreement with FDEP. If the projects under consideration will impact wetland preservation areas, we recommend you reengage the State and USACE to discuss those issues.

If you have any questions or need additional information, please contact Mr. Ted Martin at ext. 239. Please refer to the reference number located at the top of this letter in future telephone calls or written correspondence.

Sincerely,



Janet Mizzi
Deputy Field Supervisor

May 7, 2009

Mr. Thomas F. Zink
USACE – Omaha District
CENWO-PM-HB
1616 Capital Ave.
Omaha, NE 68102-1618

RE: Draft
Planned Growth, Environmental Assessment
Hurlburt Field, Florida
BPA Master No.: W9128F-07-A-0013, CO3

Dear Mr. Zink,

Enclosed for your review and comments please find the Draft for the Planned Growth Environmental Assessment at Hurlburt Field, Florida.

We appreciate the opportunity to work with USACE-Omaha District and the US Air Force on this project. If you have any questions or need further information, please call me at (850) 243-0072.

Sincerely,
Brown, Burdine & Associates, LLC



Richard L. Burdine, PG
Vice President

Distribution List

<u>Recipient</u>	<u>Hard Copies</u>	<u>CD</u>
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Brown, Burdine & Associates 90 NW Beal Parkway, Suite A2 Fort Walton Beach, FL 32548	1	1



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
1616 CAPITOL AVENUE
OMAHA NE 68102-4901

July 27, 2009

Planning, Programs, and Project Management Branch

Ms. Melissa A. Hoover, M.S.
Brown, Burdine and Associates, LLC
90 NW Beal Parkway, Suite A2
Fort Walton Beach, Florida 32548

Dear Ms. Hoover:

The U.S. Army Corps of Engineers, Omaha District (Corps) has reviewed the Environmental Assessment entitled: DRAFT Environmental Assessment for Planned Growth Hurlburt Field, Florida, May 2009. Please note that the review did not entail a complete review from a technical writing standpoint but was reviewed more for substance and glaring omissions. Overall, the Environmental Assessment was well written and included a fairly complete assessment of the human environment. The Corps offers the following comments for your information:

Because the proposed action would take place in Florida, initial concerns dealt primarily with effects to wetlands. The proposed project would in fact impact 9.5 acres of wetlands, 0.5 of which have previously been mitigated under a 10-year Memorandum of Agreement with USACE and the Florida Department of Environmental Protection. The remaining nine acres impacted are proposed to be mitigated with participation in a mitigation partnership with Eglin Air Force Base. The proposal includes restoration of three to four ponds containing the endangered Flatwoods salamander. This is the only listed species found within Hurlburt Field Air Force Base, and although no impacts to this species would occur from the proposed project, the Corps Planning Section is happy to see that mitigation for impacted wetlands would further protect this endangered species.

However, no Mitigation Plan has yet been developed for the impacted wetlands, but the ponds under consideration are in the same drainage basin as the impacted wetlands, so this offset seems sufficient. It is understood that Functional Assessments are currently being undertaken for these wetland areas, and the Corps requests review of the final evaluation to determine functional gains to offset the loss.

The Corps has full confidence that the Air Force would offset any impacts to wetlands; however, we would feel much better if a mitigation plan was further developed. Please note that Agency comments were not contained in Appendix B as stated in the EA; however, we understand that the 30-day comment period is not yet over. Please ensure that these comments are included to show full coordination has occurred with interested parties.

If you have any questions, please contact Mr. Matthew D. Vandenberg of my staff at (402) 995-2694.

Sincerely,

A handwritten signature in cursive script that reads "Matthew D. Vandenberg".

for

Brad Thompson, Chief
Environmental Resources and Missouri River
Recovery Program Plan Formulation
Planning Branch

PUBLIC NOTIFICATION AND REVIEW

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NORTHWEST FLORIDA

Daily News

Published Daily

Fort Walton Beach, Florida

Distributed in Okaloosa, Santa Rosa & Walton Counties

State of Florida

County of Okaloosa

Before the undersigned authorized personally appeared _____

Maureen Wiltze, who on oath says that (s)he

is Classified Advisor of the Northwest Florida Daily News, a daily

newspaper published at Fort Walton Beach, in Okaloosa County, Florida;

that the attached copy of advertisement, being a classified ad

in the matter of Notice of Availability

Court, was published in said newspaper in the issues of May 8, 2009
in the Hurlburt Warrior

Affiant further says that the said Northwest Florida Daily News is a newspaper published at Fort Walton Beach, in said Okaloosa County, Florida, and that the said newspaper has heretofore been continuously published in said Okaloosa County, Florida, each day, and has been entered as second class mail matter at the post office in Fort Walton Beach, in said Okaloosa County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that (s)he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

STATE OF FLORIDA
COUNTY OF OKALOOSA

Subscribed and sworn to (or affirmed) before me this 8 May 2009
(Date)

by Maureen Wiltze, who is/are personally known to me or

has/have produced Personally Known as identification.
(Type of identification)

Eleanor Hypes Notary Public, Commission No. _____
(Signature)

ELEANOR HYPES (Name of Notary typed, printed or stamped)
Notary Public - State of Florida
My Commission Expires Jul 30, 2011
Commission # DD 699122
Bonded Through National Notary Assn.

PUBLIC NOTICES/ANNOUNCEMENTS

1120

NOTICE OF AVAILABILITY

In compliance with the National Environmental Policy Act (NEPA), Air Force Special Operations Command at Hurlburt Field has completed the Draft Environmental Assessment (EA), Draft Finding of No Significant Impact (FONSI), and Draft Finding of No Practicable Alternative (FONPA) for proposed Planned Growth at Hurlburt Field, Florida. The Proposed Action is to implement the base-wide planned growth at Hurlburt Field, which includes personnel increases, aircraft increases and changes, along with facility renovation and construction.

Agencies and the public are invited to provide written comments on issues or concerns they may have with the proposed action.

Copies of the Draft EA, Draft FONSI, and Draft FONPA with instructions on how to submit comments are available for public review at the following public libraries:

Mary Esther Public Library, located at 100 W. Hollywood, Mary Esther, FL

Fort Walton Beach Public Library, located at 185 Miracle Strip Parkway, SE, Fort Walton Beach, FL

Niceville Public Library, located at 206 N. Partin Drive, Niceville, FL

Copies will be available for review for a period of 30 days from May 8 to June 8, 2009. Comments must be received by June 10, 2009.



1100-1170
ANNOUNCEMENTS

- 1100 - Legal Advertising
- 1110 - Classified Notices
- 1120 - Public Notices/Announcements
- 1125 - Carpools & Rideshare
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- 1140 - Happy Ads
- 1150 - Personals
- 1160 - Lost
- 1170 - Found

PUBLIC NOTICES/ANNOUNCEMENTS
1120

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- 3220 - Furniture
- 3230 - Garage/Yard Sales
- 3240 - Guns
- 3250 - Good Things to Eat
- 3260 - Health & Fitness
- 3270 - Jewelry/Clothing
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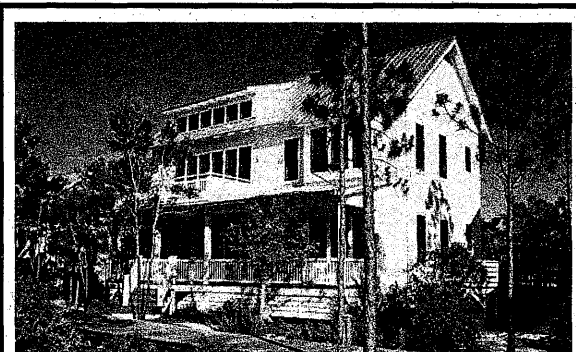
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FLU

From page 1

haven't required hospitalization. In fact, Napolitano said, many of the patients already have recovered. It's still possible; however, that the World Health Organization will raise its pandemic alert to Level 6.

"This would not be a surprise, nor would it affect our preparation efforts," since we have been preparing since the first appearance of H1N1 flu as if this will be a Level 6 (outbreak)," she said.

A rise in the pandemic alert level from the WHO does not mean the virus has become any more severe, Napolitano explained. Rather, it means it has spread to a number of

countries.

"In other words, the number is about geography, not severity," she said.

Napolitano urged individuals, families, the private sector and governments to realize their responsibilities and take steps to mitigate its spread. Updated information and guidance can be found on the CDC Web site.

People should be vigilant about hand washing and covering their mouths when they cough, not with their hand, but with their sleeves, she said, and families need to think ahead. For instance, she asked, what would parents do if their child was released from school had to remain at home?

Businesses need to plan for

a large degree of absenteeism, Napolitano said, and all levels of government need to dust off their plans for dealing with a large-scale event.

"I think it's important to note that the federal government, state governments and local governments have been planning for a number of years in case we faced a situation like the current one," she said. "Those plans are serving us well now, because we're actually seeing how well they work and also (are revealing) areas where we need to improve."

Regardless of the direction the outbreak seems to be moving in, Napolitano said, the government will continue to closely monitor the virus for the coming days and weeks.



Republic of Korea/U.S. Combined Forces Command

Haddad to Korea

An assumption of command ceremony for Brig. Gen. Richard S. Haddad, of Valparaiso, incoming commander of the Special Operations Command Korea, was held April 17 at Knight Field, Yongsan Garrison, Republic of Korea. From left: back, Haddad, Deputy USFK Commander Lt. Gen. Jeffrey Remington and Deputy Commander for Operations Col. Thomas D. Huizenga, the interim commander, inspecting troops during the ceremony. Haddad was formerly the Commander, 23rd Air Force and the Director of Operations, Air Force Special Operations Command, Hurlburt Field.

Hurlburt Patriot Classified

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NOTICE OF AVAILABILITY
 In compliance with the National Environmental Policy Act (NEPA), Air Force Special Operations Command at Hurlburt Field has completed the Draft Environmental Assessment (EA), Draft Finding of No Significant Impact (FONSI), and Draft Finding of No Practicable Alternative (FONPA) for proposed Planned Growth at Hurlburt Field, Florida. The Proposed Action is to implement the base-wide planned growth at Hurlburt Field, which includes personnel increases, aircraft increases, and changes, along with facility renovation and construction.

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- Free Flea Market ads are for the one-time sale of personal property. They cannot be used for home sales, rentals, childcare services, or commercial products and services. (See the Paid Classified Ad coupon at right for our low prices on such ads.)
- Free Flea Market ads may be no longer than 25 words and must include the item price.
- Free Flea Market ads must be e-mailed to free@eglinflyer.com or free@hurlburt-patriot.com (not both).
- Your full name, address, day phone and home phone must be in the e-mail. (Except for the phone number you specify in the ad. This identifying information won't be included in the published ad.)
- Free Flea Market ads run only once per submission. If you want to run the ad again, please e-mail it again. You may submit more than one ad per week.
- The publisher can't promise that any free Flea Market ad will run. The way to ensure your ad will run is to submit a paid ad. See the Paid Classified Ad form.
- The publisher reserves the right to edit or refuse any ad.

The Beacon Newspapers,
 1181 E. John Sims Pkwy.,
 Niceville, FL 32578
 (850) 678-1080
 Fax: (850) 723-3225
 free@eglinflyer.com
 free@hurlburt-patriot.com

AmericanRealtyRentals.com

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 1br/1ba, 634sf
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 American Realty of Northwest Florida, Inc. 1270 N. Eglin Pkwy, Ste. A-15, Shalimar

GET RESULTS! Call 678-1080 to Place Your Classified
 The Beacon Newspapers

PAID CLASSIFIED AD COUPON

Please write ad on form. Include phone number as part of ad. Minimum charge per paper is \$9.95* for up to 10 words. Each additional word 20c. Attach more paper if needed.

First Word		
\$9.95	\$10.15	\$10.35
\$10.55	\$10.75	\$10.95
\$11.15	\$11.35	\$11.55
\$11.75	\$11.95	\$12.15
\$12.35	\$12.55	\$12.75

*Base price includes \$5 weekly discount for walk-in or mail-in prepaid ads.

Check which paper(s) ad should appear in: Bay Beacon Eglin Flyer Hurlburt Patriot

(Price X (Number of Weeks Ad will Run) X (Number of papers): Total Cost:

Name: _____ Phone: _____
 Address: _____

Please make checks payable to Beacon Newspapers.

FLEA MARKET

Casio CTK-573 electronic keyboard with numerous features. Includes keyboard stand and stool. \$250.00. Call 217-7593

Like new. Barely used Exc. cond. home theater. Must see. Hitachi model 65F59A \$800.00 firm (850)244-2459 or (850)200-6937

Professional Home Gym: Power Cage, 0-90 bench, over 200lbs Olympic weight, bar bells and dumbbells. Perfect for Armen sharing a house. \$700 (850) 502-6882

Home Stereo: Sony Amp/Receiver, Sony 5 disc CD player, 2x15" Kenwood Speakers, 1x Misc 12" Speaker. \$100. cell # (850) 502-6882

Two CRT TVs (26"/15"), TiVo/DVD Player and a LaserJet Printer. Together or separate. Together=\$100 cell # (850) 502-6882

150ft fence only had less than 3 yrs no rust. Call Renee 613-6074 or e m a i reneephillips33@yahoo.com asking \$350.

Weider CrossBow like new. Lat bar/extra weight. Video, Paperwork, and guide. Get ready for Summer. \$200.00 682-1236

L-shaped sectional sofa/ 2 recliners & sofa bed, tweed colored cloth. \$750 obo. 376-4330

Dining table, 4 chairs, 1 bench, \$350; Worldwide multi-system VHS - \$70 obo. 376-4330

Self-assemble type bookcase \$40 & entertainment center (up to 27"tv) \$50, both dark color, both for 370, 376-4330

24 pictures & posters of ancient maps, \$20 obo. Folding table 30x70 ft, \$20 obo. 862-3445

57 wide by 34 long Hitachi TV, only 2 years old, \$798; 6' long, blue sofa, excellent condition \$125, 244-2459.

2008 Avalanche Z71 Off-Road Package loaded Onstar Leather Remote Start 5 Year/100,000 Miles train Warranty 38K miles \$29,900 850-585-0632.

Agencies and the public are invited to provide written comments on issues or concerns they may have with the proposed action.

Copies of the Draft EA, Draft FONSI, and Draft FONPA with instructions on how to submit comments are available for public review at the following public libraries:

Mary Esther Public Library, located at 100 W. Hollywood, Mary Esther, FL.

Fort Walton Beach Public Library, located at 185 Miracle Strip Parkway, SE, Fort Walton Beach, FL.

Niceville Public Library, located at 206 N. Partin Drive, Niceville, FL.

Copies will be available for review for a period of 30 days from May 8 to June 8, 2009. Comments must be received by June 10, 2009.

NOTICE OF AVAILABILITY

In compliance with the National Environmental Policy Act (NEPA), Air Force Special Operations Command at Hurlburt Field has completed the Draft Environmental Assessment (EA), Draft Finding of No Significant Impact (FONSI), and Draft Finding of No Practicable Alternative (FONPA) for proposed Planned Growth at Hurlburt Field, Florida. The Proposed Action is to implement the base-wide planned growth at Hurlburt Field, which includes personnel increases, aircraft increases and changes, along with facility renovation and construction.

Agencies and the public are invited to provide written comments on issues or concerns they may have with the proposed action.

Copies of the Draft EA, Draft FONSI, and Draft FONPA with instructions on how to submit comments are available for public review at the following public libraries:

Mary Esther Public Library, located at 100 W. Hollywood, Mary Esther, FL.

Fort Walton Beach Public Library, located at 185 Miracle Strip Parkway, SE, Fort Walton Beach, FL.

Niceville Public Library, located at 206 N. Partin Drive, Niceville, FL.

Copies will be available for review for a period of 30 days from May 8 to June 8, 2009. Comments must be received by June 10, 2009.

May 7, 2009

Draft
Planned Growth Environmental Assessment
Hurlburt Field, Florida

Written comments regarding the Draft Planned Growth
Environmental Assessment, Draft Finding of No Significant
Impact, and Draft Finding of No Practicable Alternative can
be submitted to:

1SOCES/CEAN
415 Independence Rd.
Hurlburt Field, FL 32544

Comments must be received no later than June 10, 2009.

No Public Comments were received.

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APPENDIX C
AIR FORCE FORM 813s

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REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS			Report Control Symbol RCS: 08-036					
INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).								
SECTION I – PROPONENT INFORMATION								
1. TO (Environmental Planning Function)		2. FROM (Proponent Organization and functional address symbol)			2a. TELEPHONE NO.			
1 SOCES/CEV		CIV DENVEL MILAM 1 SOCES			850-884-3799			
3. TITLE OF PROPOSED ACTION								
Base Logistics Facility								
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)								
(see attached)								
5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action)								
(see attached)								
6. PROPONENT APPROVAL (Name and Grade)		6a. SIGNATURE			6b. DATE			
CIV DENVEL MILAM		\\ ELECTRONICALLY SIGNED \\			6/10/2008			
SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)					+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)								X
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)								X
9. WATER RESOURCES (Quality, quantity, source, etc.)								X
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)								X
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)								X
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)								X
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)								X
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)								X
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)								X
16. OTHER (Potential impacts not addressed above.)								X
SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION								
17.		PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #_____; OR						
	X	PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.						
18. REMARKS								
(see attached)								
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)				19 a. SIGNATURE			19 b. DATE	
Traci Tucker Dewar YF-02				\\ ELECTRONICALLY SIGNED \\			7/28/2008	
AF FORM 813, 19990901 (EF-V1)			THIS FORM CONSOLIDATES AF FORMS 813 AND 814.			PAGE OF PAGE(S)		

4.0 PURPOSE AND NEED FOR ACTION

Required to provide an adequate facility for storage of material, equipment, and mobility bags to support the 1 SOW & local associated organizations growth.

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

Construct 14,405 SM building with concrete foundation and floor slab, steel frame, masonry walls and curved metal roof.

5.2 Description of Alternatives

Status quo.

17.0 CATEX DESCRIPTION (if any)

18.0 REMARKS

An Environmental Assessment is required. This project is included in the Planned Growth Environmental Assessment currently underway, with projected completion date of Mar 2009. The following must be addressed for compliance: 1.) Modification of the air operation permit may be required depending upon size of boiler. POC Jackie Lynd 1 SOCES/CEV 850-884-7924. 2.) Ensure operations are IAW applicable Occupational & Environmental Safety, Fire Protection, & Health regulations and standards. POC TSgt Michael Miranda 1 SOAMDS/SGPB 881-1822. 3.) Materials used in the construction phase of this project may generate hazardous waste. Please reiterate hazardous waste training requirement as specified in Environmental Spec 01560. POC Randy Trent 1 SOCES/CEV 850-884-7923. 4.) Coordinate with Amy Tharp 1 SOCES/CEV 884-7914 for stormwater 62-621 & 62-346 permit requirements. 5.) Rare species survey must be performed prior to any site work. POC Philip Pruitt 1 SOCES/CEV 884-7921. 6.) Will require wetland permits from FDEP and USACE with wetland mitigation. Permits must be obtained prior to construction. POC Philip Pruitt 1 SOCES/CEV 884-7921.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS: 07-018

INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).

SECTION I – PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent Organization and functional address symbol)	2a. TELEPHONE NO.
16 CES/CEV	GLENN LATTANZE 16 CES 415 INDEPENDENCE ROAD	884-6439
3. TITLE OF PROPOSED ACTION		
10th Combat Weather Squadron Resiting		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)		
(see attached)		
5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action)		
(see attached)		
6. PROPONENT APPROVAL (Name and Grade)	6a. SIGNATURE	6b. DATE

SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)

	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		X		
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)		X		
9. WATER RESOURCES (Quality, quantity, source, etc.)		X		
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)		X		
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)		X		
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)		X		
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)		X		
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		X		
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)		X		
16. OTHER (Potential impacts not addressed above.)		X		

SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION

17.	X	PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #__A2.3.11 (see attached for description)_____; OR
		PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.
18. REMARKS		
(see attached)		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)	19 a. SIGNATURE	19 b. DATE
Ms Traci Dewar Chief, Environmental Flight		

4.0 PURPOSE AND NEED FOR ACTION

Siting Approval and Environmental impact (certificate of compliance)

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

The 10th Combat Weather Squadron complex must be resited to the site north of the existing AST complex to make full and efficient use of existing Hurlburt land while freeing up land in the Permanent Exercise Area for larger projects more compatible with future land use.

5.2 Description of Alternatives

Leave siting status quo, but there would be several disadvantages to this alternative action, including misappropriation of land use in the Permanent Exercise Area, OPSEC concerns and increased congestion and traffic on Independence Road.

17.0 CATEX DESCRIPTION (if any)

A2.3.11. Actions similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an EIS or an EA resulting in a FONSI. The EPF must document

18.0 REMARKS

CATEX 11, based upon projects in sub-basin 11 (including FTEV973019 Airmen Leadership School) of General Plan Environmental Assessment with FONSI/FONPA signed March 2006 provided the following: 1) Coordinate with HQ AFSOC/A7CV John Steele, 850-884-6117 or Michael Segars, 850-884-2609 to ensure the requirements for construction on or near a restoration cleanup site are met. 2) Impacts to wetlands must be prevented. Construction will require a buffer large enough to accommodate fill for the site and silt screen and hay bale barriers. POC is 1 SOCES/CEV Philip Pruitt 850-884-4651. 3) Stormwater NPDES and treatment facility permits must be obtained. POC is 1 SOCES/CEV Amy Gilmore 850-884-4651. 4) Water and sewer permits may be required. POC is 1 SOCES/CEV Jackie Lynd 850-884-4651.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol RCS: 08-026	
INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).			
SECTION I – PROPONENT INFORMATION			
1. TO (Environmental Planning Function)		2. FROM (Proponent Organization and functional address symbol)	
1 SOCES/CEV		CIV DENVEL MILAM 1 SOCES	
2a. TELEPHONE NO.			
850-884-3799			
3. TITLE OF PROPOSED ACTION			
SOF Sq Ops Annex 4 SOS			
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)			
(see attached)			
5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action)			
(see attached)			
6. PROPONENT APPROVAL (Name and Grade)		6a. SIGNATURE	
CIV DENVEL MILAM		\\ ELECTRONICALLY SIGNED \\	
6b. DATE			
6/4/2008			
SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)			
			+ 0 - U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)			X
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)			X
9. WATER RESOURCES (Quality, quantity, source, etc.)			X
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)			X
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)			X
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)			X
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)			X
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)			X
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)			X
16. OTHER (Potential impacts not addressed above.)			X
SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION			
17.		X PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #_11 (see attached for description)_____; OR	
		PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.	
18. REMARKS			
(see attached)			
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)		19 a. SIGNATURE	
Traci Tucker Dewar YF-02		\\ ELECTRONICALLY SIGNED \\	
		19 b. DATE	
		7/21/2008	
AF FORM 813, 19990901 (EF-V1)		THIS FORM CONSOLIDATES AF FORMS 813 AND 814.	
		PAGE OF PAGE(S)	

4.0 PURPOSE AND NEED FOR ACTION

This project is required to provide adequate space for life support and supply functions for the 4th Special Ops Sq.

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

Construct a 485 SM facility to include utilities, site improvement and all necessary support. Function areas include life support, supply and resources sections.

5.2 Description of Alternatives

Status quo

17.0 CATEX DESCRIPTION (if any)

A2.3.11. Actions similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an EIS or an EA resulting in a FONSI. The EPF must document application of this CATEX on AF Form 813, specifically identifying the previous Air Force approved environmental document which provides the basis for this determination.

18.0 REMARKS

CATEX 11, similar to projects in sub-basin 11 of General Plan Environmental Assessment with FONSI/FONPA signed March 2006, with the following conditions: 1.) Materials used in the construction phase of this project may generate hazardous waste. Please reiterate hazardous waste training requirement as specified in Environmental Spec 01560. POC Randy Trent 1 SOCES/CEV 850-884-7923. 2.) Building must meet force protection standards, including setback distance from parking and other buildings. POC Glenn Lattanze 1 SOCES/CECP 884-6439. 3.) Coordinate with Amy Tharp 1 SOCES/CEV 884-7914 for stormwater 62-621 & 62-346 permit requirements. 4.) Water and sewer construction permits may be required, depending upon final design of facility. POC Jackie Lynd 1 SOCES/CEV 850-884-7924. 5.) Ensure operations are IAW applicable Occupational & Environmental Safety, Fire Protection, & Health regulations and standards. POC TSgt Michael Miranda 1 SOAMDS/SGPB 881-1822.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS: 08-001

INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).

SECTION I – PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent Organization and functional address symbol)	2a. TELEPHONE NO.
16 CES/CEV	Otto Spangler 1 SOCES 415 Independence Ave.	884-5335

3. TITLE OF PROPOSED ACTION
ADAL 6th SOS Squad Ops

4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)

(see attached)

5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action)

(see attached)

6. PROPONENT APPROVAL (Name and Grade)	6a. SIGNATURE	6b. DATE

SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)

	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		X		
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)		X		
9. WATER RESOURCES (Quality, quantity, source, etc.)		X		
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)		X		
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)		X		
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)		X		
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)		X		
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		X		
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)		X		
16. OTHER (Potential impacts not addressed above.)		X		

SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION

17.	X	PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #__A2.3.11 (see attached for description)_____; OR
		PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

(see attached)

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)	19 a. SIGNATURE	19 b. DATE
Ms Traci Dewar Chief, Environmental Flight		

4.0 PURPOSE AND NEED FOR ACTION

To provide an adequate facility to plan, brief and critique combat crews and to direct flight operations.

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

Construct an addition to the 6th SOS Squad Ops

5.2 Description of Alternatives

Lack of adequate squadron operations facility will adversely impact the 6th SOS operations and mission.

17.0 CATEX DESCRIPTION (if any)

A2.3.11. Actions similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an EIS or an EA resulting in a FONSI. The EPF must document application of this CATEX on AF Form 813, specifically identifying the previous Air Force approved environmental document which provides the basis for this determination.

18.0 REMARKS

CATEX 11 based upon sub-basin 11, project 11-08 of General Plan Environmental Assessment with FONSI/FONPA signed March 2006 with the following conditions: 1) Report discovery of any suspicious odors, odd soil color, unfamiliar liquids, buried materials to HQ AFSOC/A7AV. POC Michael Segars 850-884-2609. 2) Properly manage all hazardous waste, paints, adhesives, batteries, mercury containing lamps, fuels, oils, aerosols. Reiterate hazardous waste training requirement in Specification 01560. POC Randy Trent 1 SOCES/CEV 850-884-7923. 3) Must comply with Stormwater Construction NPDES permitting requirements. Must provide for treatment of Stormwater generated from impervious surfaces and comply with F.A.C. 62-346 permitting requirements. POC Amy Gilmore 1 SOCES/CEV 850-884-7914. 4) Water and wastewater permits may be required. Permits will be required if any existing mains are relocated. POC Jackie Lynd 1 SOCES/CEV 850-884-4651. 5) Ensure operations are IAW: AFI 91-301 AF Occupational & Environmental Safety, Fire Protection, & Health (AFOSH), AFI 48-145 Occupational Health, AFOSH STD 91-501 AF Consolidated Occupational Safety, AFOSH STD 48-20 Occupational Noise & Hearing Conservation, AFI 40-201 Managing Radioactive Materials, AFI 48-9 Radio Frequency Radiation (RFR), AFOSH STD 48-139 Laser Radiation Protection, AFI 32-7086 Hazardous Materials Mgt., AFOSH 91-25 Confined Spaces, AFOSH STD 48-137 Respiratory Protection, HFI 48-106 Heat Stress Prevention. POC TSgt Michael Miranda 1 SOAMDS/SGPB 881-1822.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS: 08-015

INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).

SECTION I – PROPONENT INFORMATION

1. TO (Environmental Planning Function) 16 CES/CEV	2. FROM (Proponent Organization and functional address symbol) Gerald Brocato 1SOCES 415 Independence Road	2a. TELEPHONE NO. 850-884-6024
---	---	---------------------------------------

3. TITLE OF PROPOSED ACTION

FTEV 07-1132 Comstruct Area Defense Counsel

4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)

(see attached)

5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action)

(see attached)

6. PROPONENT APPROVAL (Name and Grade)	6a. SIGNATURE	6b. DATE

SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)

	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		X		
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)		X		
9. WATER RESOURCES (Quality, quantity, source, etc.)		X		
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)		X		
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)		X		
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)		X		
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)		X		
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		X		
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)		X		
16. OTHER (Potential impacts not addressed above.)		X		

SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION

17.	X	PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #__A2.3.11 (see attached for description)_____; OR
		PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

(see attached)

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) Ms Traci Dewar Chief, Environmental Flight	19 a. SIGNATURE	19 b. DATE

4.0 PURPOSE AND NEED FOR ACTION

The existing ADC will be demolished wehn O'Neill and Terry are realigned.

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

A new facility must be constructed to replace the existing building.

5.2 Description of Alternatives

There is no suitable facilities on base to house the ADC. This location was chosen by the base Community Planner since it is centally located and off the beaten path. Thsi is a requirement due to the sensitive nature of their function.

17.0 CATEX DESCRIPTION (if any)

A2.3.11. Actions similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an EIS or an EA resulting in a FONSI. The EPF must document application of this CATEX on AF Form 813, specifically identifying the previous Air Force approved environmental document which provides the basis for this determination.

18.0 REMARKS

CATEX 11 based upon sub-basin 7 of General Plan Environmental Assessment with FONSI/FONPA signed March 2006, with the following conditions: 1.) Site this building to minimize the removal of the mature trees in this area. Add visual screening landscape if budget allows. POC Philip Pruitt 1 SOCES/CEV 884-7921. 2.) The hazardous waste training requirement in Specification 01560 must be met. POC Randy Trent 1 SOCES/CEV 884-7923. 3.) Must provide new impervious surface calculations to 1 SOCES/CEV, so that stormwater treatment by the SouthEast regional stormwater treatment pond can be documented. Work must be done in a manner that protects stormwater and prevents erosion. Best management practices, such as silt fences, hay bales, etc. should be utilized where areas of disturbed soil might result in erosion of sediments and turbidity violations in stormwater during rainfall events. POC is 1 SOCES/CEV Amy Tharp 884-7914. 4.) Potential potable water and wastewater collection/transmission system permits required prior to construction, depending upon final utility design. POC Jackie Lynd 1 SOCES/CEV 884-4651. 5.) Ensure operations are IAW: AFI 91-301 AF Occupational & Environmental Safety, Fire Protection, & Health (AFOSH), AFI 48-145 Occupational Health, AFOSH STD 91-501 AF Consolidated Occupational Safety, AFOSH STD 48-20 Occupational Noise & Hearing Conservation, AFI 40-201 Managing Radioactive Materials, AFI 48-9 Radio Frequency Radiation (RFR), AFOSH STD 48-139 Laser Radiation Protection, AFI 32-7086 Hazardous Materials Mgt., AFOSH 91-25 Confined Spaces, AFOSH STD 48-137 Respiratory Protection, HFI 48-106 Heat Stress Prevention. POC TSgt Michael Miranda 1 SOAMDS/SGPB 881-1822.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol RCS: 08-043	
INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).			
SECTION I – PROPONENT INFORMATION			
1. TO (Environmental Planning Function)		2. FROM (Proponent Organization and functional address symbol)	
1 SOCES/CEV		YE-O3 GARY ROSS 1 SOCES	
2a. TELEPHONE NO. 884-7524			
3. TITLE OF PROPOSED ACTION CONSTRUCT TRAFFIC CIRCLE			
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date) (see attached)			
5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action) (see attached)			
6. PROPONENT APPROVAL (Name and Grade)		6a. SIGNATURE	
YE-O3 GARY ROSS		\\ ELECTRONICALLY SIGNED \\	
6b. DATE 8/19/2008			
SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)			
			+ 0 - U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)			X
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)			X
9. WATER RESOURCES (Quality, quantity, source, etc.)			X
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)			X
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)			X
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)			X
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)			X
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)			X
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)			X
16. OTHER (Potential impacts not addressed above.)			X
SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION			
17.		X PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #_11 (see attached for description)_____; OR	
		PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.	
18. REMARKS (see attached)			
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)		19 a. SIGNATURE	
Traci Tucker Dewar YF-02		\\ ELECTRONICALLY SIGNED \\	
19 b. DATE 8/27/2008			
AF FORM 813, 19990901 (EF-V1)		THIS FORM CONSOLIDATES AF FORMS 813 AND 814.	
PAGE OF PAGE(S)			

4.0 PURPOSE AND NEED FOR ACTION

EXISTING INTERSECTION INADEQUATE TO HANDLE CURRENT TRAFFIC DEMANDS

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

TO FACILITATE SMOOTHER TRAFFIC FLOW BETWEEN EAST AND WEST SIDES OF BASE. WORK TO INCLUDE PARTIAL DEMO OF EXISTING INTERSECTION TO ALLOW CONSTRUCTION OF OF TRAFFIC CIRCLE.

5.2 Description of Alternatives

DO NOTHING

17.0 CATEX DESCRIPTION (if any)

A2.3.11. Actions similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an EIS or an EA resulting in a FONSI. The EPF must document application of this CATEX on AF Form 813, specifically identifying the previous Air Force approved environmental document which provides the basis for this determination.

18.0 REMARKS

CATEX 11 based upon the General Plan Environmental Assessment FONSI/FONPA signed March 2006 with the following conditions: 1.) Ensure operations are IAW applicable Occupational & Environmental Safety, Fire Protection, & Health regulations and standards. POC TSgt Michael Miranda 1 SOAMDS/SGPB 881-1822. 2.) Tree Replacement is required. Incorporate replacement trees into a landscape design for the completed area. POC Philip Pruitt 1 SOCES/CEV 884-7921. 3.) Use of heavy equipment increases the potential for petroleum and antifreeze spills. Heavy equipment operators and their supervisors should know that IAW Environmental Spec 01560 all chemical and petroleum spills must be immediately reported to the base fire dept (911) regardless of quantity released. Drip pans must be placed under parked vehicles and equipment with visible oil/hydraulic leaks. Contractor vehicle and heavy equipment washing and maintenance (oil changing, lube, etc.) is prohibited on base. POC Randy Trent 1 SOCES/CEV 850-884-7923. 4.) Although the traffic circle is not in the graded area of the clear zone, it will be good safety practice to ensure that all construction equipment is parked entirely outside the clear zone. All above-ground signs/equipment must be constructed to be frangible. Because this horizontal construction doesn't meet FAA requirements for a construction waiver, and because it's not in the graded area of the clear zone, a construction waiver isn't necessary. POC Glenn Lattanze 1 SOCES/CECP 884-6439. 5.) Stormwater 62-621 & 62-346 permits are required. POC Amy Tharp 1 SOCES/CEV 884-7914.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS			Report Control Symbol RCS: 08-241					
INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).								
SECTION I – PROPONENT INFORMATION								
1. TO (Environmental Planning Function)		2. FROM (Proponent Organization and functional address symbol)			2a. TELEPHONE NO.			
1 SOCES/CEV		CIV DENVEL MILAM 1 SOCES			850-884-3799			
3. TITLE OF PROPOSED ACTION								
SOF FUEL CELL MX HANGAR								
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)								
(see attached)								
5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action)								
(see attached)								
6. PROPONENT APPROVAL (Name and Grade)		6a. SIGNATURE			6b. DATE			
CIV DENVEL MILAM		\\ ELECTRONICALLY SIGNED \\			11/5/2008			
SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)					+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)								X
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)								X
9. WATER RESOURCES (Quality, quantity, source, etc.)								X
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)								X
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)								X
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)								X
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)								X
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)								X
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)								X
16. OTHER (Potential impacts not addressed above.)								X
SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION								
17.		PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #_____; OR						
	X	PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.						
18. REMARKS								
(see attached)								
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)				19 a. SIGNATURE			19 b. DATE	
Traci Tucker Dewar YF-02				\\ ELECTRONICALLY SIGNED \\			12/8/2008	
AF FORM 813, 19990901 (EF-V1)			THIS FORM CONSOLIDATES AF FORMS 813 AND 814.			PAGE OF PAGE(S)		

4.0 PURPOSE AND NEED FOR ACTION

An adequate facility, properly sized and configured to conduct CV-22 and C-130 fuel cell maintenance. The fuel cell hangar will consist of a fuel cell repair area, shop space and building support.

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

Construct 2,927 SM Fuel Cell Maintenance Hangar north of building 91262. Reinforced concrete foundation and floor slab, structural steel frame, insulated metal walls and roof, fire protection, ramp and taxiway improvement, utilities, site improvements.

5.2 Description of Alternatives

No other option could meet the mission requirement.

17.0 CATEX DESCRIPTION (if any)

18.0 REMARKS

An Environmental Assessment is required for this project. It is included in the Planned Growth EA currently in draft review.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS			<i>Report Control Symbol RCS: 08-028</i>					
INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).								
SECTION I – PROPONENT INFORMATION								
1. TO (<i>Environmental Planning Function</i>)		2. FROM (<i>Proponent Organization and functional address symbol</i>)			2a. TELEPHONE NO.			
1 SOCES/CEV		CIV DENVEL MILAM 1 SOCES			850-884-3799			
3. TITLE OF PROPOSED ACTION								
SOF Mobility Ramp								
4. PURPOSE AND NEED FOR ACTION (<i>Identify decision to be made and need date</i>)								
(see attached)								
5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (<i>Provide sufficient details for evaluation of the total action</i>)								
(see attached)								
6. PROPONENT APPROVAL (Name and Grade)			6a. SIGNATURE		6b. DATE			
CIV DENVEL MILAM			\\ ELECTRONICALLY SIGNED \\		6/5/2008			
SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (<i>Check appropriate box and describe potential environmental effects including cumulative effects</i>) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)					+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (<i>Noise, accident potential, encroachment, etc.</i>)								X
8. AIR QUALITY (<i>Emissions, attainment status, state implementation plan, etc.</i>)								X
9. WATER RESOURCES (<i>Quality, quantity, source, etc.</i>)								X
10. SAFETY AND OCCUPATIONAL HEALTH (<i>Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.</i>)								X
11. HAZARDOUS MATERIALS/WASTE (<i>Use/storage/generation, solid waste, etc.</i>)								X
12. BIOLOGICAL RESOURCES (<i>Wetlands/floodplains, threatened or endangered species, etc.</i>)								X
13. CULTURAL RESOURCES (<i>Native American burial sites, archaeological, historical, etc.</i>)								X
14. GEOLOGY AND SOILS (<i>Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.</i>)								X
15. SOCIOECONOMIC (<i>Employment/population projections, school and local fiscal impacts, etc.</i>)								X
16. OTHER (<i>Potential impacts not addressed above.</i>)								X
SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION								
17.		PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #_____; OR						
	X	PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.						
18. REMARKS								
(see attached)								
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)				19 a. SIGNATURE			19 b. DATE	
Traci Tucker Dewar YF-02				\\ ELECTRONICALLY SIGNED \\			7/21/2008	
AF FORM 813, 19990901 (EF-V1)			THIS FORM CONSOLIDATES AF FORMS 813 AND 814.			PAGE OF PAGE(S)		

4.0 PURPOSE AND NEED FOR ACTION

Required to provide apron pavement associated supporting facilities for aircraft parking, servicing and mobility loading to support the 319 SOS.

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

Clear, excavate, place base material and 12" concrete pavement. Includes asphalt shoulders, base for concrete HDD Zone A, stormwater retention, storm water drainage and dewatering.

5.2 Description of Alternatives

Status quo.

17.0 CATEX DESCRIPTION (if any)

18.0 REMARKS

An Environmental Assessment is required. This project is included in the Planned Growth Environmental Assessment currently underway, with projected completion date of Mar 2009. The following must be addressed for compliance: 1.) Dewatering will need to utilize a generic permit for discharge of produced groundwater. This permit requires testing of the produced groundwater and an application must be submitted/approved prior to discharge. POC Jackie Lynd 1 SOCES/CEV 850-884-7924. 2.) Ensure operations are IAW applicable Occupational & Environmental Safety, Fire Protection, & Health regulations and standards. POC TSgt Michael Miranda 1 SOAMDS/SGPB 881-1822. 3.) Site must be surveyed for rare species. May require consultation with US Fish and Wildlife Service. POC Philip Pruitt 1 SOCES/CEV 884-7921. 4.) Contact 1 SOW Flight Safety for approval. POC Bryan Bailey 884-5008. 5.) Coordinate with Amy Tharp 1 SOCES/CEV 884-7914 for stormwater 62-621 & 62-346 permit requirements. 6.) Project is sited in protected state and federal wetlands. Will require permitting from both regulatory agencies (FDEP & USACE) and extensive mitigation. Permits may not be attainable due to a lack of mitigation alternatives for the base. Other alternatives that do not impact wetlands must be fully explored and considered. POC Philip Pruitt 1 SOCES/CEV 884-7921.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS: 07-019

INSTRUCTIONS: Section I to be completed by Proponent. Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).

SECTION I – PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent Organization and functional address symbol)	2a. TELEPHONE NO.
16 CES/CEV	Otto Spangler 1 SOCES 415 Independence Ave.	884-5335

3. TITLE OF PROPOSED ACTION
Engine Maintenance and Storage Facility for 1 SOCMS behind Benson Tank facility, B. 90580

4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date)

(see attached)

5. DESCRIPTION OF ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action)

(see attached)

6. PROPONENT APPROVAL (Name and Grade)	6a. SIGNATURE	6b. DATE

SECTION II – PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+=positive effect; 0=no effect; -= adverse effect; U=unknown effect)

	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)	X			
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)		X		
9. WATER RESOURCES (Quality, quantity, source, etc.)		X		
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity distance, bird/wildlife aircraft hazard, etc.)	X			
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)		X		
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)		X		
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)		X		
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		X		
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)		X		
16. OTHER (Potential impacts not addressed above.)				X

SECTION III – ENVIRONMENTAL ANALYSIS DETERMINATION

17.	X	PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) #__A2.3.11 (see attached for description)_____; OR
		PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

(see attached)

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade)	19 a. SIGNATURE	19 b. DATE
Ms Traci Dewar Chief, Environmental Flight		

4.0 PURPOSE AND NEED FOR ACTION

Siting approval and environmental impact (certificate of compliance)

5.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

5.1 Description of the Proposed Action

The Engine Maintenance and Storage Facility needs to be re-sited to the area that is just north-west of Bldg. 90580. This will allow the current engine test stands to stay in place during construction and not have it's operations shut down. The new site for the engine tests stands could not be used because of a future apron expansion.

5.2 Description of Alternatives

Leaving the Engine Maintenance and Storage facility as planned with the engine test stands moved to the same site, will create hazardous noise working conditions for the workers in the Engine Maintenance and Storage facility. The workers need great separation from the test stands and the maintenance facility.

17.0 CATEX DESCRIPTION (if any)

A2.3.11. Actions similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an EIS or an EA resulting in a FONSI. The EPF must document

18.0 REMARKS

Similar to General Plan EA; signed in 2005.

APPENDIX D
FLORA AND FAUNA POTENTIALLY ON
HURLBURT FIELD

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Partial List of Floral Species Possible within Hurlburt Field

Scientific Name	Common Name
<i>Acer rubrum</i>	Red Maple ²
<i>Andropogon</i> sp.	Beardgrass ²
<i>Arisaema triphylla</i>	Jack-in-the-pulpit
<i>Aristida arbutifolia</i>	Three-awn grass
<i>Aristida palustris</i>	Three-awn grass
<i>Aristida simpliciflora</i>	Southern three-awn grass
<i>Aristida stricta</i>	Wiregrass ²
<i>Aronia arbutifolia</i>	Red chokeberry
<i>Asclepias connivens</i>	Large-flower milkweed ²
<i>Asclepias pedicellata</i>	Pedicellate milkweed ²
<i>Aster eryngiifolius</i>	Coyote-thistle aster
<i>Atriplex pentandra</i>	Saltbush
<i>Baccharis halimifolia</i>	Groundsel tree ²
<i>Balduina angustifolia</i>	Yellow buttons
<i>Baptisia lanceolata</i>	Pineland baptisia ²
<i>Berlandiera pumila</i>	Green eyes
<i>Bumelia lanuginosa</i>	Gum bumelia
<i>Cakile constricta</i>	Sea rocket
<i>Calamintha dentata</i>	Toothed savory ²
<i>Calamovilfa curtissii</i>	Curtiss' sandgrass ²
<i>Callicarpa americana</i>	French mulberry ²
<i>Calopogon tuberosus</i>	Tuberous grass-pink ²
<i>Carphephorus pseudoliatris</i>	Deer tongue ²
<i>Carya glabra</i>	Pignut hickory
<i>Carya tomentosa</i>	Mockernut hickory
<i>Ceanothus americanus</i>	New Jersey tea ²
<i>Celtis laevigata</i>	Sugarberry
<i>Centella asiatica</i>	Ovate-leaved marsh-pennywort ²
<i>Centrosema virginianum</i>	Butterfly pea
<i>Ceratiola ericoides</i>	Rosemary ²
<i>Chionanthus virginicus</i>	Fringe tree
<i>Chrysoma pauciflosculosa</i>	Woody goldenrod
<i>Chrysopsis godfreyi</i>	Godfrey's golden aster
<i>Chrysopsis gossypina</i> ssp. <i>cruiseana</i>	Cruise's golden aster
<i>Cladium jamaicense</i>	Saw grass
<i>Cladonia evansii</i>	Gray puff lichen
<i>Cladonia leporina</i>	Ground lichen
<i>Cladonia perforata</i>	Florida perforate cladonia
<i>Cleisthes divaricata</i>	Rosebud orchid ²
<i>Clethra alnifolia</i>	Coast pepperbush ²
<i>Cliftonia monophylla</i>	Black titi ²
<i>Cnidoscolus stimulosus</i>	Stinging nettle ²
<i>Conradina canescens</i>	Wild Rosemary ²
<i>Coreopsis nudata</i>	Swamp coreopsis ²
<i>Cornus florida</i>	Flowering dogwood
<i>Ctenium aromaticum</i>	Toothache grass ²

Scientific Name	Common Name
<i>Cuscuta</i> sp.	Love vine ²
<i>Cyperus lecontei</i>	Nut rush ²
<i>Cyperus</i> sp.	Flat-sedge ²
<i>Cyrilla racemiflora</i>	Cyrilla ²
<i>Dichanthelium aciculare</i>	Panic grass
<i>Dichromena latifolia</i>	White-top sedge ²
<i>Diospyros virginiana</i>	Persimmon ²
<i>Drosera capillaris</i>	Pink sundew ²
<i>Drosera intermedia</i>	Water sundew ²
<i>Drosera tracyi</i>	Dew-threads ²
<i>Epigaea repens</i>	Trailing arbutus
<i>Eriocaulon compressum</i>	Hat pins ²
<i>Eriogonum tomentosum</i>	Hairy buckwheat ²
<i>Eryngium yuccifolium</i>	Rattlesnake-master ²
<i>Erythrina herbacea</i>	Coral bean ²
<i>Eupatorium capillifolium</i>	Dog fennel ²
<i>Euphorbia cyathophora</i>	Painted Leaf ²
<i>Euphorbia</i> spp.	Spurge ²
<i>Fuirena breviseta</i>	Umbrella grass ²
<i>Galactia microphylla</i>	Milkpeas
<i>Galium</i> spp.	Bedstraw
<i>Gaylussacia mosierii</i>	Woolly-berry ²
<i>Gordonia lasianthus</i>	Loblolly bay ²
<i>Halesia</i> spp.	Silverbells
<i>Helenium amarum</i>	Bitterweed ²
<i>Helianthemum arenicola</i>	Gulf rockrose
<i>Helianthemum arenicola</i>	Rockrose
<i>Heterotheca subaxillaris</i>	Telegraph weed
<i>Hexastylis arifolia</i>	Heart leaf
<i>Hydrocotyle bonariensis</i>	Pennywort ²
<i>Hypericum gentianoides</i>	Pineweed ²
<i>Hypericum lissophloeus</i>	Smooth-barked St. John's wort
<i>Hypericum reductum</i>	Hypericum
<i>Hypericum</i> sp.	St. John's wort ²
<i>Ilex glabra</i>	Gallberry ²
<i>Ilex myrtifolia</i>	Myrtle holly ²
<i>Ilex opaca</i>	American holly
<i>Ilex vomitoria</i>	Yaupon ²
<i>Illicium floridanum</i>	Florida anise
<i>Imperata cylindrica</i>	Cogon grass ²
<i>Ipomoea stolonifera</i>	Beach morning glory ²
<i>Iris</i> sp.	Iris
<i>Itea virginica</i>	Virginia willow ²
<i>Iva imbricata</i>	Beach elder ²
<i>Juncus abortivus</i>	Rush
<i>Juncus roemerianus</i>	Black needle rush ²
<i>Juniperus silicicola</i>	Southern red cedar ²

Scientific Name	Common Name
<i>Kalmia hirsuta</i>	Hairy laurel ²
<i>Kalmia latifolia</i>	Mountain laurel
<i>Lachnanthes caroliniana</i>	Redroot ²
<i>Lachnocaulon anceps</i>	Whitehead bog buttons ²
<i>Lachnocaulon digynum</i>	Bog-buttons
<i>Lachnocaulon engleri</i>	Engler's by buttons ²
<i>Lemna</i> sp.	Duckweed
<i>Leucothoe axillaris</i>	Fetterbush ²
<i>Liatris graminifolia</i>	Grass-leaved blazing-star ²
<i>Lilium catesbaei</i>	Pine lily
<i>Lilium iridollae</i>	Panhandle lily
<i>Lindera subcoriacea</i>	Bog spicebush
<i>Linum westii</i>	West's flax
<i>Liquidambar styraciflua</i>	Sweet-gum
<i>Liriodendron tulipifera</i>	Tulip tree
<i>Litsea aestivalis</i>	Pondspice
<i>Lupinus westianus</i>	Gulf coast lupine
<i>Lycopodium appressum</i>	Southern club-moss ²
<i>Lycopodium</i> sp.	Club moss ²
<i>Lyonia ferruginea</i>	Rusty lyonia ²
<i>Lyonia lucida</i>	Fetterbush ²
<i>Magnolia ashei</i>	Ashe's magnolia
<i>Magnolia grandiflora</i>	Southern magnolia ²
<i>Magnolia pyramidata</i>	Pyramid magnolia
<i>Magnolia virginiana</i>	Sweet bay ²
<i>Marshallia tenuifolia</i>	Slim-leaf Barbara's-button ²
<i>Melia azedarach</i>	Chinaberry ²
<i>Mitreola sessilifolia</i>	Swamp hornpod ²
<i>Morus rubra</i>	Red mulber7
<i>Myrica cerifera</i>	Wax myrtle
<i>Nuphar luteum</i> spp. <i>ulvaceum</i>	West Florida cowlily
<i>Nymphaea odorata</i>	White water-lily ²
<i>Nyssa sylvatica</i>	Black gum ²
<i>Oenothera humifusa</i>	Evening primrose
<i>Opuntia humifusa</i>	Prickly pear cactus ²
<i>Osmanthus americanus</i>	Wild olive
<i>Osmunda regalis</i>	Royal fern ²
<i>Oxydendrum arboreum</i>	Sourwood
<i>Panicum amarum</i>	Dune panic grass
<i>Panicum nudicaule</i>	Naked-stemmed panic grass
<i>Panicum repens</i>	Torpedo grass
<i>Panicum tenerum</i>	Bluejoint panic grass
<i>Paronychia erecta</i>	Sand squares
<i>Parthenocissus quinquefolia</i>	Virginia creeper ²
<i>Peltandra sagittifolia</i>	Spoon-flower
<i>Persea borbonia</i>	Red bay ²
<i>Phyla nodiflora</i>	Capeweed ²

Scientific Name	Common Name
<i>Physalis angustifolia</i>	Groundcherry
<i>Pinguicula ionantha</i>	Violet-flowered butterwort
<i>Pinguicula lutea</i>	Yellow butterwort ²
<i>Pinguicula planifolia</i>	Chapman's butterwort ²
<i>Pinus clausa</i>	Sand pine ²
<i>Pinus elliottii</i>	Slash pine ²
<i>Pinus glabra</i>	Spruce pine
<i>Pinus palustris</i>	Longleaf pine ²
<i>Pinus taeda</i>	Loblolly pine ²
<i>Platanthera blephariglottis</i>	White fringed orchid
<i>Platanthera integra</i>	Yellow fringeless orchid
<i>Pluchea rosea</i>	Rosy camphor-weed ²
<i>Pogonia ophioglossoides</i>	Rose pogonia ²
<i>Polygala brevifolia</i>	Little-leaf milkwort ²
<i>Polygala cymosa</i>	Tall milkwort ²
<i>Polygala lutea</i>	Bog bachelor's button ²
<i>Polygonella gracilis</i>	Slender jointweed
<i>Polygonella macrophylla</i>	Large-leaved jointweed
<i>Polygonella polygama</i>	Jointweed
<i>Prunus sp.</i>	Cherry sp. ²
<i>Pteridium aquilinum</i>	Bracken fern ²
<i>Quercus arkansana</i>	Arkansas oak
<i>Quercus geminata</i>	Sand live oak ²
<i>Quercus laevis</i>	Turkey oak ²
<i>Quercus laurifolia</i>	Laurel oak
<i>Quercus myrtifolia</i>	Myrtle oak ²
<i>Quercus nigra</i>	Water oak ²
<i>Rhapidophyllum hystrix</i>	Needle palm
<i>Rhexia alifanus</i>	Rose meadow-beauty ²
<i>Rhexia mariana</i>	Maryland meadow-beauty ²
<i>Rhexia salicifolia</i>	Panhandle meadow-beauty
<i>Rhexia virginica</i>	Virginia meadow-beauty ²
<i>Rhododendron austrinum</i>	Orange azalea
<i>Rhus copallina</i>	Winged sumac ²
<i>Rhynchospora cephalantha</i>	Clustered beak rush ²
<i>Rhynchospora pusilla</i>	Beak rush
<i>Rhynchospora tracyi</i>	Bear rush
<i>Rubus sp.</i>	Blackberry ²
<i>Sabal minor</i>	Bluestem palmetto
<i>Sabal palmetto</i>	Cabbage palm ²
<i>Sabatia bartramii</i>	Bartram's rose-gentian ²
<i>Sabatia dodecandra</i>	Ten-petal sabatia ²
<i>Sabatia macrophylla</i>	Large-leaf rose-gentian ²
<i>Sagittaria lancifolia</i>	Bull-tongue arrowhead ²
<i>Sapium sebiferum</i>	Chinese tallow tree ²
<i>Sarracenia flava</i>	Trumpets ²

Scientific Name	Common Name
<i>Sarracenia leucophylla</i>	White-top pitcherplant ²
<i>Sarracenia psittacina</i>	Parrot pitcherplant ²
<i>Sarracenia purpurea</i>	Purple pitcher plant ²
<i>Sarracenia rubra</i>	Sweet pitcher plant
<i>Satureja coccinea</i>	Red basil ²
<i>Schizachyrium maritimum</i>	Gulf bluestem
<i>Sebastiania fruticosa</i>	Sebastian bush
<i>Selaginella arenicola</i>	Sand spikemoss
<i>Selaginella ludoviciana</i>	Gulf spikemoss
<i>Serenoa repens</i>	Saw palmetto ²
<i>Sebastiania fruticosa</i>	Sebastian bush
<i>Smilax auriculata</i>	Wild bamboo ²
<i>Smilax bona-nox</i>	Bullbrier ²
<i>Smilax glauca</i>	Sawbrier ²
<i>Smilax laurifolia</i>	Bamboo-vine ²
<i>Solidago sempervirens</i>	Seaside goldenrod ²
<i>Solidago</i> spp.	Goldenrod ²
<i>Spartina alterniflora</i>	Salt marsh CordVass ²
<i>Spartina patens</i>	Beach cordgrass
<i>Sphagnum</i> spp.	Sphagnum moss ²
<i>Spirauthes praecox</i>	Grass-leaf ladies' tresses ²
<i>Stewartia malacodendron</i>	Silky camellia
<i>Strophostyles</i> sp.	Wild bean
<i>Syngonanthus flavidulus</i>	Yellow pipewort
<i>Taxodium ascendens</i>	Pond cypress ²
<i>Taxodium distichum</i>	Bald cypress
<i>Tephrosia mohrii</i>	Pineland hoary-pea
<i>Thalictrum cooleyi</i>	Cooley's meadowrue
<i>Thelypteris kunthii</i>	Southern shield fern ²
<i>Tilia americana</i>	Basswood
<i>Tofieldia racemosa</i>	Coastal false-asphodel ²
<i>Toxicodendron radicans</i>	Poison ivy ²
<i>Uniola paniculata</i>	Sea oats
<i>Utricularia cornuta</i>	Horned bladderwort
<i>Vaccinium arboreum</i>	Farkleberry
<i>Vaccinium</i> sp.	Blueberry
<i>Vitis rotundifolia</i>	Muscadine ²
<i>Woodwardia areolata</i>	Netted chain-fern ²
<i>Xyris brevifolia</i>	Yellow-eyed grass ²
<i>Xyris elliottii</i>	Elliott's yellow-eyed grass
<i>Xyris fimbriata</i>	Yellow-eyed grass
<i>Xyris scabrifolia</i>	Harper's yellow-eyed grass
<i>Xyris smalliana</i>	Small yellow-eyed grass
<i>Zeuxine strateumatica</i>	Lawn orchid ²
¹ Adapted from Earth Tech, 1994	
² Observed by Woolpert in November 1994, April 1995, and July 1995	

Endangered Flora Potentially Occurring on Hurlburt Field

Scientific Name	Common Name	Global Rank	State Rank	Fed Status	State Status
<i>Andropogon arctatus</i>	pine-woods bluestern	G3	S3	3C	N
<i>Arstida simpliciflora</i>	southern tree-awned grass	G2	S2	C2	N
<i>Aster chapmanii</i>	Shinner's aster	G2G3	S2S3	C2	N
<i>Aster eryngiifolius</i>	snakeroot aster	G3?	S2S3	C2	N
<i>Baptista calycosa</i> var. <i>villosa</i>	hairy wild indigo	G2T3	S3	C2	LT
<i>Calamovilfa curtissii</i>	Curtiss' sandgrass	G3	S3	C2	LT
<i>Calopogon multiflorus</i>	many-flowered grass pink	G3G4	S?	N	LE
<i>Chrysopsis godfreyi</i>	Godfrey's golden aster	G2	S2	C2	N
<i>Chrysopsius gossypina</i> ssp. <i>cruiseana</i>	Cruises's golden aster	G5T2	S2	C2	LE
<i>Cladium mariscoides</i>	pond rush	G5	S1	N	N
<i>Cladonia perforata</i>	perforate reindeer lichen	G1	S1	LE	LE
<i>Cleistes divaricata</i>	rosebud orchid	G4	S?	N	N
<i>Coelorachis tuberculosa</i>	piedmont grass	G3	S3	C2	N
<i>Drosera intermedia</i>	spoon-leaved sundew	G5	S3	N	LT
<i>Eleocharis rostellata</i>	beaked spikerush	G5	S1	N	N
<i>Helianthemum arenicola</i>	gulf rockrose	G3	S3	N	N
<i>Hymenocallis henryae</i>	panhandle spiderlily	G1Q	S1	C2	LE
<i>Ilex amelanchier</i>	serviceberry holly	G4	S2	3C	N
<i>Illicium floridanum</i>	Florida anise	G5	S3	N	LT
<i>Juncus gymnocarpus</i>	Coville's rush	G4	S1	3C	N
<i>Lachnocaulon digynum</i>	bog button	G3	S2?	C2	N
<i>Lilaeopsis carolinensis</i>	Carolina lilaeopsis	G3	S2?	3C	N

Scientific Name	Common Name	Global Rank	State Rank	Fed Status	State Status
<i>Lilium catesbaei</i>	southern red lily	G4	S3	N	LT
<i>Lilium iridollae</i>	panhandle lily	G1G2	S1S2	C2	LE
<i>Lindera subcoriacea</i>	bog spicebush	G2	S1	C2	LE
<i>Linum westii</i>	West's flax	G2	S2	C2	LE
<i>Litsea aestivalis</i>	pondspice	G3	S2	C2	LE
<i>Lupinus westianus</i>	gulf coast lupine	G2	S2	C2	LT
<i>Macranthera flammea</i>	hummingbird flower	G3	S2	N	LE
<i>Myriophyllum laxum</i>	Piedmont water-milfoil	G3	S2S3	C2	N
<i>Nuphar lutea ssp. ulvacea</i>	west Florida cowlily	G5T2	S2	C2	N
<i>Panicum nudicaule</i>	naked-stemmed panic grass	G3?	S2?	C2	N
<i>Peltandra sagittifolia</i>	spoon-flower	G3G4	S3	N	N
<i>Pinguicula planifolia</i>	Chapman's butterwort	G3?	S2	C2	LT
<i>Pinguicula primuliflora</i>	primrose-flowered butterwort	G3G4	S3	N	N
<i>Platanthera blephariglottis</i>	white-fringed orchid	G4G5	S?	N	N
<i>Platanthera ciliaris</i>	yellow-fringed orchid	G5	S?	N	N
<i>Platanthera cristana</i>	crested fringed orchid	G5	S?	N	N
<i>Plantanthera integra</i>	yellow fringeless orchid	G4	S3S4	3C	LE
<i>Platanthera nivea</i>	snowy orchid	G5	S?	N	LT
<i>Pogonia ophioglossoides</i>	rose pogonia	G5	S?	N	N
<i>Polygonella macrophylla</i>	large-leaved jointweed	G2	S2	C2	LT
<i>Quercus arkansana</i>	Arkansas oak	G3	S3	3C	N
<i>Rhexia parviflora</i>	small-flowered meadowbeauty	G2	S2	C2	LE

Scientific Name	Common Name	Global Rank	State Rank	Fed Status	State Status
<i>Rhexia salicifolia</i>	panhandle meadowbeauty	G2	S2	C2	N
<i>Rhododendron austrinum</i>	orange azalea	G3G4	S3	3C	LE
<i>Rhynchospora crinipes</i>	hairy-peduncled beakrush	G1	S1	C2	N
<i>Rhynchospora decurrens</i>	decurrent beakrush	G3G4	S2	C2	N
<i>Rhynchospora stenophylla</i>	narrow-leaved beakrush	G4	S2S3	N	N
<i>Sarracenia leucophylla</i>	white-top pitcher plant	G3	S3	C2	LE
<i>Sarracenia psittacina</i>	parrot pitcher plant	G4	S3	N	LT
<i>Sarracenia purpurea</i>	purple pitcher plant	G5	S?	N	N
<i>Sarracenia rubra</i>	sweet pitcher plant	G3	S2	N	LT
<i>Sideroxylon lycioides</i>	gopherwood buckthorn	G5	S2	N	LE
<i>Spiranthes laciniata</i>	lace-lip ladies' tresses	G4G5	S?	N	LT
<i>Spiranthes ovalis</i>	lesser ladies' tresses	G5	S?	N	LE
<i>Tephrosia mhorii</i>	pineland hoary-pea	G2?Q	S1	C2	N
<i>Xyris drummondii</i>	Drummond's yellow-eyed grass	G3	S2	CS	N
<i>Xyris longisepala</i>	karst pond Xyris	G2	S2	C2	LE
<i>Xyris scabrifolia</i>	Harper's yellow-eyed grass	G3	S1	C2	LT

GLOBAL RANK DEFINITIONS
PROVIDED BY FNAI

- 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.
- 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.
- GH** Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- GNA** Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
- GNR** Not yet ranked (temporary)
- GNRTNR** Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
- GX** Believed to be extinct throughout range
- GXC** Extirpated from the wild but still known from captivity/cultivation
- GU** Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

STATE RANK DEFINITIONS

PROVIDED BY FNAI

- 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 in Florida (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.
- S#?** Tentative rank (e.g., S2?)
- SH** Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
- SX** Believed to be extirpated throughout Florida.
- SU** Unrankable; due to a lack of information no rank or range can be assigned.
- SNA** State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
- SNR** Element not yet ranked (temporary).

**FEDERAL AND STATE LEGAL STATUSES (U.S. Fish and Wildlife Service – USFWS)
PROVIDED BY FNAI**

For official definitions and lists of protected species, consult the relevant state or federal agency.

FEDERAL LEGAL STATUS

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** Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.
- LE,XN** A non essential experimental population of a species otherwise Listed as an Endangered Species in the List of Endangered and Threatened Wildlife and Plants. LE,XN for *Grus americana* (Whooping crane), Federally listed as XN (Non essential experimental population) refers to the Florida experimental population only. Federal listing elsewhere for *Grus americana* is LE.
- PE** Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT** Listed as Threatened Species, defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- LT,PDL** Species currently listed Threatened but has been proposed for delisting.

- PT** Proposed for listing as Threatened Species.
- C** Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
- SAT** Threatened due to similarity of appearance to a threatened species.
- SC** Species of Concern, species is not currently listed but is of management concern to USFWS.
- N** Not currently listed, nor currently being considered for addition to the List of Endangered and Threatened Wildlife and Plants.

**FLORIDA LEGAL STATUSES (Florida Fish and Wildlife Conservation Commission – FFWCC/
Florida Department of Agriculture and Consumer Services – FDACS)**

Animals: Definitions derived from “Florida’s Endangered Species and Species of Special Concern, Official Lists” published by Florida Fish and Wildlife Conservation Commission - FFWCC, 1 August 1997, and subsequent updates.

- LE** Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.
- LT** Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
- LT*** Indicates that a species has LT status only in selected portions of its range in Florida. LT* for *Ursus americanus floridanus* (Florida black bear) indicates that LT status does not apply in Baker and Columbia counties and in the Apalachicola National Forest. LT* for *Neovison vison* pop. 1 (Southern mink, South Florida population) state listed as Threatened refers to the Everglades population only (Note: species formerly listed as *Mustela vison* mink pop. 1. Also, priorly listed as *Mustela evergladensis*)
- LS** Listed as Species of Special Concern by the FFWCC, defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.
- LS*** Indicates that a species has LS status only in selected portions of its range in Florida. LS* for *Pandion haliaetus* (Osprey) state listed as LS (Species of Special Concern) in Monroe County only.
- PE** Proposed for listing as Endangered.
- PT** Proposed for listing as Threatened.
- PS** Proposed for listing as a 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 please visit: <http://DOACS.State.FL.US/PI/Images/Rule05b.pdf>

LE Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state 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, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

PE Proposed by the FDACS for listing as Endangered Plants.

LT Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as 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 such number as to cause them to be endangered. LT* indicates that a species has LT status only in selected portions of its range in Florida.

PT Proposed by the FDACS for listing as Threatened Plants.

N Not currently listed, nor currently being considered for listing.

Master List of Trees, Shrubs, and Accent Flowers for Landscape Use in the Developed Areas of Hurlburt Field

Botanical Name	Common Name	Remarks
Trees—Large (50 feet to 100 feet)		
<i>Acer rubrum</i> 'Coldwater'	Red Maple	Good wetlands species, brilliant fall color.
<i>Carya species</i>	Hickory	Tough wood, superior fall color.
<i>Fraxinus americana</i>	White Ash	Fast growing shade tree, good fall
<i>Juglans nigra</i>	Black Walnut	Large shade tree, superior wood.
<i>Liquidambar styraciflua</i>	Sweetgum	Fast grower, good fall color.
<i>Magnolia grandiflora</i> 'Claudia W.'	Southern Magnolia	Magnificent tree, fragrant flowers.
<i>Magnolia grandiflora</i> 'D. D.'	Southern Magnolia	Compact dark green foliage, brown
<i>Magnolia grandiflora</i> 'Green'	Southern Magnolia	Large green leaves, green bark.
<i>Magnolia grandiflora</i> 'Little Gem'	Southern Magnolia	Dwarf to 25', long bloomer.
<i>Magnolia grandiflora</i> 'Smith'	Southern Magnolia	Like a rubber tree, shiny leaves.
<i>Magnolia grandiflora</i> 'St. Mary'	Southern Magnolia	Old standard, fragrant flowers.
<i>Magnolia virginiana</i>	Sweetbay Magnolia	Wetlands species, silver backed leaves.
<i>Pinus elliottii</i>	Slash Pine	Fast grower.
<i>Pinus palustris</i>	Longleaf pine	Fire tolerant, strong, long lived.
<i>Quercus falcata</i>	Southern Red Oak	Attractive large tree.
<i>Quercus laurifolia</i> 'Darlington'	Darlington Oak	Fast growing oak.
<i>Quercus lyrata</i>	Overcup Oak	Transplants well, good crown.
<i>Quercus michauxii</i>	Swamp Chestnut Oak	Deer eat acorns.
<i>Quercus nuttallii</i>	Nuttall Oak	Intense fall color.
<i>Quercus phellos</i>	Willow Oak	Fast grower, fine texture.
<i>Quercus shumardii</i>	Shumard Red Oak	Good shade tree, good fall color.
<i>Quercus virginiana</i>	Live Oak	Tough, stately evergreen tree.
<i>Taxodium distichum</i>	Bald Cypress	Good wetlands species.
Trees—Medium (20 feet to 50 feet)		
<i>Betula nigra</i>	River Birch	Good wetlands species.
<i>Diospyros virginiana</i>	Persimmon	Tough, drought tolerant, good fall color.
<i>Gleditsia triacanthos</i> 'Skyline'	Honeylocust	Nice form, light shade, drought tolerant.
<i>Gordonia lasianthus</i>	Loblolly Bay	Good wetlands species, evergreen.
<i>Ilex latifolia</i>	Lusterleaf Holly	Beautiful, resembles Magnolia.
<i>Ilex opaca</i>	American Holly	Good multi-trunk evergreen tree.
<i>Ilex x attenuata</i> 'Eagleston'	Eagleston Holly	Good fast growing screen.
<i>Ilex x attenuata</i> 'East Palatka'	East Palatka Holly	Good multi-trunk evergreen tree.
<i>Ilex x attenuata</i> 'Hume'	Hume Holly	Good standard or multi-trunk evergreen.
<i>Juniperus virginiana/silicicola</i>	Eastern Red Cedar	Drought tolerant, wood tough and fragrant.
<i>Nyssa</i> spp.	Tupelo	Good wetlands species, good fall color.
<i>Oxydendron arboreum</i>	Sourwood	Good fall color and flowers.
<i>Pinus thunbergiana</i>	Japanese Black Pine	Salt tolerant, handsome, good screen.
<i>Pistache chinensis</i>	Chinese Pistache	Good form, tough, superior fall color.

Botanical Name	Common Name	Remarks
<i>Pyrus calleryana</i> 'Bradford'	Bradford Pear	Good form, flowers, and fall color.
<i>Quercus stellata</i>	Post Oak	Drought tolerant, nice shape.
<i>Ulmus parvifolia</i>	Chinese Elm	Very graceful tree with beautiful bark.
Trees—Small (10 feet to 20 feet)		
<i>Acer barbatum</i>	Florida Maple	Good fall color.
<i>Aesculus pavia</i>	Red Buckeye	Good understory tree.
<i>Chionanthus virginicus</i>	Fringe Tree	Handsome specimen plant.
<i>Cornus florida</i>	Flowering Dogwood	Spectacular white flowers, red fall
<i>Crataegus lacrimata</i>	Pensacola Hawthorne	Beautiful weeping habit.
<i>Cyrilla racemiflora</i>	Titi	Good for wetlands, nice flowers.
<i>Ilex cassine</i>	Dahoon Holly	Good screen or for wetlands.
<i>Ilex vomitoria</i> 'Pendula'	Weeping Yaupon	Graceful weeping habit.
<i>Ilex vomitoria</i> 'Roundleaf'	Tree Form Yaupon	Nice bark and berries.
<i>Lagerstroemia</i> 'Basham's Party'	Crape Myrtle	Lt. pink flowers in summer.
<i>Lagerstroemia</i> 'Biloxi'	Crape Myrtle	Pale pink flowers in summer.
<i>Lagerstroemia</i> 'Miami'	Crape Myrtle	Dark pink flowers in summer.
<i>Lagerstroemia</i> 'Muskogee'	Crape Myrtle	Lt. lavender flowers in summer.
<i>Lagerstroemia</i> 'Natchez'	Crape Myrtle	White flowers in summer.
<i>Lagerstroemia</i> 'Potomac'	Crape Myrtle	Large clear pink flowers.
<i>Lagerstroemia</i> 'Regal Red'	Crape Myrtle	Dark red flowers in summer.
<i>Lagerstroemia</i> 'Tuscarora'	Crape Myrtle	Coral red flowers in summer.
<i>Ligustrum japonicum</i>	Tree Form Ligustrum	Small, evergreen multi-trunk tree.
<i>Magnolia soulangiana</i>	Saucer Magnolia	Spectacular blooms in early spring.
<i>Magnolia stellata</i> 'Royal Star'	Star Magnolia	Spectacular blooms in early spring.
<i>Myrica cerifera</i>	Wax Myrtle	Good for wetlands, fast grower.
<i>Quercus incana</i>	Bluejack Oak	Distinctive winter outline.
Shrubs—Large (8 feet to 15 feet)		
<i>Aesculus parviflora</i>	Bottlebrush Buckeye	Showy flowers in May.
<i>Camellia japonica</i>	Japonica Camellia	Beautiful flowers in winter.
<i>Cleyera japonica</i>	Japanese Cleyera	Good hedge.
<i>Feijoa sellowiana</i>	Pineapple Guava	Grey-green color, edible fruit.
<i>Hibiscus syriacus</i>	Shrub Althea	Blue, violet, or white blooms in summer.
<i>Ilex cornuta</i> 'Burfordii'	Burford Holly	Good screen.
<i>Ilex cornuta</i> 'Nellie R. Stevens'	Nellie R. Stevens Holly	Good large screen.
<i>Illicium parviflorum</i>	Anise	Fragrant leaves, good informal hedge.
<i>Juniperus chinensis</i> 'Pfitzeriana'	Pfitzer's Juniper	Very drought tolerant.
<i>Michellia figo</i>	Banana Shrub	Fragrant flowers.
<i>Nerium oleander</i>	Oleander	Tough evergreen, blooms all summer.
<i>Osmanthus fragrans</i>	Tea Olive	Very fragrant blooms in winter.
<i>Philadelphus coronarius</i>	Mockorange	Showy white flowers in spring.
<i>Punica granatum</i>	Pomegranate	Red-orange flowers in summer.
<i>Raphiolepis</i> 'Majestic Beauty'	Majestic Beauty Hawthorn	Nice texture.
<i>Viburnum odoratissum</i>	Sweet Viburnum	Good screen, evergreen.
<i>Vitex agnus-castus</i>	Lilac Chaste Tree	Fragrant flowers in long clusters.
Shrubs—Medium (4 feet to 8 feet)		
<i>Aucuba japonica</i>	Japanese Aucuba	Good for shady places.
<i>Buddleia davidii</i>	Butterfly Bush	Blooms summer to fall.

Botanical Name	Common Name	Remarks
<i>Callicarpa americana</i>	Beauty Berry	Magenta berries in fall.
<i>Calycanthus floridus</i>	Carolina Allspice	Richly fragrant flowers in spring.
<i>Camellia sasanqua</i>	Sasanqua Camellia	Beautiful flowers in winter.
<i>Fatsia japonica</i>	Fatsia	Interesting tropical texture.
<i>Hydrangea macrophylla</i>	French Hydrangea	Profile blue blooms.
<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea	All season plant, flowers, and fall color.
<i>Ilex cornuta</i> 'Burfordii Nana'	Dwarf Burford Holly	Good foundation plant.
<i>Ilex cornuta</i> 'Needlepoint'	Needlepoint Holly	Good foundation plant.
<i>Ligustrum lucidum</i> 'Recurvifolium'	Waxed Leaf Ligustrum	Excellent screen or driver hedge.
<i>Lonicera fragrantissima</i>	Winter Honeysuckle	Very fragrant blooms in early spring.
<i>Mahonia bealei</i>	Leatherleaf Mahonia	Very shade tolerant.
<i>Pittosporum tobira</i>	Pittosporum	Good evergreen shrub.
<i>Pittosporum tobira</i> 'Compact'	Compact Pittosporum	Tighter, more compact.
<i>Pittosporum tobira</i> 'Variegata'	Variegated Pittosporum	Light green color.
<i>Rhododendron canescens</i>	Piedmont Azalea	Fragrant flowers in spring.
<i>Rhododendron species</i>	Southern Indica Azaleas	Prolific blooms in spring.
<i>Rosa laevigata</i>	Cherokee Rose	State flower of Georgia.
<i>Spirea species</i>	Bridal Wreath	Prolific blooms in spring.
<i>Weigela florida</i>	Weigela	Pink blooms in spring.
<i>Yucca filamentosa</i>	Adams' Needle	Interesting texture and flowers.
<i>Yucca pendula</i>	Soft-Tipped Yucca	Nice gray-green foliage.
Shrubs—Small (1 foot to 4 feet)		
<i>Buxus microphylla japonica</i>	Japanese Boxwood	Good low hedge, bright green color.
<i>Cycas revoluta</i>	King Sago	Interesting texture.
<i>Deutzia gracilis</i> 'Nikko'	Dwarf Slender Deutzia	Graceful white flowers in spring.
<i>Ilex cornuta</i> 'Carissa'	Carissa Holly	Good evergreen border.
<i>Ilex crenata</i> 'Compacta'	Japanese Holly	Good foundation plant.
<i>Ilex crenata</i> 'Helleri'	Helleri Holly	Good foundation plant.
<i>Ilex vomitoria</i> 'Schilling's'	Stoke's Dwarf Yaupon	Good foundation plant.
<i>Juniperus chinensis</i> 'Nick's'	Nick's Compact Juniper	Good for screening parking lots.
<i>Juniperus davurica</i> 'Expansa'	Parson's Juniper	Nice horizontal branching.
<i>Juniperus procumbens</i>	Japgarden Juniper	Nice texture and gray-green foliage.
<i>Nandina domestica</i> 'Gulf Stream'	Dwarf Nandina	Compact, tight growth.
<i>Nandina domestica</i> 'Harbor'	Dwarf Nandina	Compact, tight growth.
<i>Nandina domestica</i> 'Moon Bay'	Dwarf Nandina	Good foundation plant.
<i>Philodendron selloum</i>	Split-Leaf Philodendron	Interesting texture.
<i>Pittosporum tobira</i> 'Wheeleri'	Wheeler's Dwarf Pittosporum	Good evergreen border.
<i>Pyracantha species</i>	Scarlet Fire Thorn	Red-orange berries in fall.
<i>Raphiolepis indica</i> 'Alba' or	Indian Hawthorne	Good evergreen, white flowers.
<i>Rhododendron</i> 'Red Ruffle'	Red Ruffle Azalea	Prolific red blooms in spring.
<i>Serenoa repens</i>	Palmetto	Interesting texture.
Groundcovers (6 inches to 18 inches)		
<i>Ajuga reptans</i>	Buleweed	Purple-green mat.
<i>Cyrtomium falcatum</i>	Holly Fern	Nice evergreen fern texture.
<i>Hedera helix</i> 'Hahn's'	Hahn's Ivy	Will tolerate part sun.
<i>Juniperus chinensis</i> 'Sargeantii'	Sergeant's Juniper	Good groundcover.
<i>Juniperus conferta</i> 'Blue Pacific'	Blue Pacific Juniper	Lush evergreen.
<i>Juniperus hor.</i> 'Plumosa'	Andorra Compacta Jun.	Reddish-purple in winter.

Botanical Name	Common Name	Remarks
<i>Juniperus horizontalis</i> 'Wiltonii'	Blue Rug Juniper	Green mat, will trail over walls.
<i>Juniperus procumbens</i> 'Nana'	Dwarf Japgarden Juniper	Low growing juniper.
<i>Liriope muscari</i> 'Aztec Grass'	Aztec Grass	Nice accent plant.
<i>Liriope muscari</i> 'Evergreen Giant'	Evergreen Giant Liriope	Stays evergreen in winter.
<i>Ophiopogon japonicus</i>	Mondo Grass	Good for rock gardens.
<i>Pennisetum alopecuroides</i>	Dwarf Fountain Grass	Soft texture.
<i>Trachelospermum asiaticum</i>	Asiatic Jasmine	Forms low green mat.
<i>Vinca minor</i>	Periwinkle	Blue flowers.
Accents		
<i>Aster</i> spp.	Aster	Blooms summer to frost.
<i>Canna x generalis</i>	Canna Lilly	Prolific bloomer.
<i>Chrysanthemum</i> spp.	Mums and Daisies	Good late summer and fall color.
<i>Coreopsis</i> spp.	Coreopsis	Prolific yellow and pink blooms.
<i>Echinacea purpurea</i>	Purple Coneflower	Purple flowers on 24" stems.
<i>Evolvulus glomeratus</i> 'Blue Daze'	Blue Daze	Grey-green foliage, blue flowers.
<i>Forsythia intermedia</i>	Golden Bells	Prolific yellow blooms in March.
<i>Gaillardia x gandiflora</i>	Blanket Flower	Bright red flowers with yellow edges.
<i>Gomphrena</i> spp.	Globe Amaranth	Long blooming purple, pink, and white.
<i>Hemerocallis</i> spp.	Daylily	Yellow, red, orange, and peach blooms.
<i>Iris</i> species	Iris	Interesting texture.
<i>Kerria japonica</i>	Japanese Kerria	Yellow blooms in spring.
<i>Lantana</i> spp.	Lantana	Prolific and long-lived blooms.
<i>Lavandula</i> spp.	Lavender	Purple herb, takes heat and drought.
<i>Lilium candidum</i>	Madonna or Easter Lily	Oldest garden flower.
<i>Lycoris radiata</i>	Red Spider Lily	Red flowers on 18" stalks.
<i>Malvaviscus arboreus</i>	Turk's Cap	Bright red blooms.
<i>Melampodium</i> spp.	Melampodium	Prolific orange flowers all summer.
<i>Miscanthus sinensis</i> 'Gracillimus'	Miscanthus	Silver-green grass to 6'.
<i>Monarda</i> spp.	Bee Balm	Red, pink, or white flowers draw bees.
<i>Osmunda cinnamomea</i>	Cinnamon Fern	Lacy texture.
<i>Pentas lanceolata</i>	Pentas	Prolific and long-lived blooms.
<i>Phlox paniculata</i>	Garden Phlox	Coral, lavender, pink, and white blooms.
<i>Platycodon grandiflorus</i>	Balloon Flower	White and blue flowers.
<i>Plumbago auriculata</i>	Cape Plumbago	Sky-blue flowers.
<i>Rosa</i> spp.	Old Roses	Care-free, long bloom time.
<i>Rosemerinus officinalis</i>	Rosemary	Aromatic foliage.
<i>Rudbeckia fulgida</i> 'Goldstrum'	Black-Eyed Susan	Golden-yellow flowers, black center.
<i>Salvia</i> spp.	Salvia	Red, white, and purple blooms.
<i>Santolina chamaecyparissus</i>	Grey Santolina	Grey foliage.
<i>Santolina virens</i>	Green Santolina	Yellow flowers.
<i>Stokesia laevis</i>	Stoke's Aster	Prolific blue blooms.
<i>Thelypteris normalis</i>	Southern Wood Fern	Attractive native fern.
<i>Verbena</i> spp.	Verbena	Prolific bloomer.
<i>Veronica</i> spp.	Veronica	Light purple herb.
<i>Zinnia linneraris</i>	Zinnia	Hot red, pink flowers in summer.

Vertebrate Faunal Species Possible on Hurlburt Field

Scientific Name	Common Name
Fish (Excludes Brackish and Saltwater Species)	
<i>Ambloplites rupestris</i>	Rock bass
<i>Aphredoderus sayanus</i>	Pirate perch
<i>Erimyzon sucetta</i>	Lake chubsucker
<i>Esox americanus</i>	Redfin pickerel ¹
<i>Esox niger</i>	Chain pickerel
<i>Etheostoma</i> sp.	Orangestripe shiner
<i>Fundulus notti</i>	Starhead topminnow ¹
<i>Gambusia affinis</i>	Mosquitofish ¹
<i>Ictalurus natalis</i>	Yellow-bullhead ¹
<i>Ictalurus punctatus</i>	Channel catfish ¹
<i>Lepomis macrochirus</i>	Bluegill ¹
<i>Lepomis megalotis</i>	Longear sunfish
<i>Lepomis microlophus</i>	Redear sunfish ¹
<i>Lepomis punctatus</i>	Spotted sunfish
<i>Micropterus punctulatus</i>	Spotted bass
<i>Micropterus salmoides</i>	Largemouth bass ¹
<i>Pomoxis annularis</i>	White crappie
Mammals	
<i>Blarina brevicauda</i>	Virginia short-tailed shrew
<i>Canis familiaris</i>	Feral dog ¹
<i>Canis latrans</i>	Coyote ¹
<i>Castor canadensis</i>	American beaver
<i>Cryptotis parva</i>	Least shrew
<i>Dasyopus novemcinctus</i>	Nine-banded armadillo ¹
<i>Didelphis virginiana</i>	Opossum ¹
<i>Geomys pinetis</i>	Southeastern pocket gopher
<i>Glaucomys volans</i>	Southern flying squirrel
<i>Lasiurus borealis</i>	Eastern red bat
<i>Lasiurus cinereus</i>	Hoary bat
<i>Lasiurus intermedius</i>	Northern yellow bat
<i>Lasiurus seminolus</i>	Seminole bat
<i>Lutra canadensis</i>	Northern river otter ¹
<i>Lynx rufus</i>	Bobcat
<i>Mephitis mephitis</i>	Striped skunk ¹
<i>Mus musculus</i>	House mouse ¹
<i>Microtus pinetorum</i>	Woodland vole
<i>Mustela frenata</i>	Longtail weasel

Scientific Name	Common Name
Mink	Mink
<i>Mustela vison</i>	Southeastern myotis
<i>Myotis austroriparius</i>	Gray myotis
<i>Myotis grisescens</i>	Eastern woodrat
<i>Neotoma floridana</i>	Evening bat
<i>Nycticeius humeralis</i>	Golden mouse
<i>Ochrotomys nuttalli</i>	White-tailed deer ¹
<i>Odocoileus virginianus</i>	Marsh rice rat ¹
<i>Oryzomys palustris</i>	Cotton mouse
<i>Peromyscus gossypinus</i>	Santa Rosa beach mouse
<i>Peromyscus polionotus leucocephalus</i>	Eastern pipistrel
<i>Pipistrellus subflavus</i>	Rafinesque's big-eared bat
<i>Plecotus rafinesquii</i>	Common raccoon ¹
<i>Procyon lotor</i>	Eastern harvest mouse
<i>Reithrodontomys humulis</i>	Eastern mole ¹
<i>Scalopus aquaticus</i>	Eastern gray squirrel ¹
<i>Sciurus carolinensis</i>	Eastern fox squirrel
<i>Sciurus niger</i>	Hispid cotton rat ¹
<i>Sigmodon hispidus</i>	Eastern spotted skunk
<i>Spilogale putorius</i>	Eastern cottontail ¹
<i>Sylvilagus floridanus</i>	Marsh rabbit
<i>Sylvilagus palustris</i>	Brazilian free-tailed bat
<i>Tadarida brasiliensis</i>	Gray fox ¹
<i>Urocyon cinereoargenteus</i>	Florida black bear ¹
<i>Ursus americanus floridanus</i>	Red fox
Reptiles and Amphibians	
<i>Acris crepitans</i>	Northern cricket frog
<i>Acris gryllus</i>	Southern cricket frog ¹
<i>Agkistridon piscivorus conanti</i>	Florida cottonmouth ¹
<i>Alligator mississippiensis</i>	American alligator ¹
<i>Ambystoma cingulatum</i>	Flatwoods salamander ²
<i>Ambystoma opacum</i>	Marbled salamander
<i>Ambystoma talpoideum</i>	Mole salamander
<i>Ambystoma tigrinum</i>	Tiger salamander
<i>Amphiuma means</i>	Two-toed amphiuma
<i>Anolis carolinensis</i>	Green anole ¹
<i>Apalone ferox</i>	Florida softshell turtle ¹
<i>Apalone spinifera aspera</i>	Gulf Coast spiny softshell
<i>Bufo quercicus</i>	Oak toad ¹
<i>Bufo terrestris</i>	Southern toad ¹
<i>Bufo woodhousii fowleri</i>	Fowler's toad

Scientific Name	Common Name
<i>Cemophora coccinea copei</i>	Northern scarlet snake ¹
<i>Chelydra serpentina</i>	Snapping turtle ¹
<i>Cnemidophorus sexlineatus</i>	Six-lined racerunner ¹
<i>Coluber constrictor priapus</i>	Southern black racer ¹
<i>Crotalus adamanteus</i>	Eastern diamondback rattlesnake ¹
<i>Deirochelys reticularia</i>	Eastern chicken turtle
<i>Desmognathus auriculatus</i>	Southern dusky salamander
<i>Desmognathus fuscus</i>	Northern dusky salamander
<i>Diadophis punctatus</i>	Southern ringneck snake ¹
<i>Drymarchon corais couperi</i>	Eastern indigo snake
<i>Elaphe guttata</i>	Corn snake ¹
<i>Elaphe obsoleta spiloides</i>	Gray rat snake ¹
<i>Eumeces anthracinus</i>	Coal skink
<i>Eumeces egregius similis</i>	Northern mole skink
<i>Eumeces fasciatus</i>	Five-lined skink ¹
<i>Eumeces inexpectatus</i>	Southeastern five-lined skink
<i>Eumeces laticeps</i>	Broadhead skink ¹
<i>Eurycea cirrigera</i>	Southern two-lined salamander
<i>Eurycea longicauda guttolineata</i>	Three-lined salamander
<i>Eurycea quadridigitata</i>	Dwarf salamander ¹
<i>Farancia abacura</i>	Eastern mud snake ¹
<i>Farancia erythrogramma</i>	Rainbow snake
<i>Gastrophryne carolinensis</i>	Eastern narrowmouth toad ¹
<i>Gopherus polyphemus</i>	Gopher tortoise
<i>Graptemys pulchra</i>	Alabama map turtle
<i>Hemidactylium scutatum</i>	Four-toed salamander
<i>Heterodon platirhinos</i>	Eastern hognose snake ¹
<i>Heterodon simus</i>	Southern hognose snake ¹
<i>Hyla andersonii</i>	Pine barrens treefrog
<i>Hyla avivoca</i>	Bird-voiced treefrog
<i>Hyla chrysoscelis</i>	Gray treefrog
<i>Hyla cinerea</i>	Green treefrog ¹
<i>Hyla femoralis</i>	Pine woods treefrog ¹
<i>Hyla gratiosa</i>	Barking treefrog ¹
<i>Hyla squirella</i>	Squirrel treefrog ¹
<i>Kinosternon subrubrum</i>	Eastern mud turtle ¹
<i>Lampropeltis calligaster rhombomaculata</i>	Mole king snake
<i>Lampropeltis getula</i>	Eastern king snake ¹
<i>Lampropeltis triangulum elapsoides</i>	Scarlet king snake ¹
<i>Macroclmys temminckii</i>	Alligator snapping turtle

Scientific Name	Common Name
<i>Malaclemys terrapin</i>	Diamondback terrapin
<i>Masticophis flagellum</i>	Coachwhip snake ¹
<i>Micrurus fulvius</i>	Eastern coral snake
<i>Necturus alabamensis</i>	Alabama waterdog
<i>Nerodia erythrogaster flavigaster</i>	Yellowbelly water snake ¹
<i>Nerodia fasciata</i>	Banded water snake ¹
<i>Nerodia floridana</i>	Florida green water snake
<i>Nerodia sipedon pleuralis</i>	Midland water snake
<i>Nerodia taxispilota</i>	Brown water snake
<i>Notophthalmus viridescens</i>	Newt
<i>Opheodrys aestivus</i>	Rough green snake ¹
<i>Ophisaurus a. attenuatus</i>	Eastern slender glass lizard ¹
<i>Ophisaurus ventralis</i>	Eastern glass lizard ¹
<i>Pituophis melanoleucus mugitus</i>	Florida pine snake
<i>Plethodon glutinosus</i>	Slimy salamander
<i>Pseudacris crucifer</i>	Spring peeper
<i>Pseudacris nigrita</i>	Southern chorus frog ¹
<i>Pseudacris ocularis</i>	Little grass frog
<i>Pseudacris ornata</i>	Ornate chorus frog ¹
<i>Pseudacris feriarum</i>	Upland chorus frog
<i>Pseudemys concinna</i>	River cooter
<i>Pseudemys floridana</i>	Florida cooter ¹
<i>Pseudotriton montanus</i>	Mud salamander
<i>Pseudotriton ruber</i>	Northern red salamander
<i>Rana capito</i>	Gopher frog
<i>Rana catesbeiana</i>	Bullfrog ¹
<i>Rana clamitans clamitans</i>	Bronze frog
<i>Rana grylio</i>	Pig frog ¹
<i>Rana heckscheri</i>	River frog ¹
<i>Rana okaloosae</i>	Florida bog frog
<i>Rana utricularia</i>	Southern leopard frog ¹
<i>Regina rigida sinicola</i>	Gulf crayfish snake ¹
<i>Regina septemvittata</i>	Queen snake
<i>Rhadinaea flavilata</i>	Pine woods snake
<i>Scaphiopus holbrookii</i>	Eastern spadefoot
<i>Sceloporus undulatus</i>	Southern fence lizard ¹
<i>Scincella lateralis</i>	Ground skink ¹
<i>Seminatrix pygaea</i>	Black swamp snake
<i>Siren intermedia</i>	Lesser siren ¹
<i>Siren lacertina</i>	Greater siren

Scientific Name	Common Name
<i>Sistrurus miliarius barbouri</i>	Dusky pygmy rattlesnake ¹
<i>Sternotherus minor</i>	Loggerhead musk turtle
<i>Sternotherus odoratus</i>	Common musk turtle
<i>Storeria occipitomaculata obscura</i>	Red-bellied snake ¹
<i>Tantilla coronata</i>	Southeastern crowned snake
<i>Terrapene carolina major</i>	Gulf coast box turtle ¹
<i>Thamnophis sauritus</i>	Eastern ribbon snake ¹
<i>Thamnophis sirtalis</i>	Eastern garter snake ¹
<i>Trachemys scripta</i>	Yellow-belly slider
<i>Virginia striatula</i>	Rough earth snake
<i>Virginia valeriae</i>	Smooth earth snake
Birds	
<i>Accipiter cooperii</i>	Cooper's hawk ¹
<i>Accipiter striatus velox</i>	Sharp-shinned hawk
<i>Actitis macularia</i>	Spotted sandpiper ¹
<i>Agelaius phoeniceus</i>	Red-winged blackbird
<i>Aimophila aestivalis</i>	Bachmann's sparrow ¹
<i>Aix sponsa</i>	Wood duck
<i>Ammodramus caudacutus</i>	Sharp-tailed sparrow
<i>Ammodramus henslowii</i>	Henslow's sparrow
<i>Ammodramus leconteii</i>	LeConte's sparrow
<i>Ammodramus maritimus</i>	Seaside sparrow
<i>Ammodramus savannarum</i>	Grasshopper sparrow
<i>Anas acuta</i>	Northern pintail
<i>Anas americana</i>	American widgeon
<i>Anas clypeata</i>	Northern shoveler
<i>Anas crecca</i>	Green-winged teal
<i>Anas discors</i>	Blue-winged teal
<i>Anas platyrhynchos</i>	Mallard ¹
<i>Anas rubripes</i>	American black duck
<i>Anas strepera</i>	Gadwall
<i>Andea herodias</i>	Great blue heron ¹
<i>Anhinga anhinga leucogaster</i>	Anhinga
<i>Anthus spinoletta</i>	American pipit
<i>Archilochus colubris</i>	Ruby-throated hummingbird
<i>Arenaria interpres</i>	Ruddy turnstone
<i>Asio flammeus</i>	Short-eared owl
<i>Aythya affinis</i>	Lesser scaup
<i>Aythya americana</i>	Redhead
<i>Aythya collaris</i>	Ring-necked duck ¹

Scientific Name	Common Name
<i>Aythya marila</i>	Greater scaup
<i>Aythya valisineria</i>	Canvasback
<i>Bartramia longicauda</i>	Upland sandpiper
<i>Bombycilla cedrorum</i>	Cedar waxwing ¹
<i>Botaurus lentiginosus</i>	American bittern
<i>Branta canadensis</i>	Canada goose
<i>Bubo virginianus</i>	Great horned owl ¹
<i>Bubulcus ibis</i>	Cattle egret ¹
<i>Bucephala clangula</i>	Common goldeneye
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Buteo lineatus</i>	Red-shouldered hawk ¹
<i>Buteo platypterus</i>	Broad-winged hawk ¹
<i>Butorides striatus</i>	Green heron ¹
<i>Calidris alba</i>	Sanderling ¹
<i>Calidris canutus</i>	Red knot
<i>Calidris melanotos</i>	Pectoral sandpiper
<i>Capella gallinago delicata</i>	Wilson's snipe
<i>Caprimulgus carolinensis</i>	Chuck-will's widow ¹
<i>Caprimulgus vociferus</i>	Whip-poor-will
<i>Cardinalis cardinalis</i>	Northern cardinal ¹
<i>Carduelis pinus</i>	Pine siskin
<i>Carduelis tristis</i>	American goldfinch
<i>Carpodacus purpureus</i>	Purple finch
<i>Casmerodius albus</i>	Great egret ¹
<i>Cathartes aura</i>	Turkey vulture ¹
<i>Catharus fuscescens</i>	Veery
<i>Catharus guttatus</i>	Hermit thrush
<i>Catharus minimus</i>	Gray-cheeked thrush
<i>Catharus ustulatus</i>	Swainson's thrush
<i>Catoptrophorus semipalmatus</i>	Willet ¹
<i>Certhia familiaris</i>	Brown creeper
<i>Chaetura pelagica</i>	Chimney swift ¹
<i>Charadrius alexandrinus</i>	Snowy plover
<i>Charadrius melodus</i>	Piping plover
<i>Charadrius semipalmatus</i>	Semipalmated plover ¹
<i>Charadrius vociferus</i>	Killdeer ¹
<i>Charadrius wilsonia</i>	Wilson's plover
<i>Chen caerulescens</i>	Snow goose
<i>Chlidonias niger</i>	Black tern
<i>Chordeiles minor</i>	Common nighthawk ¹

Scientific Name	Common Name
<i>Circus cyaneus</i>	Northern harrier
<i>Cistothorus palustris</i>	Marsh wren
<i>Cistothorus platensis</i>	Sedge wren
<i>Clangula hyemalis</i>	Oldsquaw
<i>Coccyzus americanus</i>	Yellow-billed cuckoo ¹
<i>Coccyzus erythrophthalmus</i>	Black-billed cuckoo
<i>Colaptes auratus</i>	Northern flicker ¹
<i>Colinus virginianus</i>	Northern bobwhite ¹
<i>Columbia livia</i>	Rock dove ¹
<i>Columbiana passerina</i>	Ground dove
<i>Contopus borealis</i>	Olive-sided flycatcher
<i>Contopus virens</i>	Eastern pewee
<i>Coragyps atratus</i>	Black vulture ¹
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus ossifragus</i>	Fish crow ¹
<i>Coturnicops noveboracensis</i>	Yellow rail
<i>Cyanocitta cristata</i>	Blue jay ¹
<i>Cygnus olor</i>	Mute swan
<i>Dendroica caerulescens</i>	Black-throated blue warbler
<i>Dendroica castanea</i>	Bay-breasted warbler
<i>Dendroica cerulea</i>	Cerulean warbler
<i>Dendroica coronata</i>	Yellow-rumped warbler
<i>Dendroica discolor</i>	Prairie warbler
<i>Dendroica dominica</i>	Yellow-throated warbler
<i>Dendroica fusca</i>	Blackburnian warbler
<i>Dendroica magnolia</i>	Magnolia warbler
<i>Dendroica palmarum</i>	Palm warbler
<i>Dendroica pensylvanica</i>	Chestnut-sided warbler
<i>Dendroica petechia</i>	Yellow warbler
<i>Dendroica pinus</i>	Pine warbler ¹
<i>Dendroica striata</i>	Blackpoll warbler
<i>Dendroica tigrina</i>	Cape May warbler
<i>Dendroica virens</i>	Black-throated green warbler
<i>Dichromanassa rufescens</i>	Reddish egret
<i>Dolichonyx oryzivorus</i>	Bobolink
<i>Dryocopus pileatus</i>	Pileated woodpecker ¹
<i>Dumetella carolinensis</i>	Gray catbird ¹
<i>Egretta thula</i>	Snowy egret
<i>Egretta tricolor</i>	Tricolored heron
<i>Elanoides forficatus</i>	Swallow-tailed kite

Scientific Name	Common Name
<i>Empidonax alnorum</i>	Alder flycatcher
<i>Empidonax flaviventris</i>	Yellow-bellied flycatcher
<i>Empidonax minimus</i>	Least flycatcher
<i>Empidonax traillii</i>	Willow flycatcher
<i>Empidonax virescens</i>	Arcadian flycatcher
<i>Eremophila alpestris</i>	Horned lark
<i>Eudocimus albus</i>	White ibis ¹
<i>Euphagus carolinus</i>	Rusty blackbird
<i>Euphagus cyanocephalus</i>	Brewer's blackbird
<i>Falco columbarius</i>	Merlin
<i>Falco peregrinus tundrius</i>	Arctic peregrine falcon
<i>Falco sparverius</i>	American kestrel ¹
<i>Florida caerulea</i>	Little blue heron ¹
<i>Fregata magnificens rothschildi</i>	Magnificent frigatebird
<i>Fulica americana</i>	American coot
<i>Gallinula chloropus</i>	Common moorhen
<i>Gavia immer</i>	Common loon ¹
<i>Gavia stellata</i>	Red-throated loon
<i>Geothlypis trichas</i>	Common yellowthroat ¹
<i>Grus canadensis</i>	Sandhill crane
<i>Guiraca caerulea</i>	Blue grosbeak
<i>Haematopus palliatus</i>	American oystercatcher
<i>Haliaeetus leucocephalus</i>	Bald eagle
<i>Helmitheros vermivorus</i>	Worm-eating warbler
<i>Hirundo pyrrhonota</i>	Cliff swallow
<i>Hirundo rustica</i>	Barn swallow
<i>Hylocichla mustelina</i>	Wood thrush
<i>Icteria virens</i>	Yellow-breasted chat ¹
<i>Icterus galbula</i>	Northern oriole
<i>Icterus spurius</i>	Orchard oriole
<i>Ictinia mississippiensis</i>	Mississippi kite
<i>Iridoprocne bicolor</i>	Tree swallow
<i>Ixobrychus exilis</i>	Least bittern
<i>Junco hyemalis</i>	Dark-eyed junco
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Larus argentatus</i>	Herring gull ¹
<i>Larus atricilla</i>	Laughing gull ¹
<i>Larus delawarensis</i>	Ring-billed gull
<i>Larus philadelphia</i>	Bonaparte's gull ¹
<i>Laterallus jamaicensis</i>	Black rail

Scientific Name	Common Name
<i>Limnothlypis swainsonii</i>	Swainson's warbler
<i>Lophodytes cucullatus</i>	Hooded merganser
<i>Megaceryle alcyon</i>	Belted kingfisher ¹
<i>Melanerpes carolinus</i>	Red-bellied woodpecker ¹
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker ¹
<i>Melanitta fusca</i>	White-winged scoter
<i>Melanitta perspicillata</i>	Surf scoter
<i>Meleagris gallopavo</i>	Wild turkey
<i>Melospiza georgiana</i>	Swamp sparrow
<i>Melospiza lincolnii</i>	Lincoln's sparrow
<i>Melospiza melodia</i>	Song sparrow
<i>Mergus serrator</i>	Red-breasted merganser
<i>Mimus polyglottos</i>	Northern mockingbird ¹
<i>Minotilta varia</i>	Black-and-white warbler
<i>Molothrus ater</i>	Brown-headed cowbird ¹
<i>Myiarchus crinitus</i>	Great-crested flycatcher ¹
<i>Numenius phaeopus</i>	Whimbrel
<i>Nyctanassa violacea</i>	Yellow-crowned night-heron
<i>Nycticorax nycticorax hoactli</i>	Black-crowned night-heron
<i>Oporornis formosus</i>	Kentucky warbler
<i>Otus asio</i>	E. screech-owl ¹
<i>Oxyura jamaicensis</i>	Ruddy duck
<i>Pandion haliaetus</i>	Osprey ¹
<i>Parula americana</i>	Northern parula ¹
<i>Parus bicolor</i>	Tufted titmouse ¹
<i>Parus carolinensis</i>	Carolina chickadee ¹
<i>Passer domesticus</i>	House sparrow ¹
<i>Passerculus sandwichensis</i>	Savannah sparrow
<i>Passerella iliaca</i>	Fox sparrow
<i>Passerina cyanea</i>	Indigo bunting
<i>Pelecanus erythrorhynchos</i>	White pelican ¹
<i>Pelecanus occidentalis</i>	Brown pelican ¹
<i>Phalacrocorax auritus</i>	Double-crested cormorant ¹
<i>Pheucticus ludovicianus</i>	Rose-breasted grosbeak
<i>Philohela minor</i>	American woodcock ¹
<i>Picoides borealis</i>	Red-cockaded woodpecker
<i>Picoides pubescens</i>	Downy woodpecker
<i>Picoides villosus</i>	Hairy woodpecker
<i>Pipilo erythrophthalmus</i>	Rufous-sided towhee ¹
<i>Piranga olivacea</i>	Scarlet tanager

Scientific Name	Common Name
<i>Piranga rubra</i>	Summer tanager ¹
<i>Pluvialis dominica</i>	American golden plover
<i>Pluvialis squatarola</i>	Black-bellied plover ¹
<i>Podiceps auritus</i>	Horned grebe
<i>Podiceps nigricollis californicus</i>	Eared grebe
<i>Podilymbus podiceps</i>	Pied-billed grebe
<i>Poliophtila caerulea</i>	Blue-gray gnatcatcher ¹
<i>Poocetes gramineus</i>	Vesper sparrow
<i>Porphyryla martinica</i>	Purple gallinule
<i>Porzana carolina</i>	Sora
<i>Progne subis</i>	Purple martin ¹
<i>Protonotaria citrea</i>	Prothonotary warbler ¹
<i>Quiscalus major</i>	Boat-tailed grackle
<i>Quiscalus quiscula</i>	Common grackle ¹
<i>Rallus elegans</i>	King rail
<i>Rallus limicola</i>	Virginia rail
<i>Rallus longirostris</i>	Clapper rail
<i>Regulus calendula</i>	Ruby-crowned kinglet
<i>Regulus satrapa</i>	Golden-crowned kinglet
<i>Rhynchops nigra</i>	Black skimmer
<i>Riparia riparia</i>	Bank swallow
<i>Sayornis phoebe</i>	Eastern phoebe ¹
<i>Seiurus aurocapillus</i>	Ovenbird
<i>Seiurus motacilla</i>	Louisiana waterthrush
<i>Seiurus noveboracensis</i>	Northern waterthrush
<i>Setophaga ruticilla</i>	American redstart
<i>Sialia sialis</i>	Eastern bluebird ¹
<i>Sitta canadensis</i>	Red-breasted nuthatch
<i>Sitta carolinensis</i>	White-breasted nuthatch
<i>Sitta pusilla</i>	Brown-headed nuthatch ¹
<i>Sphyrapicus varius</i>	Yellow-bellied sapsucker
<i>Spiza americana</i>	Dickcissel
<i>Spizella passerina</i>	Chipping sparrow
<i>Spizella pusilla</i>	Field sparrow
<i>Stelgidopteryx serripennis</i>	Rough-winged swallow
<i>Sterna antillarum</i>	Least tern ¹
<i>Sterna caspia</i>	Caspian tern
<i>Sterna forsteri</i>	Forster's tern
<i>Sterna hirundo</i>	Common tern
<i>Sterna maxima</i>	Royal tern

Scientific Name	Common Name
<i>Sterna nilotica</i>	Gull-billed tern ¹
<i>Sterna sandvicensis</i>	Sandwich tern
<i>Strix varia</i>	Barred owl
<i>Sturnella magna</i>	Eastern meadowlark
<i>Sterna nilotica</i>	Gull-billed tern ¹
<i>Sturnella neglecta</i>	Western meadowlark
<i>Sturnus vulgaris</i>	European starling ¹
<i>Thryomanes bewickii</i>	Bewick's wren
<i>Thryothorus ludovicianus</i>	Carolina wren ¹
<i>Toxostoma rufum</i>	Brown thrasher ¹
<i>Tringa flavipes</i>	Lesser yellowlegs
<i>Tringa melanoleuca</i>	Greater yellowlegs
<i>Tringa solitaria</i>	Solitary sandpiper ¹
<i>Troglodytes aedon</i>	House wren
<i>Troglodytes troglodytes</i>	Winter wren
<i>Turdus migratorius</i>	American robin
<i>Tyrannus dominicensis</i>	Gray kingbird
<i>Tyrannus tyrannus</i>	Eastern kingbird ¹
<i>Tyto alba</i>	Barn owl
<i>Vermivora celata</i>	Orange-crowned warbler
<i>Vermivora chrysoptera</i>	Golden-winged warbler
<i>Vermivora peregrina</i>	Tennessee warbler
<i>Vermivora pinus</i>	Blue-winged warbler
<i>Vermivora ruficapilla</i>	Nashville warbler
<i>Vireo flavifrons</i>	Yellow-throated vireo
<i>Vireo gilvus</i>	Warbling vireo ¹
<i>Vireo griseus</i>	White-eyed vireo ¹
<i>Vireo olivaceus</i>	Red-eyed vireo ¹
<i>Vireo philadelphicus</i>	Philadelphia vireo
<i>Vireo solitarius</i>	Solitary vireo
<i>Wilsonia canadensis</i>	Canada warbler
<i>Wilsonia citrina</i>	Hooded warbler
<i>Wilsonia pusilla</i>	Wilson's warbler
<i>Zenaida macroura</i>	Mourning dove ¹
<i>Zonotrichia albicollis</i>	White-throated sparrow
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
¹ Observed by Woolpert (November 1994, April 1995, July 1995, and January 1996) or by CEOHE (1986 through 1995).	
² Observed by Florida Natural Areas Inventory (1993 and 1994).	
Source: Adapted from Earth Tech, 1994.	

Scientific Name	Common Name	Global Rank	State Rank	Fed Status	State Status
Fish					
<i>Fundulus jenkinsi</i>	saltmarsh topminnow	G3	S2	N	LS
<i>Pteronotropis welaka</i>	bluenose shiner	G4	S4	N	LS
Ampibians					
<i>Ambystoma bishopi</i>	<i>Reticulated Flatwoods salamander</i> ²	G2	S2	LE	
<i>Amphiuma pholeter</i>	one-toed amphiuma	G3	S3	N	N
<i>Hyla andersonii</i>	pine barrens tree frog	G4	S3	3C	LS
<i>Rana okaloosae</i>	Florida bog frog	G2	S2	C2	LS
Reptiles					
<i>Alligator mississippiensis</i>	American alligator	G5	S4	T(S/A)	LS
<i>Crotalus adamanteus</i>	eastern diamondback rattlesnake	G5	S?	N	N
<i>Drymarchon corais couperi</i>	eastern indigo snake	G4T3	S3	LT	LT
<i>Eumeces anthracinus</i>	coal skink	G5	S3	N	N
<i>Gopherus polyphemus</i>	gopher tortoise	G3	S3	C2	LS
<i>Malaclemys terrapin pileata</i>	Mississippi diamondback terrapin	G4T3?	S?	C2	N
<i>Nerodia clarkii clarkii</i>	gulf salt marsh snake	G4T3	S3?	C2	N
BIRDS					
<i>Accipter cooperii</i>	Cooper's hawk	G4	S3?	N	N
<i>Aimophila aestivalis</i>	Bachman's sparrow	G3	S3	C2	N
<i>Ammodramus henslowii</i>	Henslow's sparrow	G3G4	S?	C2	N
<i>Ammodramus maritimus fisheri</i>	Louisiana seaside sparrow	G4T4	S1	N	N
<i>Ardea alba</i>	great egret	G5	S4	N	N
<i>Charadrius alexandrinus</i>	snowy plover	G4	S2	C2	LT
<i>Charadrius melodus</i>	piping plover	G3	S2	LT	LT
<i>Cistothorus palustris marianae</i>	Marian's marsh wren	G5T3	S3?	N	LS
<i>Dendroica dominica stoddardi</i>	Stoddard's yellow-throated warbler	G5T3Q	S3	C2	N
<i>Egretta caerulea</i>	little blue heron	G5	S4	N	LS
<i>Egretta rufescens</i>	reddish egret	G4	S2	C2	LS

Scientific Name	Common Name	Global Rank	State Rank	Fed Status	State Status
<i>Egretta thula</i>	snowy egret	G5	S4	N	LS
<i>Egretta tricolor</i>	tricolored heron	G5	S4	N	LS
<i>Elanoides forficatus</i>	swallow-tailed kite	G4	S2S3	N	N
<i>Eudocimus albus</i>	white ibis	G5	S4	N	LS
<i>Falco columbarius</i>	merlin	G5	SU	N	N
<i>Falco peregrinus</i>	peregrine falcon	G4	S2	E(S/A)	LE
<i>Falco sparverius paulus</i>	southeastern American kestrel	G5T3T4	S3?	C2	LT
<i>Haematopus palliatus</i>	American oystercatcher	G5	S3	N	LS
<i>Haliaeetus leucocephalus</i>	bald eagle	G4	S3	LT	LT
<i>Ixobrychus exilis</i>	least bittern	G5	S4	N	N
<i>Latterallus jamaicensis</i>	black rail	G4	S3?	C2	N
<i>Mycteria Americana</i>	wood stork	G4	S2	LE	LE
<i>Nyctanassa violacea</i>	yellow-crowned night-heron	G5	S3?	N	N
<i>Nycticorax nycticorax</i>	black-crowned night-heron	G5	S3?	N	N
<i>Pandion haliaetus</i>	osprey	G5	S3S4	N	LS
<i>Pelecanus occidentalis</i>	brown pelican	G4	S3	N	LS
<i>Picoides borealis</i>	red-cockaded woodpecker	G3	S2	LE	LT
<i>Picoides villosus</i>	hairy woodpecker	G5	S3?	N	N
<i>Plegadis falcinellus</i>	glossy ibis	G5	S2	N	N
<i>Rallus longirostris scottii</i>	Florida clapper rail	G5T3?	S3?	N	N
<i>Rynchops niger</i>	black skimmer	G5	S3	N	LS
<i>Seiurus motacilla</i>	Louisiana waterthrush	G5	S3	N	N
<i>Sterna antillarum</i>	least tern	G4	S3	N	LT
<i>Sterna caspia</i>	Caspian tern	G4	S3	N	LT
<i>Sterna maxima</i>	royal tern	G5	S3	N	N
<i>Sterna sandvicensis</i>	Sandwich tern	G5	S2	N	N

GLOBAL RANK DEFINITIONS

PROVIDED BY FNAI

- 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.
- 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.
- GH** Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- GNA** Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
- GNR** Not yet ranked (temporary)
- GNRTNR** Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
- GX** Believed to be extinct throughout range
- GXC** Extirpated from the wild but still known from captivity/cultivation
- GU** Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

STATE RANK DEFINITIONS

PROVIDED BY FNAI

- 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 in Florida (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.
- S#?** Tentative rank (e.g., S2?)
- SH** Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
- SX** Believed to be extirpated throughout Florida.
- SU** Unrankable; due to a lack of information no rank or range can be assigned.
- SNA** State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
- SNR** Element not yet ranked (temporary).

**FEDERAL AND STATE LEGAL STATUSES (U.S. Fish and Wildlife Service – USFWS)
PROVIDED BY FNAI**

For official definitions and lists of protected species, consult the relevant state or federal agency.

FEDERAL LEGAL STATUS

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** Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.
- LE,XN** A non essential experimental population of a species otherwise Listed as an Endangered Species in the List of Endangered and Threatened Wildlife and Plants. LE,XN for *Grus americana* (Whooping crane), Federally listed as XN (Non essential experimental population) refers to the Florida experimental population only. Federal listing elsewhere for *Grus americana* is LE.

- PE** Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT** Listed as Threatened Species, defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- LT,PDL** Species currently listed Threatened but has been proposed for delisting.
- PT** Proposed for listing as Threatened Species.
- C** Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
- SAT** Threatened due to similarity of appearance to a threatened species.
- SC** Species of Concern, species is not currently listed but is of management concern to USFWS.
- N** Not currently listed, nor currently being considered for addition to the List of Endangered and Threatened Wildlife and Plants.

**FLORIDA LEGAL STATUSES (Florida Fish and Wildlife Conservation Commission – FFWCC/
Florida Department of Agriculture and Consumer Services – FDACS)**

Animals: Definitions derived from “Florida’s Endangered Species and Species of Special Concern, Official Lists” published by Florida Fish and Wildlife Conservation Commission - FFWCC, 1 August 1997, and subsequent updates.

- LE** Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.
- LT** Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
- LT*** Indicates that a species has LT status only in selected portions of its range in Florida. LT* for *Ursus americanus floridanus* (Florida black bear) indicates that LT status does not apply in Baker and Columbia counties and in the Apalachicola National Forest. LT* for *Neovison vison* pop. 1 (Southern mink, South Florida population) state listed as Threatened refers to the Everglades population only (Note: species formerly listed as *Mustela vison* mink pop. 1. Also, priorly listed as *Mustela evergladensis*)
- LS** Listed as Species of Special Concern by the FFWCC, defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species.
- LS*** Indicates that a species has LS status only in selected portions of its range in Florida. LS* for

Pandion haliaetus (Osprey) state listed as LS (Species of Special Concern) in Monroe County only.

- PE** Proposed for listing as Endangered.
- PT** Proposed for listing as Threatened.
- PS** Proposed for listing as a 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 please visit: <http://DOACS.State.FL.US/PI/Images/Rule05b.pdf>

- LE** Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state 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, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.
- PE** Proposed by the FDACS for listing as Endangered Plants.
- LT** Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as 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 such number as to cause them to be endangered. LT* indicates that a species has LT status only in selected portions of its range in Florida.
- PT** Proposed by the FDACS for listing as Threatened Plants.
- N** Not currently listed, nor currently being considered for listing.