

ENVIRONMENTAL ASSESSMENT OF INSTALLATION DEVELOPMENT AT MACDILL AIR FORCE BASE, FLORIDA



HEADQUARTERS AIR MOBILITY COMMAND



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MacDill AFB utilizes numerous wing plans to project installation development requirements. These plans propose demolition, construction, renovation, and infrastructure improvement activities intended to ensure that the installation can sustain its current and future national security operations and mission-readiness status. These activities include installation development projects contained in the MacDill AFB General Plan and the community of all existing approved development plans. MacDill AFB seeks to improve the continuing installation development process by evaluating in a single EA all actions proposed in the MacDill AFB wing-approved community of plans for installation development. The scope of the IDEA 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 includes numerous projects, such as new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure upgrades, demolition of aging facilities, and recreational upgrades that would be completed/implemented during the next 5 years. The Proposed Action also includes the projects approved in the BRAC 2005 process for MacDill AFB. The intent of this IDEA is to address the Proposed Action of implementing installation development actions as found in the community of all existing approved management plans for the installation concerning continuing development on MacDill AFB. This assessment also includes the projects approved in the BRAC 2005 process for MacDill AFB. Through this Installation Development EA (IDEA), MacDill AFB provides a constraints-based environmental impact analysis of installation development actions projected for the installation over the next 5 years. A constraints approach enables MacDill AFB to evaluate environmental concerns that exist throughout the installation and those unique to specific areas of the installation. The analysis draws from the knowledge gained from extensive recent evaluations for similar types of projects to determine the direct, indirect, and cumulative effects of projects that will be completed as part of the installation's development. This EA has been prepared to evaluate the Proposed Action and alternatives, including the No Action Alternative. If potentially significant impacts are determined to be associated with the Proposed Action during the course of preparing this IDEA, it may be necessary to prepare an Environmental Impact Statement (EIS). Resource areas addressed in the EA include noise, land use, air quality, safety geological resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, hazardous materials and waste management, and infrastructure. The EA will be made available to the public for comments during development and upon completion.

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Abbreviations and Acronyms

μg/m ³	micrograms per cubic meter	EFH	essential fish habitat
6 AMW	6th Air Mobility Wing	EIAP	Environmental Impact Analysis Process
6 CE	6th Civil Engineering	EIFS	Economic Impact Forecast System
ACM	asbestos-containing material	EIS	Environmental Impact Statement
AF Form	Air Force Form	EMIS	Environmental Management Information System
AFB	Air Force Base	EO	Executive Order
AFI	Air Force Instruction	EOD	Explosive Ordnance Disposal
AFPD	Air Force Policy Directive	EPC	Environmental Protection Commission
AFRC	Air Force Reserve Command	ERP	Environmental Restoration Program
AMC	Air Mobility Command	ESA	Endangered Species Act
AMX	aircraft maintenance	FAC	Florida Administrative Code
APE	Area of Potential Effect	FDEP	Florida Department of Environmental Protection
AQCR	air quality control region	FEMA	Federal Emergency Management Agency
ARPA	Archaeological Resources Protection Act	FONPA	Finding of No Practicable Alternative
AT/FP	Anti-Terrorism/Force Protection	FONSI	Finding of No Significant Impact
BMP	best management practice	FPMP	Floodplain Management Plan
BRAC	Base Realignment and Closure	ft ²	square feet
C&D	construction and demolition	FUB	Facility Utilization Board
CAA	Clean Air Act	FWC	Florida Fish and Wildlife Conservation Commission
CAIS	Chemical Agent Identification Sets	HAZMART	Hazardous Materials Pharmacy
CATEX	Categorical Exclusion	HAZWOPPER	Hazardous Waste Operations and Emergency Response
CCCL	coastal construction control lines	HQ	Headquarters
CEQ	Council on Environmental Quality	HSWA	Hazardous and Solid Waste Amendment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	HVAC	heating, ventilation, and air conditioning
CFR	Code of Federal Regulations	ICRMP	Integrated Cultural Resources Management Plan
CO	carbon monoxide	IDEA	Installation Development Environmental Assessment
CZMA	Coastal Zone Management Act		
dB	decibels		
dba	A-weighted decibels		
DNL	day-night average A-weighted sound level		
DOD	Department of Defense		
DRMO	Defense Reutilization and Marketing Office		
e ² M	engineering-environmental Management, Inc.		
EA	Environmental Assessment		

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IICEP Interagency and Intergovernmental Coordination for Environmental Planning

INRMP Integrated Natural Resources Management Plan

LBP lead-based paint

LUC Land Use Control

MAJCOM Major Command

MFH Military Family Housing

mg/m³ milligrams per cubic meter

mgd million gallons per day

MILCON Military Construction

mph miles per hour

MS4 Municipal Separate Storm Sewer System

MSA Metropolitan Statistical Area

MSGP Multi-Sector Generic Permit

MSW municipal solid waste

NAAQS National Ambient Air Quality Standards

NAF Nonappropriated Funds

NAGPRA Native American Graves Protection and Repatriation Act

NEPA National Environmental Policy Act

NHPA National Historic Preservation Act

NMFS National Marine Fisheries Service

NO₂ nitrogen dioxide

NO_x nitrogen oxides

NPDES National Pollutant Discharge Elimination System

NRHP National Register of Historic Places

NSR New Source Review

O&M Operations and Maintenance

O₃ ozone

OSHA Occupational Safety and Health Administration

Pb lead

PM₁₀ particulate matter equal to or less than 10 microns in diameter

PM_{2.5} particulate matter equal to or less than 2.5 microns in diameter

POL petroleum, oils, and lubricants

ppm parts per million

PSD Prevention of Significant Deterioration

QD quantity distance

RCRA Resource Conservation and Recovery Act

RDJTF Rapid Deployment Joint Task Force

ROI Region of Influence

SARA Superfund Amendments and Reauthorization Act

SHPO State Historic Preservation Office

SIP State Implementation Plan

SO₂ sulfur dioxide

SOQ Staff Officers' Quarters

SPCC Spill Prevention Control and Countermeasures Plan

SU Strategic Unit

SWMU Solid Waste Management Unit

SWPPP Storm Water Pollution Prevention Plan

T&E threatened and endangered

tpy tons per year

TSCA Toxic Substances Control Act

U.S.C. United States Code

USACE U.S. Army Corps of Engineers

USAF U.S. Air Force

USCENTCOM U.S. Central Command

USEPA U.S. Environmental Protection Agency

USFWS U.S. Fish and Wildlife Service

USREDCOM U.S. Readiness Command

USSOCOM U.S. Special Operations Command

USSTRIKCOM U.S. Strike Command

UST underground storage tank

UXO unexploded ordnance

VOC volatile organic compound

WCFIAQCR West Central Florida Intrastate Air Quality Control Region

WSA weapons storage area

WWTP wastewater treatment plant

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)/
FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)**

**ENVIRONMENTAL ASSESSMENT (EA)
OF INSTALLATION DEVELOPMENT AT
MACDILL AIR FORCE BASE, FLORIDA**

INTRODUCTION

In an effort to improve installation planning and to streamline National Environmental Policy Act (NEPA) compliance, the 6th Air Mobility Wing (6 AMW) and Headquarters (HQ) Air Mobility Command (AMC) have initiated an evaluation in this Environmental Assessment (EA) of all foreseeable and reasonable planned and programmed projects for the next 5 years. Since the establishment of MacDill Air Force Base (AFB), as with all other U.S. Air Force (USAF) installations, a continuing activity of installation development has been occurring. Every year in the history of the installation, structures have been demolished, new facilities constructed, and infrastructure upgraded. This document will constitute an Installation Development Environmental Assessment (or "IDEA"). The intent of this IDEA is to address the Proposed Action of implementing installation development actions with emphasis on avoiding the environmentally sensitive areas of MacDill AFB.

The scope of the IDEA 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 includes numerous projects, such as new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure upgrades, demolition of aging facilities, and recreational upgrades that would be completed/implemented during the next 5 years. This Proposed Action also includes the projects approved in the 2005 Base Realignment and Closure (BRAC) process for MacDill AFB.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to implement installation development projects on MacDill AFB as found in the community of all existing wing-approved plans, such as the General Plan. The MacDill AFB community of plans was examined to provide a consolidated list of projects that are planned and programmed over the next 5 years for the continued physical development of the installation to support air mobility and unified command missions. These plans provide a programmed road map for future development of the installation to accommodate future mission and facility requirements.

The need for the Proposed Action is to be able to meet current and future mission requirements and national security objectives that would be associated with MacDill AFB. This would involve meeting ongoing mission requirements that necessitate the repair and upgrade of facilities and infrastructure, prepare the installation to accept additional missions from current BRAC actions, and support the morale and welfare of the warfighter.

DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action is to implement continuing installation development projects as found in the community of all existing approved development plans for MacDill AFB. The projects analyzed in the IDEA fall under three categories: facilities demolition projects, facilities construction projects (to include renovations, alterations, and repairs), and infrastructure projects. This assessment also includes the projects approved in the 2005 BRAC process for MacDill AFB. One major issue faced with installation development is that 80 percent of MacDill AFB is in the 100-year floodplain. The analysis capitalizes on

the knowledge gained from previously prepared and approved Environmental Impact Analysis Process (EIAP) for similar types of projects and a recently developed Floodplain Management Plan (FPMP) to determine the direct, indirect, and cumulative effects of projects as an integral element of the installation's development.

Demolition Projects. MacDill AFB proposes many facility demolition projects for five years to support growth associated with its future mission requirements. These facilities have been deemed too costly to repair or renovate, provide additional real estate, and meet the future mission needs of MacDill AFB. The proposed demolition of these facilities would provide approximately 1.2 million ft² of usable land space, and would minimize constructing new facilities on undisturbed land.

Construction Projects. MacDill AFB proposes facility construction, renovation, repair, and alteration projects over the next five years to support future mission requirements and to comply with anti-terrorism/force protection (AT/FP) criteria. The construction of these facilities would occupy approximately 1.8 million ft², many of which would occur after the demolition of older structures and additions to existing facilities. It is estimated that the construction projects on MacDill AFB would add only 600,000 ft² of impervious surfaces. The construction of new facilities would be zoned in appropriate land use areas continuing the compatibility of designated land uses. The construction of some facilities would be required to take place within the MacDill AFB floodplain as there is no practicable alternative due to other constraints (e.g., wetlands, airfield, safety, and shoreline) that must be avoided.

Infrastructure Projects. MacDill AFB proposes several facility infrastructure projects over the next five years to support future mission requirements. Facility infrastructure projects include installation of or upgrades to paved roadways, sidewalks, parking lots, utilities, recreation areas, and security fences. These improvements to the infrastructure would result in several thousand linear feet of new, repaired, and extended utility systems, road structure, pedestrian sidewalks, parking lots, and physical fitness areas.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

Short-term direct minor adverse effects resulting from construction and demolition activities would occur on the noise environment, air quality, safety, geological resources, water resources, biological resources, and hazardous materials and wastes. Adverse effects associated with construction activities would be localized to the immediate area of construction and would subside following the end of construction in each area affected. Short-term indirect minor beneficial effects on socioeconomics would also occur on the local community from construction costs; however, expenditures associated with construction are short-term and would have no long-lasting community benefits.

Long-term direct minor beneficial effects on land use, safety, and infrastructure would be expected from the construction of new facilities and demolition of existing facilities on the installation.

Short-term minor adverse and long-term minor beneficial effects would be expected as a result of the removal of asbestos-containing material and lead-based paint in older buildings. All removal and abatement procedures would be in accordance with Federal, state, and local regulations. Short-term adverse effects on safety as a result of exposure to fumes could occur during construction activities in Environmental Restoration Program (ERP) sites. Construction within and disposal of contamination within ERP sites would be accomplished in accordance with Federal, state, and local regulations.

The Proposed Action would avoid siting projects in wetlands and areas where threatened and endangered species are known to occur. However, several projects would occur near wetlands and near areas where threatened and endangered species occur due to the prevalence of these sensitive areas on MacDill AFB. When a project is sited near a wetland, the wetland would be delineated and avoided during construction. Furthermore, all projects near wetlands would be coordinated with the Federal and state regulatory agencies to ensure best management practices are used to reduce the potential for adverse effects associated with erosion and sedimentation. Construction activities in areas where threatened and endangered species could occur would take place outside the nesting season. Projects with the potential

to affect any species that is federally or state-protected would be coordinated with the appropriate agencies to ensure that specific measures to reduce the potential for adverse effects are outlined. If adverse effects are identified on wetlands (i.e., if a project is sited in a delineated wetland) or threatened and endangered species (i.e., if a project would adversely affect a protected species under the Endangered Species Act or the Florida Endangered or Threatened Species Act), then additional NEPA analysis will be required.

No direct or indirect effects on archaeological resources or traditional cultural properties would be expected because these areas would be avoided during all construction activities. Adverse effects on historical architectural resources could occur as a result of modifications to and within the MacDill Field Historic District and Cold War-era structures. As identified in the MacDill AFB Integrated Cultural Resources Management Plan, all demolition and construction activities with the potential to affect an historical resource would be coordinated with the Florida State Historic Preservation Office prior to initiation. Modification or destruction of historic resources would result in adverse effects, but these adverse effects will be mitigated and minimized in accordance with Section 106 of the National Historic Preservation Act. Long-term beneficial effects would be expected by increasing utility and function of historic structures and preventing deterioration.

MacDill AFB developed the FPMP as a guide to future development by preserving the beneficial functions of the floodplain and reducing the potential for property loss and other environmental effects. All installation development activities would be implemented in accordance with the FPMP. Given the existing geographic location and the lack of developable land on MacDill AFB, there is no practicable alternative to implementing the Proposed Action within the floodplain.

PUBLIC REVIEW AND INTERAGENCY AND INTERGOVERNMENTAL COORDINATION PLANNING

The Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) process was conducted from 21 January to 21 February 2006, and Public Review of the EA was conducted from 2 August to 1 September 2006.

FINDING OF NO SIGNIFICANT IMPACT/FINDING OF NO PRACTICABLE ALTERNATIVES

I conclude that the environmental effects of the proposed installation development at MacDill AFB are not significant, that preparation of an Environmental Impact Statement is unnecessary, and that a FONSI/FONPA is appropriate. Pursuant to Executive Order 11988, *Floodplain Management*, and the authority delegated by Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action and that the Proposed Action includes all practicable measures to minimize harm to the floodplain. The preparation of the EA is in accordance with NEPA, Council on Environmental Quality regulations, and 32 Code of Federal Regulations Part 989, as amended.



LEONARD A. PATRICK, Colonel, USAF
Director, Installations & Mission Support

12 Feb 07

Date

COVER SHEET

ENVIRONMENTAL ASSESSMENT OF INSTALLATION DEVELOPMENT AT MACDILL AIR FORCE BASE, FLORIDA

Responsible Agencies: U.S. Air Force (USAF), Headquarters Air Mobility Command (AMC), Scott Air Force Base (AFB), Illinois, and MacDill AFB, Florida.

Affected Location: MacDill AFB, Hillsborough County, Florida.

Proposed Action: Implementation of approved installation development plans, and Base Realignment and Closure (BRAC) approved actions.

Report Designation: Environmental Assessment (EA).

Written comments and inquiries regarding this document should be directed to Mr. Jason Kirkpatrick, 6 CES/CEVN, 7621 Hillsborough Loop Drive, MacDill AFB, Florida 33621-5207.

Abstract: MacDill AFB utilizes numerous wing plans to project installation development requirements. These plans propose demolition, construction, renovation, and infrastructure improvement activities intended to ensure that the installation can sustain its current and future national security operations and mission-readiness status. These activities include installation development projects contained in the MacDill AFB General Plan and the community of all existing approved development plans. MacDill AFB seeks to improve the continuing installation development process by evaluating in a single EA all actions proposed in the MacDill AFB wing-approved community of plans for installation development. The scope of the IDEA 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 includes numerous projects, such as new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure upgrades, demolition of aging facilities, and recreational upgrades that would be completed/implemented during the next 5 years. The Proposed Action also includes the projects approved in the BRAC 2005 process for MacDill AFB. The intent of this IDEA is to address the Proposed Action of implementing installation development actions as found in the community of all existing approved management plans for the installation concerning continuing development on MacDill AFB. This assessment also includes the projects approved in the BRAC 2005 process for MacDill AFB.

Through this Installation Development EA (IDEA), MacDill AFB provides a constraints-based environmental impact analysis of installation development actions projected for the installation over the next 5 years. A constraints approach enables MacDill AFB to evaluate environmental concerns that exist throughout the installation and those unique to specific areas of the installation. The analysis draws from the knowledge gained from extensive recent evaluations for similar types of projects to determine the direct, indirect, and cumulative effects of projects that will be completed as part of the installation's development.

This EA has been prepared to evaluate the Proposed Action and alternatives, including the No Action Alternative. If potentially significant impacts are determined to be associated with the Proposed Action during the course of preparing this IDEA, it may be necessary to prepare an Environmental Impact Statement (EIS). Resource areas addressed in the EA include noise, land use, air quality, safety, geological resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, hazardous materials and waste management, and infrastructure. The EA will be made available to the public for comments during development and upon completion.

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**ENVIRONMENTAL ASSESSMENT OF
INSTALLATION DEVELOPMENT AT
MACDILL AIR FORCE BASE, FLORIDA**

**HEADQUARTERS AIR MOBILITY COMMAND
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507 SYMINGTON DRIVE
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JANUARY 2007

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**ENVIRONMENTAL ASSESSMENT OF
INSTALLATION DEVELOPMENT AT
MACDILL AIR FORCE BASE, FLORIDA**

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Abbreviations and Acronyms	Inside Front and Back Covers
1. PURPOSE, NEED, AND SCOPE.....	1-1
1.1 Background	1-1
1.2 Purpose of and Need for the Proposed Action	1-1
1.3 Scope of the Analysis	1-3
1.4 Summary of Key Environmental Compliance Requirements	1-4
1.4.1 National Environmental Policy Act	1-4
1.4.2 Integration of Other Environmental Statutes and Regulations	1-5
1.4.3 Interagency Coordination and Public Involvement	1-5
1.5 Organization of this Document	1-5
2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES	2-1
2.1 Proposed Action	2-1
2.1.1 Major Installation Constraints	2-3
2.1.2 Demolition Projects	2-6
2.1.3 Construction Projects	2-7
2.1.4 Infrastructure Projects	2-8
2.2 Alternatives	2-8
2.2.1 Alternative 1 – Acquire Additional Land Surrounding MacDill AFB	2-8
2.2.2 Alternative 2 – Lease Additional Facilities in the Surrounding Community	2-8
2.2.3 Alternative 3 – Restrict Future Development to Areas of the Installation that are Not in the Floodplain	2-9
2.2.4 No Action Alternative	2-9
2.3 Decision to be Made and Identification of the Preferred Alternative	2-9
3. AFFECTED ENVIRONMENT	3-1
3.1 Noise	3-1
3.1.1 Definition of the Resource	3-1
3.1.2 Existing Conditions	3-2
3.2 Land Use	3-2
3.2.1 Definition of the Resource	3-2
3.2.2 Existing Conditions	3-2
3.3 Air Quality	3-4
3.3.1 Definition of the Resource	3-4
3.3.2 Existing Conditions	3-6
3.4 Safety	3-7
3.4.1 Definition of the Resource	3-7
3.4.2 Existing Conditions	3-7
3.5 Geological Resources	3-8
3.5.1 Definition of the Resource	3-8
3.5.2 Existing Conditions	3-8

3.6	Water Resources.....	3-9
3.6.1	Definition of the Resource	3-9
3.6.2	Existing Conditions	3-10
3.7	Biological Resources.....	3-12
3.7.1	Definition of the Resource	3-12
3.7.2	Existing Conditions	3-13
3.8	Cultural Resources	3-19
3.8.1	Definition of the Resource	3-19
3.8.2	Existing Conditions	3-21
3.9	Socioeconomics.....	3-28
3.9.1	Definition of the Resource	3-28
3.9.2	Existing Conditions	3-29
3.10	Infrastructure	3-32
3.10.1	Definition of the Resource	3-32
3.10.2	Existing Conditions	3-32
3.11	Hazardous Materials and Waste	3-34
3.11.1	Definition of the Resource	3-34
3.11.2	Existing Conditions	3-35
4.	ENVIRONMENTAL CONSEQUENCES	4-1
4.1	Noise.....	4-1
4.1.1	Significance Criteria.....	4-1
4.1.2	Environmental Consequences	4-2
4.2	Land Use	4-3
4.2.1	Significance Criteria.....	4-3
4.2.2	Environmental Consequences	4-3
4.3	Air Quality.....	4-4
4.3.1	Significance Criteria.....	4-4
4.3.2	Environmental Consequences	4-6
4.4	Safety.....	4-7
4.4.1	Significance Criteria.....	4-7
4.4.2	Environmental Consequences	4-7
4.5	Geological Resources	4-8
4.5.1	Significance Criteria.....	4-8
4.5.2	Environmental Consequences	4-8
4.6	Water Resources.....	4-8
4.6.1	Significance Criteria.....	4-8
4.6.2	Environmental Consequences	4-9
4.7	Biological Resources.....	4-10
4.7.1	Significance Criteria.....	4-10
4.7.2	Environmental Consequences	4-11
4.8	Cultural Resources	4-13
4.8.1	Significance Criteria.....	4-13
4.8.2	Environmental Consequences	4-13
4.9	Socioeconomics.....	4-15
4.9.1	Significance Criteria.....	4-15
4.9.2	Environmental Consequences	4-15
4.10	Infrastructure	4-16
4.10.1	Significance Criteria.....	4-16
4.10.2	Environmental Consequences	4-16

4.11 Hazardous Materials and Waste4-18
 4.11.1 Significance Criteria.....4-18
 4.11.2 Environmental Consequences4-19
4.12 No Action Alternative4-20
5. CUMULATIVE EFFECTS5-1
6. PREPARERS.....6-1
7. REFERENCES7-1

APPENDICES

A List of Proposed MacDill AFB Installation Development Projects
**B A Detailed Analysis of Potential Environmental Consequences Associated with the
Installation Development Projects at MacDill AFB, Florida**
C Applicable Laws, Regulations, Policies, and Planning Criteria
D Interagency Coordination and Public Review
E MacDill AFB Floodplain Management Plan
F Coastal Zone Consistency Statement
G Example Air Quality Emissions Calculations

FIGURES

<u>Figure</u>	<u>Page</u>
1-1. Location of MacDill AFB, Florida	1-2
2-1. MacDill AFB Land Use Areas	2-2
2-2. MacDill AFB Constraints Map.....	2-4
2-3. MacDill AFB Constraints with Floodplain Map	2-5
3-1. Locations of Protected Species Found on MacDill AFB.....	3-18
3-2. NRHP Eligible or Potentially Eligible Resources at MacDill AFB	3-24
3-3. Income and Poverty Level for Residents in ROI, MSA, and State of Florida.....	3-30
3-4. Educational Attainment for Residents in ROI, MSA, and the State of Florida	3-31
4-1. MacDill AFB Proposed Project Locations and Constraints	4-5

TABLES

<u>Table</u>	<u>Page</u>
2-1. Representative Demolition Projects	2-7
2-2. Representative Construction Projects	2-7
2-3. Representative Infrastructure Projects	2-8
3-1. Typical Outdoor Noise Levels.....	3-1
3-2. National Ambient Air Quality Standards.....	3-5
3-3. Annual Stationary and Area Source Emissions for MacDill AFB	3-6
3-4. Protected Species Potentially Occurring On or Near MacDill AFB.....	3-15
3-5. Fish and Invertebrate Species with EFH in Tampa and Hillsborough Bays.....	3-20
3-6. Archaeological Sites on MacDill AFB	3-22
3-7. NRHP Eligibility Status of Buildings within Historic Districts on MacDill AFB	3-25
3-8. Employment of Residents in ROI, MSA, and the State of Florida.....	3-30
3-9. Potential Environmental Justice Indicators of Tracts 70 and 72, MSA, and the State of Florida.....	3-31
4-1. Predicted Noise Levels for Construction Equipment at MacDill AFB.....	4-2
4-2. Annual Construction Emissions Estimates from the Proposed Action.....	4-7
4-3. Project Construction and Demolition Waste Generation from Proposed Action	4-18

1. Purpose, Need, and Scope

The 6th Air Mobility Wing (6 AMW) at MacDill Air Force Base (AFB), Florida, and Headquarters (HQ) Air Mobility Command (AMC) believe a comprehensive U.S. Air Force (USAF) Environmental Impact Analysis Process (EIAP) document would improve the continuing activity of installation development and streamline the National Environmental Policy Act (NEPA) compliance process. As a result, 6 AMW and HQ AMC have initiated an evaluation in this Environmental Assessment (EA) of all foreseeable and reasonable planned and programmed projects for the next 5 years. Since the establishment of MacDill AFB, as with all other USAF installations, a continuing activity of installation development has been occurring. Every year in the history of the installation, structures have been demolished, new facilities constructed, and infrastructure upgraded. This document will constitute an Installation Development Environmental Assessment (or “IDEA”). The intent of this IDEA is to address the Proposed Action of implementing installation development actions as found in the community of all existing approved management plans for the installation concerning continuing development on MacDill AFB.

This section of this document includes five subsections: background information on the location and mission of MacDill AFB, a statement of the purpose of and the need for the Proposed Action, an overview of the scope of the analysis, a summary of key environmental compliance requirements, and an introduction to the organization of this EA.

1.1 Background

MacDill AFB is at the southern tip of the Interbay Peninsula, Hillsborough County, Florida. The installation is under the command and control of AMC. MacDill AFB is a 5,638-acre USAF installation approximately 8 miles south of downtown Tampa, Florida (see **Figure 1-1**). MacDill AFB is headquarters to the 6 AMW and is also home to more than 50 mission partners, including the U.S. Central Command (USCENTCOM) and the U.S. Special Operations Command (USSOCOM). The presence of these two unified commands and other tenant units creates a unique multiservice community at MacDill AFB, with all branches of service represented. The 6 AMW provides worldwide air refueling and airlift in support of the USAF’s Global Reach/Global Power mission. The 6 AMW also provides administrative, medical, and logistical support for USCENTCOM, USSOCOM, and other tenants.

Approximately 80 percent of the MacDill AFB land mass lies in the 100-year coastal floodplain. MacDill AFB, like all Federal agencies, is required to evaluate proposed construction activities under NEPA. MacDill AFB’s unique location also requires analysis of construction activities consistent with Executive Order (EO) 11988, *Floodplain Management*, and EO 11990, *Protection of Wetlands*.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to implement installation development projects on MacDill AFB as found in the community of all existing 6 AMW-approved plans, such as the General Plan, for development on the installation. The community of installation development plans is linked to individual funding programs, such as Military Construction (MILCON), Operations and Maintenance (O&M), Military Family Housing (MFH), Anti-Terrorism/Force Protection (AT/FP), Nonappropriated Funds (NAF), and others. Projects approved in the 2005 Base Realignment and Closure (BRAC) process are also included. The MacDill AFB community of plans was examined to provide a consolidated list of projects that are planned and programmed over the next 5 years for the continued physical development of the installation to support air mobility and unified command missions. These plans provide a

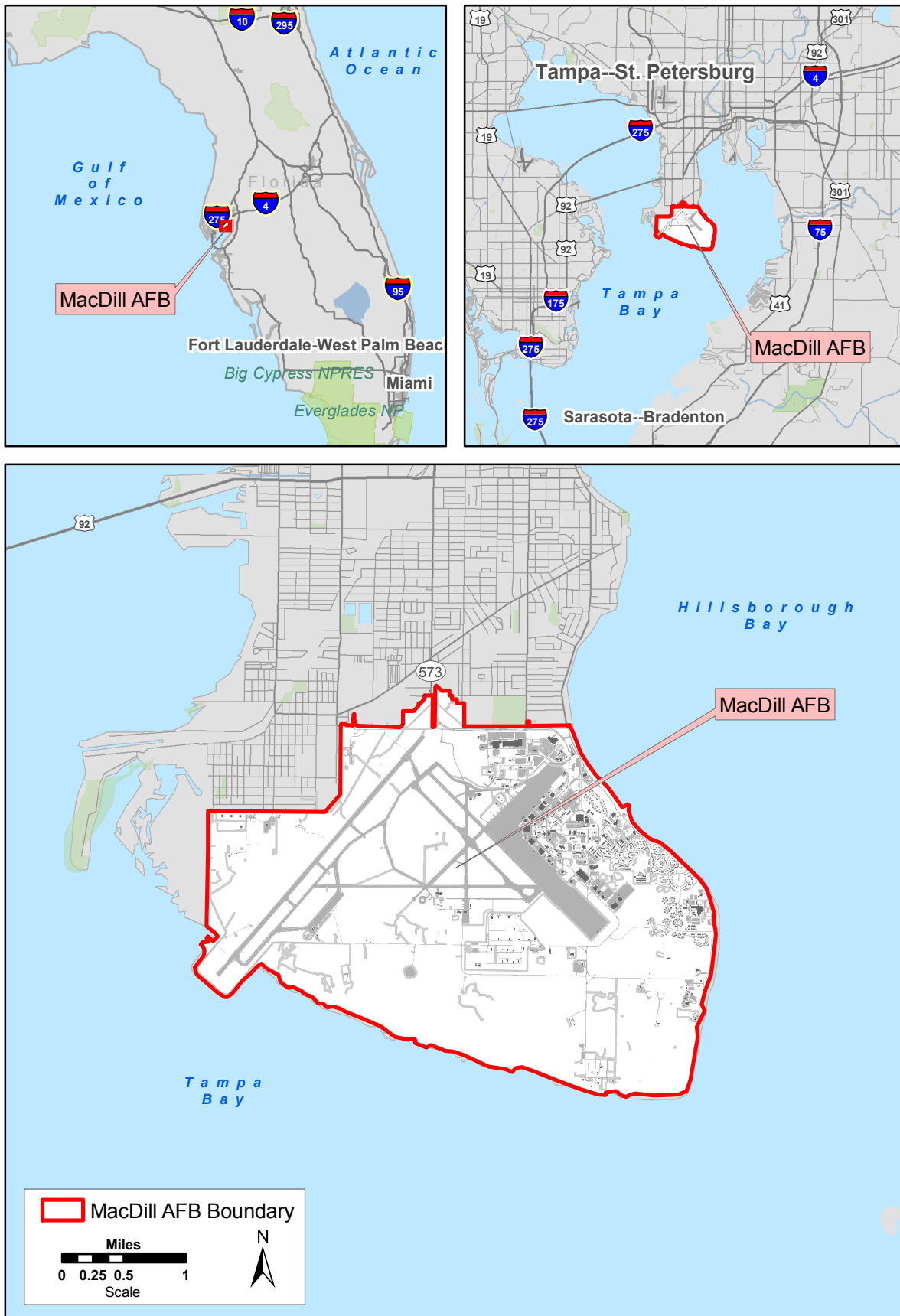


Figure 1-1. Location of MacDill AFB, Florida

road map for future development of the installation to accommodate future mission and facility requirements. These plans include projects for the installation's future facility development, transportation improvements, airfield and utility infrastructure enhancements, development constraints and opportunities, and land use relationships.

A compilation of all projects from the MacDill AFB wing-approved community of installation development plans addressed in this IDEA is presented in **Appendix A**. Some of the projects identified in the MacDill AFB community of installation development plans are appropriate for the application of Categorical Exclusion (CATEX) rules and are not analyzed in this IDEA.

The need for the Proposed Action is to be able to meet current and future mission requirements and national security objectives associated with MacDill AFB. This would involve meeting ongoing mission requirements that necessitate the repair and upgrade of base utilities, pavements, and facilities; improve the efficiency and effectiveness of forces and provide Distinguished Visitor support with capability to expand; replace older, substandard facilities with new buildings that are on a par with workplaces outside the gate; provide reliable utilities, quality housing, and an efficient transportation system to support MacDill AFB; and prepare to accept additional missions from current BRAC actions. In addition, morale and welfare projects that are a critical part of supporting the warfighter are included. Continued development of infrastructure at MacDill AFB 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. Contributions by MacDill AFB to national security, as well as prospects for the assignments of additional missions in the future, dictate that the installation implement planning for the next 5 years. To ensure the complete usefulness of the installation 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.

1.3 Scope of the Analysis

MacDill AFB seeks to improve the continuing installation development process by evaluating in a single EA all actions proposed in the MacDill AFB wing-approved community of plans for installation development. The scope of the IDEA 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 includes numerous projects, such as new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure upgrades, demolition of aging facilities, and recreational upgrades that would be completed/implemented during the next 5 years. The Proposed Action also includes the projects approved in the BRAC 2005 process for MacDill AFB.

This IDEA evaluates the impacts of a Proposed Action that encompasses the continuing activities of demolition, construction, and infrastructure repair/improvements inherent to MacDill AFB adapting to ever-evolving mission requirements. This IDEA will identify, document, and evaluate the effects of all activities involved in modernizing and upgrading MacDill AFB to meet future requirements. The IDEA will present and analyze potentially adverse direct, indirect, and cumulative environmental impacts resulting from implementation of MacDill AFB's installation development (the Proposed Action) with emphasis on avoiding impacts on environmentally sensitive areas.

The types of installation development activities included as part of the Proposed Action involve site preparation; construction of new facilities; facility upgrades; repair and alterations of existing facilities and base infrastructure replacement and upgrade; replacement and expansion of facilities; landscaping; maintenance and upgrades to storm drainage system, sewer system, and other utilities; AT/FP

improvements; and demolition of facilities. These activities fall under one of three categories: facilities demolition projects, facilities construction projects (to include renovations, alterations, and repairs), and infrastructure projects. These three categories were identified for use in this document because they allow the grouping of development initiatives by generally common elements of their activity and the nature of their potential environmental impacts. Within each group, the IDEA analyzes in detail the environmental impacts resulting from the activities for a subset of representative projects ranging in size, acreage disturbed, air emissions, impervious surface increase, vegetation disturbed, effects on threatened and endangered species, and other relevant resources. For example, if several large structures to be demolished range from 25,000 square feet (ft²) to 75,000 ft², and the largest buildings to be constructed range from 100,000 ft² to 254,000 ft², the analytical methodology utilized for the IDEA is to provide analyses of the impacts resulting from these demolition or construction projects. All other buildings scheduled for demolition or construction would be compared to these representative projects and their environmental impacts analyzed and summarized. The IDEA also analyzes the siting of construction activities based on environmental constraints.

Section 4 of this IDEA presents a general analysis of each of the representative projects for demolition, construction, and infrastructure that are described in **Sections 2.1.2, 2.1.3, and 2.1.4**, respectively. All projects in each category are listed in **Appendix A** and are analyzed in detail in **Appendix B**.

The collective analysis of all appropriate projects in a single EA will streamline the NEPA review process; eliminate project fractionation and segmentation; facilitate coordination of land use planning; reduce installation, reviewing agency, and major command (MAJCOM) workloads; provide cost savings; help better evaluate potential cumulative environmental impacts; assist in maintaining a baseline for future analysis; and meet the USAF's EIAP goals.

1.4 Summary of Key Environmental Compliance Requirements

1.4.1 National Environmental Policy Act

NEPA (42 United States Code [U.S.C.] Section 4321–4347) is a Federal statute requiring the identification and analysis of potential environmental impacts associated with proposed Federal actions before those actions are taken. The intent of NEPA is to help decisionmakers make well-informed decisions based on an understanding of the potential environmental consequences and take actions to protect, restore, or enhance the environment. NEPA established the Council on Environmental Quality (CEQ) that was charged with the development of implementing regulations and ensuring Federal agency compliance with NEPA. The CEQ regulations mandate that all Federal agencies use a prescribed structured approach to environmental impact analysis. This approach also requires Federal agencies to use an interdisciplinary and systematic approach in their decisionmaking process. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action.

The process for implementing NEPA is codified in Title 40 CFR, Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ was established under NEPA to implement and oversee Federal policy in this process. The 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.

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

1.4.2 Integration of Other Environmental Statutes and Regulations

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

The IDEA examines potential effects of the Proposed Action and alternatives on 11 areas: noise, land use, air quality, safety, geological resources, water resources, biological resources, cultural resources, socioeconomic and environmental justice, hazardous materials and waste management, and infrastructure. These were identified as being potentially affected by the Proposed Action and include applicable critical elements of the human environment that are mandated for review by EO, regulation, or policy. **Appendix C** contains examples of relevant laws, regulations, and other requirements that are often considered as part of the analysis. Where useful to provide the reader with better understanding, key provisions of the statutes and EOs are discussed in more detail in the text.

1.4.3 Interagency Coordination and Public Involvement

NEPA ensures that environmental information is made available to the public during the decisionmaking 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 their actions to state and local governments and the public and involve them in the planning process. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning (IICEP)*, requires the USAF to implement the IICEP process, which is used for the purpose of facilitating agency coordination and implements scoping requirements under NEPA.

On January 18, 2006, AMC notified relevant Federal, state, and local agencies of the Proposed Action. Agencies were given until February 21, 2006, to provide any comments or information concerning the Proposed Action. Two responses were received. **Appendix D** includes the IICEP correspondence letter, distribution list, and IICEP responses.

On August 2, 2006, AMC published a Notice of Availability in the *Tampa Tribune*, initiating a 30-day review period for the Draft IDEA and Draft FONSI/FONPA. The Draft IDEA and Draft FONSI/FONPA were distributed for agency review and made available in the Tampa/Hillsborough County Public Library through September 1, 2006. No comments were received. **Appendix D** includes the Notice of Availability.

1.5 Organization of this Document

This IDEA is organized into seven sections. **Section 1** contains background information on MacDill AFB and the location of the Proposed Action, the purpose of and the need for the Proposed Action, the scope

of the IDEA analysis, a summary of applicable regulatory requirements, and an introduction to the organization of the EA. **Section 2** provides a detailed description of the Proposed Action, 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** 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** presents an analysis of the potential environmental consequences for a range of projects (i.e., demolition, construction, and infrastructure upgrades/replacements) covering all future installation development. **Section 5** includes an analysis of the potential cumulative impacts on MacDill AFB. **Section 6** lists the preparers of the document. **Section 7** lists the sources of information used in the preparation of the document.

Appendix A presents the list of proposed MacDill AFB installation development projects. **Appendix B** contains the detailed analysis of the potential environmental consequences of all projects. **Appendix C** includes descriptions of applicable laws, regulations, policies, and planning criteria. **Appendix D** includes a copy of the IICEP letter mailed to the agencies for this action, the IICEP distribution list, and responses to the IICEP letter. **Appendix E** contains the *MacDill AFB Floodplain Management Plan*. **Appendix F** contains the Coastal Zone Consistency statement. **Appendix G** contains example air quality emissions calculations.

2. Description of the Proposed Action and Alternatives

This section presents information on the Proposed Action related to the implementation of installation development as described in the MacDill AFB General Plan and the community of all existing wing-approved installation development plans. This assessment also includes the projects approved in the 2005 BRAC process for MacDill AFB. **Section 2.1** describes the Proposed Action at MacDill AFB. **Section 2.2** identifies alternatives to the Proposed Action, including the No Action Alternative. **Section 2.3** identifies the decision to be made and the Preferred Alternative.

2.1 Proposed Action

The Proposed Action is to implement continuing installation development actions as found in the community of all existing approved development plans for MacDill AFB. This action would enable MacDill AFB to meet installation development requirements and therefore ensure readiness for future national defense missions. The Proposed Action would include numerous installation development projects for the next 5 years that would be required to maintain MacDill AFB's mission readiness as described in the MacDill AFB community of installation development plans. The projects analyzed in the IDEA fall under three categories: facilities demolition projects, facilities construction projects (to include renovations, alterations, and repairs), and infrastructure projects. This assessment also includes the projects approved in the 2005 BRAC process for MacDill AFB. **Appendix A** provides a listing of all the installation development projects analyzed in this IDEA.

The projects included as the Proposed Action have been organized into three categories (i.e., demolition, construction, and infrastructure upgrades). For the purposes of describing the specific types of projects included as the Proposed Action, representative projects from each of the demolition, construction, and infrastructure categories are listed in **Sections 2.1.2, 2.1.3, and 2.1.4**, respectively. These representative projects are listed here in the description of the Proposed Action only to provide examples of the various types of projects within each category; however, the total suite of projects that make up the Proposed Action is listed in **Appendix A** and evaluated in **Appendix B**. The total potential impacts associated with implementation of each of the projects in **Appendix A** are evaluated in this EA. Implementation of the Proposed Action would allow MacDill AFB to properly plan for their future budgeting cycles and ensure their readiness for future national defense and homeland security requirements.

All proposed construction and other activities within a floodplain must adhere to the requirements of EO 11988, *Floodplain Management*, and the *MacDill AFB Floodplain Management Plan (FPMP)*. The FPMP is provided in **Appendix E**. The construction of Federal structures and facilities must be in accordance with the standards and criteria of those standards promulgated under the National Flood Insurance Program. If new construction of structures or facilities is to be located in a floodplain, accepted floodproofing and other flood protection measures would be applied to new construction or renovation. To achieve flood protection, agencies would, wherever practicable, elevate structures above the base flood level rather than filling in land.

All construction would comply with fire and safety codes. The proposed construction projects would be implemented using sustainable design concepts. Sustainable design concepts emphasize state-of-the-art strategies for site development, efficient water and energy use, and improved indoor environmental quality. Each project would be sited in a manner compatible with MacDill AFB's land use categories (see **Figure 2-1**) and consequently would result in minimum impact on sensitive constrained areas, as discussed in **Sections 3 and 4**.

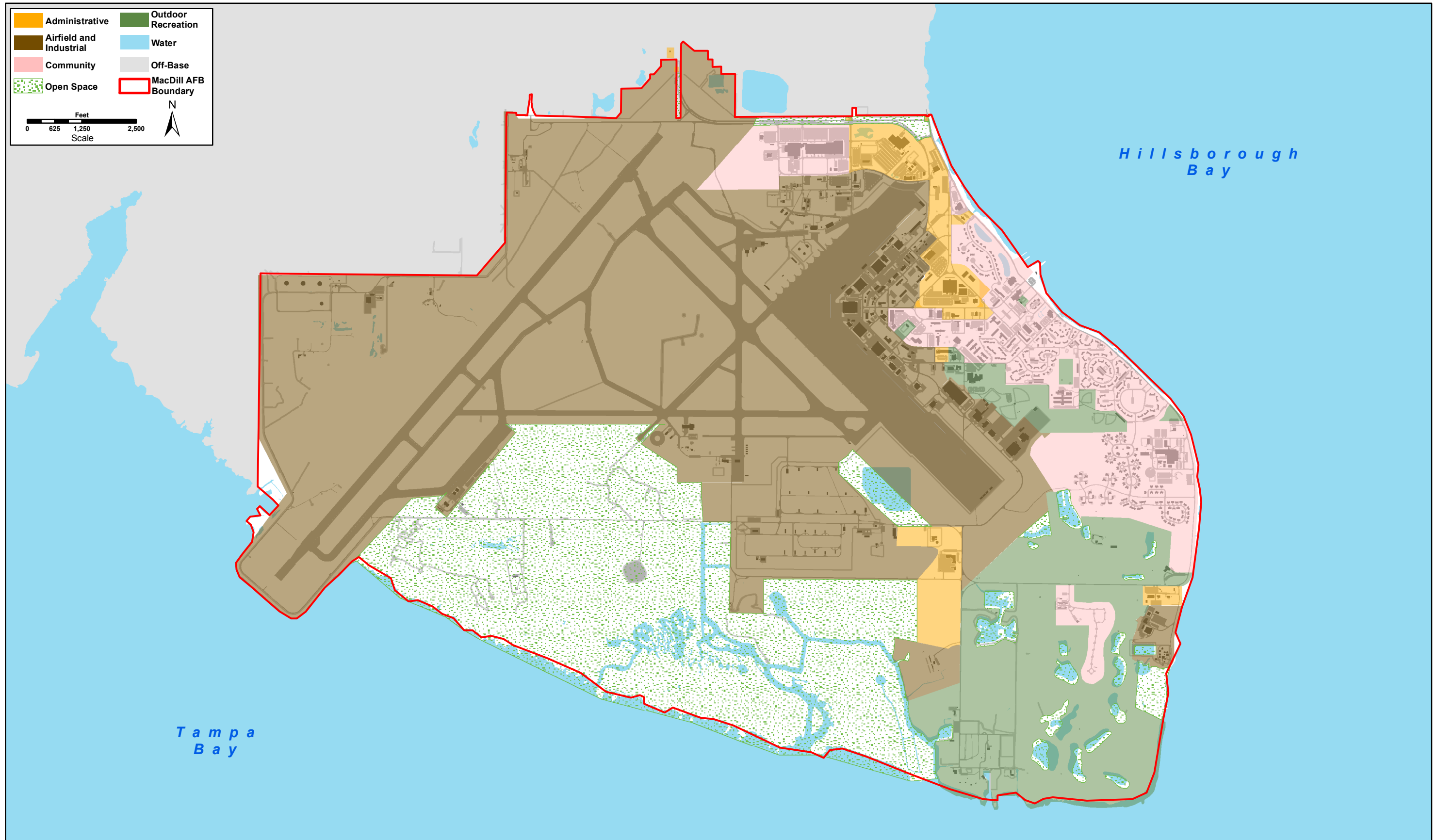


Figure 2-1. MacDill AFB Land Use Areas

The exterior and interior design of the new facilities would follow the design guidelines outlined in the *Air Mobility Command Civil Engineering Squadron Design Guide* and the *MacDill AFB Architectural Compatibility Design Plan*. This would help develop a consistent and coherent architectural character throughout MacDill AFB. Landscaping would be used to provide an attractive and professional-looking installation by using plants, shrubs, and trees to blend with the surrounding environment. AT/FP measures would be incorporated in accordance with the *USAF Installation Force Protection Guide*.

The IDEA analyzes in detail the representative projects listed in **Sections 2.1.2** through **2.1.4** as those projects that were considered to represent all projects with the potential for the greatest impacts on the natural and man-made environments. The remainder of the projects in each category are analyzed and presented in **Appendix B** (see **Tables B-19** through **B-21**), depicting their potential impacts on environmental resources.

2.1.1 Major Installation Constraints

There are a number of land use, regulatory, and mission-related constraints within the boundaries of MacDill AFB that will influence and could limit future development at the installation. The major constraints on MacDill AFB are listed below and depicted in **Figure 2-2** and **Figure 2-3**. Some constraint areas overlap and therefore the acreages listed below do not add up to the actual total acreage of MacDill AFB.

- ***Airfield Infrastructure, Clear Zones, and Imaginary Surfaces (2,440 acres)***. These areas would allow only airfield improvements and projects directly associated with airfield operations. All projects within this area must be approved by the Facility Utilization Board (FUB) and airfield management prior to commencing any construction-related activities.
- ***Wetlands (1,195 acres)***. It is USAF policy not to construct new facilities within areas containing wetlands where practicable. None of the projects covered in this IDEA would be developed in any delineated jurisdictional wetlands on MacDill AFB. To construct within areas containing wetlands, appropriate permits from county, state, and Federal regulatory agencies must be obtained. In addition, in accordance with EO 11990, a FONPA must be prepared and approved by HQ AMC.
- ***Coastal Zone Management Act (CZMA)***. MacDill AFB contains 7.2 miles of coastline along its base boundary. Coastal zones are regulated under the Florida Coastal Zone Protection Act (1985) by the Florida Department of Environmental Protection (FDEP). Under the program (Florida Statute, Chapter 161, *Beach and Shore Preservation*), permits are required for any erosion-control devices, excavations, or erection of structures within established coastal construction control lines (CCCL). All new construction within the coastline areas must be approved by the FUB and 6th Civil Engineering (6 CE). For informational purposes, the Coastal Zone Consistency statement is in **Appendix F**.
- ***Threatened and Endangered Species and Associated Habitats (150 acres)***. There are a number of known threatened and endangered (T&E) animal species on MacDill AFB. Some of the projects covered in this IDEA would be developed in or near existing T&E species on MacDill AFB. MacDill has agreements with the U.S. Fish and Wildlife Service (USFWS) to do work only during non-nesting seasons. Construction within T&E habitat must be coordinated with the USFWS by 6 CE. In addition, a USFWS Section 7 Biological Opinion, as required under the Endangered Species Act (ESA) of 1973, must be obtained prior to commencing construction activities within these areas.

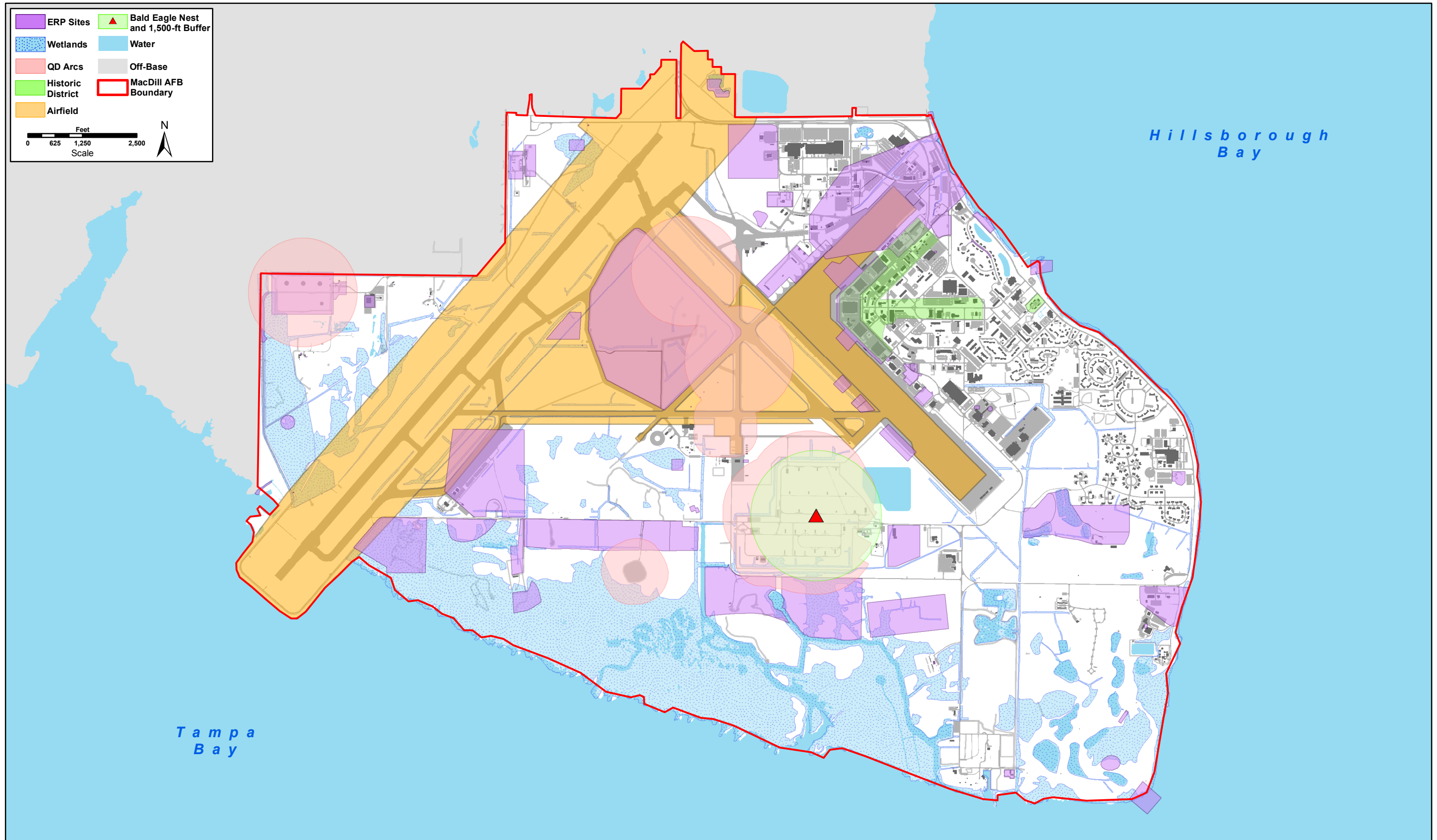


Figure 2-2. MacDill AFB Constraints Map

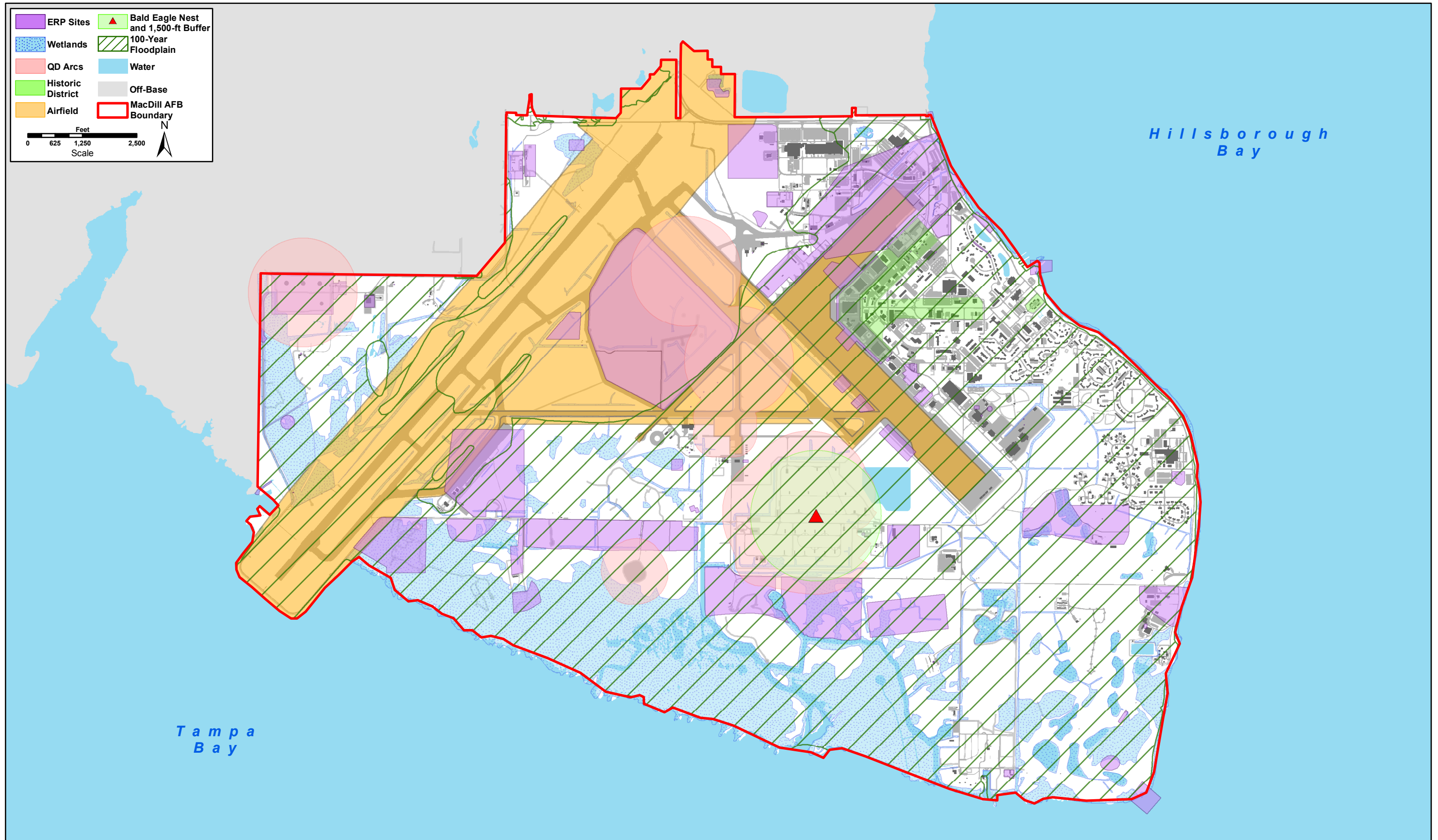


Figure 2-3. MacDill AFB Constraints with Floodplain Map

- **Cultural Resources, Historic Buildings, and Archaeological Sites (90 acres).** There are a number of known prehistoric and historic archaeological sites and historic buildings on MacDill AFB. Some of the projects covered in this IDEA would be developed in or near an existing historic district on MacDill AFB. Construction within or demolition of cultural resource sites must be coordinated with the State Historic Preservation Office (SHPO), the FUB, and 6 CE Environmental Flight.
- **Environmental Restoration Program (ERP) Sites (995 acres).** MacDill AFB contains 75 Solid Waste Management Units (SWMUs) and ERP sites. New facilities may be constructed within certain ERP sites depending upon the level of contamination, clean-up efforts, and land use controls (LUCs). Approval of new construction within ERP sites must be obtained from the FUB and coordinated with 6 CE.
- **Quantity Distance (QD) arcs.** There are several areas that are constrained for safety reasons by QD clear zones at MacDill AFB. The safety zone associated with the weapons storage area (WSA) creates the largest area of the base constrained by a QD zone. The WSA has a 1,250-foot QD clear zone that limits development in this area. The aviation Fuel Farm has a QD of 1,250 feet. A less restrictive QD arc of 500 feet is associated with the Explosive Ordnance Disposal (EOD) pit on the south side of the base. In addition, the skeet range and small arms range have restrictions limiting development in these areas.
- **100-Year Floodplain (4,510 acres).** It is USAF policy to avoid constructing new facilities within the 100-year floodplain in order to protect the functions of floodplains, minimize the potential damage to facilities, and ensure the safety of working personnel. MacDill AFB's rationale for development includes protecting and enhancing the natural environment through a systematic and holistic approach to base development. Should construction within the 100-year floodplain be considered, a FONSI/FONPA must be obtained and the project must be approved by HQ AMC. If approved, most new structures on MacDill AFB must be elevated at least 11.5 feet above the 100-year floodplain/storm surge level and must be able to withstand sustained winds of up to 100 miles per hour (mph) and wind gusts of 120 mph.

As a general practice, MacDill AFB seeks to avoid, where possible, disturbance activities in coastal zones, floodplains, wetlands, areas where sensitive species nest, Environmental Restoration sites, and areas designated as historic or culturally sensitive. However, due to the expanse of constrained areas on MacDill AFB (i.e., approximately 95 percent of the installation's acreage), avoiding or restricting future development within this acreage would not be practical and would severely limit the installation's ability to successfully accomplish its missions. When these resources cannot be avoided, coordination with the appropriate regulatory agencies always would be completed prior to initiating any action. All construction and other activities that would occur in the floodplain would comply with the requirements of the FPMP and other best management practices (BMPs).

2.1.2 Demolition Projects

MacDill AFB proposes numerous facility demolition projects for the next 5 years (see **Appendix A**) to support its future mission requirements. These facilities have been deemed too costly to repair or renovate to meet the future mission needs of MacDill AFB. The demolition of these facilities would make available approximately 1.2 million ft² of usable land area, minimizing the area of undisturbed land required for new sitings. **Table 2-1** identifies projects that would be representative of the types of demolition projects proposed. These demolition projects have been selected because they would have the highest potential to impact the natural and man-made environments and therefore provide upper limits for potential impacts from the other projects in the category. All other demolition-related projects (see **Appendix A**) are analyzed in **Appendix B** (see especially **Table B-19**) with an assessment of their potential impacts on environmental resources.

Table 2-1. Representative Demolition Projects

Project Title	Area Demolished (ft ²)
Demolish Bldg. 254 (Dormitory)	25,392
Demolish Unused Airfield Pavements	1,000,000
Demolish Bldg. 308, 312, 366, and 397 (VQ, O'Club, and Swimming Pool)	75,000

2.1.3 Construction Projects

MacDill AFB proposes numerous facility construction, renovation, repair, and alteration projects over the next 5 years (see **Appendix A**) to support its future mission requirements and to comply with force protection criteria. The construction of these facilities would occupy approximately 1.8 million ft². This square footage for new facilities is close to the same square footage planned for the demolition projects; therefore the need to use additional pervious land for new projects is minimized. The construction of new facilities would be zoned in appropriate land use areas and thus continuing the compatibility of designated land uses. **Table 2-2** identifies projects that would be representative of the types of construction projects proposed. These construction projects have been selected because they would have the highest potential to impact the natural and man-made environments and provide the upper limit for potential impacts from the other projects in the category. All other construction-related projects (see **Appendix A**) are analyzed in **Appendix B** (see especially **Table B-20**) with an assessment of their potential impacts on environmental resources.

Table 2-2. Representative Construction Projects

Project Title	Area Constructed or Renovated (ft ²)
Proposed BRAC Actions <i>Renovate Bldg. 5 (hangar) for KC-135 Aircraft (73,000 ft²), Construct New AFRC Wing HQ Building (37,000 ft²), Renovate Bldg. 6 for Squadron Operations (30,000 ft²), Construct New AFRC Training Center (25,000 ft²), Alter Warehouse and Small Arms Storage (Bldg. 49) (25,000 ft²), Renovate Bldg. 53 for Group HQ (19,000 ft²), Renovate Bldg. 54 for MOCC (17,000 ft²), Renovate Bldg. 55 for AFRC Squadron Operations (17,000 ft²), Construct AFRC CE and Disaster Preparedness Training Center (12,000 ft²), Renovate Bldg. 48 for AFRC APS (10,900 ft²), Construct New Life Support Building (10,000 ft²), Renovate Bldg. 9 for Consolidated Command Post (8,300 ft²), Renovate Bldg. 183 for Current Operations (8,000 ft²), Construct Security Forces Squadron Training Building (6,000 ft²), Renovate Bldg. 187 for AFRC Current Operations (5,600 ft²), Add to Bldg. 187 for AFRC AMU (5,600 ft²), Renovate Bldg. 189 for AFRC AMX (5,600 ft²), Add to Bldg. 189 for AMU (5,600 ft²), Renovate Bldg. 193 for AMX (5,600 ft²), Add AFRC Services/Communications Administrative Annex to AFRC HQ Building once constructed (5,000 ft²), Construct AFRC Fire Fighting/Administrative Training Building (5,000 ft²), Construct AFRC Aeromedical Staging Squadron Training Facility (5,000 ft²)</i>	341,200
Construct SOF University Facility	50,000
Construct New Clinic and AFRC Aerospace Medicine Flight Training Facility	259,000

2.1.4 Infrastructure Projects

MacDill AFB proposes numerous facility infrastructure projects over the next 5 years (see **Appendix A**) to support future mission requirements and to comply with force protection requirements. Facility infrastructure projects include installation or upgrades to paved roadways, sidewalks, parking lots, utilities, shorelines, recreation, and fences to improve the base infrastructure capacity to meet the demands of the future. The improvements in infrastructure projects would result in 1.1 million ft² of new, repaired, and/or extended sidewalks, roads, parking lots, and sports fields. **Table 2-3** identifies projects that would be representative of the types of infrastructure projects proposed. These facility infrastructure projects have been selected because they would have the highest potential to impact the natural and man-made environments and therefore provide upper limits for potential impacts from the other projects in the category. All other infrastructure-related projects (see **Appendix A**) are analyzed in **Appendix B** (see especially **Table B-22**) with an assessment of their potential impacts on environmental resources.

Table 2-3. Representative Infrastructure Projects

Project Title	Project Size
Construction of Parking Lot for NOAA and AFRC	200,000 ft ²
Construction of Soccer Field and Track	74,250 ft ²
Expand Great Egret Avenue	20,000 ft ²

2.2 Alternatives

2.2.1 Alternative 1 – Acquire Additional Land Surrounding MacDill AFB

Under this alternative, MacDill AFB would purchase land outside its present boundaries and outside the 100-year floodplain to construct some of the facilities needed for future mission requirements. The Department of Defense (DOD) discourages installations from acquiring more land through purchases. In fact, the DOD is attempting to dispose of many acres of underutilized acreage at numerous installations in the United States. There are limited tracts of land available to the east and south of MacDill AFB due to the presence of Hillsborough Bay. In addition, there is no land available for purchase to the west and north of the base due to private development/encroachment and the presence of mangrove wetlands that cannot be developed. For these reasons, this alternative is not considered viable and is eliminated from further detailed analysis in the IDEA.

2.2.2 Alternative 2 – Lease Additional Facilities in the Surrounding Community

Under this alternative, MacDill AFB would lease office and warehouse space in the surrounding community to house personnel and provide space for mission operations. This alternative would result in an insufficient span of control for the command and control function. The leased facilities would have to meet the DOD force protection requirements resulting in additional costs. This alternative is not considered viable and is eliminated from further detailed analysis in the IDEA.

2.2.3 Alternative 3 – Restrict Future Development to Areas of the Installation that are Not in the Floodplain

Under this alternative, MacDill AFB would construct future facilities in areas on base outside the floodplain. The floodplain at MacDill AFB occupies 80 percent of the base, leaving only 1,127 acres outside the floodplain. Eighty percent of the land mass available outside the floodplain is occupied by the airfield and clear zones and another 17 percent is occupied by drainage ditches, culvert, roads, and sidewalks. This leaves approximately 3 percent (34 acres) of land mass at MacDill AFB outside the floodplain and free from other constraints available for construction. This amount of land is not sufficient to meet the demands of future requirements and does not complement current land use planning on MacDill AFB. Restriction of future development of the installation's infrastructure would result in mission impairment. This alternative is not considered viable and is eliminated from further detailed analysis in the IDEA.

2.2.4 No Action Alternative

Under the No Action Alternative, MacDill AFB would not accomplish an IDEA for projects on MacDill AFB as described in this EA. MacDill AFB would not implement the projects proposed in the installation's community of plans. In general, implementation of the No Action Alternative would require MacDill AFB to operate under substandard, inefficient, and in some cases unsafe, conditions. This alternative is carried forward for analysis as a baseline against which the impacts of the Proposed Action and alternatives can be evaluated.

2.3 Decision to be Made and Identification of the Preferred Alternative

In this IDEA, MacDill AFB will evaluate whether the Proposed Action would result in any significant impacts. If such impacts are predicted, MacDill AFB would provide mitigation to reduce impacts to below the level of significance, undertake the preparation of an EIS addressing the Proposed Action, or abandon the Proposed Action. The EA will also be used to guide MacDill AFB in implementing the Proposed Action in a manner consistent with USAF standards for environmental stewardship. The Preferred Alternative for the Proposed Action is set forth in **Section 2.1**.

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3. Affected Environment

Section 3 describes the environmental resources and conditions most likely to be affected by the Proposed Action and provides information to serve as a baseline for identifying and evaluating environmental and socioeconomic changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. The potential environmental impacts of the Proposed Action and the No Action Alternative on the baseline conditions are described generally in **Section 4** and in detail in **Appendix B**. In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989, as amended, the description of the affected environment focuses on those resources and conditions potentially subject to impacts.

3.1 Noise

3.1.1 Definition of the Resource

Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. 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). A-weighted sound level measurements (dBA) are used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency content of a 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). This noise metric incorporates a "penalty" for evening and nighttime noise events to account for increased annoyance. 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 3-1**, 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 3-1. Typical Outdoor Noise Levels

Day-Night Noise Level (dBA)	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: FHWA 1980

3.1.2 Existing Conditions

MacDill AFB is at the southern end of Interbay Peninsula, approximately eight miles south of downtown Tampa. The base is surrounded by water on three sides: Hillsborough Bay is east, Old Tampa Bay is west, and Tampa Bay is south. Given the close proximity to downtown Tampa, and the base's location in Tampa Bay, there are numerous activities, facilities, and resources in the area.

There are several airports within a 15-mile vicinity of MacDill AFB. Tampa International Airport is approximately ten miles north. The Peter Oknight Airport, which services mostly single-engine aircraft, is approximately six miles northeast of MacDill AFB across Hillsborough Bay. The St. Petersburg/Clearwater International Airport is about 15 miles northwest of MacDill AFB across Old Tampa Bay. The U.S. Coast Guard Air Station Clearwater is stationed at the St. Petersburg/Clearwater International Airport; therefore, commercial aircraft as well as U.S. Coast Guard helicopters and aircraft operate from this location. Aircraft traveling to Tampa International Airport and to MacDill AFB often fly directly over or near Interbay Peninsula. Consequently, residences northeast of MacDill AFB are in an area considered to be significant for noise impacts from aircraft arriving and departing from the base.

The noise that occurs on a regular basis from vehicle traffic, boat traffic, and airport operations undoubtedly impacts the ambient noise environment surrounding the residents living on MacDill AFB and those residing on Interbay Peninsula.

3.2 Land Use

3.2.1 Definition of the Resource

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

Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

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

3.2.2 Existing Conditions

MacDill AFB encompasses approximately 5,638 acres of U.S. government land and easements. Water surrounds the base on three sides: Hillsborough Bay on the east, Old Tampa Bay to the west, and Tampa Bay to the south. The City of Tampa has planning and zoning jurisdiction over land directly adjacent to MacDill AFB's northern boundary. Land use in this area is mixed, although a large portion is residential. The area immediately north of the base is primarily composed of residential, vacant, and other uses.

Sections of vacant land or land categorized as “other” separates the base from the residential area. However, residences still exist in areas which are subject to increased noise levels from MacDill AFB aircraft operations. Recent zoning has been aimed toward industrial use in this area in an attempt to prohibit noise-sensitive uses, such as residential, within the airfield flight path (MAFB 2005a).

Facilities and operations at MacDill AFB are grouped by functional areas and land use categories. Land use at MacDill AFB includes airfield, aircraft operations and maintenance, industrial, administrative, community commercial, community service, medical, accompanied housing, unaccompanied housing, open space, and outdoor recreation (including marinas, beaches, and water). Compatible land uses have been built in close proximity to achieve functional areas. Aircraft facilities are adjacent to the airfield. Most of the military housing and administrative buildings, commercial buildings, and community services are on the northeastern side of the base and a large recreational area is present on the southern tip of the peninsula. More than 65 percent of the property at MacDill AFB consists of land categorized as airfield and vacant use.

Land Mass Available Within Each Land Use Category

To completely analyze the impact on land use resulting from the Proposed Action, an examination of available acres for future development needs to be assessed. The following paragraphs analyze the approximate surface acreage capacity of each land use category, and potential to adequately afford new buildout.

- **USCENTCOM.** The total available acreage for future development in the USCENTCOM compound is approximately 8.97 acres.
- **USSOCOM.** The total available acreage for future development in the USSOCOM compound is approximately 2.7 acres.
- **Community.** The total available acreage for future development in the community land use category is approximately 98.1 acres. Planned demolition projects would provide an additional 2–3 acres for future buildout.
- **Administration.** The total available acreage for future build in the administration land use category is approximately 3.96 acres. Planned construction for the out-years would use approximately 75 percent of the available acreage.
- **Airfield and Industrial.** There are 2,440 acres in the airfield and industrial zone. The available acreage remaining for new development, excluding runways, taxiways, and clear zones, is approximately 750.7 acres. New construction planned for this land use category would use approximately 11–12 acres for future buildout. The BRAC-related actions are scheduled for renovation and construction in this land use category. Some major airfield and industrial projects include (1) renovations for Squadron Operations buildings for the Air Force Reserve Command (AFRC), (2) renovations for active and reserve aircraft maintenance (AMX), (3) construction of AFRC training facility, and (4) construction of new Life Support Facility.
- **Open Space.** The total available acreage for future development in the open space areas is approximately 461.8 acres. Most of the open space contains wetland/marshland and is not suitable for buildout.
- **Outdoor Recreation.** The total available acreage for future development in the outdoor recreation areas is approximately 103.3 acres. Some of the available acreage would be used for improved sports activities and sports fields.

The above available acreage within each land use category is minimized by the constraints discussed in **Section 2.1.1.**

3.3 Air Quality

3.3.1 Definition of the Resource

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

The CAA directed the U.S. Environmental Protection Agency (USEPA) to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to impact human health and the environment. USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}] and particulate matter equal to or less than 2.5 microns in diameter [$\text{PM}_{2.5}$]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards. **Table 3-2** presents the primary and secondary USEPA NAAQS (USEPA 2005a).

Although O_3 is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because O_3 is typically not emitted directly from most emissions sources. Ozone is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or “ O_3 precursors.” These O_3 precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emissions sources. For this reason, regulatory agencies attempt to limit atmospheric O_3 concentrations by controlling VOC pollutants (also identified as reactive organic gases) and NO_2 .

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

USEPA classifies the air quality in an air quality control region (AQCR) or in subareas of an AQCR according to whether the concentration of criteria pollutants in ambient air exceeds the primary or secondary NAAQS. All areas within each AQCR are therefore designated as either “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS, nonattainment indicates that

Table 3-2. National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
CO			
8-hour Average ^a	9 ppm	(10 mg/m ³)	Primary and Secondary
1-hour Average ^a	35 ppm	(40 mg/m ³)	Primary
NO₂			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m ³)	Primary and Secondary
O₃			
8-hour Average ^b	0.08 ppm	(157 µg/m ³)	Primary and Secondary
Pb			
Quarterly Average		1.5 µg/m ³	Primary and Secondary
PM₁₀			
Annual Arithmetic Mean ^c		50 µg/m ³	Primary and Secondary
24-hour Average ^a		150 µg/m ³	Primary and Secondary
PM_{2.5}			
Annual Arithmetic Mean ^d		15 µg/m ³	Primary and Secondary
24-hour Average ^e		65 µg/m ³	Primary and Secondary
SO₂			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m ³)	Primary
24-hour Average ^a	0.14 ppm	(365 µg/m ³)	Primary
3-hour Average ^a	0.5 ppm	(1,300 µg/m ³)	Secondary

Source: USEPA 2005a

Notes: Parenthetical values are approximate equivalent concentrations.

^a Not to be exceeded more than once per year.

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

^c To attain this standard, the expected annual arithmetic mean PM₁₀ concentration at each monitor within an area must not exceed 50 µg/m³.

^d To attain this standard, the 3-year average of the annual arithmetic mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

^e To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m³.

criteria pollutant levels exceed NAAQS, maintenance indicates that an area was previously designated nonattainment but is now attainment, and an unclassifiable air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment.

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

The General Conformity Rule applies only to actions in nonattainment or maintenance areas and considers both direct and indirect emissions. The rule applies only to Federal actions that are considered “regionally significant” or where the total emissions from the action meet or exceed the *de minimis*

thresholds presented in 40 CFR 93.153. An action is regionally significant when the total nonattainment pollutant emissions exceed ten percent 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. Hillsborough County is in attainment for all criteria pollutants and therefore the Conformity Rule does not apply to MacDill AFB.

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

3.3.2 Existing Conditions

MacDill AFB is in Hillsborough County, Florida, approximately eight miles south of downtown Tampa, Florida. MacDill AFB is in the West Central Florida Intrastate AQCR (WCFIAQCR), which comprises ten counties in western Florida including Hillsborough County. The WCFIAQCR is in attainment for all criteria pollutants; therefore, the General Conformity Rule does not apply at MacDill AFB (USEPA 2004).

NO_x and CO are the primary pollutants that are emitted at MacDill AFB, and the majority of these emissions are from boilers that primarily burn natural gas and generators that burn diesel fuel. Lesser amounts of VOCs and hazardous air pollutants are emitted from fuel oil storage tanks and paint booths, and lesser amounts of particulate matter are emitted from the woodworking operations. MacDill AFB is currently considered a Major Source for NO_x and in October 1999 the EPC of Hillsborough County issued a Title V permit to MacDill AFB which established specific conditions for the operation of boilers, fuel transfer and storage, and paint booths (AMC 2005).

The MacDill AFB annual emissions for calendar year 2003 from stationary and area sources are shown in **Table 3-3**. Emissions from mobile sources are not tracked on MacDill AFB.

Table 3-3. Annual Stationary and Area Source Emissions for MacDill AFB

Year	NO _x	VOC	SO _x	CO	PM
2003	9.79	57.25	0.22	3.91	2.70

Source: MAFB 2004

3.4 Safety

3.4.1 Definition of the Resource

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

Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and USAF regulations designed to comply with standards issued by the Occupational Safety and Health Administration (OSHA) and USEPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

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

3.4.2 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 any risk to workers or 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, 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.

There are several areas that are constrained by QD clear zones at MacDill AFB. The safety zone associated with the WSA creates the largest area of the base constrained by a QD zone. The WSA has a 1,250-foot QD clear zone that limits development in this area. **Figure 2-2** shows the safety arcs.

A hot cargo pad is in the central part of the airfield, along Taxiway O, and a suspect vehicle pad is on an abandoned dispersed aircraft parking taxiway on the north side of the airfield. Both of these pads have 1,250-foot QD clear zones associated with them. A less-restrictive QD of 500 feet is associated with the EOD pit on the south side of the base. **Figure 2-2** shows the safety arcs.

Both the skeet range and the small arms range have safety zones associated with their use. The small arms range, on the south side of the base, has the largest of these. The majority of the safety zone associated with the small arms range is either over the undeveloped wetland area or over the waters of Tampa Bay. The safety zone associated with the skeet range, which is to the west of the WSA, is much smaller and poses less impact on future development. **Figure 2-2** shows the safety arcs.

Range sites on MacDill AFB contain various munitions, unexploded ordnance (UXO), and Chemical Agent Identification Sets (CAIS). Most of the munitions, UXO, and CAIS on the surface have been removed. However, munitions, UXO, and CAIS still can be found below the ground surface. Although most of the projects are not within range sites, munitions, UXO, and CAIS can still be encountered within these project areas.

The need for munitions, UXO, and CAIS screening at potential UXO sites will be determined on a case-by-case basis. Any projects within potential UXO sites would obtain an environmental restoration waiver from HQ AMC prior to commencement of construction activities. 6 CEV staff would be coordinated with prior to commencement of construction activities to determine if an ERP waiver is required for the Proposed Action for all proposed work on or near range sites and for safety requirements that would need to be followed during construction.

Constraints. With respect to safety, proposed MacDill AFB future projects would avoid the areas encompassed by the QD arcs shown in **Figure 2-2**.

3.5 Geological Resources

3.5.1 Definition of the Resource

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

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

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

Geology. Geology, which concerns itself with the study of the earth's composition, provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition. Hydrogeology extends the study of the subsurface to water-bearing structures. Hydrogeological information helps in the assessment of groundwater quality and quantity and its movement.

3.5.2 Existing Conditions

The geological resources information provided in this EA was obtained from the *MacDill Air Force Base General Plan* (MAFB 2002) and the INRMP (MAFB 2005a). MacDill AFB is in the Pamlico Terrace which rises gently from the coast to about 25 feet above sea level. Elevations on the base range from sea

level at the southern edge to about 15 feet above sea level in the northern portions. Much of the base is less than 5 feet above mean sea level.

MacDill AFB is situated in the Gulf Coastal Lowlands physiographic region. There are three principal lithologic sequences in the area. The top unit is unconsolidated sand, clay, and marl. This unit might include remnants of the Hawthorn Formation composed of sand, clay, and thin lenses of limestone. Sands in this unit range from 5 to 20 feet thick with clay layers up to 40 feet thick. This surficial layer is very thin or even absent on the eastern side of the base, and underlying limestone formations sometimes outcrop in this area. The next deepest layer is composed of Tampa and Suwannee limestones which range from 250 to 500 feet thick. Below this layer are the Ocala Group; Avon Park, Lake City, and Oldsmar limestones; and Cedar Keys Limestone, which are about 2,300 feet deep.

Sinkholes are common in the Hillsborough County area, but they are uncommon on MacDill AFB because of overlying impervious layers of clay, limited groundwater recharge, and the presence of a slow discharge zone for the Floridan aquifer. There has also been considerable amount of fill material used in MacDill AFB. Most of this material originated from dredging activities in the surrounding bays. Erosion is an ongoing problem along Gadsden Point at the southeastern corner of the Bay Palms Golf Complex. There is also a problem with sand washing in the boat channel leading to the base marina.

There are eight soil series which cover the installation property: Myakka, Urban Land, St. Augustine, Wabasso, Malabar, Arents, Pomello, and Tavares. Two MacDill AFB soils are hydric and thus have jurisdictional wetland implications. Myakka Fine Sand (frequently flooded) is within tidal areas and occurs mainly on mangrove areas. These soils are subject to tidal flooding, are very level, and are poorly drained. Malabar Fine Sand is generally adjacent to the Myakka Fine Sand. This includes flatwood areas, portions of the golf course, and some development. They are nearly level and poorly drained, often occurring in low-lying sloughs and shallow flatwoods depressions. Myakka is a hydric soil association with Myakka Fine Sand found in tidal areas associated with mangroves. Malabar Fine Sand is also a hydric soil found adjacent to Myakka Fine Sand. There are no prime or unique farmland soils on MacDill AFB.

3.6 Water Resources

3.6.1 Definition of the Resource

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

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

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

Storm water is an important component of surface water systems because of its potential to introduce sediments and other contaminants that could degrade lakes, rivers, and streams. Storm water flows, which can be exacerbated by high proportions of impervious surfaces associated with buildings, roads, and parking lots, are important to the management of surface water. Storm water systems convey precipitation away from developed sites to appropriate receiving surface waters. Various systems and devices might be used to slow the movement of water. For instance, a large, sudden flow could scour a

streambed and harm biological resources. Storm water systems provide the benefit of reducing sediments and other contaminants that would otherwise flow directly into surface waters. Failure to size storm water systems appropriately to hold or delay conveyance of the largest predicted precipitation event often leads to downstream flooding and the environmental and economic damages associated with flooding. Higher densities of development, such as those found in urban areas, require greater degrees of storm water management because of the higher proportions of impervious surfaces that occur in urban centers.

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

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

3.6.2 Existing Conditions

Groundwater. MacDill AFB has two aquifer systems: a shallow, surficial aquifer, and the underlying regional Floridan aquifer. The surficial aquifer system (sand, clayey sand, and shell) is about 20 feet thick and is used to supply small irrigation systems beyond base boundaries. It is not used at MacDill AFB. Recharge of this aquifer is primarily through precipitation. This shallow aquifer ranges from the surface to about 5 feet beneath the surface at inland locations. The surficial aquifer is highly susceptible to groundwater contamination, primarily due to shallow water table depth and permeable sediments. Underground storage tanks (USTs), landfills, and the golf courses are the primary sources of known contamination (MAFB 2005a).

The surficial aquifer is separated from the regional Floridan aquifer by heterogeneous calcareous clays and limestone with varying permeability. The Floridan aquifer is composed of Tampa and Suwannee limestones, the Ocala Group, and the Avon Park Limestone, all of which are highly permeable. The clay and limestone barrier between the two aquifers is nonexistent in some parts of the northeastern portion of MacDill AFB to more than 40 feet thick along the southern portion of the base. The Floridan aquifer is not significantly recharged from the surface of MacDill AFB (MAFB 2005a).

Groundwater quality of the Floridan aquifer has not been fully defined due to a lack of monitoring wells. This aquifer is rated as moderately susceptible to contamination. There is slight contamination of this aquifer, apparently from base operations, but not enough to meet clean-up criteria. This aquifer is not used for drinking water at MacDill AFB, but it is used for potable water in the Tampa area and west-central Florida (MAFB 2005a).

Surface Water. MacDill AFB is an independent drainage area with no surface waters entering or leaving the base other than discharge to Tampa and Hillsborough bays. The northern boundary road around the base is the water divide between MacDill AFB and the civilian community; the remainder of the base is surrounded by Hillsborough Bay (to the east) and Tampa Bay (to the southwest).

Under FDEP standards, Tampa Bay is a Class III water body with portions of the bay south and west of MacDill AFB classified as Class II waters. Both classes provide for recreational use and for well-balanced populations of fish and wildlife, while Class II also allows shellfish propagation and harvesting. According to USEPA, the most frequently observed impairments were excessive nutrients (29 percent) and low dissolved oxygen (25 percent) in Tampa Bay, and excessive nutrients (23 percent) in Hillsborough Bay (USEPA 2005b). Simply put, excessive nutrients result in high levels of nitrogen and phosphorus that stimulate algae growth, which blocks sunlight from reaching submerged aquatic vegetation (an important aquatic habitat) and depletes dissolved oxygen when the algae dies and decomposes. Excess nutrients enter water bodies most often from storm water carrying nutrient-rich chemicals, like lawn fertilizers or detergents.

Raccoon Creek and Broad Creek are the only two natural drainageways and occur on the southern portion of MacDill AFB. Surface water flows on base are primarily storm water runoff. The drainage system is composed of approximately 25 miles of culverts, 56 miles of open ditches and canals, and 22.5 acres of artificial impoundments. The two largest impoundments, Lake McClelland and Lewis Lake, total approximately 20 acres and are on the eastern side of the base. The remaining acres are small, unnamed retention ponds. The coastal plain is crisscrossed with drainage canals, which are primarily mangrove swamps. Most of these canals are interconnected and tidally influenced (MAFB 2001a, 2005a).

Because of the predominantly flat terrain and sandy soil of the Florida coast, storm water at MacDill AFB either (1) infiltrates rapidly into the soil (and surficial aquifer), or (2) flows over land into receiving waters, which are either Lake McClelland or Lewis Lake or the canals draining to Hillsborough and Tampa bays. Areas of the base with large impervious surfaces, such as the flightline area, experience sheet flows of storm water during large rain events. There are nine containment booms in the tidal canals and 25 oil/water separators along the flightline and industrial facilities to protect against petroleum contamination (MAFB 2001a).

MacDill AFB has two National Pollutant Discharge Elimination System (NPDES) Permits: a Multi-Sector Generic Permit (MSGP) for storm water discharge associated with industrial activity (Permit No. FLR05E128), and a Phase II Municipal Separate Storm Sewer System (MS4) generic storm water permit (Permit No. FLR04E059). The MSGP covers primarily flightline areas at MacDill AFB, including activities such as aircraft refueling, vehicle maintenance, and materials handling. As a component of the MSGP, MacDill AFB maintains an SWPPP that documents existing storm water management practices and guides personnel responsible for ensuring potential storm water pollution is minimized. The MS4 permit requires the development of a storm water management program with detailed BMPs that implement, among other things, construction site runoff and control and pollution prevention measures. MacDill AFB also maintains a Hazardous Materials Management Plan and a Spill Prevention Control and Countermeasures Plan (SPCC) that provide guidance for handling materials appropriately and detailed procedures to follow in the event of a spill.

Floodplains. As discussed in **Section 2.1.1**, most of MacDill AFB is within the 100-year floodplain (**Figure 2-3**). The base is in Tampa's Coastal High Hazard Area, which is an area threatened by tropical storms and hurricanes. Any hurricane, particularly those in higher categories, could cause major damage to base facilities. MacDill AFB is in the process of preparing a FPMP to aid in future construction projects within the floodplain.

Constraints. With respect to water resources, all proposed MacDill AFB future projects would avoid the water resources constraints shown in **Figure 2-2**. If future projects were not allowed to be developed in the floodplain constraint areas (**Figure 2-3**), there would not be sufficient land for future buildout on MacDill AFB.

3.7 Biological Resources

3.7.1 Definition of the Resource

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 U.S.C. 1536), an “endangered species” is defined as any species in danger of extinction throughout all or a significant portion of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future. 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 Florida Fish and Wildlife Conservation Commission (FWC) oversees the protection and management of state-protected fauna under the Florida Endangered and Threatened Species Act (Florida Statute 372.072). Within the Florida Administrative Code (FAC), protection is provided to endangered species (68A-27.003 FAC), threatened species (68A-27.004 FAC), and species of special concern (68A-27.005 FAC). The Florida Department of Agriculture and Consumer Services maintains the state list of plants designated as endangered, threatened, and commercially exploited (5B-40 FAC) as defined under Florida Statute 581.185(2).

Pursuant to Section 303(a)(7) of the Magnuson-Stevens Fisheries Conservation and Management Act (16 U.S.C. 1801 et seq.), regional fishery management councils must identify essential fish habitat (EFH) used by all life history stages of each managed species in fishery management plans. EFH is defined as habitats that are necessary to the species for spawning, breeding, feeding, or growth to maturity. EFH that is particularly important to the long-term productivity of populations of one or more managed species, or is particularly vulnerable to degradation, is identified as habitat areas of particular concern to provide additional focus for conservation efforts. Pursuant to Section 305(b)(2) of the Magnuson-Stevens Fisheries Conservation and Management Act, Federal agencies shall consult with the National Marine Fisheries Service (NMFS) regarding any action federally authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that might adversely affect EFH.

Biological resources also include wetlands. Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, unique plant and wildlife habitat provision, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are protected as a subset of the “waters of the United States” under Section 404 of the Clean Water Act. The term “waters of the United States” has a broad meaning under the Clean Water Act and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). The U.S. Army Corps of Engineers (USACE) defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal

circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR Part 328).

3.7.2 Existing Conditions

Vegetation. Approximately 80 percent of MacDill AFB has been altered from its historical vegetative cover. Most of MacDill AFB was originally wetlands, which have since been drained and filled to allow for development. Upland areas were pine flatwoods with pothole wetlands. Today, habitat types on base can be generalized into urban areas (improved, industrialized areas with mowed vegetation), forested areas (pine and hardwood), water (fresh and brackish), and mangrove and swamp areas (wetlands). The following discusses the forested and wetland vegetation in more detail because those habitats are managed as natural areas. In the mowed and improved portions of base, bahiagrass (*Paspalum notatum*) is the dominant vegetation.

In the early 1970s, 500 acres of pine (dominated by slash pine [*Pinus elliottii*]) were planted on MacDill AFB. The understory of this pine forest is thick. Remnant forest communities on base consist of longleaf pine (*Pinus palustris*) and mixed hardwood species, primarily oaks (*Quercus* spp.), maples (*Acer* spp.), cabbage palm (*Sabal palmetto*), and southern magnolia (*Magnolia grandiflora*). The forest understory is dominated by wax myrtle (*Myrica cerifera*), salt bush (*Baccharis halimifolia*), saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), and the exotic invasive Brazilian pepper (MAFB 2005a). Forested areas of MacDill AFB are managed primarily as habitat. The pine plantation was initially planted to absorb noise from aircraft and industry and to improve aesthetics. Timber harvesting has not been actively pursued because the market for small operations is limited. There has been some prescribed burning of these forests to increase the quality of wildlife habitat and reduce the potential for a dangerous wildfire; MacDill AFB plans to continue prescribed burns in managing its forest resources.

MacDill AFB has approximately 1,200 acres of wetlands. Most of these wetlands (approximately 74 percent) are estuarine scrub-shrub, dominated by black mangrove (*Avicennia germanicans*) and white mangrove (*Laguncularia racemosa*), with also some red mangrove (*Rhizophora mangle*) (MAFB 2005a). Coastal management is an important issue at MacDill AFB. The mangroves protect and stabilize the shoreline, which is particularly susceptible to erosion on the eastern bay. Wetlands as a biological resource are discussed under *Wetlands*.

The most serious vegetative threat on MacDill AFB is the exotic invasive Brazilian pepper (*Schinus terebinthifolius*). In Florida, Brazilian pepper is an aggressive colonizer of disturbed environments, including pine flatlands, tropical hardwood hammocks, and mangrove forest (Ferriter 1997). At MacDill AFB, the Brazilian pepper is prevalent in the mangrove forest areas and in the pine understory. MacDill AFB has expended much effort removing Brazilian pepper and revegetating with native species. Another exotic invasive species on base is the melaleuca tree (*Melaleuca quinquenervia*), which grows in conditions ranging from aquatic to terrestrial. The Brazilian pepper and the melaleuca tree displace native vegetation and diminish wildlife habitat. Removal of these species, primarily Brazilian pepper, is a top concern for both forest and wetland management. Other invasive species on MacDill AFB include Australian pine (*Casuarina equisetifolia*), mimosa (*Albizia julibrissin*), cattails (*Typha* spp.), cogon grass (*Imperata cylindrical*), water hyacinth (*Eichhornia crassipes*), lantana (*Lantana camara*), and castor bean (*Ricinus communis*) (MAFB 2005a).

Wildlife. Faunal species are limited at MacDill AFB because of its location on an isolated peninsula. Habitat, as discussed in *Vegetation*, is fragmented as wildlife habitat at best. The thick understory of the forested areas reduces the potential habitat available for wildlife. Several wildlife surveys of MacDill AFB were completed in the early 1990s, all of which confirmed lower species diversity than previous literature reviews indicated. The major causes of low species diversity appear to be a loss of

fresh water, a lack of fire, and the prevalence of Brazilian pepper. As the wetland and forested areas are restored on the southern portion of MacDill AFB, wildlife habitat gradually improves (MAFB 2005a).

One faunal survey identified 109 species of birds on base. Songbirds and wading birds are fairly common at MacDill AFB, particularly in the mangrove forests and shorelines. Improving the quality of the base's forests would also likely increase the number and diversity of birds, particularly songbirds. There are few colonies of breeding birds on base, largely because of raccoons (*Procyon lotor*) (MAFB 2005a).

Only small mammals are present on base, the most numerous of those being raccoons, marsh rabbits (*Sylvialagus palustris*), opossums (*Didelphis virginiana*), armadillos (*Dasypus novemcinctus*), striped skunks (*Mephitis mephitis*), and gray squirrels (*Sciurus carolinensis*). Like songbirds, mammal habitat is limited by the dense forest understory. Raccoons are a problematic nuisance species (MAFB 2005a).

Smallmouth bass (*Micropterus dolomieu*) and largemouth bass (*M. salmoides*) are the primary freshwater species in MacDill AFB ponds. Lewis Lake, which tends to be brackish at least part of the year, also has blue tilapia (*Oreochromis aureus*), redfish/red drum (*Sciaenops ocellata*), mullet (*Mugil cephalus*), and snook (*Centropomus undecimalis*). Blue tilapia is an exotic and invasive species. Generally, base ponds are poor habitat for fish because the water is shallow and tends to have low dissolved oxygen (MAFB 2005a).

Protected Species. As discussed in *Vegetation* and in *Wildlife*, the dense understory of the forest and the prevalence of exotic invasive species are two of the most important factors affecting the habitat quality of MacDill AFB. Federal- and state-listed species have been identified on base, so threatened and endangered species management is an important issue. Particularly in the coastal and wetland areas, the base has some valuable foraging habitat for many of the state species of special concern. The USFWS has not designated any portion of MacDill AFB as critical habitat for federally listed species. Furthermore, the base is not considered critical for any state species of concern (MAFB 2005a). **Table 3-4** presents a detailed list of those species protected under Federal and state law. Only 22 of 37 potential species have been identified on MacDill AFB. In 2003–2004, MacDill AFB updated the prior survey and only 13 of 37 potential species were identified (MAFB 2005b).

A survey for rare and protected plants was performed on base in 1993, but none were identified.

Figure 3-1 shows the areas on base where protected species have been found and might occur. The following discussion focuses briefly on how habitat types and land uses determine which species could be found in a given area of MacDill AFB, specifically those species that are managed as residents of MacDill AFB (MAFB 1995, 2005a).

The most diverse assemblage of fauna occurs along the shorelines, primarily in the mangrove areas. Wading and shore birds use this area for foraging and perching. Wading bird species that have been documented include the roseate spoonbill, little blue heron, reddish egret, snowy egret, tricolored egret, wood stork, and white ibis; shore bird species include the American oystercatcher, brown pelican, least tern, and black skimmer. With the exception of the least tern, which is a summer resident, these wading and shore birds have been described as permanent residents (MAFB 1995). No nest sites have been recorded on base, though better control of the predatory raccoon population and habitat improvements (i.e., continued creation of new wetlands and restoration of existing wetlands) could result in more nesting in the future. MacDill AFB does not use the wetland and shoreline areas for military missions.

Table 3-4. Protected Species Potentially Occurring On or Near MacDill AFB

Common Name	Scientific Name	Federal Status	State Status	Comments/Habitat
Plants				
Florida golden aster	<i>Chrysopsis floridana</i>	E	E	Grows in open sunny areas in sand-pine evergreen oak scrub.
Amphibians				
Gopher frog ^a	<i>Rana capito</i>	NL	SSC	Prefers xeric pine flatwoods.
Reptiles				
American alligator ^a	<i>Alligator mississippiensis</i>	T (S/A)	SSC	Found occasionally and relocated off base.
Atlantic loggerhead sea turtle ^a	<i>Caretta caretta</i>	T	T	Uses beach areas for nesting.
Atlantic green sea turtle	<i>Chelonia mydas mydas</i>	E	E/T ^c	Uses beach areas for nesting.
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	Potentially occurs in woody uplands bordering mangroves.
Gopher tortoise ^{a, b}	<i>Gopherus polyphemus</i>	NL	SSC	Occurs in recently burned pine flatwoods. Resident on base.
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	NL	SSC	Prefers xeric pine flatwoods.
Short-tailed snake	<i>Stilosoma extenuatum</i>	NL	T	Prefers xeric pine flatwoods.
Birds				
Roseate spoonbill ^{a, b}	<i>Platalea ajaja</i>	NL	SSC	Forages and roosts along shorelines and mangrove system. Resident on base.
Florida scrub jay	<i>Aphelocoma coerulescens</i>	T	T	No suitable habitat identified on MacDill AFB.
Limpkin	<i>Aramus guarauna</i>	NL	SSC	Potentially occurs along shores, ditches, and in mangroves.
Burrowing owl ^{a, b}	<i>Athene cunicularia</i>	NL	SSC	Nests in open mowed areas. Resident on base.
Southeastern snowy plover	<i>Charadrius alexandrinus tenuiristris</i>	NL	T	Possibly occurs along shorelines in winter.
Piping plover ^a	<i>Charadrius melodus</i>	T	T	Possibly occurs along shorelines in winter.
Little blue heron ^{a, b}	<i>Egretta caerulea</i>	NL	SSC	Common along shorelines, ditches, and mangroves. Resident on base.

Table 3-4. Protected Species Potentially Occurring On or Near MacDill AFB (continued)

Common Name	Scientific Name	Federal Status	State Status	Comments/Habitat
Reddish egret ^{a, b}	<i>Egretta rufescens</i>	NL	SSC	Prefers shorelines, sandbars, and shallow salt ponds. Possible resident on base.
Snowy egret ^{a, b}	<i>Egretta thula</i>	NL	SSC	Common along shorelines, ditches, and mangroves. Resident on base.
Tricolored heron ^{a, b}	<i>Egretta tricolor</i>	NL	SSC	Common along shorelines, ditches, and mangroves. Resident on base.
White ibis ^{a, b}	<i>Eudocimus albus</i>	NL	SSC	Common along freshwater marshes or ponds, or along shorelines. Resident on base.
Arctic peregrine falcon	<i>Falco peregrinus tundrius</i>	NL	E	Probable occurrence along shorelines during winter migration.
Southeastern American kestrel ^a	<i>Falco sparverius paulus</i>	NL	T	Prefers open stands of mature pines.
Florida sandhill crane ^a	<i>Grus canadensis pratensis</i>	NL	T	Visitor to open areas.
American oystercatcher ^{a, b}	<i>Haematopus palliatus</i>	NL	SSC	Prefers coastal shorelines, sandbars, and tidal flats. Resident on base.
Bald eagle ^{a, b}	<i>Haliaeetus leucocephalus</i>	T	T	Potential for foraging and nesting on the base. Resident on base.
Wood stork ^{a, b}	<i>Mycteria americana</i>	E	E	Occurs regularly in coastal wetlands and open uplands. Resident on base.
Brown pelican ^{a, b}	<i>Pelecanus occidentalis</i>	NL	SSC	Common along waterfront and mangrove areas. Resident on base.
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	SSC	Prefers longleaf pine stands, occasionally slash pines.
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	T	T	Prefers dry open prairies.
Black skimmer ^{a, b}	<i>Rynchops niger</i>	NL	SSC	Primarily occurs along shorelines but can also be found at inland lakes. Resident on base.
Least tern ^a	<i>Sterna antillarum</i>	NL	T	Probably forages in drainage ditches and ponds on base.
Roseate tern	<i>Sterna dougallii</i>	T	T	Probably forages in drainage ditches and ponds on base.
Bachman's warbler	<i>Vermivora bachmanii</i>	E	E	Potential for occurrence during migration. Generally believed to be extinct.

Table 3-4. Protected Species Potentially Occurring On or Near MacDill AFB (continued)

Common Name	Scientific Name	Federal Status	State Status	Comments/Habitat
Fish				
Common snook ^a	<i>Centropomus undecimalis</i>	NL	SSC	Uses mangroves for spawning.
Mammals				
Florida mouse	<i>Podomys floridanus</i>	NL	SSC	Prefers scrubby flatwood habitat.
Sherman's fox squirrel	<i>Sciurus niger shermani</i>	NL	SSC	Prefers pine flatwood habitat.
West Indian manatee ^a	<i>Trichechus manatus latirostris</i>	E	E	Summer range in Tampa Bay and tributaries.

Sources: MAFB 2005a, 2005b; FWC 2004; USFWS 1999; 68A-27.003, 004, and 005 FAC; and 5B-40.0055 FAC

Notes: E = endangered

T = threatened

T (S/A) = threatened due to similarity of appearance

NL = not listed

SSC = species of special concern

^a Species documented on MacDill AFB (initial survey in the 1980s).

^b Species documented in most recent endangered species population survey (MAFB 2005b).

^c Breeding populations of Atlantic green sea turtle in Florida are endangered; all other individuals are threatened.

Several protected raptor species have also been documented on base. One bald eagle and a bald eagle chick were observed in the 2003–2004 survey (MAFB 2005b). This pair has been residents of MacDill AFB since approximately 1995, though the original nest (near McClelland MFH) was destroyed in 2001 by Tropical Storm Gabrielle. The eagles now nest in a tree within the WSA, which is protected by safety arcs (see **Figure 2-2** for safety arcs). According to the 2003–2004 survey, the burrowing owl population is estimated to consist of 14 adults, though there might be as many as 30 individuals during the peak of the birth season. Active (22) and inactive (8) owl burrows occur primarily in open grassy areas at the north end of the runway and between the taxiways (MAFB 2005b). Both the bald eagle and the burrowing owl are resident, stable populations on MacDill AFB (MAFB 2005b).

The gopher tortoise is also a resident of MacDill AFB. This species prefers dry upland habitats including sandhills and pine flatwoods but is also found in human-altered environments like mowed fields. Gopher tortoise burrows are numerous (187 active and 77 inactive) in the unimproved, grassy areas between the flightline runways, though they also occur in smaller numbers in other locations on base (MAFB 2005b). Based on the number of burrows found in the 2003–2004 survey, there could be as many as 162 gopher tortoises on MacDill AFB; this is a 43 percent increase from the previous survey in 1995–1996 (MAFB 2005b). MacDill AFB periodically performs prescribed burns of forest understory, which improves habitat for the gopher tortoise. Management of gopher tortoise habitat is important for many protected species that could potentially occur at MacDill AFB (e.g., indigo snake, Florida pine snake, gopher frog, Florida mouse, and burrowing owl) because other species use inactive gopher tortoise burrows for shelter (GTC 2001). Removal and eradication of the invasive Brazilian pepper and melaleuca tree would also improve gopher tortoise habitat. Relocation of gopher tortoises from the industrialized flightline area to more suitable pine flatwoods has been suggested as a potential management option on base (MAFB 1995, 2005a).

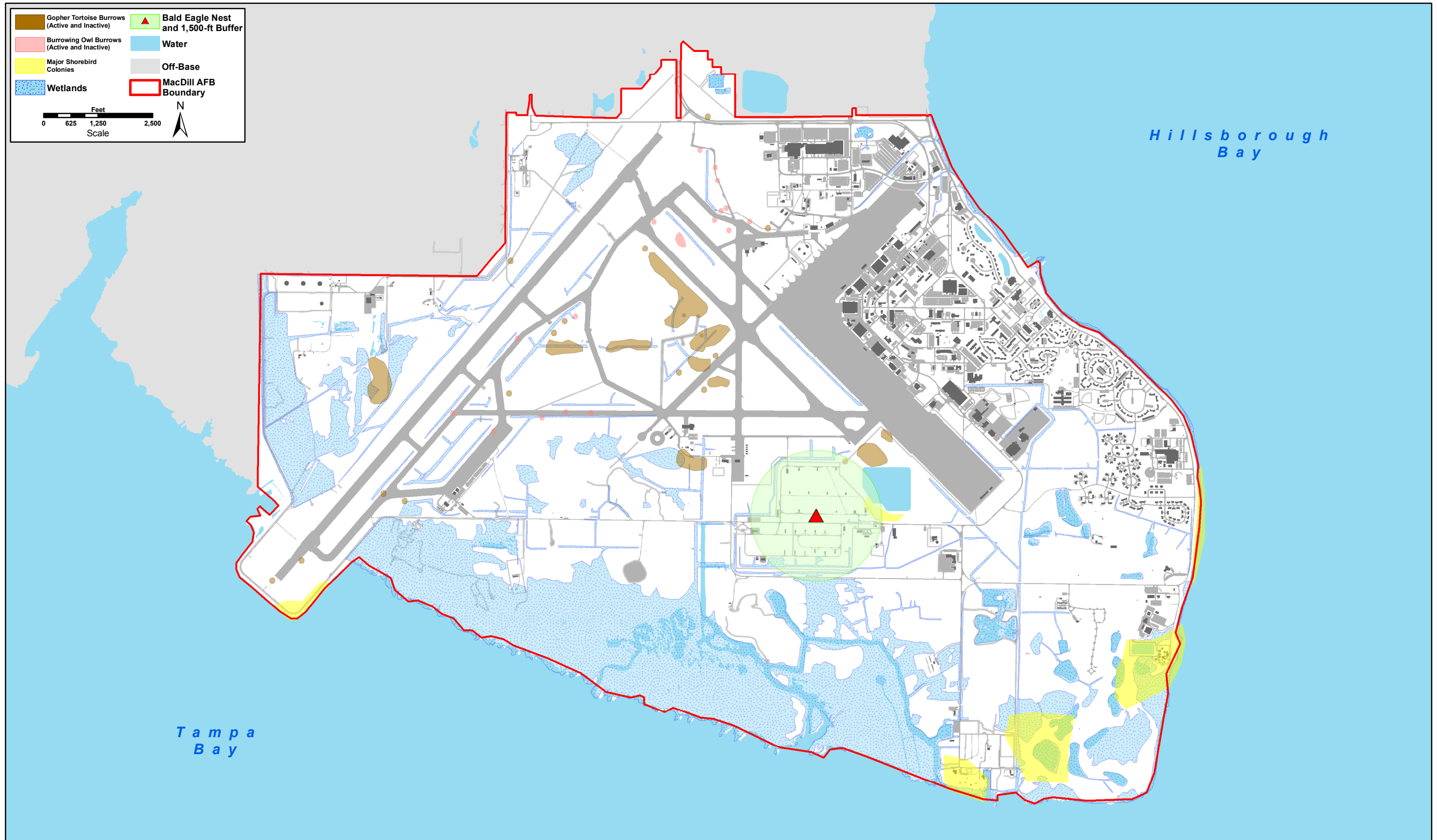


Figure 3-1. Locations of Protected Species Found on MacDill AFB

Essential Fish Habitat. EFH has been designated for 25 species within Tampa and Hillsborough bays, which are adjacent to MacDill AFB. There are no habitat areas of particular concern designated in the waters adjacent to MacDill AFB. **Table 3-5** lists the species and their life stage(s) that are protected as part of the EFH within Tampa and Hillsborough bays. Pursuant to the Magnuson-Stevens Fisheries Conservation and Management Act, Federal agencies must consult with fishery managers concerning actions (including the issuance of permits for private activities) that might adversely impact EFH.

Wetlands. Much of the MacDill AFB shoreline area is wetland. **Figure 2-2** indicates the wetland areas on base. Wetlands are valuable for biological habitat, hydrologic cycling, and aesthetics. According to a 1998 wetland delineation, MacDill AFB has 1,195 acres of wetlands (approximately 21 percent of the base): 880 acres are estuarine scrub-shrub emergent (i.e., mangrove swamps), 220 acres are palustrine, and 115 acres are needle-leaved forested (MAFB 2005a).

There are several wetland concerns at MacDill AFB. As discussed in *Vegetation*, the Brazilian pepper and melaleuca tree are serious threats to the wetlands on base, along with other exotic invaders such as Australian pine, mimosa, and cogon grass. Another concern is mangrove tree invasion of drainage canals and ditches. While mangrove trees are valued for their aesthetics and habitat quality, they are security risks (by blocking field of vision) and a detriment to proper drainage (by clogging canals). MacDill AFB is permitted to remove the mangrove trees from ditches. As mitigation for removing mangroves from ditches, MacDill AFB has restored many of the degraded shoreline wetlands through removal of Brazilian pepper and planting mangroves. Wetlands management is a top priority of MacDill AFB.

3.8 Cultural Resources

3.8.1 Definition of the Resource

Cultural resources is an umbrella term for many heritage-related resources. The National Historic Preservation Act (NHPA) of 1966, as amended, applies to “historic properties” defined as prehistoric and historic sites, structures, districts, objects, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or any other reason. Depending on the condition and prehistoric or historic use, such resources might provide insight into lifestyles and living conditions in previous civilizations or might retain cultural and religious significance to modern groups.

Several Federal laws and regulations govern protection of cultural resources, including the NHPA, the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (ARPA) (1979), and the Native American Graves Protection and Repatriation Act (NAGPRA) (1990). NAGPRA requires consultation with interested Native American tribes for disposition of human remains and artifacts of cultural patrimony.

Typically, cultural resources are subdivided into archaeological resources (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing); architectural resources (buildings, structures, groups of structures, or designed landscapes that are of historic or aesthetic significance); or properties of traditional, cultural, or religious significance to Native American tribes.

Table 3-5. Fish and Invertebrate Species with EFH in Tampa and Hillsborough Bays

Common Name	Species	Protected Life Stage			
		Eggs	Larvae	Juveniles	Adults
Great hammerhead shark	<i>Sphyrna mokarran</i>	NA	NA	X	X
Scalloped hammerhead shark	<i>Sphyrna lewini</i>	NA	NA	X	--
Nurse shark	<i>Ginglymostoma cirratum</i>	NA	NA	X	X
Blacktip shark	<i>Carcharhinus limbatus</i>	NA	NA	X	X
Bull shark	<i>Carcharhinus leucas</i>	NA	NA	X	X
Dusky shark	<i>Carcharhinus obscurus</i>	NA	NA	X	
Lemon shark	<i>Negaprion brevirostris</i>	NA	NA	X	X
Sandbar shark	<i>Carcharhinus plumbeus</i>	NA	NA	X	X
Spinner shark	<i>Carcharhinus brevipinna</i>	NA	NA	X	--
Tiger shark	<i>Galeocerdo cuvieri</i>	NA	NA	X	X
Bonnethead shark	<i>Sphyrna tiburo</i>	NA	NA	X	X
Atlantic sharpnose shark	<i>Rhizoprionodon terraenovae</i>	NA	NA	X	X
Blacknose shark	<i>Carcharhinus acronotus</i>	NA	NA	X	X
Finetooth shark	<i>Carcharhinus isodon</i>	NA	NA	X	--
Pink shrimp	<i>Panaeus duorarum</i>	--	X	X	--
Gag	<i>Mycteroperca microlepis</i>	--	--	X	X
Cobia	<i>Rachycentron canadum</i>	--	X	--	X
Bluefish	<i>Pomatomus saltatrix</i>	--	X	X	X
Gray snapper	<i>Lutjanus griseus</i>	--	X	X	X
Yellowtail snapper	<i>Oxyurus chrysurus</i>	--	--	X	--
Gulf stone crab	<i>Menippe adina</i>	--	--	X	X
Lane snapper	<i>Lutjanus synagris</i>	--	X	X	--
Red drum	<i>Sciaenops ocellatus</i>	--	X	X	X
Spanish mackerel	<i>Scomberomorus maculatus</i>	--	X	--	X
Spiny lobster	<i>Panulirus argus</i>	--	X	X	X

Source: GMFMC 1998; NMFS 1999

Notes: NA = Not Applicable

-- = EFH has not been designated for that life stage of that species.

Archaeological resources comprise areas where human activity has measurably altered the earth or deposits of physical remains are found (e.g., projectile points and bottles).

Architectural resources include standing buildings, bridges, dams, and other structures of historic or aesthetic significance. Generally, architectural resources must be more than 50 years old to be considered eligible for the National Register of Historic Places (NRHP). More recent structures, such as Cold War-era resources, might be eligible for the NRHP if they are considered to be of exceptional importance and have the potential to gain significance in the future. Historic districts have a significant concentration, linkage, or continuity of historic sites, buildings, structures, or objects united historically or aesthetically.

Traditional cultural properties or sacred sites can include archaeological resources, structures, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

The EA process and the consultation process prescribed in Section 106 of the NHPA require an assessment of the potential impact of an undertaking on historic properties that are within the proposed project's Area of Potential Effect (APE), which is defined as the geographic area(s) "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." Under Section 110 of the NHPA, Federal agencies are required to locate and inventory all resources under their purview that are recommended as eligible for inclusion in the NRHP on owned, leased, or managed property.

3.8.2 Existing Conditions

Archaeological Resources

MacDill AFB was constructed by filling in the naturally swampy landscape to create hardened surfaces suitable for construction. It is estimated that 59 percent of the base has been developed to its maximum (i.e., the industrial flightline area). Another ten percent has been altered for recreational uses, and 16 percent is actively used and disturbed for firing ranges, tree plots, fill sites, and explosives storage. While accidental discovery of archaeological resources could occur, only 15 percent of the base, primarily mangrove wetlands along the shoreline, is considered to have a high probability for containing intact archaeological resources (MAFB 2001b).

Five archaeological sites have been recorded on MacDill AFB: the Sand Mound Site (Site 8HI49), Gadsden Point Site (Site 8HI50), Coon Hammock Site (Site 8HI3280), Runway Site (Site 8HI3382), and EOD Site (Site 8HI5656). **Table 3-6** summarizes the five archaeological sites. Of these, only Gadsden Point Site and Runway Site are eligible for inclusion on the NRHP.

Gadsden Point Site. The Gadsden Point Site, 8HI50, was one of the first inventoried for MacDill AFB by the University of South Florida in 1952. The site is just southwest of the wastewater treatment plant (WWTP) along the Hillsborough Bay shoreline. The site is a narrow sandy beach that is eroded by waves; most of the site is characterized by exposed beach ridges and mangrove vegetation.

In 1960, the anthropology department from the University of South Florida excavated an exposed portion of the Gadsden Point Site on the shoreline by the WWTP. Numerous human bone, lithic, shell, ceramic, and faunal remains were collected. The remains of three individuals were found at the site. Burial goods associated with one individual consisted of nine artifacts, mostly ceramics dating to the Weeden Island Culture (300 to 1300 A.D.). Due to a lack of documentation of the context and density of recovered artifacts, a more specific assessment of the burials could not be made at that time (MAFB 2001b).

Table 3-6. Archaeological Sites on MacDill AFB

Site	Name	NRHP Status	Regional Complex	Year(s) of Study (Level of Study) ^a
8Hi49	Sand Mound Site	Not Eligible (destroyed)	unknown	1952, 1983 (Phase I)
8Hi50	Gadsden Point Site	Eligible	Weeden Island (300–1300 A.D.)	1952, 1983, 1996 (Phase II)
8Hi3280	Coon Hammock Site	Not Eligible	Weeden Island (300–1300 A.D.)	1987 (Phase I)
8Hi3382	Runway Site	Eligible	Archaic (8000–1000 B.C.)	1988, 1991 (Phase II)
8Hi5656	EOD Site	Not Eligible	Late Archaic (3000–1000 B.C.)	1996 (Phase II)

Note: ^a Phase I investigations consist of surface reconnaissance and subsurface testing to locate archaeological sites. They are used to identify and inventory archaeological sites. Phase II investigations evaluate the integrity and context of archaeological sites.

In 1983, the southern half of the site was surveyed and evaluated in preparation for construction of a golf course. The survey found one definitive cultural deposit: a shell midden (a dump for domestic wastes). The midden contained lithic materials (large chert flakes), which were recovered during shovel tests. A few ceramic fragments were recovered from the beach (MAFB 2001b).

In 1996, the entire site was studied to determine research potential and NRHP eligibility. Excavations resulted in the recovery of 145 artifacts (including two finished bifacial tools), 79 pieces of lithic debitage, 57 ceramic sherds, one bone point, and 11 possible shell tools. The artifacts indicated alternating periods of use between 500 B.C. and A.D. 900 with burials dating to the Weeden Island Culture (MAFB 2001b).

The western area of the site containing concentrated shell deposits produced limited data and failed to demonstrate contextual integrity. Therefore, this portion of the site was determined not eligible for inclusion in the NRHP. The western portion is, however, protected under NAGPRA (discussed under *Traditional Cultural Properties*). Additional human skeletal remains were recovered from the eastern portion of the site along the shoreline. The beach environment precluded test excavations that could determine the origin of the remains; nevertheless, it was noted that additional human remains were likely buried beneath the beach deposits. The northern and eastern portions of the site were determined eligible for inclusion in the NRHP (MAFB 2001b).

The Gadsden Point Site is managed under base shoreline stabilization projects because of its location on the coast and near the WWTP. Revegetation along the shoreline is an ongoing process. Vehicle maneuvering is limited to established roads. This site is also managed as part of NAGPRA compliance, discussed under *Traditional Cultural Properties*.

Runway Site. The Runway Site, 8Hi3382, is on an isolated grassy portion of the base near the northern boundary, west of Dale Mabry Gate and south of a pond. Soil consists of light gray sand extending up to 3.3 feet below the surface, followed by hardpan. The site is covered in grass. The only known

disturbance that has occurred on the site is associated with past surface grading for construction of the runway (MAFB 2001b).

A Phase I investigation was completed on this site in 1988. Recovered artifacts consisted of a substantial quantity of secondary and nondecortication (unpeeled) chert flakes resulting from stone tool production. A single unifacially shaped tool was also recovered. Recovered items led investigators to tentatively date the site to the Archaic Period (8000 to 1000 B.C.). On the basis of the initial investigation, the site was considered potentially eligible for the NRHP. A Phase II investigation followed in 1991, resulting in the discovery of a diagnostic, stemmed Archaic point and numerous chert and unworked shell remains. The site was definitively determined to be a lithic (stone) reduction site dating to the Archaic Period (MAFB 2001b).

The Runway Site has the potential to further the knowledge of local and regional prehistory and is eligible for the NRHP. All military activities except routine mowing are avoided at this site (MAFB 2001b).

Traditional, Cultural, or Religious Significance to Native American Tribes

In 1996, MacDill AFB initiated NAGPRA consultation with 11 tribal organizations regarding disposition of the human remains and associated artifacts uncovered at the Gadsden Point Site (described under *Archaeological Resources*). Later in 1996, base personnel and the Independent Traditional Seminole Nation of Florida reinterred all human remains and artifacts that were collected in the 1952 and 1996 excavations in the western portion of the Gadsden Point Site, which is less susceptible to erosion. As part of this NAGPRA consultation, MacDill AFB agreed not to allow further archaeological investigations or intrusions at the Gadsden Point Site and to adopt a policy on noncollection of artifacts in any future archaeological investigations within MacDill AFB. The western portion of the Gadsden Point Site is treated as eligible for inclusion in the NRHP. Finally, as part of that consultation effort, the participating tribes indicated that they were not aware of any sacred sites or traditional cultural properties present within MacDill AFB.

Architectural Resources

MacDill AFB has two historic districts, the MacDill Field Historic District and Staff Officers' Quarters (SOQ) Historic District, and several buildings that are potentially eligible for inclusion in the NRHP. **Figure 3-2** shows the locations of the two NRHP-eligible historic districts. Both historic districts display the Mediterranean Revival architecture style, which was popular in the Tampa Bay area in the 1930s and 1940s. Typical features of Mediterranean Revival construction were stucco exteriors, arched openings, low-pitched roofs with clay tile, and asymmetrical facades. Most contributing buildings within the districts display a practical adaptation of Mediterranean Revival in the "military vernacular" style, which used poured-in-place concrete or concrete masonry unit construction. The Mediterranean Revival style was a more ornamental adaptation of the earlier Mission style. **Table 3-7** lists each building within the two NRHP-eligible historic districts. All the buildings listed in **Table 3-7** are considered eligible for inclusion on the NRHP as contributing elements of the respective historic district. If the buildings were to be evaluated individually and not as part of a historic district, some buildings would be considered eligible and others would not. **Table 3-7** delineates the status of the buildings as part of a historic district, and then individually.

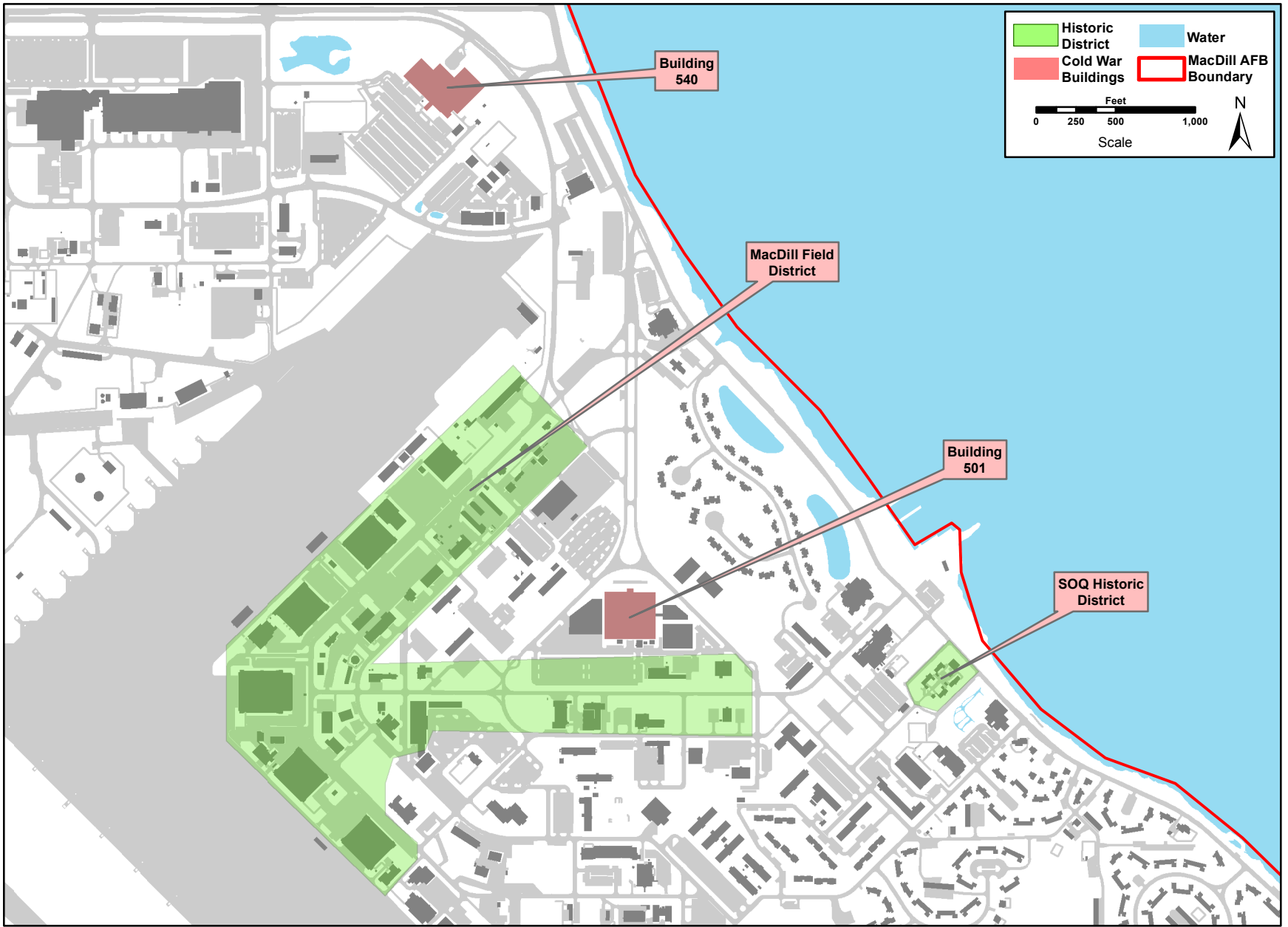


Figure 3-2. NRHP Eligible or Potentially Eligible Resources at MacDill AFB

Table 3-7. NRHP Eligibility Status of Buildings within Historic Districts on MacDill AFB

Building No.	Building Name/ Description	Year Constructed	District NRHP Status	Individual NRHP Status	Year of Study (Level of Study)^a
MacDill Field Historic District (Eligible)					
1	Hangar	1941	Eligible	Eligible	1993 (HABS I)
2	Hangar	1941	Eligible	Eligible	1993 (HABS I)
3	Hangar	1941	Eligible	Eligible	1993 (HABS III)
4	Hangar	1941	Eligible	Eligible	1993 (HABS III)
5	Hangar	1941	Eligible	Eligible	1993 (HABS III)
12	Maintenance Shop	1941	Eligible	Not Eligible	1994 (HABS III)
26	Fire Station	1941	Eligible	Eligible	1994 (HABS I)
27	Community Facility	1941	Eligible	Not Eligible	1994 (HABS II)
28	Product PLT	1942	Eligible	Not Eligible	1994 (HABS II)
29	Maintenance Shop	1941	Eligible	Not Eligible	1994 (HABS II)
30	Engineer Administration	1941	Eligible	Eligible	1994 (HABS I)
31	Maintenance Shop	1941	Eligible	Not Eligible	1994 (HABS III)
32	Maintenance Shop	1941	Eligible	Not Eligible	1994 (HABS III)
33	Maintenance Shop	1941	Eligible	Not Eligible	1994 (HABS III)
34	Civil Engineering Storage Shed	1941	Eligible	Not Eligible	1994 (HABS III)
35	Maintenance Shop	1941	Eligible	Not Eligible	1994 (HABS II)
37	Water Tower	1941	Eligible	Not Eligible	1994 (HABS IV)
41	Theater	1941	Eligible	Eligible	1994 (HABS I)
42	Precision Measurement Equipment Laboratory	1942	Eligible	Not Eligible	1994 (HABS II)
45	Fuel Station	1941	Eligible	Not Eligible	1994 (HABS III)
68	Storage Facility	1941	Eligible	Not Eligible	1994 (HABS III)
111	Storage Facility	1940	Eligible	Not Eligible	1994 (HABS III)
117	Garage	1941	Eligible	Not Eligible	1994 (HABS III)
172	Warehouse	1942	Eligible	Not Eligible	1994 (HABS III)
249	Special Operations	1943	Eligible	Not Eligible	1994 (HABS III)
297	Warehouse	1943	Eligible	Not Eligible	1994 (HABS III)
347	Engineer Admin.	1944	Eligible	Not Eligible	1994 (HABS III)
521	Housing (NCO)	1940	Eligible	Eligible	1994 (HABS I)
522	Housing (NCO)	1940	Eligible	Eligible	1994 (HABS I)
523	Housing (NCO)	1940	Eligible	Eligible	1994 (HABS I)

**Table 3-7. NRHP Eligibility Status of Buildings within Historic Districts on MacDill AFB
(continued)**

Building No.	Building Name/ Description	Year Constructed	District NRHP Status	Individual NRHP Status	Year of Study (Level of Study) ^a
527	Vehicle Shop	1942	Eligible	Not Eligible	1994 (HABS III)
552	Storage Facility	1945	Eligible	Not Eligible	1994 (HABS III)
731	Storage Facility	1943	Eligible	Not Eligible	1994 (HABS II)
927	Water Pump Station	1942	Eligible	Not Eligible	1994 (HABS III)
928	Water Pump Station	1942	Eligible	Not Eligible	1994 (HABS III)
1050	Maintenance Shop	1944	Eligible	Not Eligible	1994 (HABS III)
SOQ Historic District (Eligible)					
398	Garage	1941	Eligible	Not Eligible	1994 (HABS III)
401	Housing (Loop)	1941	Eligible	Eligible	1994 (HABS I)
402	Housing (Loop)	1941	Eligible	Eligible	1994 (HABS I)
403	Housing (Loop)	1941	Eligible	Not Eligible	1994 (HABS I)
404	Housing (Loop)	1941	Eligible	Eligible	1994 (HABS I)
405	Housing (Loop)	1941	Eligible	Eligible	1994 (HABS I)

Notes:

HABS = Historic American Buildings Survey

NCO = noncommissioned officer

^a Level I HABS documentation is the most detailed, and Level IV is the least detailed. Level IV HABS is only a basic inventory.

MacDill Field Historic District. The MacDill Field Historic District extends from Hangar 3 east along Florida Keys Avenue to Building 344. From Hangar 3, the district extends south to Hangar 1 and northeast to Hangar 5. NRHP eligibility of the MacDill Field Historic District is based on two criteria: (1) its association with events that have made an important contribution to American history (Criterion A); and (2) embodiment of a distinctive type, period, or method of construction (Criterion C). Furthermore, the district meets the NRHP's general guidelines in displaying integrity of location; cohesiveness of design; definable setting; and continuity of materials, workmanship, and feeling. As identified in the base's ICRMP, Hangers 1–5 and Buildings 26, 30, and 41 (all of which would be individually eligible for the NRHP) are the core buildings of this historic district. The remaining buildings, although not individually eligible, are important components of the historic district and contribute to its cohesiveness, setting, integrity, and feeling.

MacDill AFB's role during World War II is considered an important contribution to American history. During World War II, missions included transporting troops eastward to the Philippines and training and replacing troops for the European Theater. The buildings along the flightline provided the necessary maintenance, housing, support, and administrative facilities for MacDill AFB's war missions. As previously noted, the architecture of the buildings in this historic district is representative of the Mediterranean Revival style.

SOQ Historic District. The SOQ Historic District is on the east side of the base along Staff Loop (**Figure 3-2**) and includes six structures. The houses and garage were built in 1941. Originally, 28 SOQs were planned, but only 5 were constructed. Like the MacDill Field Historic District, the SOQ Historic District is eligible for the NRHP under Criteria A and C. The SOQ Historic District provided housing for the operations commanders at MacDill AFB during World War II. It displays a cohesiveness of design and continuity of workmanship and materials in a setting that retains architecture and landscape integrity. As identified in the base's ICRMP, Buildings 401 and 404 (which would be individually eligible for the NRHP) are considered the core buildings of this historic district. The remaining buildings are important components of the historic district and contribute to its cohesiveness, setting, integrity, and feeling.

MacDill AFB is undergoing Section 106 consultation for the demolition of the SOQ Historic District. Demolition of the SOQ Historic District is not a component of this analysis.

Cold War Buildings and Structures. Numerous Cold War-era (1946–1989) buildings and structures also are present on MacDill AFB. Included among these are the 129 Wherry housing buildings surveyed by Earth Tech, Inc. (2003) and the 92 early Cold War-era (1946–1960) buildings and structures surveyed by engineering-environmental Management (e²M) (Ross and Hart 2006) and evaluated as not eligible for listing on the NRHP. None of these surveyed buildings or structures has been recommended eligible under Criterion Consideration G, or for those that have reached 50 years in age, under Criteria A–D.

Of the remaining Cold War resources at MacDill AFB, only the two integrated command headquarters, Building 501 (USSOCOM) and Building 540 (USCENTCOM) (**Figure 3-2**), have been identified as requiring evaluation to determine NRHP eligibility under Criterion Consideration G (Patterson et al. 1994). The historic importance of these two buildings lies in their continuous use as command headquarters for the latter part of the Cold War (Patterson et al. 1994).

The remaining Cold War-era buildings and structures at MacDill AFB will be evaluated as they turn 50 years of age; this evaluation will be based on architectural merit rather than associations with persons or events, as the 1994 Cold War Study (Patterson et al. 1994) already addressed the contextual associations of these resources. As noted, e²M completed a survey and evaluation of the first group of these resources in 2005, focusing on all buildings and structures constructed between 1946 and 1960 (Ross and Hart 2006). It is anticipated that buildings and structures constructed between 1961 and 1965 will be evaluated in conjunction with the next iteration of the ICRMP in 2011.

Building 501 (501A). The USSOCOM Headquarters was constructed in 1968. It is a two-story building of concrete masonry construction with a reversed stair-step configuration. The roof overhangs the second floor, which overhangs the first. It was originally constructed for the U.S. Strike Command (USSTRIKCOM). USSTRIKCOM was established in 1969 to provide a global fighting force that could fulfill President Kennedy's strategy of Flexible Response (Patterson et al. 1994). In 1972, the new U.S. Readiness Command (USREDCOM), a global, unified command, replaced USSTRIKCOM and established its headquarters in the same building. The Rapid Deployment Joint Task Force (RDJTF) also used the building as headquarters for command operations in the Middle East while under the USREDCOM during 1980–1981 (Patterson et al. 1994). USSOCOM, a global, specified command integrating all four branches of DOD, replaced USREDCOM in 1987 and currently uses the building as its headquarters.

Due to security considerations, the survey of Building 501 was not permitted; accordingly, further evaluation of that building remains a priority for the MacDill AFB cultural resources program.

Building 540. The current USCENTCOM Headquarters was constructed in 1982. It is a three-story building of concrete masonry construction with a reversed stair-step configuration. Exterior features

reflect its historic function and the importance of security. Long, narrow windows are found only on the top story, and there are very few entrances to the building.

It was originally constructed for RDJTF when that command became autonomous from USREDCOM. The mission of RDJTF was to provide a regional unified command for military operations in the Middle East, Southwest Asia, and Northeast Africa. In 1983, RDJTF was replaced by USCENTCOM which retained RDJTF's responsibilities. USCENTCOM still uses the facility for its headquarters (Patterson et al. 1994).

Further evaluation of Building 540, conducted as part of the 2005 survey of Cold War-era buildings constructed between 1946 and 1960 (Ross and Hart 2006), resulted in a recommendation of Building 540 as eligible to the NRHP under Criterion Consideration G.

3.9 Socioeconomics

3.9.1 Definition of the Resource

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

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

In appropriate cases, data on an installation's expenditures in the regional economy help to identify the relative importance of an installation in terms of its purchasing power and jobs base. Demographics identify the population levels and changes to population levels of a region. Demographics data might also be obtained to identify, as appropriate to evaluation of a proposed action, a region's characteristics in terms of race, ethnicity, poverty status, educational attainment level, and other broad indicators.

On February 11, 1994, the President issued EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The essential purpose of the EO is to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of where a proposed action would occur. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in the EO.

Socioeconomic data shown in this section are presented at the U.S. Census Bureau Tract, Metropolitan Statistical Area (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).

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.

3.9.2 Existing Conditions

For this Proposed Action, the socioeconomic baseline is presented using three levels of comparison: the Region of Influence (ROI); the Tampa-St. Petersburg-Clearwater, Florida MSA; and the state of Florida. The ROI was defined by identifying census tracts surrounding MacDill AFB. Census tracts 65, 66, 67, 68.01, 68.02, 69, 70, 71, 72, 73, 244.05, and 245.02 were defined as the ROI. The Tampa-St. Petersburg-Clearwater MSA includes a larger population of people and includes the population within the ROI.

Social and Economic Condition. MacDill AFB is approximately eight miles south of downtown Tampa, Florida, in Hillsborough County. Between 1990 and 2000, Florida's population increased by 24 percent. In the same period of time, the Tampa-St. Petersburg-Clearwater MSA and the ROI grew by 16 percent and two percent, respectively.

Table 3-8 lists the industries for residents in the ROI, MSA, and Florida. The top three areas of industry for the ROI, MSA, and Florida consist of professional, scientific, management, administrative and waste management services; educational, health, and social services; and retail trade careers. As would be expected, there is a larger portion of the population in the ROI employed in the Armed Forces, compared with both the MSA and Florida.

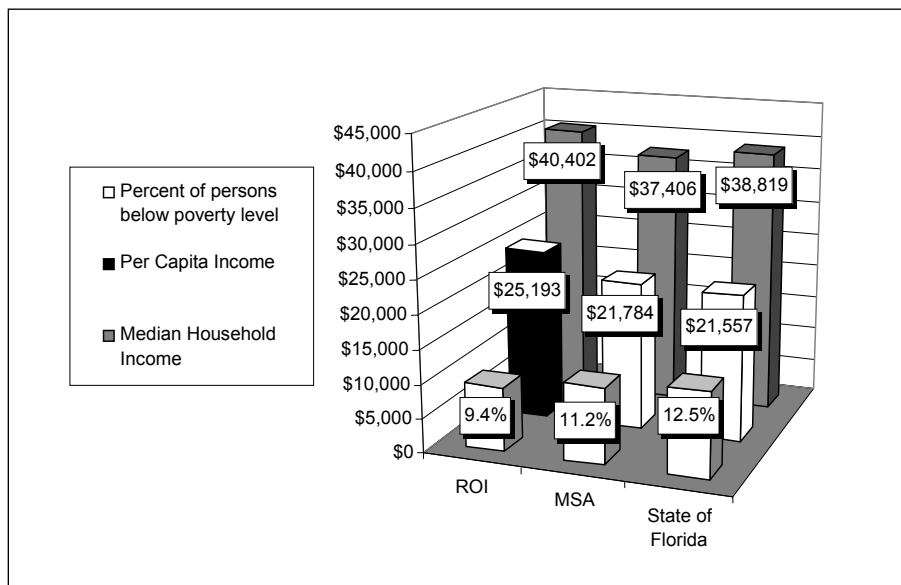
In 2000, the unemployment rate of the ROI was slightly lower than 3.0 percent, which is comparable to the MSA (2.9 percent) and lower than Florida (3.2 percent) (U.S. Census Bureau 2000). As shown in **Figure 3-3**, the ROI has a higher median household income and per capita income and a lower percentage of individuals below the poverty threshold than both the MSA and Florida (U.S. Census Bureau 2000).

Figure 3-4 shows the educational attainment within the ROI, MSA, and Florida. The percent of residents in the ROI (60.3 percent) that have obtained a high school diploma is slightly higher but comparable to the MSA (59.8 percent) and Florida (57.6 percent). The percent of residents that have obtained a bachelor's degree or higher in the ROI (26.1 percent) is also higher than the MSA (21.7 percent) and Florida (22.3 percent).

Table 3-8. Employment of Residents in ROI, MSA, and the State of Florida

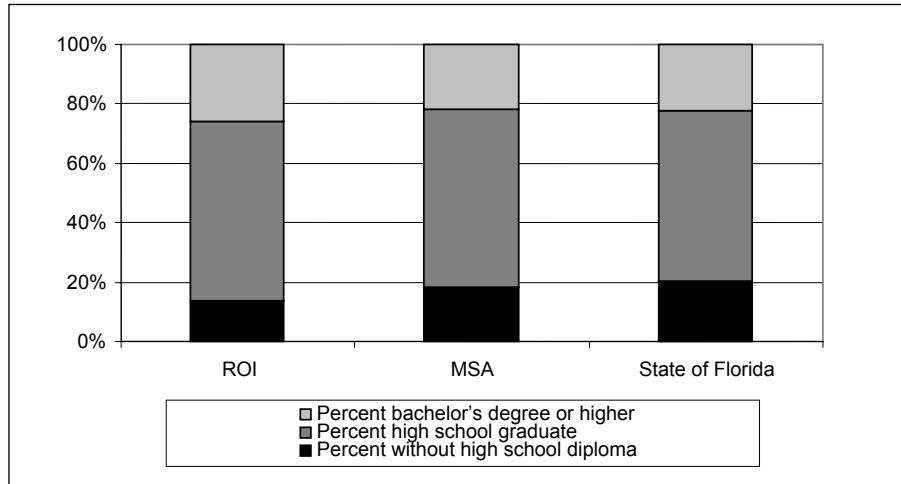
Economic and Social Indicators	ROI	MSA	State of Florida
Employed Persons in Armed Forces	6.0%	0.3%	0.5%
Employed Persons in Civilian Labor Force (by industry)			
Agriculture, forestry, fishing and hunting, and mining	0.13%	0.80%	1.30%
Construction	4.90%	7.00%	8.00%
Manufacturing	6.93%	8.30%	7.30%
Wholesale trade	4.03%	4.40%	4.00%
Retail trade	13.56%	13.90%	13.50%
Transportation and warehousing, and utilities	5.03%	4.80%	5.30%
Information	4.35%	3.80%	3.10%
Finance, insurance, real estate, and rental and leasing	10.93%	9.20%	8.10%
Professional, scientific, management, administrative, and waste management services	14.00%	11.70%	10.60%
Educational, health, and social services	12.46%	15.7%	17.0%
Arts, entertainment, recreation, accommodation, and food services	10.83%	8.80%	10.50%
Other services (except public administration)	4.78%	4.90%	5.10%
Public administration	6.08%	4.10%	5.20%

Source: U.S. Census Bureau 2000



Source: U.S. Census Bureau 2000

Figure 3-3. Income and Poverty Level for Residents in ROI, MSA, and State of Florida



Source: U.S. Census Bureau 2000

Figure 3-4. Educational Attainment for Residents in ROI, MSA, and the State of Florida

Environmental Justice. Race, ethnicity, and the poverty status of people within the ROI, MSA, and Florida were characterized to establish a baseline for environmental justice analysis. To establish a baseline for environmental justice effects, income, poverty, and race were examined at the census tract level and compared to the state and MSA averages. Census tracts having disproportionately low income or high poverty levels or percentages of minorities are discussed in more detail to determine if environmental justice impacts could occur.

Those 12 census tracts identified as the ROI (Tracts 65, 66, 67, 68.01, 68.02, 69, 70, 71, 72, 73, 244.05, and 245.02) were compared to the MSA and the state of Florida. Tracts 70 and 72, which are adjacent to MacDill AFB on the northwestern boundary, are discussed in more detail because of their potential for environmental justice impacts. Tract 70 had the highest populations of Hispanics (15.2 percent) and Asians (9.2 percent), the highest percentage of individuals below poverty level (17 percent), and one of the lowest per capita incomes (\$16,099) amongst the 12 tracts. Tract 72 had the highest populations of African Americans (27.6 percent), Native Americans (0.6 percent), and Pacific Islanders (0.4 percent); the second highest percentages of individuals below poverty (15.2 percent); and one of the lowest per capita incomes (\$18,740) amongst the 12 tracts. **Table 3-9** compares Tracts 70 and 72 of the ROI with the MSA and state of Florida.

Table 3-9. Potential Environmental Justice Indicators of Tracts 70 and 72, MSA, and the State of Florida

	ROI		MSA	State of Florida
	Tract 70	Tract 72		
Hispanic	15.2%	11.4%	10.4%	16.8%
Asian	9.2%	2.7%	1.9%	1.7%
African American	14.3%	27.6%	10.2%	14.6%
Native American	0.3%	0.6%	0.3%	0.3%
Pacific Islander	0.3%	0.4%	0.1%	0.1%
Below Poverty	17%	15.2%	11.2%	12.5%
Per Capita Income	\$16,099	\$18,740	\$21,784	\$21,557

Source: U.S. Census Bureau 2000

3.10 Infrastructure

3.10.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as “urban” or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to economic growth of an area. The infrastructure components to be discussed in this section include the transportation network, electricity, natural gas, communications, water supply, sanitary systems and wastewater, and solid waste.

The availability of 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. In some localities, landfills are designed specifically for, and are limited to, disposal of construction and demolition (C&D) debris. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduce reliance of landfills for disposal.

3.10.2 Existing Conditions

Airfield. The MacDill AFB airfield pavements system includes the runway, paved overruns, parking/maintenance aprons, aircraft taxiways, and arm/disarm pad. The base’s one runway, Runway 04/22, runs northeast to southwest with a parallel taxiway, Taxiway G. The main aircraft-parking apron is connected by Taxiway K, which runs east and west and Taxiway L which runs northeast to southwest and also intersects Taxiway K. Taxiway N originates at the same location as Taxiway L but runs northwest and turns into Taxiway F that connects to Runway 04/22. There is an additional parking apron along Taxiway I.

Communications. The communications system at MacDill AFB provides support to the 6 AMW and its associate units. The communications system consists of copper cable, fiber optic cable, and manhole/conduit systems that provide communications support for use on the base. The copper system provides support for telephones, fire and crash systems, security alarm systems, radio systems, energy monitoring and control system, and low speed point-to-point data systems.

Electrical. Tampa Electric Company provides MacDill AFB with electrical power. The majority of the electrical lines are aboveground with a few primary cables underground. The underground cable originates in the northeastern area of the base, at the substation, and continues to the southern area of the base to provide the core of the base with overhead lines. The WSA and MFH are also powered by underground cables.

Liquid Fuel. The only liquid fuel used at MacDill AFB is jet fuel. There is one 12-inch fuel line that serves the jet fuel storage area in the western part of the base. The line continues northwest around the runway and then southeast to the jet fuel pumping stations and hydrants.

Natural Gas. People’s Gas Company of Tampa provides natural gas for MacDill AFB. The gas lines enter the base in the northeastern area at the intersection of MacDill Avenue and North Boundary Boulevard. The lines then run along Tampa Point Boulevard where they are distributed throughout the base to provide the necessary gas to various areas of the base. Currently the western section of the base is not supplied with natural gas lines.

Sanitary Sewer. MacDill AFB owns and operates its sanitary sewer system consisting of sewer lines, lift stations, and a WWTP. The WWTP is in the southeastern corner of the base on Bayshore Drive. The WWTP has been converted to tertiary treatment with a recent upgrade of two clarifiers. Current standards allow the WWTP to treat 1.2 million gallons per day (mgd) with a design that will provide for two mgd. Current operations are at 650,000 gallons per day that treat mainly domestic wastewater. The treatment process uses activated sludge, sand filtration, and disinfection before it is discharged into a holding pond adjacent to the WWTP.

Most of the discharge is used for irrigation purposes of the two Bay Palms Golf Complexes on the base. During dry periods there is not enough discharge to irrigate the courses and during wet times the extra water is sent to four irrigation fields near Golf Course Avenue and Marina Bay Drive. In addition, a 20-million-gallon percolation pond was constructed to temporarily retain excess wastewater in extremely wet periods. To detect any possible contamination, monitoring wells are ten to 15 feet below ground throughout the golf course complex.

Solid Waste. MSW at MacDill AFB is managed in accordance with the guidelines specified in AFI 32-7042, *Solid and Hazardous Waste Compliance*. This AFI incorporates by reference the requirements of Subtitle D, 40 CFR Parts 240 through 244, 257, and 258; and other applicable Federal regulations, AFIs, and DOD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for handling, storage, collection, and disposal of solid waste; record-keeping and reporting; and pollution prevention.

MacDill AFB has a Qualified Recycling Program that is responsible for the collection, recycling, disposal, tracking, and reporting of all solid waste on base. The base has contracted with Waste Management and the Defense Reutilization and Marketing Office (DRMO) to handle the collection, recycling, and disposal of the solid waste. Waste Management is responsible for the collection services that are provided to MFH, administrative offices, and industrial operations on base. The common areas of the administrative offices have recycling bins for mixed paper and aluminum cans. DRMO is responsible for the recycling of government-procured items such as car batteries, furniture, appliances, computers, paints, lubricants, and antifreeze. Cardboard is recycled by the Army and Air Force Exchange Service and the Defense Commissary Agency.

C&D waste generated from specific construction, renovation, and maintenance projects on MacDill AFB, most of which are performed by off-base contractors, is the responsibility of the contractor. Contractors are required to comply with Federal, state, local, and USAF regulations for the collection and disposal of MSW from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. All nonrecyclable C&D waste is collected in a dumpster until removal. C&D waste contaminated with hazardous waste, asbestos-containing materials (ACM), lead-based paint (LBP), or other undesirable components is managed in accordance with AFI 32-7042.

Transportation Systems. Access to the base is provided by four gates in the north end of the base at Dale Mabry Highway, Bayshore Boulevard, MacDill Avenue, and Tanker Gate. Most people access the base using the gate at Dale Mabry Highway. Primary roads on base include North Boundary Boulevard, Bayshore Boulevard, South Boundary Boulevard, Hanger Loop Drive, Hillsborough Loop Drive, Administration Avenue, Tampa Point Boulevard, Florida Keys Avenue, Marina Bay Drive, and Zemke Avenue.

Water. The City of Tampa provides water to MacDill AFB from two major lines on MacDill Avenue and Himes Avenue. Backflow preventers are provided at each location. There have been several problems documented with the water system, such as insufficient water quality testing in the field; the presence of

copper, manganese, and lead; several cross-connection control problems; and inadequate backflow prevention program. Other problems identified with the system include the presence of dead end lines such as in the Marina area, low pressure in areas of the base including the Marina and Family Camp areas, and significant leakages caused by poorly installed polyvinyl chloride lines in the South Ramp area.

To address these areas of improvement, a number of projects have been identified to improve the base's potable water system. These projects address needs such as the completion of a water system survey to identify line locations, valves, and dimensions; line and valve replacement; maintenance of towers and other infrastructure; and other projects. A number of projects have also been identified to repair water mains serving MFH.

3.11 Hazardous Materials and Waste

3.11.1 Definition of the Resource

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

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

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, or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

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

Special hazards are those substances that might pose a risk to human health, but are not regulated as contaminants under the hazardous waste statutes. Included in this category are ACM, radon, LBP, polychlorinated biphenyls, and UXO. 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.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by Superfund Amendments and Reauthorization Act (SARA) and Toxic Substances Control Act (TSCA), define hazardous materials. The Solid Waste Disposal Act as amended by Resource Conservation and Recovery Act (RCRA), which was further amended by Hazardous and Solid Waste Amendment

(HSWA), defines hazardous wastes. In general, both hazardous materials and wastes include substances that, because of their quantity; concentration; or physical, chemical, or infectious characteristics, could present substantial danger to public health or welfare or the environment when released or otherwise improperly managed.

Through its ERP, the DOD evaluates and cleans up sites where hazardous waste has been spilled or released to the environment. The ERP 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 ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that might be affected by contaminants. It also aids in identification of properties and their usefulness for given purposes (e.g., activities dependent on groundwater usage might be foreclosed where a groundwater contaminant plume remains to complete remediation).

3.11.2 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 6 AMW has established a hazardous materials management program in accordance with AFI 32-7086 (MAFB 2001c). 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 HAZMART is operated under a Memorandum of Agreement and is in Building 49. The EMIS tracks acquisition and inventory control of hazardous materials as well as hazardous waste disposals and emissions, and health and safety information (MAFB 2001c).

Hazardous Waste. Hazardous waste generated within the state of Florida must be managed in accordance with USEPA, Florida, and USAF regulatory requirements. The 6 AMW maintains a *Hazardous Waste Management Plan* (MAFB 2001c) as directed by AFI 32-7042, *Solid and Hazardous Waste Compliance*. This plan prescribes the roles and responsibilities of all members of MacDill AFB with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes the procedures to comply with applicable Federal, state, and local standards for solid waste and hazardous waste management.

Wastes generated at MacDill AFB include waste flammable solvents, contaminated fuels and lubricants, paint/coating, stripping chemicals, waste oils, waste paint-related materials, MSW, and other miscellaneous wastes. Management of hazardous waste is the responsibility of each waste-generating organization and the environmental management flight (6 SPTG/CEV). MacDill AFB produces more than 2,200 kilograms of hazardous waste per month and is considered a large quantity generator. There are 52 satellite accumulation points on base and one 90-day accumulation site. Waste containers are transferred from the satellite points to the 90-day accumulation point on base (Building 1115) or the DRMO within 72 hours of being filled. A DRMO contractor picks up hazardous waste for off-base disposal. Used antifreeze, oil, lead-acid batteries, and oil filters are recycled or, in the case of some used petroleum products, are used as supplementary heating fuels.

Pollution Prevention. AFI 32-7080, *Pollution Prevention Program*, implements the regulatory mandates in the Emergency Planning and Community Right-To-Know Act; Pollution Prevention Act of 1990;

EO 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements*; EO 12873, *Federal Acquisition, Recycling, and Waste Prevention*; and EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*. AFI 32-7080 prescribes the establishment of Pollution Prevention Management Plans. The 6 AMW fulfills this requirement with the following plans:

- Storm Water Pollution Prevention Plan (MAFB 2001a)
- Hazardous Waste Management Plan (MAFB 2001c)
- Solid Waste Management Plan (MAFB 2000a)

These plans ensure that MacDill AFB maintains a waste reduction program and meets the requirements of the Clean Water Act; the NPDES permit program; and Federal, state, and local requirements for spill prevention control and countermeasures.

Asbestos. AFI 32-1052, *Facilities Asbestos Management*, which implements AFD 32-10, *Installations and Facilities*, ensures compliance with 40 CFR Part 61 Subpart M, *National Emissions Standard for Asbestos*, and 29 CFR 1926.1101, *Toxic and Hazardous Substances: Asbestos*. AFI 32-1052 requires bases to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of ACM in installation facilities, as well as documenting asbestos management efforts. In addition, the instruction requires installations to develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects. Asbestos is regulated by USEPA with the authority promulgated under the Occupational Safety and Health Act, 29 U.S.C. Section 669, et seq. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. USEPA policy is to leave asbestos in place if disturbance or removal could pose a health threat.

Asbestos at MacDill AFB is managed in accordance with the *Asbestos Management and Operations Plan* that was updated in 2000 (MAFB 2000b). This plan specifies procedures for the removal, encapsulation, enclosure, and repair activities associated with ACM-abatement projects. In addition, it is designed to protect personnel who live and work on the base from exposure to airborne asbestos fibers as well as to ensure the installation remains in compliance with Federal, state, and local regulations pertaining to asbestos. Buildings on MacDill AFB that are scheduled for demolition under this Proposed Action will be surveyed and sampled, if required, for materials containing asbestos. Materials that might contain asbestos include roofing materials, floor tiles, and possibly pipe insulation. Asbestos materials are removed on an as-needed basis to minimize health risks from release of asbestos fibers during normal activities, maintenance, renovation, or demolition.

Lead-Based Paint. The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), passed by Congress on October 28, 1992, regulates the use and disposal of LBP on Federal facilities. Federal agencies are required to comply with applicable Federal, state, and local laws relating to LBP activities and hazards.

USAF policy and guidance establishes LBP management at USAF facilities. The policy incorporates by reference the requirements of 29 CFR 1910.120, 29 CFR Part 1926, 40 CFR 50.12, 40 CFR Parts 240 through 280, the CAA, and other applicable Federal regulations. In addition, the policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards. LBP at MacDill AFB is managed in accordance with the *Lead-Based Paint Management Plan* that was updated in 2003 (MAFB 2003). Buildings on MacDill AFB that are scheduled for demolition under this Proposed Action will be surveyed and sampled, if required, for LBP.

Environmental Restoration Program. The ERP, formerly known as the Installation Restoration Program, is a subcomponent of the Defense ERP that became law under SARA. The ERP requires each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites.

MacDill AFB began its ERP in 1981 with 38 sites originally identified. This consisted of a Phase I Records Search to identify potential sites of concern, which warranted further investigation. In accordance with USAF policy, all ERP sites at the base are addressed in a manner consistent with the CERCLA or RCRA process. Restoration projects on MacDill AFB are conducted under two regulatory programs: governing petroleum releases from USTs, and governing cleanup of SWMUs in accordance with the installation's RCRA permit. There are 75 SWMUs and ERP sites scattered throughout the installation. None of these sites have been identified on the National Priorities List under CERCLA. **Figure 2-2** shows the location of the SWMUs and ERP sites on MacDill AFB. Plans for future development in the areas of any of the ERP sites should take into consideration the possible restrictions and constraints that they represent.

The FDEP regulates clean-up activities at petroleum sites, and has entered into a Petroleum Contamination Agreement with MacDill AFB. The investigation and cleanup of SWMUs is conducted in accordance with the HSWA permit issued to the base under USEPA ID No. FL6 570 024 582. The 2004 *Management Action Plan* (USAF 2005) was developed to provide a picture of the environmental restoration activities completed at MacDill AFB. A number of SWMUs and ERP sites have been grouped into Strategic Units (SUs) for development of site clean-up strategies (refer to **Figure 2-2**). The Strategic Plan for Site Restorations was developed through the cooperative efforts of the MacDill AFB Partnering Team composed of USAF, USACE, FDEP, USEPA, and contractor support.

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4. Environmental Consequences

Section 4 presents an evaluation of the general environmental impacts that could result from implementing the Proposed Action or the No Action Alternative. This chapter focuses on impacts considered potentially significant. The general approach followed throughout this section is to describe briefly the range of impacts that would occur and then provide a discussion of impacts that are considered significant. A detailed analysis of all proposed installation development projects is in **Appendix B**.

The IDEA analyzes the environmental impacts resulting from the activity for a range of structural sizes, acreage disturbed, air emissions, vegetation disturbed, and similar relevant aspects. For example, if the largest structure to be demolished is 75,000 ft², and the largest building to be constructed is 254,000 ft², the IDEA analyzes the impacts resulting from the demolition or construction of that building representing the upper range of demolition or construction impacts. All other buildings scheduled for demolition or construction would have impacts similar to but less than that represented by the upper range. The IDEA also analyzes the siting of construction activities based on environmental constraints.

The specific criteria for determining the significance of impacts and assumption for the analyses are presented under each resource area. Significance criteria for most potential impacts were obtained from standard criteria; Federal, state, or local agency guidelines and requirements; or legislative criteria. Long-term implications of the Proposed Action are also presented in this section.

The significance of an action is measured in terms of its context and intensity. The extent to which a proposed action might affect an environmental resource depends on many factors. In some cases, environmental resources can be affected directly; in others, they can be affected indirectly; and in some cases, not affected at all.

The significance of an action is analyzed in several contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance might vary with the setting of a proposed action.

Intensity refers to the severity of impact. Impacts might be beneficial or adverse. Consideration must be given to whether an impact affects public health or safety and whether it affects areas having unique characteristics, such as historical or cultural resources, wetlands, or ecologically critical areas. The significance of impacts might also depend on the degree of their being controversial or posing highly uncertain, unique, or unknown risks. Significance can be found where an action sets a precedent for future actions having significant effects, as well as in cases involving cumulative impacts. In considering intensity, consideration must be given to the degree to which the action might adversely affect animal or plant species listed as endangered or threatened or their habitat. Finally, in evaluating intensity, consideration must be given to whether an action threatens a violation of a law or regulation imposed for the protection of the environment.

4.1 Noise

4.1.1 Significance Criteria

Noise impact analyses typically evaluate potential changes to the existing noise environment that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased noise exposure to unacceptable noise levels).

4.1.2 Environmental Consequences

Intermittent short-term adverse impacts from noise would be expected from implementation of the Proposed Action.

All proposed projects in **Appendix A** would result in temporary increases in noise levels. The representative projects in **Tables 2-1, 2-2, and 2-3** were used for representative noise impacts calculations. Building construction, modification, and demolition work can cause noise impacts above ambient sound levels. A variety of sounds come from graders, pavers, trucks, welders, and other work processes. **Table 4-1** lists noise levels associated with common types of construction equipment that are likely to be used under the Proposed Action. Since a typical urban neighborhood is usually around 60 to 70 dBA, noise emissions from construction projects can cause intermittent short-term, adverse impacts.

Table 4-1. Predicted Noise Levels for Construction Equipment at MacDill AFB

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

Source: COL 2001

Projects under the Proposed Action would require grading, paving, demolition, and building construction. All of the projects under the Proposed Action would occur on MacDill AFB property. Some of these would occur near on-base MFH and some would occur at the northern end of the MacDill AFB, adjacent to off-base residential areas.

Construction noise varies depending on the type of construction being done, the area that the construction would occur in, and the distance from the source. The majority of the projects are proposed on the northeastern and eastern sides of the base. Residents could experience noise in the 70-dBA range for

those several hundred feet away and in the mid-80-dBA range for those adjacent to proposed projects. Examples of expected construction noise are as follows:

- On-base and off-base residents living 1,000 feet away from building construction would experience intermittent noise levels of about 60 dBA.
- Residents living several hundred feet from paving construction would experience intermittent noise levels of approximately 67 dBA.
- Residents living near housing units scheduled for roof replacement projects would experience intermittent noise levels in the mid-80-dBA range.
- Proposed projects listed in **Appendix A** that would be active simultaneously would take place more than 1,500 feet from each other and therefore the noise impacts of one project would not be additive to the noise from another project.

Given the extent of the projects under the Proposed Action and the proximity to residents on-base, impacts from construction noise are unavoidable. However, construction noise is short-term and only occurs during the daylight hours. Construction equipment would be used only as necessary and would be maintained to the manufacturer's specifications to minimize noise impacts. It is not anticipated that the short-term increase in ambient noise levels from the Proposed Action would cause significant adverse impacts on the surrounding populations.

Once the proposed projects are completed, the ambient noise level would return to its normal level. It is not anticipated that vehicle traffic, boat traffic, or aircraft operations would increase under the Proposed Action. No long-term impacts on the ambient noise level would occur as a result of the Proposed Action.

4.2 Land Use

4.2.1 Significance Criteria

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.

4.2.2 Environmental Consequences

All proposed projects listed in **Appendix A** would be compatible with the MacDill AFB land use categories. Projects would avoid the constraints shown in **Figure 2-2** with respect to wetlands, QD arcs, shoreline, sensitive species, and historic areas. Facilities planned for the airfield and industrial areas have waivers for those personnel working in those areas. No short-term or long-term impacts would be expected to occur on land use. The Proposed Action would occur entirely on MacDill AFB property. Property easements would not be required and there would not be any change in land use during

construction or once the Proposed Action was completed. As discussed previously, land use on MacDill AFB is grouped together by functional relationships. Projects under the Proposed Action have been planned with these functional relationships in mind and all future projects would be compatible with the established land uses.

Figure 4-1 shows representative future project locations. Note that the projects avoid the major constraints except for floodplain and ERP sites. Although projects would be constructed in ERP areas, the groundwater would not be used by the occupants of these buildings and therefore not cause any harm. Due to lack of sufficient available open space, construction must occur in the floodplain. The extremely limited amount of acreage outside of the constraints and the floodplain would severely impair MacDill AFB's ability to build and meet future mission requirements. MacDill AFB must build in the floodplain in order to meet the future mission demands of the installation. All projects in the floodplain would follow the requirements outline in the MacDill AFB FPMP for construction activities.

4.3 Air Quality

4.3.1 Significance Criteria

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

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

Effects on air quality in NAAQS "nonattainment" areas are considered significant if the net changes in project-related pollutant emissions result in any of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Increase the frequency or severity of a violation of any ambient air quality standard
- Delay the attainment of any standard or other milestone contained in the SIP.

With respect to the General Conformity Rule, effects on air quality would be considered significant if the proposed Federal action would result in an increase of a nonattainment or maintenance area's emissions inventory by ten percent or more for one or more nonattainment pollutants, or if such emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been redesignated as a maintenance area. However, MacDill AFB resides in Hillsborough County which is in attainment for all criteria pollutants, and the General Conformity Rule does not apply.

In addition to the *de minimis* emissions thresholds, Federal PSD regulations define air pollutant emissions to be significant if the source is within ten kilometers of any Class I area, and emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1.0 $\mu\text{g}/\text{m}^3$ or more (40 CFR 52.21(b)(23)(iii)). MacDill AFB is not within ten kilometers of a Class I area.

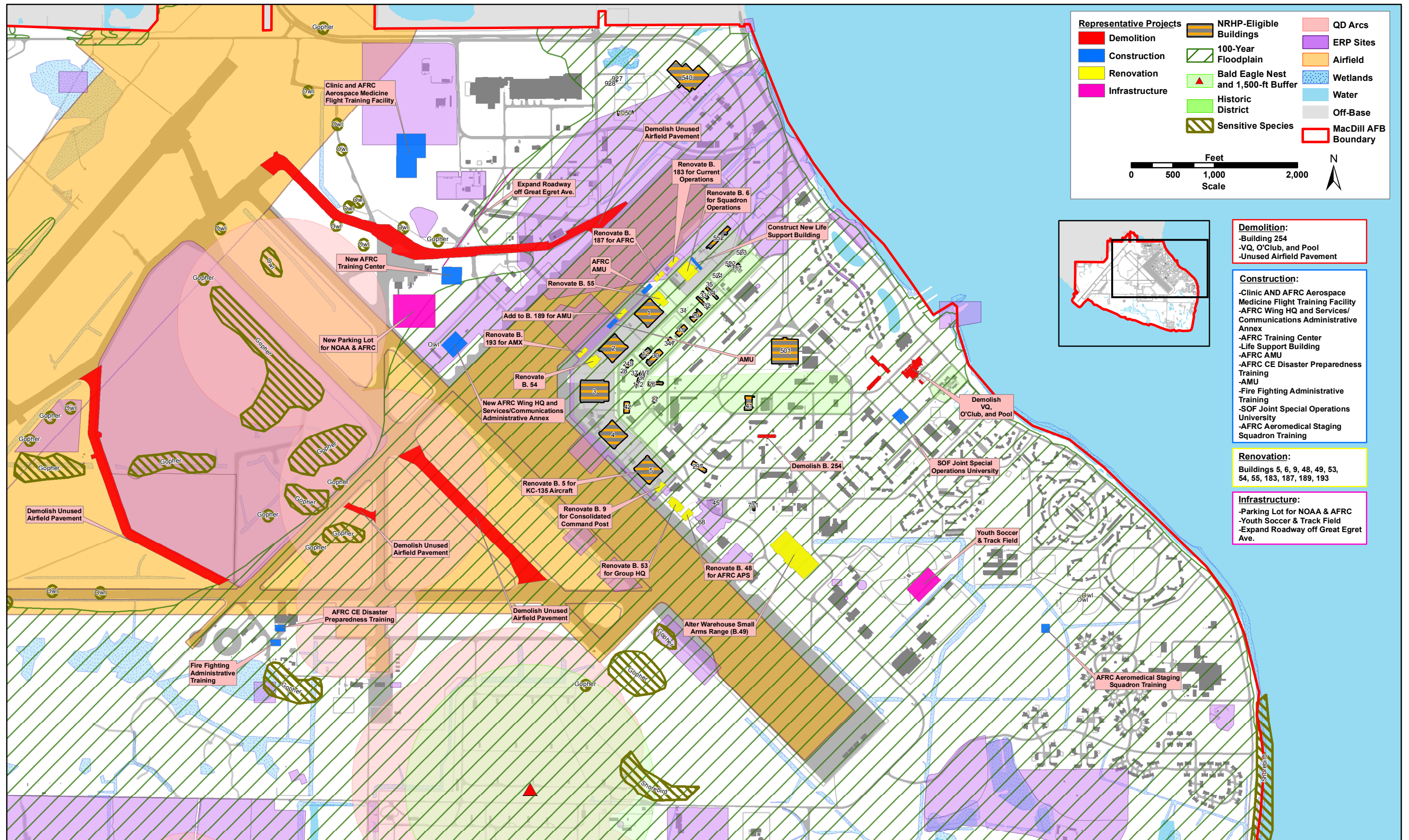


Figure 4-1. MacDill AFB Proposed Locations and Constraints

4.3.2 Environmental Consequences

As discussed in **Section 3.3**, MacDill AFB is in attainment for all criteria pollutants. Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with the NAAQS. The Proposed Action would generate both temporary and long-term air pollutant emissions. The construction, demolition, and infrastructure projects related to the Proposed Action would generate air pollutant emissions as a result of grading, filling, compacting, trenching, demolition, and construction operations, but these emissions would be temporary and would not be expected to generate any off-site effects. The Proposed Action does not include a net increase in personnel or commuter vehicles. Therefore, the Proposed Action's emissions from existing personnel and commuter vehicles would not result in an adverse impact on regional air quality.

The construction projects would generate total suspended particulate and PM₁₀ emissions as fugitive dust from ground-disturbing activities (e.g., grading, demolition, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Fugitive dust emissions would result for the grading and construction activities. 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 85 percent (NOAA 2003). Wind speed of greater than 12 miles per hour is recorded 8.3 percent of the time during O₃ season (April 1 to October 31), which is based on average wind rose data and measured speed for Tampa, Florida (NRCS 2005). Fugitive dust would be minimized during these construction activities by continually applying water to the construction site.

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment, as well as evaporative emissions from architectural coatings and asphalt paving operations. These emissions would be of a temporary nature. The emissions factors and estimates were generated based on guidance provided in *Air Quality Thresholds of Significance* from the Sacramento Metropolitan Air Quality Management District (SMAQMD 2004).

For purposes of this analysis, the project durations and affected project site areas that would be disturbed (presented in **Section 2**) were used to estimate fugitive dust and all other criteria pollutant emissions. **Table 4-2** details these construction emissions in two separate ways. The first method is a worst-case scenario where the three representative construction, demolition, and infrastructure projects shown in **Tables 2-1, 2-2, and 2-3** were assumed to be completed within the same calendar year. These projects would create the highest amount of emissions. In actuality, it is most probable that each of these projects would occur in separate years and would be constructed over a multiple-year period. Therefore, it is anticipated that the maximum annual construction emissions associated with the Proposed Action in any single year would be less than those of the worst-case scenario. The second method consists of averaging all the proposed projects planned over the next 5 years (**Appendix A**). Over the next 5 years, an average of 1.8 million ft² would be constructed, 1.2 million ft² would be demolished, and 1.1 million ft² of infrastructure (including lots and new pavements) would be built at MacDill AFB.

Table 4-2. Annual Construction Emissions Estimates from the Proposed Action

Description	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM ₁₀ (tpy)
Worst-Case Scenario Emissions	86.70	14.79	104.93	2.43	145.35
Average Yearly Emissions	27.28	4.90	32.60	0.78	38.93
Inventory Threshold (10% of Regional Emissions Inventory)	28,421	18,870	124,303	40,621	15,775

Since MacDill AFB is in attainment for all criteria pollutants, General Conformity Rule requirements are not applicable. In addition, the Proposed Action would generate emissions well below ten percent of the emissions inventory for the WCFIAQCR (see **Table 4-2**) and the emissions would be short-term. Therefore, the Proposed Action is considered to have an insignificant effect on air quality at MacDill AFB. In summary, no significant impact on regional or local air quality would result from implementation of the Proposed Action. **Appendix G** contains examples of emissions calculations.

Operational emissions associated with the Proposed Action would not result in an adverse impact on air quality. Day-to-day operations associated with the Proposed Action would generate emissions of criteria pollutants as combustion products from the burning of natural gas by boilers used to provide comfort heating as well as the combustion of fuel oil by emergency generators to produce electrical power, but these emissions would typically be offset by utilizing more efficient equipment. In addition, local and regional pollutant effects resulting from direct and indirect emissions from stationary emissions sources under the Proposed Action would be addressed through Federal and state permitting program requirements under New Source Review (NSR) regulations (40 CFR Parts 51 and 52).

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

Constraints. With respect to air quality, proposed MacDill AFB future projects would not result in significant deterioration of air quality nor result in the need for a formal Conformity Determination.

4.4 Safety

4.4.1 Significance Criteria

Impacts were assessed based on direct effects from construction activities, as well as secondary effects, such as environmental contamination. The extent of these secondary effects is situationally dependent.

4.4.2 Environmental Consequences

Short-term, minor direct adverse effects would be expected from the Proposed Action. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at MacDill AFB during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Proposed Action would not pose a safety risk to base personnel or activities at the base. Those individuals who do work in higher risk areas, such as WSA and the flightline facilities, have waivers. The proposed construction projects would enable 6 AMW to meet future mission objectives at the base and conduct or meet mission requirements in a safe operating environment.

During construction activities associated with the Proposed Action, construction workers would have a possibility of encountering UXO or CAIS. 6 CE staff would be contacted prior to commencement of construction activities to determine if an ERP waiver is required for the Proposed Action for all proposed work on or near range sites and for safety requirements that would need to be followed during construction.

4.5 Geological Resources

4.5.1 Significance Criteria

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

Analysis of potential impacts on geological resources typically includes

- Identification and description of resources that could potentially be affected
- Examination of a proposed action and the potential effects this action might have on the resource
- Assessment of the significance of potential impacts
- Provision of mitigation measures in the event that potentially significant impacts are identified.

4.5.2 Environmental Consequences

Under the Proposed Action, construction activities, such as grading, excavating, and recontouring of the soil, would result in soil disturbance. Implementation of BMPs during construction would limit potential impacts resulting from construction activities. Standard erosion-control means (e.g., silt fencing, sediment traps, application of water sprays, and revegetation at disturbed areas) would also reduce potential impacts related to these characteristics. Therefore, impacts on soils at the base would not be significant.

The Proposed Action would not cause or create significant changes to the topography of MacDill AFB or the surrounding area and all permitting requirements for erosion and sediment control would be met. MacDill AFB would ensure, where practical, that construction of new facilities be elevated in accordance with the installation's FPMP. With the variety of proposed projects, it is not practical to assume all projects can be elevated. All grading, excavation, and recontouring of soil materials would adhere to Federal, state, and local regulations and would comply with the FPMP. Therefore, no significant impacts on regional or local topography or physiographic features would result from implementation of the Proposed Action.

4.6 Water Resources

4.6.1 Significance Criteria

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

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

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

4.6.2 Environmental Consequences

Groundwater. The Proposed Action would likely have no effect on the surficial aquifer or the regional Floridan aquifer. The proposed construction and demolition activities would comply with all appropriate storm water control measures, which would reduce the potential for contaminant-laden storm water to enter the aquifer. MacDill AFB maintains appropriate spill prevention and control measures in the event of unexpected spills or leaks. Construction contractors would be responsible for maintaining all equipment to ensure there are no known leaks.

Surface Water. Minor adverse effects from construction, demolition, and infrastructure repair/replacement would directly result in increased sediment runoff into Tampa and Hillsborough bays. Because MacDill AFB adjoins Tampa and Hillsborough bays, there is a greater potential for contaminant-laden storm water to run off into receiving water bodies. Increased sediment runoff increases surface water turbidity, which raises water temperature and slows photosynthetic processes.

MacDill AFB has an MS4 NPDES permit, which specifies BMPs for construction activities. For construction projects less than one acre (43,559 ft²), standard sediment and erosion-control measures would be implemented (e.g., hay bales, silt fences, rip rap, sedimentation basins, seeding or sodding disturbed areas, long-term soil stockpiles, and vegetative buffers) (MAFB 2001a). Construction and demolition projects that disturb more than one acre of land would require an NPDES general permit for construction activities, which would entail the preparation of a site-specific SWPPP and the development of more intensive BMPs (e.g., permanent retention ponds, temporary sediment basins, silt fencing, and berms).

Overall, construction activities would have the potential for adverse effects on surface water quality, but the use of BMPs specified in the base SWPPP and development of site-specific SWPPPs (as required) would minimize adverse effects.

No effects would be expected as a result of operation of new facilities, specifically along the flightline and in the operations and maintenance areas where industrial activities occur. Activities in these areas are covered under the MSGP NPDES. All activities in new facilities would conform to the existing basewide SWPPP. Furthermore, the Hazardous Materials Management Plan and SPCC would also be followed to minimize the likelihood of a spill, and to respond appropriately in the event of a spill. Operations associated with the Proposed Action would be similar to operations that are already in place at MacDill AFB and would comply with existing regulations and guidelines.

Floodplains. In accordance with EO 11988, *Floodplain Management*, the USAF must demonstrate that there are no practicable alternatives to construction within a floodplain. Eighty percent of MacDill AFB is in the 100-year floodplain, making it impractical to avoid construction within the floodplain. Because developable land is limited at MacDill AFB, it is probable that many projects would be constructed in the 100-year floodplain.

The Proposed Action would have minor adverse effects on the floodplain because a net gain of impervious surfaces (e.g., buildings, parking lots, and roads) would increase storm water runoff and the potential for storm-related damage to infrastructure, facilities, and possibly human safety. However, MacDill AFB is proactive in managing floodplain constraints. Furthermore, MacDill AFB has developed a basewide FPMP, which will outline construction practices used by the USAF to ensure that potentially minor adverse effects are minimized in accordance with USAF and FEMA standards (**Appendix E**). All new projects would comply with the requirements of the FPMP.

Constraints. With respect to water resources, all proposed MacDill AFB future projects would avoid the water resources constraints shown in **Figure 2-2**. If future projects were not allowed to be developed in the floodplain constraint areas (**Figure 2-3**) there would not be sufficient land for future build out on MacDill AFB.

If the Proposed Action were approved, a FONSI/FONPA would be signed demonstrating that the USAF has found no practicable alternatives to construction within the floodplain. Each construction, demolition, or infrastructure project that falls within this IDEA would have an accompanying AF Form 813 stating if the project occurs in the floodplain, and what project-specific measures would be used to reduce potentially adverse effects.

4.7 Biological Resources

4.7.1 Significance Criteria

This section evaluates the potential impacts on the biological resources under the Proposed Action and the No Action Alternative. The significance of impacts on biological resources is based on (1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource, (2) the proportion of the resource that would be affected relative to its occurrence in the region, (3) the sensitivity of the resource to proposed activities, and (4) the duration of ecological ramifications. The impacts on biological resources are significant if species or habitats of high concern are adversely affected over relatively large areas. Impacts are also considered significant if disturbances cause reductions in population size or distribution of a species of high concern.

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 in correlation to important biological resources. Habitat removal and damage or degradation of habitats might be effects associated with ground-disturbing activities.

As a requirement under the ESA, Federal agencies are required to provide documentation that ensures that agency actions will not adversely affect the existence of any 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 ends with USFWS concurrence or a determination of the risk of jeopardy from a Federal agency project.

The significance of impacts on wetland resources is proportional to the functions and values of the wetland complex. Wetlands function as habitat for plant and wildlife populations, including threatened and endangered species that depend on wetlands for their survival. Wetlands are valuable to the public for flood mitigation, storm water runoff abatement, aquifer recharge, water quality improvement, and aesthetics. On a global scale, wetlands are significant factors in the nitrogen, sulfur, methane, and carbon dioxide cycles. These parameters vary from year to year or from season to season. Quantification of wetlands functions and values, therefore, is based on the ecological quality of the site as compared with similar sites, and the comparison of the economic value of the habitat with the economic value of the proposed activity that would modify it. A significant adverse impact on wetlands would occur should either the major function or value of the wetland be significantly altered.

4.7.2 Environmental Consequences

The Proposed Action would result in short-term minor adverse effects on biological resources. MacDill AFB has an INRMP (2005–2009) that contains detailed information about biological resource management. Under the Proposed Action, all projects would be implemented in accordance with the guidelines set forth in the INRMP.

Vegetation. Short-term minor adverse effects on vegetation would occur as a result of construction associated with the Proposed Action. The majority of projects associated with the Proposed Action would occur in the improved areas of MacDill AFB, which would primarily affect the landscaped bahiagrass. Following construction, disturbed areas would be landscaped in accordance with MacDill AFB standards. It is not expected that upland pine or hardwood forest would be removed as a result of the Proposed Action. The Proposed Action would not affect prescribed burns or Brazilian pepper eradication programs at MacDill AFB.

Wildlife. Short-term minor adverse effects on wildlife would occur as a result of construction noise associated with the Proposed Action. The majority of projects associated with the Proposed Action would occur in improved areas of MacDill AFB that are not considered good wildlife habitat. Construction activities would not disturb habitat that supports amphibians, wading birds, or waterfowl that occur at MacDill AFB. Other birds, mammals, and reptiles that occur at the base might visit these areas, but are likely to spend the majority of their time in the undeveloped portions of the base. Therefore the effects of construction noise and heavy equipment use would be slightly adverse in the short term. However, wildlife affected by noise would quickly recover once the construction noise ceased.

Localized minor adverse effects on wildlife species might occur as a result of a change in land use. For example, if a building were constructed in what is currently a mowed field, wildlife occupying the field would relocate as a result of the construction. Overall, these effects would be minor because there are other habitats to which wildlife could relocate.

One of the projects associated with the Proposed Action would involve the construction of dumpster enclosures around the base. This particular project might result in long-term minor beneficial effects by reducing the nuisances associated with the raccoon population on base.

Protected Species. The Proposed Action has the potential to affect protected species. Several Federal-listed wading and shore bird species (e.g., wood stork) and state-listed species (e.g., roseate spoonbill, little blue heron, reddish egret, snowy egret, tricolored heron, white ibis, American oystercatcher, brown pelican, and black skimmer) are residents on base. It is not likely that the Proposed Action would have an effect on these species because they are primarily found in unimproved areas of base, removed from most of the proposed projects.

The gopher tortoise and burrowing owl (both Florida species of special concern) are known to occur in areas closer to the industrialized flightline area on MacDill AFB (**Figure 3-1**). The Proposed Action could result in adverse effects on these species, and possibly other species associated with gopher tortoise burrows, such as the gopher frog. Construction noise and ground vibration in areas where there are gopher tortoises or burrowing owls could result in short-term minor adverse effects lasting for the duration of construction activities in that area. Loss of habitat as a result of construction would be a long-term adverse effect. If any proposed projects were sited in an area of known gopher tortoise or burrowing owl burrows, coordination would occur with the FWC to determine if mitigation is needed, and what mitigation measures would be applicable. If adverse effects are identified, additional NEPA analysis will be required.

Most construction activities are not likely to affect the bald eagle pair or their young because the nest is within the WSA (**Figure 2-2**). Safety arcs associated with the WSA limit disturbances around the nesting site (see **Figure 2-2**). One proposed infrastructure project would involve the installation of fire hydrants in the WSA. Noise associated with this project would have the potential to affect the bald eagle pair. Construction activities around that tree should not occur during the nesting season (October 1–May 15), or within 1,500 feet of the nest (USFWS 2005). Prior to commencing this project, or any other that might be required in the WSA, consultation with the USFWS would occur to determine if mitigation is needed, and what mitigation measures would be applicable. If adverse effects are identified, additional NEPA analysis will be required.

Each construction, demolition, or infrastructure project that falls within this IDEA would have an accompanying AF Form 813 that determines if the Proposed Action occurs in an area of the base that could have an adverse effect on a protected species. Should the AF Form 813 conclude that a federally protected species could be affected, consultation with the USFWS would occur to determine if mitigation measures are needed, and what mitigation measures would be applicable. If a state-protected species could be affected, MacDill AFB would coordinate with the FWC for all protected fauna. No protected plant species are known to occur on MacDill AFB, so no adverse effects on protected flora would be expected.

Essential Fish Habitat. Under the Proposed Action, increased sediment runoff associated with the demolition and construction would result in short-term, minor indirect effects on EFH. Sediment runoff would increase sedimentation and turbidity in EFH. Suspended materials can clog fish gills, lower growth rates, and affect egg and larval development (USEPA 1997). Implementation of BMPs (see **Section 4.6.2**) during demolition and construction activities would limit potential impacts on EFH such as an increase in turbidity from soil disturbance. Therefore, no significant adverse impacts are anticipated.

Wetlands. In accordance with EO 11990, *Protection of Wetlands*, the USAF must demonstrate that there are no practicable alternatives to construction within wetlands. A little more than 21 percent of the base is wetlands. Therefore, it is likely that several projects associated with the Proposed Action would occur close to or adjacent to wetlands. The USAF avoids military operations in wetlands, where possible.

Construction activities adjacent to wetlands would result in minimal potential adverse effects because of erosion and sedimentation. These types of impacts would be minimized using BMPs (as described under **Section 4.6.2**) and would not require mitigation. However, construction activities occurring in wetlands (i.e., filling or dredging) could have adverse effects and would require consultation with the FDEP and USACE and other agencies. The consultation process would determine if mitigation is required. If it is determined that mitigation would be required for a proposed project, the consultation process would also determine what level of mitigation would be required and how the mitigation would be monitored. Projects associated with the Proposed Action requiring wetlands consultation would be determined during

the AF Form 813 review process. These mitigation measures would be determined during project-specific consultations. If a project is sited in a wetland, additional NEPA analysis will be required.

4.8 Cultural Resources

4.8.1 Significance Criteria

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; introducing visual or audible elements that are out of character with the property or alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance.

4.8.2 Environmental Consequences

The Proposed Action would result in adverse effects on cultural resources. The constraints-based IDEA approach would attempt to avoid any cultural resources. Beneficial long-term effects on archaeological resources (reducing erosion) and architectural resources (preventing deterioration) would also be expected. MacDill AFB has an ICRMP (2001–2005) that contains detailed information about cultural resources management and the plans that are in place in the event of inadvertent discoveries of human remains or archaeological materials. A revised ICRMP for Fiscal Years 2006–2010 has been prepared. Under the Proposed Action, all projects would be implemented in accordance with the guidelines set forth in the ICRMP.

Archaeological Resources. There are no projects proposed that would occur on known archaeological sites. Therefore, there would be no adverse effects on the two NRHP-eligible archaeological sites as they would be avoided. Should MacDill AFB determine that either of these sites might be adversely affected by a specific project, this would be identified in the AF Form 813, and Section 106 consultation with the SHPO and potentially affected Native American tribes would be initiated.

Most of MacDill AFB has been extensively altered over time. Intact archaeological resources are most likely to be found in the mangrove swamps along the shoreline where construction activities and mission training do not occur. However, it is possible that the Proposed Action might result in an accidental discovery of archaeological artifacts. In the event of a discovery during construction, all work in the immediate vicinity of the discovery would be halted until the resources are identified and documented and an appropriate mitigation strategy developed in consultation with the SHPO and other consulting parties. As outlined in the ICRMP, and in compliance with Federal laws (ARPA, NAGPRA, and NHPA), concerned tribal representatives would be notified and consulted about the proposed treatment of human remains and funerary and sacred objects should these be discovered during implementation of the Proposed Action.

Properties of Traditional, Cultural, and Religious Significance to Native American Tribes. There are no projects proposed that would occur on known traditional, cultural, or religious sites. Implementation of the Proposed Action, therefore, should not have an impact on this category of properties. To ensure this, MacDill AFB should continue to consult with federally recognized Native American tribes regarding specific projects undertaken as part of the Proposed Action.

In the event of an inadvertent discovery of human remains or archaeological materials during construction, all work in the immediate vicinity of the discovery would be halted until the resources are identified and documented and an appropriate mitigation strategy developed in consultation with the

SHPO and other consulting parties. As specified in the ICRMP and in compliance with Federal laws (APRA, NHPA, and NAGPRA), concerned tribal representatives would be notified and consulted about the proposed treatment of human remains and funerary and sacred objects should these be discovered during implementation of the Proposed Action.

Architectural Resources. Maintenance and repair of historic properties could result in potential adverse effects. Some maintenance and renovation activities, such as window replacements, could alter the appearance and character of a historic building. Conversely, maintenance and repair of historic facilities can preserve historic and distinctive attributes when done in accordance with the *Secretary of the Interior's Standards for Rehabilitation*. If any historic properties or artifacts were to be affected, MacDill AFB would consult with the Florida SHPO to determine appropriate mitigation.

The Proposed Action would result in numerous minor modifications to facilities in the MacDill Field Historic Districts. The proposed activities include installing exhaust systems in Hangars 3 and 4; replacing windows in Hangars 1 and 3; painting Hangar 4 and Buildings 297 and 731; installing a hydraulic test stand in Hangar 2 (requires some structural modifications); repairing windows and doors on Hangars 1, 2, 3, and 4; and remodeling a portion of the north side of Hangar 3. These modifications have the potential to affect historic buildings because the appearance and feel of the resource might be modified. However, MacDill AFB would conduct all modifications in accordance with the *Secretary of the Interior's Standards for Rehabilitation*. The SHPO would be consulted where necessary to review and approve specific building plans so that the historical integrity is not changed. Overall, potential adverse effects would be minor. Beneficial effects would be expected by increasing the utility and function of the structures in these historic districts and preventing deterioration.

Prior to determining the need to demolish the SOQ Historic District, several upgrades and minor renovations had been identified for Buildings 401, 402, and 403. Upon completion of Section 106 consultation to demolish these buildings (not a component of this Proposed Action), upgrades and renovations would not be needed. No effects on the SOQ Historic District would be expected as a result of this Proposed Action.

The Proposed Action would result in extensive modifications to Building 501, USSOCOM Headquarters, and Building 540, USCENTCOM Headquarters. Proposed projects associated with Building 501 include adding to/altering Building 501B; repairing the heating, ventilation, and air conditioning (HVAC) system; and creating additional parking on the east side of the building. Proposed projects associated with Building 540 include a three-story addition; relocating nonload-bearing walls; and replacing floor coverings, ceilings, windows, HVAC, plumbing, electrical systems, and communications systems. Based on the recommendations of the 2005 inventory and evaluation of Cold War-era resources built between 1946 and 1960, Building 540 is eligible for listing in the NRHP. Building 501 could not be evaluated as part of the survey due to security concerns; however, previous analysis of Cold War activities at MacDill AFB (Patterson et al. 1994) strongly suggests that Building 501 might also be eligible. A more detailed evaluation to determine if Building 501 is eligible would be required. MacDill AFB would need to coordinate with the SHPO to determine how the additions and interior modifications would proceed. According to the *Secretary of the Interior's Standards for Rehabilitation*, new additions should not destroy historic materials that characterize the property, and new components should be compatible with the old to protect historic integrity. If these buildings were NRHP-eligible, the Proposed Action would have an adverse effect, but adherence to the *Secretary of the Interior's Standards for Rehabilitation* and consultation with the SHPO would minimize or mitigate these effects.

4.9 Socioeconomics

4.9.1 Significance Criteria

The significance of construction expenditure impacts is assessed in terms of direct effects on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary greatly, depending on the location of a proposed action. For example, implementation of an action that creates ten employment positions might be unnoticed in an urban area, but could have significant impacts in a rural region. If potential socioeconomic changes were to result in substantial shifts in population trends or in adverse effects on regional spending and earning patterns, they would be considered significant.

This section identifies potential economic and social impacts that might result from the Proposed Action. The methodology for the economic impact assessment is based on the Economic Impact Forecast System (EIFS) developed by the DOD in the 1970s to efficiently identify and address the regional economic effects of proposed military actions (EIFS 2001). EIFS provides a standardized system to quantify the impact of military actions and to compare various options or alternatives in a standard, nonarbitrary approach. The EIFS assesses potential impacts on four principal indicators of regional economic impact: business volume, employment, personal income, and population. As a “first tier” approximation of effects and their significance, these four indicators have proven very effective. The methodology for social impacts is based on the *Guidelines and Principles for Social Impact Assessment*, developed by an interorganizational committee of experts in their field (NOAA 1994). Finally, this section also evaluates environmental justice concerns to include disproportionate impacts on low-income or minority populations.

4.9.2 Environmental Consequences

Social and Economic Condition. The Proposed Action does not involve a permanent change in the number of personnel at MacDill AFB. Therefore, there would be no long-term effects on the local workforce.

Total construction costs over the entire implementation of the Proposed Action are estimated to be approximately \$1.1 billion between 2006 and 2011, which would have a direct, beneficial impact on the local economy (EIFS 2005). Construction workers would primarily be drawn from the local workforce, resulting in beneficial, short-term direct effects on employment in the construction industry and the local economy. Census data for 2000 showed that there are 1,650 and 75,595 employees working in the construction industry within the ROI and MSA, respectively (U.S. Census Bureau 2000). The number of construction workers required for the proposed construction projects is relatively small compared to the available work force in the ROI, and should be adequate without impacting local employment. Purchase of construction materials and related supplies and services from local suppliers would generate an estimated additional \$420 million (EIFS 2005).

Indirect effects from the proposed construction projects are expected to 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 expected from construction.

A construction or development project can also affect social conditions if it involves a change in land use or development of previously undeveloped or “open” spaces. The Proposed Action would not substantially change land use on MacDill AFB (only minimal amounts of land designated as open space might be affected), and there would be no impacts on any of the census tracts off the installation. Any

changes to land use under the Proposed Action would be imperceptible to the public. Therefore, no effects on social conditions would be anticipated under the Proposed Action.

Environmental Justice. As discussed in **Section 3.8**, the USAF has issued guidance on environmental justice analysis for EAs. To comply with EO 12898, 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 Tracts 70 and 72 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 also indicates that the percentage of minority residents is somewhat higher than MSA or state averages.

The environment around MacDill AFB is influenced by USAF operations, land management practices, vehicle traffic, and emissions sources outside the base. Increased traffic from construction activities would affect local air quality, but the impacts would be dispersed and affect area residents and base employees equally. The construction projects would be performed by outside contractors with employees living within the ROI and Tampa-St. Petersburg metropolitan area. No disproportionate impacts on minority or low-income populations from the Proposed Action were identified.

In addition, EO 13045 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 base. The likelihood of the presence of children at construction sites where the Proposed Action would occur on base is considered minimal, which further limits the potential for effects. Therefore, no significant adverse effects would be expected.

4.10 Infrastructure

4.10.1 Significance Criteria

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

4.10.2 Environmental Consequences

Airfield. The Proposed Action would have a beneficial impact on the safety and operation of the airfield by base mission units. All activities related to the Proposed Action would be coordinated with Airfield Management and Environmental Flight prior to commencing construction activities. Special care must be taken during removal of airfield obstructions so that fugitive dust emissions do not shut down mission operations because of lack of visibility. Use of dust control methods prior, during, and after construction, would minimize adverse impacts on airfield operations from the Proposed Action.

Communications. The Proposed Action would result in minor beneficial impacts on the base's communication system. The proposed construction projects would tie into existing communication lines

that are sufficient to meet demands. 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 communication systems than the current facilities, though this would be a minor difference compared with total base usage.

Electrical. The Proposed Action would result in major beneficial impacts on the base's electrical system. Electrical power lines would be placed underground rather than above. The proposed construction projects would tie into existing electrical infrastructure that is sufficient to meet demands. There would be no net gain of personnel, so energy use would not be expected to increase. 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, though this would be a minor difference compared with total base usage. In addition, placing the electrical lines underground would improve the survivability of the system.

Liquid Fuels. No adverse impact on the base's liquid fuel system is anticipated from the Proposed Action. No major upgrades, installation, or replacement projects are planned at this time for the base's liquid fuel system. Only regular maintenance is planned. If a new refueling mission comes to MacDill AFB, the base does not have adequate storage capacity when comparing average daily usage to storage capacity. If major upgrades or installation of new liquid fuel lines is needed, the base would tie into existing lines and use sustainable design concepts.

Natural Gas. The Proposed Action would result in minor beneficial impacts on the base's natural gas system. 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. Therefore, 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, though this would be a minor difference compared with total base usage. Projects involving digging through ERP sites to improve or add gas lines would need approval from 6 CE and safety plans to comply with ERP constraints.

Sanitary Sewer. The Proposed Action would result in minor beneficial impacts on the base sanitary sewer system. 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. Therefore, through the use of sustainable design concepts, the Proposed Action would likely result in more efficient use of sanitary sewers than the current facilities, though this would be a minor difference compared with total base usage.

Solid Waste. Short-term, direct, minor adverse effects would result from increased MSW production during construction. Solid waste generated from the proposed construction and demolition activities would consist of building materials such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. Contractors would be required to recycle C&D to the greatest extent possible as part of base policy, and any recycled C&D waste would be diverted from landfills.

Analysis of effects associated with implementation of the Proposed Action is based on the following assumptions: (1) approximately four pounds of construction debris are generated for each square foot of floor area for new structures, and (2) approximately 92 pounds of demolition debris is generated for each square foot of floor area for old structures (USACE 1976). **Table 4-3** shows the estimated tonnage of C&D waste that would be generated under the Proposed Action.

Table 4-3. Project Construction and Demolition Waste Generation from Proposed Action

Type of C&D Waste	Floor Area (ft ²)	Total C&D Waste (tons)
Construction	1,800,000	3,600
Demolition	1,200,000	55,200
Total		58,800

Source: Estimated using USACE 1976

As shown in **Table 4-3**, approximately 58,800 tons of C&D waste would be generated over the next 5 years, as described in **Section 2.1.1**. Based on current usage rates, the C&D-approved local landfills have sufficient operating capacity to handle this amount of waste.

Transportation Systems. The C&D phase of the Proposed Action would require delivery of materials to and removal of debris from construction sites. Construction traffic would comprise a small percentage of the total existing traffic and many of the vehicles would be driven to and kept onsite for the duration of the project, resulting in relatively few additional trips. Furthermore, potential increases in traffic volume associated with proposed construction activity would be temporary. Heavy vehicles are frequently on base roads. Therefore the vehicles necessary for construction are not expected to have a heavy impact on base roads. All road and lane closures would be coordinated with the Transportation Squadron and Airfield Management and would be temporary in nature; therefore, no adverse impacts on transportation systems would be expected.

Direct and indirect long-term beneficial impacts on transportation systems would occur due to streets and intersections which are being improved. In addition, unsafe roadways and intersections would be realigned to conform to traffic safety laws and regulations. This would have an overall beneficial impact on traffic because the new roads would be better-designed to handle traffic flow with the new buildings and in accordance with appropriate AT/FP standards.

Water. The Proposed Action would result in minor beneficial impacts on the base's drinking water systems. The proposed construction projects would tie into existing water infrastructure that is sufficient to meet demands. There would be no net gain of personnel, so water consumption would not be expected to increase. The proposed construction projects would use sustainable design concepts to the greatest extent possible. Therefore, through the use of sustainable design concepts, the Proposed Action would likely result in more efficient use of water than the current facilities, though this would be a minor difference compared with total base usage.

4.11 Hazardous Materials and Waste

4.11.1 Significance Criteria

Impacts on hazardous materials and waste management would be considered significant if the Proposed Action resulted in noncompliance with applicable Federal and FDEP regulations, or increased the amounts generated or procured beyond current MacDill AFB waste management procedures and capacities. Impacts on pollution prevention would be considered significant if the Federal action resulted in worker, resident, or visitor exposure to these materials, or if the action generated quantities of these materials beyond the capability of current management procedures. Impacts on the ERP would be considered significant if the Federal action disturbed (or created) contaminated sites resulting in adverse

effects on human health or the environment. Impacts on fuels management would be significant if the established management policies, procedures, and handling capacities could not accommodate the activities associated with the Proposed Action.

4.11.2 Environmental Consequences

Hazardous Materials. Products containing hazardous materials would be procured and used during the proposed construction. It is anticipated that 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 Federal and state regulations. Therefore, hazardous materials management at MacDill AFB would not be impacted by the Proposed Action. No ACM or LBP shall be introduced on MacDill AFB.

Hazardous Waste. It is anticipated that the quantity of hazardous wastes generated from proposed construction activities would be negligible. Contractors would turn in hazardous waste to the 6 CE. Therefore, the implementation of the Proposed Action would be negligible to the base's hazardous waste management program. Projects involving demolition of buildings with ACM or LBP would follow 6 CE management plans for removal and disposal.

Pollution Prevention. It is anticipated that the Proposed Action would not impact the Pollution Prevention Program at MacDill AFB. Quantities of hazardous material and chemical purchases, off-base transport of hazardous wastes, disposal of municipal solid wastes, and energy consumption would continue. Operation of the Proposed Action would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the baseline condition associated with the operation of the Proposed Action. The Pollution Prevention Program at MacDill AFB would accommodate the Proposed Action.

Asbestos and Lead-Based Paint. Specifications for the proposed construction activities and USAF regulations prohibit the use of ACM and LBP for new construction. Buildings scheduled for demolition could contain ACM and LBP and, therefore, would need to be surveyed by the contractor for LBP and ACM prior to commencing demolition activities. Sampling for ACM and LBP would occur prior to demolition activities and would be handled in accordance with the MacDill AFB Asbestos and Lead-Based Paint Management Plans and USAF policy.

Environmental Restoration Program. The occupants of the facilities built in ERP sites would not utilize the groundwater that is the source of contamination and therefore there would be no harm to the people. There is the potential for construction workers to encounter contamination from ERP sites during construction or during the utilities trench digging to run new utility lines. Therefore, a health and safety plan would be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers performing soil removal activities with ERP Sites are required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPPER) training. Supervisors are also required to have an OSHA Site Supervisor certification. In addition, should contamination be encountered, handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and MacDill AFB programs and procedures. HAZWOPPER regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR 1926. The Hazardous Sites Cleanup Act 108 of 1988 provides the regulations for the cleanup of hazardous waste sites, and response and investigation for liability and cost recovery; and established the Hazardous Sites Cleanup Fund.

4.12 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. The impacts on all resources as a result of the No Action Alternative would remain the same as described in **Section 3** of this EA for each resource. The activities presently taking place on MacDill AFB would continue “as is” and the impacts on natural resources and human health would also continue “as is.” Installation development would continue by addressing each project on a one-by-one basis and performing NEPA on each individual project for the next 5 years.

5. Cumulative Effects

CEQ implementing guidelines for NEPA require that the direct, indirect, and cumulative effects of an action be evaluated and published. Cumulative effects are the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. In other words, an EA must determine if nonsignificant direct effects 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. Actions overlapping 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 effects.

To identify cumulative effects, the analysis needs to address two fundamental questions:

1. Does a relationship exist such that affected resource areas of the Proposed Action or alternatives might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If such a relationship exists, then does an EA reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur, as well as a description of what resources could potentially be cumulatively affected. Of all the issues and concerns presented and analyzed in this document, the only two resources with the potential to be affected cumulatively were determined to be wetlands and waters of the United States, and noise quality.

When addressing cumulative impacts on wetlands and waters of the United States, the geographic extent for the cumulative effects analysis is the watershed in which the Proposed Action and alternatives have the potential to impact, primarily concentrating on past, present, and reasonably foreseeable actions on and within MacDill AFB and the surrounding ecosystem.

When addressing cumulative impacts on noise quality, the geographic extent for the cumulative effects analysis is the ROI in which the Proposed Action and alternatives have the potential to impact, primarily concentrating on past, present, and reasonably foreseeable actions near the southwestern boundary of MacDill AFB. The time frame for cumulative effects analysis centers on the timing of the Proposed Action and would continue into the foreseeable future; in addition, actions with the potential to impact wetlands and waters of the United States that were implemented within the past four years were included for analysis.

For the purposes of this analysis, the temporal span of the Proposed Action is 5 years. For most resources, the spatial area for consideration of cumulative effects is MacDill AFB with the exception of impacts on air quality which considers the county of Hillsborough as the ROI. Similarly, impacts on resources and conditions of activities attributable to other actions within the ROI would not augment the direct and indirect effects of the installation development at MacDill AFB to the extent that they would significantly increase their effect.

The essence of the Proposed Action is installation development, which includes demolition, renovation, repair, and new construction. This IDEA is in itself an assessment of the cumulative impacts on MacDill AFB since it covers all planned installation activity occurring on MacDill AFB except for flight operations activities.

Section B.5 of Appendix B contains a detailed cumulative effects analysis.

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7. References

- AMC 2005 Headquarters Air Mobility Command (AMC). 2005. *Environmental Assessment for Renovation and Small Addition for AGE Facility, MacDill AFB, Florida*. May 2005.
- COL 2001 City of Lodi (COL). 2001. *City of Lodi Community Development Department ProStyle Sports Complex Draft Environmental Impact Report*. Prepared by Parsons. December 2001. Available online: <<http://www.lodi.gov/eir/index.htm>>. Accessed November 11, 2005.
- Earth Tech, Inc. 2003 Earth Tech Inc. 2003. *Final Wherry Housing Historic Building Inventory and Evaluation, MacDill Air Force Base*. Prepared for MacDill Air Force Base, FL.
- EIFS 2001 Economic Impact Forecast System (EIFS). 2001. *Draft EIFS Version 6 User Manual*. Prepared by Katherine Bragdon and Ron Webster. August 15, 2001.
- EIFS 2005 EIFS. 2005. EIFS Report. U.S. Army Environmental Policy Institute and the Computer Information Sciences Department of Clark Atlanta University. <<http://eifs.cau.edu>>. Accessed December 9, 2005.
- Ferriter 1997 Ferriter, Amy, ed. 1997. *Brazilian Pepper Management Plan for Florida*. Prepared by the Brazilian Pepper Task Force. July 1997. Available online: <<http://aquat1.ifas.ufl.edu/brazi pep.pdf>>. Accessed November 3, 2005.
- FHWA 1980 Federal Highway Administration (FHWA). 1980. "Noise Fundamentals Training Document Highway Noise Measurement."
- FWC 2004 Florida Fish and Wildlife Conservation Commission (FWC). 2004. *Florida's Endangered Species, Threatened Species, and Species of Special Status*. January 29, 2004. Available online: <<http://myfwc.com/imperiledspecies/pdf/Endangered-Threatened-Special-Concern-2004.pdf>>. Accessed November 4, 2005.
- GMFMC 1998 Gulf of Mexico Fishery Management Council (GMFMC). 1998. *Generic Amendment for Addressing Essential Fish Habitat Requirements in the Following Fishery Management Plans in the Gulf of Mexico: Shrimp Fishery of the Gulf of Mexico, United States Waters; Red Drum Fishery of the Gulf of Mexico; Reef Fish Fishery of the Gulf of Mexico; Coastal Migratory Pelagic Resources (Mackerels in the Gulf of Mexico and South Atlantic; Stone Crab Fishery of the Gulf of Mexico; Spiny Lobster in the Gulf of Mexico and South Atlantic; Coral and Coral Reefs of the Gulf of Mexico*. Tampa, FL: Gulf of Mexico Fishery Management Council. October 1998.
- GTC 2001 Gopher Tortoise Council (GTC). 2001. "The Gopher Tortoise: A Species in Decline." Available online: <<http://www.gophertortoisecouncil.org/tortoise.htm>>. Accessed November 7, 2005.
- MAFB 1995 MacDill Air Force Base (MAFB). 1995. *Endangered Species Management Plan, MacDill Air Force Base (Preliminary Draft)*. Prepared by Geraghty & Miller, Inc. December 1995.
- MAFB 2000a MAFB. 2000. *Solid Waste Management Plan, Version 1*. USAF, MacDill Air Force Base, Florida. August 2000.

- MAFB 2000b MAFB. 2000. *Asbestos Management and Operations Plan for MacDill AFB, Florida*. March 2000.
- MAFB 2001a MAFB. 2001. *Storm Water Pollution Prevention Plan for MacDill AFB*. January 2001.
- MAFB 2001b MAFB. 2001–2005. *Integrated Cultural Resources Management Plan 2001–2005*. Prepared by Universe Technologies Inc. and Gene Stout and Associates.
- MAFB 2001c MAFB. 2001. *Hazardous Waste Management Plan, MacDill AFB, FL*. December 2001.
- MAFB 2002 MAFB. 2002. *MacDill 2010 Plan, MacDill General Plan*. Prepared for 6th Air Mobility Wing by Woolpert LLP. June 2002.
- MAFB 2003 MAFB. 2003. *Lead-Based Paint Management Program*. MacDill Air Force Base. Volume I of III. Written 1995. Last reviewed April 11, 2003.
- MAFB 2004 MAFB. 2004. *2003 Air Emission Inventory MacDill Air Force Base, Florida*. Prepared by GEOMET Technologies. December 2004.
- MAFB 2005a MAFB. 2005. *Draft Integrated Natural Resources Management Plan (INRMP), 2005–2009*.
- MAFB 2005b MAFB. 2005. *Final Endangered Species Population Survey, MacDill Air Force Base, Florida*. Prepared by Drs. Melissa Grigione and Ronald J. Sarno (University of South Florida). January 31, 2005.
- NMFS 1999 National Marine Fisheries Service (NMFS). 1999. *Final Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks*.
- NOAA 1994 National Oceanic and Atmospheric Administration (NOAA). 1994. “Guidelines and Principles for Social Impact Assessment.” The Interorganizational Committee on Guidelines and Principles for Social Impact Assessment. U.S. Department of Commerce, Technical Memorandum NMFS-F/SPO-16.
- NOAA 2003 NOAA. 2003. Calculated Soil Moisture Ranking Percentile. Last updated February 23, 2003. Available online: <http://www.cpc.noaa.gov/products/soilmst/drought_composite.html#CSMRP>. Accessed September 16, 2005.
- NRCS 2005 Natural Resources Conservation Service (NRCS). 2005. Tampa, Florida Wind Rose. Available online: <<ftp://ftp.wcc.nrcs.usda.gov/downloads/climate/windrose/florida/tampa/>>. Accessed September 16, 2005.
- Patterson et al. 1994 Patterson, Patience Elizabeth, David P. Stanley, and Katherine J. Johnson. 1994. *MacDill Air Force Base Cold War Material Culture Inventory*. Prepared by Mariah Associates, Inc. for the U.S. Air Force Corps of Engineers Fort Worth District.
- Ross and Hart 2006 Ross, Alison and Dan Hart. 2006. *Architectural Resource Survey at MacDill Air Force Base, Florida*. Prepared for MacDill Air Force Base and Air Mobility Command by engineering-environmental Management, Inc., Fairfax, VA.
- SMAQMD 2004 Sacramento Metropolitan Air Quality Management District (SMAQMD). *Guide to Air Quality Assessment*. July 2004.

- U.S. Census Bureau 2000 U.S. Census Bureau. 2000. "Quick Tables." Tables DP-1 from Summary File 1 and DP-2 and DP-3 from Summary File 3 for State of Florida; Tampa-St. Petersburg-Clearwater, Florida MSA; and Census Tracts 65, 66, 67, 68.01, 68.02, 69, 70, 71, 72, 73, 244.05, and 245.02. Available online: <<http://factfinder.census.gov>>. Accessed November 17, 2005.
- USACE 1976 U.S. Army Corps of Engineers (USACE). 1976. *Development of Predictions Criteria for Demolition and Construction Solid Waste Management*. October 1976.
- USAF 2005 U.S. Air Force (USAF). 2005. GeoBase Tools Online. Available online: <<https://geobasetools.nwo.usace.army.mil/geobaseonline/>>. Accessed September 16, 2005.
- USEPA 1997 U.S. Environmental Protection Agency (USEPA). 1997. *Volunteer Stream Monitoring: A Methods Manual*. EPA 841-B-97-003. USEPA, Office of Water. November 1997. Available online: <<http://www.epa.gov/volunteer/stream/stream.pdf>>. Accessed January 31, 2006.
- USEPA 2004 USEPA. 2004. "Green Book Nonattainment Areas for Criteria Pollutants." December 2004. Available online: <<http://www.epa.gov/oar/oaqps/greenbk/>>. Accessed September 16, 2005.
- USEPA 2005a USEPA. 2004. "National Ambient Air Quality Standards." Last updated July 29, 2005. Available online: <<http://www.epa.gov/air/criteria.html>>. Accessed September 16, 2005.
- USEPA 2005b USEPA. 2005. "Section 303(d) List Fact Sheet for Watershed: Tampa Bay and Hillsborough Bay." Available online: <http://www.oaspub.epa.gov/tmdl/huc_rept.control>. Accessed October 27, 2005.
- USFWS 1999 U.S. Fish and Wildlife Service (USFWS). 1999. Listed animal species as published in *Endangered and Threatened Wildlife and Plants 50 CFR 17.11*. December 1999. Available online: <<http://www.fws.gov/endangered/wildlife.html>>. Accessed November 4, 2005.
- USFWS 2005 USFWS, North Florida Field Office. 2005. "Bald Eagle Monitoring Guidelines" (Rev). Prepared for USFWS. September 2005. Available online: <<http://www.fws.gov/northflorida/BaldEagles/Bald-Eagle-Monitoring-Guidelines-092905.htm>>. Accessed November 14, 2005.

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APPENDIX A

LIST OF PROPOSED MACDILL AFB INSTALLATION DEVELOPMENT PROJECTS

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Appendix A

List of Proposed MacDill AFB Installation Development Projects

Proposed Facilities Demolition Projects

Project Number	Project Title	Fiscal Year	Land Use Category	Area Removed (ft ²)
Representative Demolition Projects				
030019	Demolish Unused Airfield Pavements	2007	AIO	1,000,000
050051	Demolish Bldg. 308, 312, 366, and 397 (Visiting Quarters, O'Club, and Swimming Pool)	2008	COM	75,000
050146	Demolish Bldg. 254 (Dormitory)	2007	COM	25,392
Other Demolition Projects				
050126	Demolish Bldg. 66 (Wastewater Treatment Plant Control Building)	2008	AIO	15,000
040335	Demolish Bldg. 906 (Temporary Lodging Facilities)	2007	COM	4,620
040336	Demolish Bldg. 43 (Terminal Instrument Procedures)	2008	AIO	4,620
040234	Demolish Bldg. 1133 (Base Storage)	2007	AIO	4,037
040023	Demolish Bldg. 1056 (Mobile Corps of Engineers Facility)	2007	AIO	2,880
030003	Demolish Bldg. 665 (Outdoor Recreation Program)	2007	COM	2,641
020022	Demolish Airfield Obstructions	2007	AIO	2,479
040235	Demolish Bldg. 731 (Union Hall)	2007	AIO	2,400
040236	Demolish Bldg. 74 (Morale, Welfare, and Recreation Storage)	2007	AS	2,028
070014	Remove USTs at Bldg. 75 (Pumphouse)	2009	AIO	1,000
050123	Demolish Bldg. 75 (Pumphouse)	2009	AIO	1,000
020104	Demolish Bldg. 24 (NOAA AGE Facility)	2007	AIO	924
050062	Demolish Bldg. 823 ("Med Fly" Building)	2007	COM	744
040237	Demolish Bldg. 728 (Morale, Welfare, and Recreation Storage)	2007	AIO	416
Total Area Demolished (ft²)				1,150,181

Land Use Categories: AIO = Airfield and Industrial Operations, AS = Administrative, COM = Community, OS = Open Space, OR = Outdoor Recreation, INF = Infrastructure (crossing multiple land use categories)

Proposed Facilities Construction Projects

Project Number	Project Title	Fiscal Year	Land Use Category	Area Constructed or Renovated (ft²)
Representative Construction Projects (Proposed BRAC Actions)				
--	Renovate Bldg. 5 for KC-135 Aircraft	2008	AIO	73,000
--	Construct New AFRC Wing HQ Building (BRAC)	2007	AIO	37,000
073708	Renovate Bldg. 6 for Squadron Operations (BRAC)	2007	AIO	30,000
073706	Construct New AFRC Training Center (BRAC)	2007	AIO	25,000
073721	Alter Warehouse and Small Arms Storage (Bldg. 49) (BRAC)	2007	AIO	25,000
--	Renovate Bldg. 53 for Group HQ (BRAC)	2007	AIO	19,000
073709	Renovate Bldg. 54 for MOCC (BRAC)	2007	AIO	17,000
073710	Renovate Bldg. 55 for AFRC Squadron Operations (BRAC)	2007	AIO	17,000
--	Construct AFRC CE and Disaster Preparedness Training Center (BRAC)	2007	AIO	12,000
--	Renovate Bldg. 48 for AFRC APS (BRAC)	2007	AIO	10,900
--	Construct New Life Support Building (BRAC)	2007	AIO	10,000
--	Renovate Bldg. 9 for Consolidated Command Post (BRAC)	2007	AIO	8,300
--	Renovate Bldg. 183 for Current Operations (BRAC)	2007	AIO	8,000
073720	Construct Security Force Squadron Training Building (AFRC) (BRAC)	2007	AIO	6,000
--	Renovate Bldg. 187 for AFRC Current Operations (BRAC)	2007	AIO	5,600
--	Add to Bldg. 187 for AFRC AMU (BRAC)	2007	AIO	5,600
--	Renovate Bldg. 189 for AFRC AMX (BRAC)	2007	AIO	5,600
--	Add to Bldg. 189 for AMU (BRAC)	2007	AIO	5,600
--	Renovate Bldg. 193 for AMX	2007	AIO	5,600

Land Use Categories: AIO = Airfield and Industrial Operations, AS = Administrative, COM = Community, OS = Open Space, OR = Outdoor Recreation, INF = Infrastructure (crossing multiple land use categories)

Proposed Facilities Construction Projects (continued)

Project Number	Project Title	Fiscal Year	Land Use Category	Area Constructed or Renovated (ft²)
--	Add AFRC Services/Communications Administrative Annex to AFRC HQ Building, once constructed (BRAC)	2008	AIO	5,000
073715	Construct AFRC Fire Fighting/Administrative Training Building (BRAC)	2008	AIO	5,000
--	Construct AFRC Aeromedical Staging Squadron Training Facility (BRAC)	2008	AS	5,000
Representative Construction Projects (SOF University)				
083702	Construct SOF Joint Special Operations University Facility	2008	AS	50,000
Representative Construction Projects (Medical Facilities)				
063704	Construct Clinic Replacement	2008	COM	254,000
073716	Construct AFRC Aerospace Medicine Flight Training Facility	2008	AIO	5,000
Other Construction Projects				
053715	Construct SOF SOAL (SOCOM)	2008	AS	110,000
043704	Construct Transportation/Supply Complex	2010	AIO	107,000
053712	Construct SOF Information Technology Center (Bldg. 501D)	2011	AS	100,000
--	Construct SOCOM CSO	2010	AS	96,000
033709	Construct Consolidated Base Support Facility	2010	AIO	80,000
883706X	Construct BE Complex	2010	AIO	80,000
923703	Construct SOCCENT HQ Complex	2009	AIO	70,000
033703	Construct Security Forces Facility	2009	AS	60,000
053713	Construct JCSE Squadron Facility	2009	AIO	59,481
043711	Construct JCSE Logistics-Mobility Facility	2009	AIO	54,089
053711	Construct 144-Room Dormitory (Phase 1)	2010	COM	51,150
063708	Construct 144-Room Dormitory (Phase 2)	2010	COM	51,150
033550	Construct Squadron Operations Facility	2010	AIO	44,616

Land Use Categories: AIO = Airfield and Industrial Operations, AS = Administrative, COM = Community, OS = Open Space, OR = Outdoor Recreation, INF = Infrastructure (crossing multiple land use categories)

Proposed Facilities Construction Projects (continued)

Project Number	Project Title	Fiscal Year	Land Use Category	Area Constructed or Renovated (ft²)
033702	Construct Consolidated Communications Facility	2010	AS	39,345
093701	Construct JCSE Headquarters Building	2011	AIO	33,282
063711	Add to/Alter Bldg. 501B	2010	AS	30,000
080003	Construct Family Camp Annex	2011	OR	15,000
043707R1	Construct VQ and Collocated Club	2010	COM	10,000
000182	Construct JCSS Vehicle Maintenance Facility	2011	AIO	10,000
053702	Construct Military Professional Development Center	2012	COM	10,000
053706	Construct Fuels Management Facility	2010	AIO	8,611
093702	Construct JCSE Vehicle Paint Facility	2012	AIO	5,000
000181	Construct JCSS Vehicle Parking and Covered Storage Shed	2010	AS	5,000
030209	Construct Base Storage Warehouse	2010	AIO	5,000
050033	Construct Flightline Dining Facility	2011	COM	4,000
040070	Construct Services Pavilion at SeaScapes (Bldg. 682)	2011	OR	4,000
050121	Expand AAFES Garden Center (Bldg. 926)	2011	COM	4,000
063714	Add to/Alter CATM Facility (Bldg. 1882)	2012	AIO	2,917
000180	Add to Bldg. 1885	2007	AS	2,500
020062P2	Construct Dumpster Enclosures, Phase 2	2012	AIO	2,479
040275	Construct SOCOM Memorial Addition	2010	AS	1,000
030085	Construct CENTCOM Memorial	2010	AS	1,000
030198	Expand Food Court (Bldg. 926)	2009	COM	764
040222	Construct MacDill Gate Overwatch	2009	AS	60
050115	Construct Dale Mabry Overwatch	2009	AS	60
040252	Construct Bus Shelter (CENTCOM)	2011	AS	40
040326	Construct Bus Shelter on Hillsborough Loop Drive	2011	AIO	40
Total Area Constructed or Renovated (ft²)				1,807,784

Land Use Categories: AIO = Airfield and Industrial Operations, AS = Administrative, COM = Community, OS = Open Space, OR = Outdoor Recreation, INF = Infrastructure (crossing multiple land use categories)

Proposed Infrastructure Projects

Project Number	Project Title	Fiscal Year	Land Use Category	Project Size
Representative Infrastructure Projects				
030011	Construct Youth Soccer and Track Field	2010	OR	74,250 ft ²
--	Expand Roadway off Great Egret Ave. (BRAC)	2007	AIO	20,000 ft ²
--	New Parking Lot for NOAA and AFRC (BRAC)	2007	AIO	200,000 ft ²
Other Infrastructure Projects				
--	Repair A-Parking Apron (BRAC)	2007	AIO	280,000 ft ²
050103	Construct CENTCOM Parking	2009	AS	100,000 ft ²
--	Construct Parking Lot for Life Support Building (BRAC)	2007	AIO	80,000 ft ²
040068	Construct Parking Lot Near Bldg. 172	2007	AIO	80,000 ft ²
063711	Construct Parking Lot for Add to/Alter Bldg. 501B	2008	AS	80,000 ft ²
050038	Construct Force Protection Parking Lot, Hangar Loop	2011	AIO	50,625 ft ²
050143	Construct SOCOM Parking Lot (Bldg. 501)	2008	AS	33,750 ft ²
010053	Construct Golf Course Parking Lot	2009	OR	20,000 ft ²
030195	Construct Fenced Parking Area at Bldg. 1065	2008	AIO	14,516 ft ²
020058	Construct Military Professional Development Center Parking Lot	2012	COM	14,422 ft ²
050039	Repair/Upgrade Multiple Intersections	2009	INF	14,400 ft ²
050040	Construct Community Area Pedestrian Boulevard	2007	COM	8,000 ft ²
050035	Construct Military Working Dog Facility Parking Lot (Bldg. 824)	2011	AS	8,000 ft ²
030207	Construct N. Boundary Blvd. Sidewalk	2008	OR	7,200 ft ²
050097	Construct Soccer Field	2008	OR	5,000 ft ²
030220	Construct Parking Lot at Family Housing Management Office (Bldg. 496)	2008	COM	5,000 ft ²
050005	Repair South Apron	2008	AIO	5,000 ft ²
030127	Construct Drainage Overflow Structure near Bldg. 741	2010	COM	5,000 ft ²
030240	Construct Lift Station Near Bldg. 1051 and Force Main	2009	AIO	4,650 ft ²

Land Use Categories: AIO = Airfield and Industrial Operations, AS = Administrative, COM = Community, OS = Open Space, OR = Outdoor Recreation, INF = Infrastructure (crossing multiple land use categories)

Proposed Infrastructure Projects (continued)

Project Number	Project Title	Fiscal Year	Land Use Category	Project Size
040327	Construct MacDill Ave. Sidewalk	2010	AS	4,000 ft ²
050037	Construct Fitness Center Sidewalks (Bldg. 303)	2012	COM	4,000 ft ²
010094	Construct Driveway (Bldg. 57)	2007	AIO	3,000 ft ²
030134	Intersection Improvements (Hillsborough and Hangar Loop)	2008	INF	1,000 ft ²
020019	Construct Tennis and Basketball Courts	2010	OR	640 ft ²
030133	Intersection Improvements (N. Boundary Blvd. and Bayshore Blvd.)	2007	INF	500 ft ²
030135	Intersection Improvements (Marina Bay Dr. at Southshore Ave.)	2007	INF	500 ft ²
050165	Construct Tampa Point Blvd Traffic Circle	2008	INF	500 ft ²
030103	Install Transient Aircraft Barriers	2011	AIO	200 ft ²
020175	Construct Flightline Fence, Deployed Unit Complex Area	2012	AIO	9,200 ft
030057	Replace Taxiway Lighting	2009	AIO	5,500 ft
060023	Repair Sanitary Sewer System	2010	INF	5,000 ft
050019	Extend Dead End Water Line near Control Tower	2010	AIO	3,800 ft
030239	Construct Force Main Extension	2008	AIO	2,650 ft
030059	Repair Drainage Canal/Culvert	2010	OR	2,000
050066	Install Fire Hydrants in Weapons Storage Area	2008	INF	N/A
050132	Construct/Repair Sidewalks Basewide	2008	INF	N/A
030045	Repair Electrical on South Bayshore Blvd.	2008	INF	N/A
030062	Repair Florida Keys Drainage	2008	INF	N/A
023706	Repair/Alter Primary Roads	2008–10	INF	N/A
Approximate Area of Disturbance (ft²)				1,124,153

Land Use Categories: AIO = Airfield and Industrial Operations, AS = Administrative, COM = Community, OS = Open Space, OR = Outdoor Recreation, INF = Infrastructure (crossing multiple land use categories)

APPENDIX B

**A DETAILED ANALYSIS OF POTENTIAL ENVIRONMENTAL CONSEQUENCES
ASSOCIATED WITH INSTALLATION DEVELOPMENT PROJECTS
AT MACDILL AFB, FLORIDA**

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Appendix B

A Detailed Analysis of Potential Environmental Consequences Associated with Installation Development Projects at MacDill AFB, Florida

Table of Contents

<u>Section</u>	<u>Page</u>
B.1 DEMOLITION PROJECTS	B-1
B.1.1 Demolish Building 254 (Dormitory)	B-1
B.1.2 Demolish Unused Airfield Pavements	B-5
B.1.3 Demolish Visiting Quarters, Officer’s Club, and Swimming Pool	B-7
B.2 CONSTRUCTION PROJECTS	B-10
B.2.1 Proposed BRAC Actions	B-10
B.2.2 Construct Special Operations Forces University Facility	B-15
B.2.3 Construct Medical Facilities	B-18
B.3 INFRASTRUCTURE PROJECTS	B-20
B.3.1 Construct Parking Lot for NOAA and AFRC	B-21
B.3.2 Construct Soccer Field and Track	B-24
B.3.3 Expand Great Egret Avenue	B-26
B.4 ANALYSIS OF ALL PROJECTS LISTED IN APPENDIX A	B-29
B.5 CUMULATIVE EFFECTS	B-50
B.6 ADDITIONAL REFERENCES	B-55

FIGURES

<u>Figure</u>	<u>Page</u>
B-1. Locations of Representative Demolition, Construction, and Infrastructure Projects at MacDill AFB	B-2
B-2. Locations of Proposed Projects Relative to Known Land Use Constraints on the Southern Portion of MacDill AFB	B-45
B-3. Locations of Proposed Projects Relative to Known Land Use Constraints on the North-Central Portion of MacDill AFB	B-46
B-4. Locations of Proposed Projects Relative to Known Land Use Constraints on the Western Portion of MacDill AFB	B-47
B-5. Locations of Proposed Projects Relative to Known Land Use Constraints on the Northern Portion of MacDill AFB	B-48
B-6. Locations of Proposed Projects Relative to Known Land Use Constraints on the Central Portion of MacDill AFB	B-49

TABLES

<u>Table</u>	<u>Page</u>
B-1. Expected Noise Levels Resulting from Demolition of Building 254	B-3
B-2. Tons of Criteria Pollutants Resulting from Demolition of Building 254.....	B-3
B-3. Expected Noise Levels Resulting from Demolition of Unused Airfield Pavement.....	B-5
B-4. Tons of Criteria Pollutants Resulting from Demolition of Unused Airfield Pavements.....	B-6
B-5. Expected Noise Levels Resulting from Demolition of VQ, O’Club, and Swimming Pool	B-8
B-6. Tons of Criteria Pollutants Resulting from Demolition of VQ, O’Club, and Swimming Pool	B-8
B-7. Expected Noise Levels Resulting from Renovation or Construction of BRAC Facilities.....	B-12
B-8. Tons of Criteria Pollutants Resulting from Renovation or Construction of BRAC Facilities	B-12
B-9. Expected Noise Levels Resulting from Construction of SOF University Facility	B-15
B-10. Tons of Criteria Pollutants Resulting from Construction of SOF University Facility.....	B-16
B-11. Expected Noise Levels Resulting from Construction of Medical Facilities	B-18
B-12. Tons of Criteria Pollutants Resulting from Construction of Medical Facilities	B-19
B-13. Expected Noise Levels Resulting from Construction of Parking Lot for NOAA and AFRC.....	B-21
B-14. Tons of Criteria Pollutants Resulting from Construction of Parking Lot for NOAA and AFRC.....	B-22
B-15. Expected Noise Levels Resulting from Construction of a Soccer Field and Track	B-24
B-16. Tons of Criteria Pollutants Resulting from Construction of Soccer Field and Track	B-24
B-17. Expected Noise Levels Resulting from Expansion of Great Egret Avenue.....	B-27
B-18. Tons of Criteria Pollutants Resulting from Expansion of Great Egret Avenue	B-27
B-19. Potential Environmental Consequences Resulting from the Proposed Facilities Demolition Projects Listed in Appendix A	B-32
B-20. Potential Environmental Consequences Resulting from the Proposed Facilities Construction Projects Listed in Appendix A	B-34
B-21. Potential Environmental Consequences Resulting from the Proposed Infrastructure Projects Listed in Appendix A.....	B-39
B-22. Tons of Criteria Pollutants Produced by Representative Projects.....	B-52
B-23. Anticipated Cumulative Changes in Impervious Surfaces.....	B-53
B-24. Anticipated Cumulative Generation of Construction and Demolition Debris	B-54

Appendix B

A Detailed Analysis of Potential Environmental Consequences Associated with Installation Development Projects at MacDill AFB, Florida

This appendix contains a detailed analysis of the potential environmental consequences associated with the representative projects (i.e., demolition, construction, and infrastructure) identified in **Tables 2-1** through **2-3** of the IDEA in **Sections B.1, B.2, and B.3**, respectively. The proposed locations for these representative projects are shown in **Figure B-1**. The proposed siting of the projects not only supports the General Plan and other wing-approved plans, but also avoids sensitive areas and habitat discussed in the INRMP and ICRMP. **Section B.4** provides an analysis of all projects listed in **Appendix A**. The information presented in **Sections 3 and 4** of the IDEA will not be repeated here in this appendix, which is intended to quantify, in detail, potential impacts on the natural and man-made environment resulting from the representative projects.

The methodology used for this IDEA is intended to provide an analysis of the potential environmental consequences of a subset of representative projects from within each of the three project groups (i.e., construction, demolition, and infrastructure) to determine and establish the range of potential impacts that would be expected for each project group. Within each group, the IDEA analyzes the environmental impacts resulting from the activity for a range of structural sizes, acreage disturbed, air emissions, vegetation disturbed, and similar relevant aspects. Representative projects in each category were selected based on overall potential for impacts, rather than simply footprint size, and allow for consideration of the potential to affect specific environmental and socioeconomic resources. All other structures scheduled for demolition or construction, as given in **Appendix A**, would therefore have impacts similar to but less than that those represented by the upper range. All the remaining projects in **Appendix A** were analyzed for impacts, and the potential environmental consequences are presented in tabular form in **Section B.4**.

B.1 Demolition Projects

No demolition projects assessed in this IDEA would take place in areas of MacDill AFB designated as wetlands or would have adverse effects on T&E species. Any projects that would occur in close proximity to a wetland would incorporate erosion and sediment controls and storm water management practices consistent with FDEP and Southwest Florida Water Management District regulations to minimize the potential for adverse effects on wetland habitats. Demolition projects would follow the Section 106 review and compliance process guidelines identified in the ICRMP for the planning and execution of Federal undertakings; the cultural resources manager would review all projects and coordinate with the SHPO as appropriate to avoid, minimize, or mitigate adverse effects on historic properties. Demolition of aging structures is an ongoing activity on MacDill AFB to improve quality-of-life; reduce the risk of accidents; bring the installation into an LBP-free, ACM-free, and PCB-free state; increase the functionality within organizations; and generate space for new and improved facilities. In the process of demolishing existing old structures, space is made available for future modern facilities without the need to use undisturbed land or cause an increase in the generation of impervious surfaces.

B.1.1 Demolish Building 254 (Dormitory)

Noise. Short-term minor intermittent adverse effects on noise levels would be expected as a result of the demolition of Building 254 (see **Figure B-1**). The noise emanating from the proposed demolition of the 25,392 ft²-building would be localized, short-term, and intermittent while construction equipment and machinery would be operating. **Table 4-1** of the IDEA lists the noise levels from construction equipment

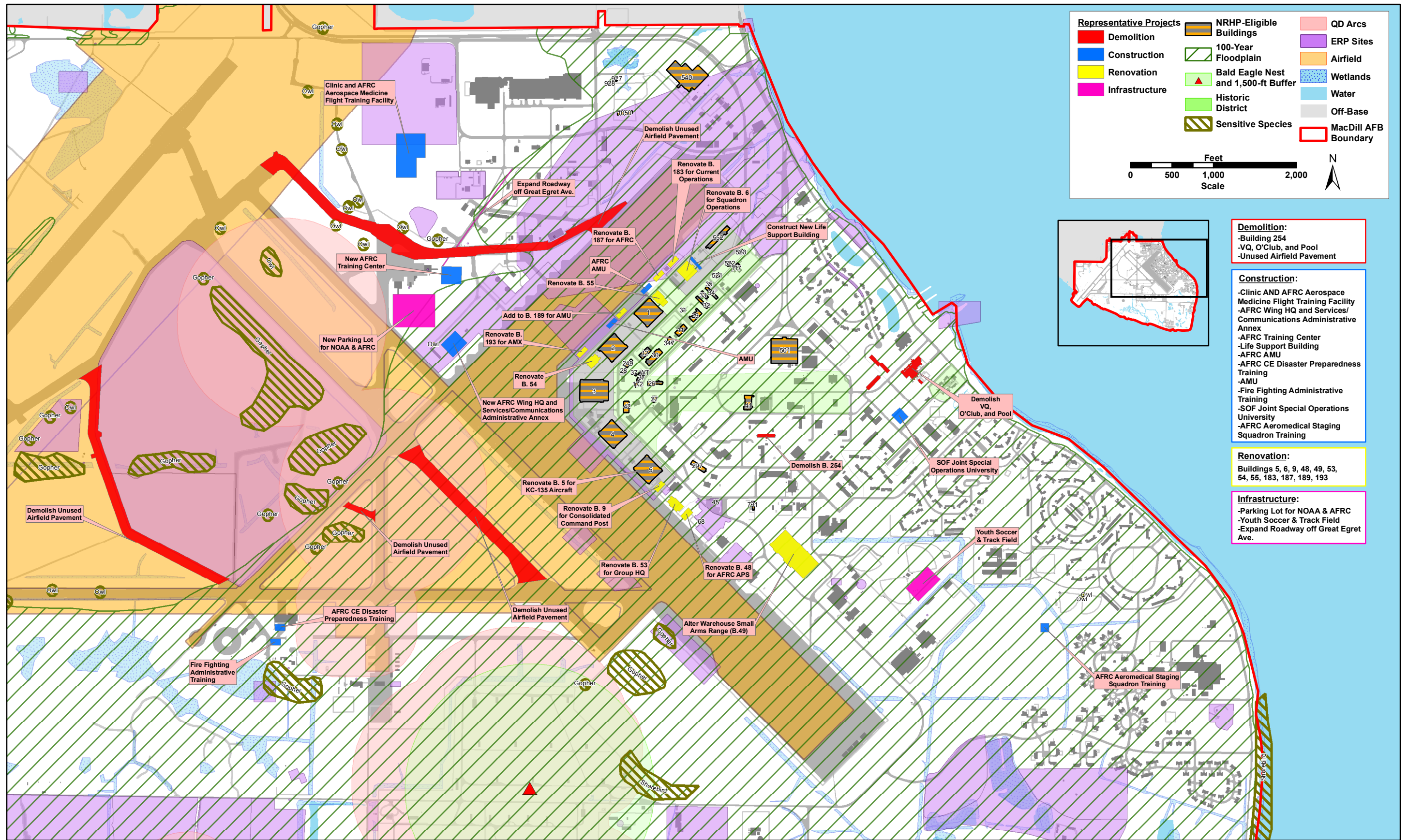


Figure B-1. Location of Representative Projects

at a distance of 50 feet from the source. The heavy 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 office buildings, residential areas, schools, and recreational areas. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise. This noise level would be similar to that of a very noisy urban residential area (refer to **Table 3-1** of the IDEA). The demolition of Building 254 would be expected to result in the noise levels shown in **Table B-1**.

Table B-1. Expected Noise Levels Resulting from Demolition of Building 254

Project Title	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Demolish Bldg. 254 (Dormitory)	25,392	89	74	69	64	54

Land Use. Long-term beneficial effects would be expected from the demolition of Building 254. Demolition activities would have beneficial effects on the installation's organizational functions by removing old outdated facilities and creating open space that could be used for future development. The construction of new facilities where land has been made available by demolition reduces the amount of undisturbed land required for potential future development use and does not result in new impervious land.

MacDill AFB seeks to avoid operational and environmental constraints that would result in land use conflicts. The demolition of Building 254 would create approximately 25,392 ft² of open space in MacDill AFB's Housing land use category. The creation of this open space would be compatible with present and future land uses.

Air Quality. Short-term minor intermittent adverse effects would be expected as a result of the demolition of Building 254. Demolition of Building 254 would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutant emissions as shown in **Table B-2**.

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the demolition of Building 254 would not exceed 10 percent of the regional emissions values.

Table B-2. Tons of Criteria Pollutants Resulting from Demolition of Building 254

Proposed Project	Area (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Demolish Bldg. 254 (Dormitory)	25,392	1.2	0.2	2.8	0.01	0.5
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

Safety. Short-term minor adverse effects on safety would be expected from the demolition of Building 254 as a result of the risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents with increased demolition

activities. Construction workers could encounter contamination as a result of ACM or LBP. These hazards are discussed in more detail in the subsection addressing *Hazardous Materials and Wastes*. Demolition activities would be accomplished in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse impacts would result from grading, excavating, and grooming of the soil. Impacts on previously undisturbed soils would be expected to be minimal. MacDill AFB would ensure BMPs are employed during demolition to minimize impacts on soil and prevent erosion and sediment runoff. All demolition activities would comply with the installation's SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. In addition, MacDill AFB would revegetate, if necessary, the disturbed areas with native vegetation. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from the demolition of Building 254.

Water Resources. The demolition of Building 254 has the potential to result in minor adverse effects as a result of erosion and sedimentation associated with ground-disturbing activities. BMPs in accordance with the installation's SWPPP would be implemented, reducing adverse effects on the underlying surficial aquifer and surface water bodies. Demolition would not result in any increased demand on water supply.

Building 254 is in the 100-year floodplain. With implementation of BMPs to control erosion and sedimentation during ground-breaking activities and recontouring of the site following building removal, demolition of Building 254 would not be expected to result in adverse effects on the floodplain. All activities within the 100-year floodplain would comply with the MacDill AFB FPMP.

The demolition of Building 254 would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation's INRMP, SWPPP, and FPMP.

Biological Resources. Demolition of Building 254 would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. Sediment transport in runoff would not be expected to result in adverse effects on EFH because Building 254 is not near surface water bodies, and implementation of BMPs to reduce erosion and sedimentation would ensure that no adverse effects would occur. There are no wetlands near Building 254, so no effects on wetlands would be expected as a result of demolition.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed animal species are residents on the installation, but these species do not occur in the vicinity of Building 254 (**Figure B-1**); therefore, the demolition of Building 254 would not be expected to adversely affect T&E species.

The demolition of Building 254 would not result in significant adverse effects on biological resources. MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. No impacts on cultural resources would be expected from the demolition of Building 254. This structure is not eligible for NHRP listing, and it is not in or near the historic district of MacDill AFB, known archaeological sites, or other sites of traditional, cultural, or religious significance. MacDill AFB is committed to managing cultural resources in accordance with the installation's ICRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Socioeconomics. Negligible impacts on socioeconomic resources would be expected from the proposed demolition of Building 254. The demolition activities would provide temporary employment for contractors in the area. This activity would take place entirely on MacDill AFB and have little potential to impact off-installation resources.

Infrastructure. Negligible impacts on infrastructure resources would be expected from the demolition of Building 254. The demolition of this building would result in less demand for electricity and potable water, but this is negligible when compared with total installation usage. Long-term adverse effects would be expected associated with the generation of approximately 1,600 tons of demolition waste (USEPA 1998). Most of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. No long-term effects on hazardous materials management or hazardous waste generation would be expected as a result of the demolition of Building 254. However, because of the age of Building 254, it should be assumed to contain both ACM and LBP. Sampling for ACM and LBP should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the MacDill AFB Asbestos and Lead-Based Paint Management plans and USAF policy. The demolition of Building 254 would not affect or be affected by the presence of ERP sites.

B.1.2 Demolish Unused Airfield Pavements

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the demolition of unused airfield pavement. The noise emanating from the proposed demolition of the 1 million ft² of pavement would be localized, short-term, and intermittent while construction equipment and machinery would be operating. **Table 4-1** of the IDEA lists the noise levels from construction equipment at 50 feet from the source. This noise level would be similar to that of a very noisy urban residential area (refer to **Table 3-1** of the IDEA). The typical noise receptors would include people on the flightline and in nearby flightline buildings. The demolition of the airfield pavements would be expected to result in noise levels shown in **Table B-3**. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise.

Table B-3. Expected Noise Levels Resulting from Demolition of Unused Airfield Pavement

Project Title	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Demolish unused airfield pavement	1,000,000	92	78	73	69	59

Land Use. Long-term beneficial effects would be expected from the demolition of the unused airfield pavements. Demolition activities would have beneficial effects as a result of the reduction in the amount of impervious surfaces on the installation.

Air Quality. Short-term minor adverse effects would be expected as a result of the demolition of unused airfield pavement. Removal of 1 million ft² of pavement would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutant emissions as shown in **Table B-4**.

Table B-4. Tons of Criteria Pollutants Resulting from Demolition of Unused Airfield Pavements

Proposed Project	Area (ft²)	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM (tpy)
Demolish unused airfield pavements	1,000,000	24.0	40.6	40.4	1.5	17.6
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the demolition of unused airfield pavement would not exceed 10 percent of the regional emissions values.

Safety. Short-term minor adverse effects on safety would be expected as a result of the risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents with increased demolition activities. Demolition activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse impacts would be expected from grading, excavating, and grooming of the soil after pavement removal. Impacts on previously undisturbed soils would be expected to be minimal. MacDill AFB would ensure BMPs are employed during demolition to minimize impacts on soil and prevent erosion and sediment runoff. All demolition activities would comply with the installation’s SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. In addition, MacDill AFB would revegetate the disturbed areas with native vegetation. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from the removal of the pavement.

Water Resources. The demolition of unused pavement has the potential to result in minor adverse effects as a result of erosion and sedimentation associated with ground-disturbing activities. BMPs in accordance with the installation’s SWPPP would be implemented, reducing adverse effects on the underlying surficial aquifer and surface water bodies. The removal of 1 million ft² of airfield pavement would generate the same amount of pervious soil, reducing storm water runoff and improving the natural recharge of the underlying aquifer. Demolition would not result in any increased demand on water supply.

Portions of the unused airfield pavements are in the 100-year floodplain. With implementation of BMPs to control erosion and sedimentation during demolition activities, this project would not be expected to result in adverse effects on the floodplain. All activities within the 100-year floodplain would comply with the MacDill AFB FPMP.

The demolition of unused airfield pavements would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation’s INRMP, SWPPP, and FPMP.

Biological Resources. Demolition of unused airfield pavements would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. Following demolition of pavements, the disturbed area would be revegetated with native grass species and maintained as a mowed area. Sediment runoff would not be expected to result in adverse effects on EFH because the unused airfield pavements are not near surface water bodies. There are wetlands in the vicinity of one area proposed for demolition (see

Figure B-1). The proposed demolition would not be expected to result in adverse effects on nearby wetlands, but MacDill AFB would coordinate this activity with the Southwest Florida Water Management District prior to pavement removal. Implementation of BMPs to reduce erosion and sedimentation would ensure that no adverse effects would occur on EFH or wetlands.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed species are residents on the installation. The gopher tortoise and burrowing owl (both Florida species of special concern) are known to occur in areas close to the industrialized flightline area on MacDill AFB. However, the demolition activities would be confined to the hard pavement surface and avoid disturbance of nearby soil areas where burrows or individual animals might occur. All necessary precautions would be taken to ensure that adverse impacts on these species would not occur as a result of the demolition process. No long-term adverse effects on these species would be expected.

The demolition of airfield pavement would not result in significant adverse effects on biological resources. MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. Two of the four unused airfield pavement segments proposed for demolition date to the original construction of the airfield by the Works Progress Administration and are elements of that historic landscape. Although the layout of much of the installation has changed through time, MacDill AFB should coordinate with the SHPO regarding the need for an historic landscape evaluation prior to the proposed demolition. This area is not in or near the historic districts or NRHP-eligible buildings at MacDill AFB; known archaeological sites; or other sites of traditional, cultural, or religious significance. MacDill AFB is committed to managing cultural resources in accordance with the installation's ICRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Socioeconomics. No impacts on socioeconomic resources would be expected from the proposed demolition of the unused airfield pavement. The demolition activities would provide temporary employment for contractors in the area. This activity would take place entirely on MacDill AFB and have no impact off-installation resources.

Infrastructure. No impacts on infrastructure resources would be expected from the demolition of the unused airfield pavements. Long-term adverse effects would be expected associated with the generation of approximately 63,500 tons of demolition waste (USEPA 1998). Ninety percent of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. No effects on hazardous materials management or hazardous waste generation would be expected as a result of the demolition of airfield pavements. No ACM and LBP are suspect of being in this area. One portion of the airfield pavement proposed for demolition would occur in an ERP site. There is the potential for construction workers to encounter contamination from ERP sites during pavement removal activities. HAZWOPPER regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations; AFIs; and MacDill AFB programs and procedures.

B.1.3 Demolish Visiting Quarters, Officer's Club, and Swimming Pool

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the demolition of the VQ, O'Club, and swimming pool (see **Figure B-1**). The noise emanating from the proposed demolition of the 75,000 ft² buildings and structure would be localized, short-term, and intermittent while

construction equipment and machinery would be operating. **Table 4-1** of the IDEA lists the noise levels from construction equipment at 50 feet from the source. The heavy 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 office buildings, residential areas, schools, and recreational areas. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise. This noise level would be similar to that of a very noisy urban residential area (refer to **Table 3-1** of the IDEA). The demolition of these buildings would be expected to result in noise levels shown in **Table B-5**.

Table B-5. Expected Noise Levels Resulting from Demolition of VQ, O’Club, and Swimming Pool

Project Title	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Demolish Bldg. 308, 312, 366, and 397 (VQ, O’Club, and Swimming Pool)	75,000	89	74	69	64	54

Land Use. Long-term beneficial effects would be expected from the demolition of the VQ, O’Club, and swimming pool. Demolition activities would have beneficial effects on the installation’s organizational functions by removing old outdated facilities and creating open space that could be used for future development. The construction of new facilities where land has been made available by demolition reduces the amount of undisturbed land required for potential future development use and does not result in new impervious surface.

MacDill AFB seeks to avoid operational and environmental constraints that would result in land use conflicts. The demolition of these facilities would create approximately 75,000 ft² of open space in MacDill AFB’s Housing land use category. It is anticipated that future development at this site would be include the construction of new VQ and a collocated club, which would be compatible with present and future land uses.

Air Quality. Short-term minor adverse effects would be expected as a result of the demolition of the VQ, O’Club, and swimming pool. Demolition of these facilities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutant emissions as shown in **Table B-6**.

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the demolition of the VQ, O’Club, and swimming pool would not exceed 10 percent of the regional emissions values.

Table B-6. Tons of Criteria Pollutants Resulting from Demolition of VQ, O’Club, and Swimming Pool

Proposed Project	Area (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Demolish Bldg. 308, 312, 366, and 397 (VQ, O’Club, and Swimming Pool)	75,000	3.0	0.6	10.4	0.4	1.7
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

Safety. Short-term minor adverse effects on safety would be expected as a result of the risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents with increased demolition activities. Construction workers could encounter contamination as a result of ACM or LBP. These hazards are discussed in more detail in the subsection addressing *Hazardous Materials and Wastes*. Demolition activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse effects would be expected from grading, excavating, and grooming of the soil. Impacts on previously undisturbed soils would be expected to be minimal. MacDill AFB would ensure BMPs are employed during demolition to minimize impacts on soil and prevent erosion and sediment runoff. All demolition activities would comply with the installation's SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. In addition, MacDill AFB would revegetate disturbed areas with native vegetation. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from the demolition of the VQ, O'Club, and swimming pool.

Water Resources. The demolition of the VQ, O'Club, and swimming pool has the potential to result in minor adverse effects as a result of erosion and sedimentation associated with ground-disturbing activities. BMPs in accordance with the installation's SWPPP would be implemented, reducing adverse effects on the underlying surficial aquifer and surface water bodies. Demolition activities would result in minor beneficial effects on water supply because water would not be needed to fill the pool.

These facilities are in the 100-year floodplain. With implementation of BMPs to control erosion and sedimentation during ground-breaking activities, demolition of the VQ, O'Club, and swimming pool would not be expected to result in adverse effects on the floodplain. All activities within the 100-year floodplain would comply with the MacDill AFB FPMP (see **Appendix E**)

Demolition of the VQ, O'Club, and swimming pool would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation's INRMP, SWPPP, and FPMP.

Biological Resources. Demolition of the VQ, O'Club, and swimming pool would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. Sediment transport in runoff associated with demolition activities has the potential to result in adverse effects on EFH, but implementation of BMPs to reduce erosion and sedimentation would ensure that that no adverse effects would occur. There are no wetlands near the VQ, O'Club, and swimming pool, so no effects on wetlands would be expected as a result of demolition.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed species are residents on the installation, but these species do not occur in the vicinity of the VQ, O'Club, and swimming pool; therefore, the demolition activities would not be expected to adversely affect T&E species.

The demolition of the VQ, O'Club, and swimming pool would not result in significant adverse effects on biological resources. MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. No impacts on cultural resources would be expected from the demolition of the VQ, O'Club, and swimming pool. These structures are not eligible for NHRP listing, and are not in or near the historic district of MacDill AFB, known archaeological sites, or other sites of traditional, cultural, or religious significance. MacDill AFB is committed to managing cultural resources in accordance with the installation's ICRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Socioeconomics. Negligible impacts on socioeconomic resources would be expected from the proposed demolition of the VQ, O'Club, and swimming pool. The demolition activities would provide temporary employment for contractors in the area. This activity would take place entirely on MacDill AFB and have little potential to impact off-installation resources.

Infrastructure. Negligible impacts on infrastructure resources would be expected from the demolition of the VQ, O'Club, and swimming pool. The demolition of these buildings would result in less demand for electricity and potable water, but this is negligible when compared with total installation usage. Long-term adverse effects would be expected associated with the generation of approximately 4,800 tons of demolition waste (USEPA 1998). Most of this waste would be recycled for reuse.

Hazardous Materials and Wastes. No long-term effects on hazardous materials management or hazardous waste generation would be expected as a result of the demolition of the VQ, O'Club, and swimming pool. However, because of the age of these structures, they should be assumed to contain both ACM and LBP. Sampling for ACM and LBP should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the MacDill AFB Asbestos and Lead-Based Paint Management plans and USAF policy. The demolition of the VQ, O'Club, and swimming pool would not affect or be affected by the presence of ERP sites.

B.2 Construction Projects

No construction projects assessed in this IDEA would take place in areas designated as wetlands or would have adverse effects on T&E species. Any projects that would occur in close proximity to a wetland would incorporate erosion and sediment controls and storm water management practices consistent with FDEP and Southwest Florida Water Management District regulations to minimize the potential to cause adverse effects on wetland habitats. Construction and renovation projects would follow the Section 106 review and compliance process guidelines identified in the ICRMP for the planning and execution of Federal undertakings; the cultural resources manager would review all projects and coordinate with the SHPO as appropriate to avoid, minimize, or mitigate adverse effects on historic properties from these projects. The construction of new facilities and renovation of existing facilities are ongoing activities at MacDill AFB.

B.2.1 Proposed BRAC Actions

The following is a list of all construction and renovation activities that are proposed as a result of BRAC recommendations:

- Renovate Bldg. 5 (hangar) for KC-135 Aircraft (73,000 ft²)
- Construct New AFRC Wing HQ Building (37,000 ft²)
- Renovate Bldg. 6 for Squadron Operations (30,000 ft²)
- Construct New AFRC Training Center (25,000 ft²)
- Alter Warehouse and Small Arms Storage (Bldg. 49) (25,000 ft²)

- Renovate Bldg. 53 for Group HQ (19,000 ft²)
- Renovate Bldg. 54 for MOCC (17,000 ft²)
- Renovate Bldg. 55 for AFRC Squadron Operations (17,000 ft²)
- Construct AFRC CE and Disaster Preparedness Training Center (12,000 ft²)
- Renovate Bldg. 48 for AFRC APS (10,900 ft²)
- Construct New Life Support Building (10,000 ft²)
- Renovate Bldg. 9 for Consolidated Command Post (8,300 ft²)
- Renovate Bldg. 183 for Current Operations (8,000 ft²)
- Construct Security Force Squadron Training Building (6,000 ft²)
- Renovate Bldg. 187 for AFRC Current Operations (5,600 ft²)
- Add to Bldg. 187 for AFRC AMU (5,600 ft²)
- Renovate Bldg. 189 for AFRC AMX (5,600 ft²)
- Add to Bldg. 189 for AMU (5,600 ft²)
- Renovate Bldg. 193 for AMX (5,600 ft²)
- Add AFRC Services/Communications Administrative Annex to AFRC HQ Building, once constructed (5,000 ft²)
- Construct AFRC Fire Fighting/Administrative Training Building (5,000 ft²)
- Construct AFRC Aeromedical Staging Squadron Training Facility (5,000 ft²).

Construction would result in the creation of approximately 116,200 ft² of new facility space, and renovation would result in the modification of approximately 225,000 ft² of existing facility space for other purposes. Most of these construction and renovation activities are proposed for the aircraft and industrial areas between the north and south aprons; this area of MacDill AFB is largely disturbed by previous activities and also includes the MacDill Field historic district. However, the new AFRC headquarters facility, services/communications administrative annex, and training center would be grouped together in the industrialized area northwest of the north apron; the AFRC CE disaster preparedness and fire fighting administrative training buildings would be grouped together south of the flightline with other industrial activities; and the AFRC aeromedical staging squadron training is on the eastern portion of the installation on the fringe of administrative activities. The exact locations of all these new facilities could potentially change as BRAC funds become available and the projects are planned. Therefore, these groups of projects are analyzed together to provide for changes in siting.

The types of operations in these new or renovated facilities would be similar to those already occurring at MacDill AFB, so it is not anticipated that ongoing activities in the facilities would result in changes in or management of permits or hazardous materials or waste management.

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the construction and renovation facilities along the north and south runway aprons (see **Figure B-1**). The noise emanating from the proposed renovation of 225,000 ft² of existing buildings and the construction of 116,200 ft² of new facilities would be localized, short-term, and intermittent during operation of construction equipment. **Table 4-1** of the IDEA lists the noise levels from construction equipment at 50 feet from the source. The heavy 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 industrial

flightline workers and some administrative personnel. The renovation and construction of these facilities would be expected to result in the noise levels shown in **Table B-7**. The dBA values in this table represent the expected noise levels from multiple projects occurring simultaneously. The noise levels from simultaneous activities do not directly add to each other because the noise metric is a logarithmic function.

Noise impacts would be intermittent since the heavy construction equipment would not be operational at all times during construction. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise. Construction activities would take place only during daylight hours. This noise level would be similar to that of a typical airfield active day (see **Table 3-1** of the IDEA).

Table B-7. Expected Noise Levels Resulting from Renovation or Construction of BRAC Facilities

Project Title	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Renovation Activities	225,000	93	88	73	68	58
Construction Activities	116,200	92	87	72	67	57

Note: Noise levels assume multiple projects occur simultaneously.

Land Use. No impacts on land use would be expected from the renovation and construction of these facilities. The facilities to be renovated and the new facilities to be constructed would all be primarily in the existing Industrial and Aircraft Operations land use categories. The locations of all proposed facilities would be compatible with existing and future land uses as identified in the MacDill AFB General Plan.

Air Quality. Short-term minor adverse effects would be expected as a result of the renovation and construction of these facilities. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutant emissions as shown in **Table B-8**. **Table B-8** lists the emissions by pollutant for four of the projects and the total emissions of all BRAC projects if accomplished in the same year.

Table B-8. Tons of Criteria Pollutants Resulting from Renovation or Construction of BRAC Facilities

Proposed Project	Area (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Renovation of Building 6	30,000	0.3	0.2	0.4	0.01	0.6
Renovation of Building 48	10,900	0.1	0.1	0.2	0.01	0.2
Construct New AFRC Training Center	25,000	2.0	0.6	10.5	0.03	4.5
Construct New Life Support Building	10,000	0.8	0.2	5.3	0.02	2.0
All BRAC Construction or Renovation Projects	341,200	40.0	8.9	60.1	1.0	20.1
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the renovation and construction activities would not exceed 10 percent of the regional emission values.

Safety. Short-term minor adverse effects on safety would be expected as a result of the renovation and construction activities as a result of increased risk associated with construction type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction workers could encounter contamination as a result of ERP sites, ACM, or LBP. These hazards are discussed in more detail in the subsection addressing *Hazardous Materials and Wastes*. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse effects would be expected from grading, excavating, and grooming of the soil. These projects are primarily proposed for the aircraft and industrial operations portion of MacDill AFB, where much of the construction area is currently pavement or urban land. Impacts on previously undisturbed soils would be expected to be minimal. MacDill AFB would ensure BMPs are employed during construction to minimize impacts on soil and prevent erosion and sediment runoff. All construction activities would comply with the installation's MS4 and MSGP NPDES permits and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. MacDill AFB would revegetate, if necessary, the disturbed areas with native vegetation. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from the construction and renovation for BRAC actions.

Water Resources. All construction activities would adhere to the BMPs identified in site-specific SWPPPs in compliance with the MS4 NPDES construction permit. These construction and renovation projects would have the potential to result in minor adverse impacts on the underlying surficial aquifer and receiving surface water bodies as a result of runoff from the construction sites, but the development of site-specific SWPPPs and adherence to the existing installation SWPPP, Hazardous Materials Management Plan, and SPCC Plan would minimize the potential for adverse effects.

Construction activities would result in minor adverse impacts on the 100-year floodplain as a result of the increase in impervious surfaces and modification of the existing flood flow and volume characteristics. The increase in impervious surfaces and modification of flow and volume characteristics could cause a potential increase in water runoff and storm-related damage to facilities and possibly result in human safety risks. However, MacDill AFB is proactive in managing floodplain acreage. The proposed construction projects would be subject to the development guidelines identified in the FPMP (see **Appendix E**). Adherence to the MacDill AFB FPMP would ensure that potentially adverse effects associated with development in the floodplain are minimized in accordance with USAF and FEMA standards. Increases in impervious surfaces or modifications to storm water systems would require coordination with the Southwest Florida Water Management District and an Environmental Resource Permit.

The proposed renovation and construction of facilities would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation's INRMP, SWPPP, and FPMP.

Biological Resources. Renovation of facilities and construction of new facilities for BRAC would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. No impacts on vegetation, wildlife, or wildlife habitat would be expected. All new construction and renovation projects would occur

in areas that are currently developed with little to no vegetation or wildlife habitat. Sediment transport in runoff would not be expected to result in adverse effects on EFH because renovation and construction activities would not be near surface water bodies, and implementation of BMPs to reduce erosion and sedimentation would ensure that that no adverse effects would occur. The proposed BRAC projects are sited in several areas of MacDill AFB; however, none of the projects are sited near wetlands, so no effects on wetlands would be expected as a result of renovation and construction activities.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed bird species are residents on the installation, but these species would not be expected in the vicinity of the north and south runway aprons; therefore, the proposed renovation and construction activities would not be expected to adversely affect these species. The gopher tortoise and burrowing owl (both Florida species of special concern) are known to occur in areas closer to the industrialized flightline area on MacDill AFB, but these species are not known to have burrows on the sites of the proposed projects (**Figure B-1**); therefore, the proposed renovation and construction would not be expected to adversely affect these species.

The proposed renovation and construction activities in support of BRAC actions would not result in significant adverse effects on biological resources. MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. The addition to and alteration of multiple buildings for BRAC proposed actions includes modification to multiple facilities that are within the NRHP-eligible MacDill Field historic district. Some facilities, such as Hangar 5, are eligible as a component of the historic district and individually eligible for the NRHP. Modifications have the potential to affect historic buildings because the appearance and feel of the resource might be modified. Furthermore, construction of new facilities for BRAC could have an adverse effect if they are sited within the boundaries of the historic district (see **Figure B-1**). Prior to renovation of facilities or construction of new facilities, the SHPO would be consulted in accordance with Section 106 of the NHPA to review and approve specific building plans so that the historical integrity and feeling are not changed. All modifications would be conducted in accordance with the *Secretary of the Interior's Standards for Rehabilitation*. Overall, potential adverse effects would be minor. Long-term beneficial effects would be expected by increasing the utility and function of structures and preventing deterioration.

Socioeconomics. Negligible impacts on socioeconomic resources would be expected from the proposed renovation and construction activities. The renovation and construction activities would provide temporary employment for contractors in the area. This activity would take place entirely on MacDill AFB and have little potential to impact off-installation resources.

Infrastructure. Long-term minor adverse effects on MacDill AFB's infrastructure would be expected. There would be increased demand for water, electricity, and sewer services required for the new facilities and their occupants. However, there is an abundance of these resources in the Tampa area, so impacts would be minor. MacDill AFB recently underwent improvements to the electrical distribution system and sewer system to ensure sufficient capacity for future years. Long-term adverse effects would be expected associated with the generation of approximately 2,279 tons of construction waste (USEPA 1998). Construction waste is generally composed of clean materials, and most of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. Long-term minor adverse effects would be expected from the construction of new facilities because aircraft maintenance would occur in some of the hangers. These materials would be similar to the materials presently used by MacDill AFB to maintain aircraft parts.

Therefore, there would be no new waste streams generated, and the amount of waste generated by the proposed BRAC projects would not result in modifications to MacDill AFB's existing RCRA permit.

Because of their ages, Buildings 5, 6, 9, 48, 53, 55, 183, 187, 189, and 193 (proposed for additions and alterations) should be assumed to contain asbestos and all but 183, 187, 189, and 193 should be assumed to contain LBP. Sampling for ACM and LBP should occur prior to any renovation activities so that ACM and LBP can be properly characterized, handled, and disposed of in accordance with the MacDill AFB Asbestos and Lead-Based Paint Management plans and USAF policy.

Some of the proposed renovations and new facilities would be in ERP sites contaminated with organic compounds and metals from previous activities. However, the occupants of these facilities would not use the groundwater and these facilities are built on hard-surface floors. These facilities are within the Land Use Controls criteria for contaminated ERP site. Therefore, there would be no hazard to the occupants of these facilities. There is the potential for construction workers to encounter contamination from ERP sites during construction or during the utilities trench digging to run new utility lines. A health and safety plan would be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers performing soil removal activities within ERP sites are required to have OSHA 40-hour HAZWOPPER training. Supervisors are also required to have an OSHA Site Supervisor certification. Should unexpected contamination be encountered, handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and MacDill AFB programs and procedures. HAZWOPPER regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. The Hazardous Sites Cleanup Act 108 of 1988 provides the regulations for the cleanup of hazardous waste sites and response and investigation for liability and cost recovery, and established the Hazardous Sites Cleanup Fund.

B.2.2 Construct Special Operations Forces University Facility

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the construction of the SOF University Facility (see **Figure B-1**). The noise emanating from the proposed construction of 50,000 ft² of new facilities would be localized, short-term, and intermittent during operation of construction equipment. **Table 4-1** of the IDEA lists the noise levels from construction equipment at 50 feet from the source. The heavy 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 industrial workers and some administrative personnel. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise. Construction activities would take place only during daylight hours. This noise level would be similar to that of a typical airfield active day (see **Table 3-1** of the IDEA).

The construction of these facilities would be expected to result in the noise levels shown in **Table B-9**. The noise levels from simultaneous activities do not directly add to each other because the noise metric used is a logarithmic function.

Table B-9. Expected Noise Levels Resulting from Construction of SOF University Facility

Project Title	Project Size (ft²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construct SOF University Facility	50,000	88	74	70	65	55

Land Use. No impacts on land use would be expected from the construction of the SOF University Facility. The facility to be constructed would be in the existing administrative land use category. The location of this facility would be compatible with existing and future land use as identified in the MacDill AFB General Plan.

Air Quality. Short-term minor adverse effects would be expected as a result of the construction of this facility. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutant emissions as shown in **Table B-10**.

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the construction activities would not exceed 10 percent of the regional emissions values.

Table B-10. Tons of Criteria Pollutants Resulting from Construction of SOF University Facility

Proposed Project	Area (ft²)	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM (tpy)
Construct SOF University Facility	50,000	1.0	0.3	1.5	0.04	0.04
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse impacts would be expected from grading, excavating, and grooming of the soil. Impacts on previously undisturbed soils would be expected to be minimal because this portion of MacDill AFB has historically been intensely used. MacDill AFB would ensure BMPs are employed during construction to minimize impacts on soil and prevent erosion and sediment runoff. All construction activities would comply with the installation's SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from the construction activities.

Water Resources. All construction activities would adhere to the BMPs identified in site-specific SWPPPs in compliance with the MS4 NPDES construction permit. This construction project would have the potential to result in minor adverse impacts on the underlying surficial aquifer and receiving surface water bodies as a result of runoff from the construction site, but the development of a site-specific SWPPP and adherence to the existing installation SWPPP, Hazardous Materials Management Plan, and SPCC Plan would minimize the potential for adverse effects.

Construction activities would result in minor adverse impacts on the 100-year floodplain as a result of the increase in impervious surfaces and modification of the existing flood flow and volume characteristics. The increase in impervious surfaces and modification of flow and volume characteristics could cause a

potential increase in water runoff and storm-related damage to facilities and possibly result in human safety risks. However, MacDill AFB is proactive in managing floodplain acreage. The proposed construction project would be subject to the development guidelines identified in the FPMP (see **Appendix E**). Adherence to the MacDill AFB FPMP would ensure that potentially adverse effects associated with development in the floodplain are minimized in accordance with USAF and FEMA standards. Increases in impervious surfaces or modifications to storm water systems would require coordination with the Southwest Florida Water Management District and an Environmental Resource Permit.

The proposed construction of facilities would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation's INRMP, SWPPP, and FPMP.

Biological Resources. Construction of this facility would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. No impacts on vegetation, wildlife, or wildlife habitat would be expected. This project would occur in an area on MacDill AFB that is currently developed with little to no vegetation or wildlife habitat. Sediment transport in runoff would not be expected to result in adverse effects on EFH because construction activities would not be located near surface water bodies, and implementation of BMPs to reduce sediment and erosion would ensure that no adverse effects would occur. There are no wetlands near the construction area, so no effects on wetlands would be expected as a result of construction activities in that area.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed animal species are residents on the installation, but these species do not occur in the vicinity of the proposed project locations; therefore, the proposed construction would not be expected to adversely affect T&E species.

The proposed construction activities would not result in significant adverse effects on biological resources. MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. No impacts on cultural resources would be expected from the construction of the SOF University Facility. The construction of this facility would not be in or near the NRHP-eligible MacDill Field historic district or other NRHP-eligible buildings or structures (see **Figure B-1**); known archaeological sites or areas that have potential for preservation of archaeological sites; or other sites of traditional, cultural, or religious significance. MacDill AFB is committed to managing cultural resources in accordance with the installation's ICRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Socioeconomics. Negligible impacts on socioeconomic resources would be expected from the proposed construction activities. Construction would provide temporary employment for contractors in the area. This activity would take place entirely on MacDill AFB and have little potential to impact off-installation resources.

Infrastructure. Long-term minor adverse effects on MacDill AFB's infrastructure would be expected. There would be increased demand for water, electricity, and sewer services required for the new facility and its occupants. However, there is an abundance of these resources in the Tampa area, so impacts would be minor. MacDill AFB has recently undergone improvements to the electrical distribution system and sewer system to ensure sufficient capacity for future years. Long-term adverse effects would be expected associated with the generation of approximately 110 tons of construction waste (USEPA 1998).

Construction waste is generally composed of clean materials, and most of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the use of hazardous materials during the construction process. Operations of the new facility would be administrative rather than industrial. Therefore, there would be no new waste streams generated, and the new facilities would not result in modifications to MacDill AFB’s existing RCRA permit.

B.2.3 Construct Medical Facilities

The construction of medical facilities would include the construction of a new clinic (254,000 ft²) to replace an older, outdated clinic, and the subsequent addition of the AFRC Aerospace Medicine Flight Training Facility (5,000 ft²) to the clinic. The AFRC Aerospace Medicine Flight Training Facility is also a proposed BRAC project but is analyzed with the construction of the clinic because the two facilities would be in the same location and share functional land use.

Noise. Short-term minor adverse effects on noise levels would be expected as a result of construction of the medical facilities (see **Figure B-1**). The noise emanating from the proposed construction of the new facilities would be localized, short-term, and intermittent during operation of construction equipment. **Table 4-1** of the IDEA lists the noise levels from construction equipment at 50 feet from the source. The heavy 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 industrial flightline workers and some administrative personnel. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise. Construction activities would take place only during daylight hours. This noise level would be similar to that of a typical airfield active day (see **Table 3-1** of the IDEA).

The construction of this facility would be expected to result in the noise levels shown in **Table B-11**. The noise levels from simultaneous activities do not directly add to each other because noise is a logarithmic function.

Table B-11. Expected Noise Levels Resulting from Construction of Medical Facilities

Project Title	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construction of New Clinic and AFRC Aerospace Medicine Flight Training Facility	259,000	92	87	72	67	57

Land Use. No impacts on land use would be expected from the construction of these facilities. The new clinic and aerospace medicine facilities would be constructed in the existing Community land use category. The location of these facilities would be compatible with existing and future land uses as identified in the MacDill AFB General Plan.

Air Quality. Short-term minor adverse effects would be expected as a result of the construction of the new clinic and aerospace medicine facilities. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutant emissions, as shown in **Table B-12**.

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by construction activities would not exceed 10 percent of the regional emissions values.

Table B-12. Tons of Criteria Pollutants Resulting from Construction of Medical Facilities

Proposed Project	Area (ft²)	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM (tpy)
Construction of New Clinic and AFRC Aerospace Medicine Flight Training Facility	259,000	4.6	1.1	5.4	0.14	7.0
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse impacts would be expected from grading, excavating, and grooming of the soil. Impacts on previously undisturbed soils would be expected to be minimal because this portion of MacDill AFB has historically been intensely used. MacDill AFB would ensure BMPs are employed during construction to minimize impacts on soil and prevent erosion and sediment runoff. All construction activities would comply with the installation’s SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from the construction activities.

Water Resources. All construction activities would adhere to the BMPs identified in a site-specific SWPPP in compliance with the MS4 NPDES construction permit. The construction projects would have the potential to result in minor adverse impacts on the underlying surficial aquifer and receiving surface water bodies as a result of runoff from the construction sites, but the development of a site-specific SWPPP and adherence to the existing installation SWPPP, Hazardous Materials Management Plan, and SPCC Plan would minimize the potential for adverse effects. The proposed clinic is not sited within the 100-year floodplain. However, the proposed construction would increase impervious surfaces and modify the storm water flow and characteristics. Increases in impervious surfaces or modifications to storm water systems would require coordination with the Southwest Florida Water Management District and an Environmental Resource Permit.

The proposed construction of the clinic would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation’s INRMP, SWPPP, and FPMP.

Biological Resources. Construction of the clinic and aerospace medicine facilities would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. No impacts on vegetation, wildlife, or wildlife habitat would be expected. These facilities would be constructed in an area that is currently developed with little to no vegetation or wildlife habitat. Sediment transport in runoff would not be

expected to result in adverse effects on EFH because the proposed medical facilities would not be located near surface water bodies, and implementation of BMPs to reduce erosion and sedimentation would ensure that that no adverse effects would occur. There are no wetlands near the construction site, so no effects on wetlands would be expected as a result of construction activities.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed animal species are residents on the installation, but these species do not occur in the vicinity of the proposed medical facilities; therefore, construction activities would not be expected to adversely affect these species. The gopher tortoise and burrowing owl (both Florida species of special concern) are known to occur in areas closer to the industrialized flightline area on MacDill AFB, but these species are not known to occur in the immediate project area (**Figure B-1**); therefore, the proposed construction would not be expected to adversely affect these species.

MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. No impacts on cultural resources would be expected from the construction of the new clinic or aerospace medicine facility. The construction of these facilities would not be in or near the NRHP-eligible MacDill Field historic district or other NRHP-eligible buildings (see **Figure B-1**); known archaeological sites; or other sites of traditional, cultural, or religious significance. MacDill AFB is committed to managing cultural resources in accordance with the installation's ICRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Socioeconomics. Negligible impacts on socioeconomic resources would be expected from the proposed construction activities. The construction activities would provide temporary employment for contractors in the area. This activity would take place entirely on MacDill AFB and have little potential to impact off-installation resources.

Infrastructure. Long-term minor adverse effects on MacDill AFB's infrastructure would be expected. There would be increased demand for water, electricity, and sewer services required for the new facilities and their occupants. However, there is an abundance of these resources in the Tampa area, so impacts would be minor. MacDill AFB recently underwent improvements to the electrical distribution system and sewer system to ensure sufficient capacity for future years. Long-term adverse effects would be expected associated with the generation of approximately 567 tons of construction waste (USEPA 1998). Construction waste is generally composed of clean materials, and most of this waste would be recycled or ground into gravel for reuse.

Hazardous Materials and Wastes. Short-term minor adverse effects would be expected from the construction of new facilities because of materials used in the construction process. These materials would be similar to the materials presently used by MacDill AFB to perform construction such as sealants, paints, and Freon for HVAC units. There would be no new waste streams generated, and the amount of waste generated by the Proposed Action would not result in modifications to MacDill AFB's existing RCRA permit.

B.3 Infrastructure Projects

No infrastructure projects assessed in this IDEA would take place in areas designated as wetlands or would have adverse effects on T&E species. Any projects that would occur in close proximity to a wetland would incorporate erosion and sediment controls and storm water management practices consistent with FDEP and Southwest Florida Water Management District regulations to minimize the potential to cause adverse effects on wetland habitats. Infrastructure projects would follow the Section

106 review and compliance process guidelines identified in the ICRMP for the planning and execution of Federal undertakings; the cultural resources manager would review all projects and coordinate with the SHPO, as appropriate, to avoid, minimize, or mitigate adverse effects on historic properties. The repair and upgrade of infrastructure assets is an ongoing activity at MacDill AFB. These upgrade projects are required to support current and future missions. These projects are located throughout the installation with respect to roads, parking lots, and sidewalks. Some projects are important for the morale and welfare of the men and women assigned to the installation and are programmed for areas of land use compatibility.

B.3.1 Construct Parking Lot for NOAA and AFRC

The construction of a parking lot for NOAA and AFRC employees (200,000 ft²) would provide parking for several of the new facilities to be constructed as BRAC actions (described in **Section B.2.1**), specifically the new AFRC Headquarters Facility, AFRC Services/Communication Administrative Annex, and new AFRC Training Center.

Noise. Short-term minor adverse effects on noise levels would be expected as a result of the construction of the parking lot (see **Figure B-1**). The noise emanating from the proposed construction of 200,000 ft² of new pavement would be localized, short-term, and intermittent during operation of construction equipment. **Table 4-1** of the IDEA lists the noise levels from construction equipment at 50 feet from the source. The heavy 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 industrial flightline workers and some administrative personnel. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise. Construction activities would take place only during daylight hours. This noise level would be similar to that of a typical airfield active day (see **Table 3-1** of the IDEA).

The construction of this parking lot would be expected to result in the noise levels shown in **Table B-13**. The noise levels from simultaneous activities do not directly add to each other because the noise metric is a logarithmic function.

Table B-13. Expected Noise Levels Resulting from Construction of Parking Lot for NOAA and AFRC

Project Title	Project Size (ft²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construction of Parking Lot for NOAA and AFRC	200,000	92	87	72	67	57

Land Use. No impacts on land use would be expected from the construction of the parking lot. The proposed parking lot would be compatible with the Aircraft and Industrial Operations land use category. The location of this parking lot would be compatible with existing and future land uses as identified in the MacDill AFB General Plan.

Air Quality. Short-term minor adverse effects would be expected as a result of the construction of this parking lot. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutant emissions as shown in **Table B-14**.

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the renovation and construction activities would not exceed 10 percent of the regional emissions values.

Table B-14. Tons of Criteria Pollutants Resulting from Construction of Parking Lot for NOAA and AFRC

Proposed Project	Area (ft²)	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM (tpy)
Construction of Parking Lot for NOAA and AFRC	200,000	4.0	1.0	4.8	0.11	6.5
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction workers could encounter contamination as a result of ERP sites, ACM, or LBP. These hazards are discussed in more detail in the subsection addressing *Hazardous Materials and Wastes*. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse impacts would be expected from grading, excavating, and grooming of the soil. Impacts on previously undisturbed soils would be expected to be minimal because this portion of the MacDill AFB has historically been intensely used. MacDill AFB would ensure BMPs are employed during demolition to minimize impacts on soil and prevent erosion and sediment runoff. All construction activities would comply with the installation’s SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from the construction of the proposed parking lot.

Water Resources. All construction activities would adhere to the BMPs identified in a site-specific SWPPP in compliance with the MS4 NPDES construction permit. This project would have the potential to result in minor adverse impacts on the underlying surficial aquifer and receiving surface water bodies as a result of runoff from the construction sites, but the development of a site-specific SWPPP and adherence to the existing installation SWPPP, Hazardous Materials Management Plan, and SPCC Plan would minimize the potential for adverse effects.

The proposed parking lot would result in minor adverse impacts on the 100-year floodplain as a result of the increase in impervious surfaces and modification of the existing flood flow and volume characteristics. The increase in impervious surfaces and modification of flow and volume characteristics could cause a potential increase in water runoff and storm-related damage to facilities and possibly result in human safety risks. However, MacDill AFB is proactive in managing floodplain acreage. The proposed parking lot would be subject to the development guidelines identified in the FPMP (see **Appendix E**). Adherence to the MacDill AFB FPMP would ensure that potentially adverse effects associated with development in the floodplain are minimized in accordance with USAF and FEMA standards. Increases in impervious surfaces or modifications to storm water systems would require coordination with the Southwest Florida Water Management District and an Environmental Resource Permit.

The proposed parking lot would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation's INRMP, SWPPP, and FPMP.

Biological Resources. Construction of the parking lot would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. No impacts on vegetation, wildlife, or wildlife habitat would be expected. This parking lot would be constructed in an area that is currently developed with little to no vegetation or wildlife habitat. Sediment transport in runoff would not be expected to result in adverse effects on EFH because the proposed parking lot would not be located near surface water bodies, and implementation of BMPs to reduce erosion and sedimentation would ensure that no adverse effects would occur. There are no wetlands near the proposed site for the parking lot, so no effects on wetlands would be expected as a result of renovation and construction activities in that area.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed bird species are residents on the installation, but these species do not occur in the vicinity of the north and south runway aprons; therefore, the proposed renovation and construction activities would not be expected to adversely affect these species. The gopher tortoise and burrowing owl (both Florida species of special concern) are known to occur in areas closer to the industrialized flightline area on MacDill AFB, but these species are not known to occur in the immediate project area (**Figure B-1**); therefore, the proposed construction would not be expected to adversely affect these species.

The proposed construction activities would not result in significant adverse effects on biological resources. MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. No impacts on cultural resources would be expected from the construction of the proposed parking lot. This parking lot would not be in or near the historic districts or NRHP-eligible buildings at MacDill AFB, known archaeological sites, or other sites of traditional, cultural, or religious significance. MacDill AFB is committed to managing cultural resources in accordance with the installation's ICRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Socioeconomics. Negligible impacts on socioeconomic resources would be expected from the proposed construction activities. The construction activities would provide temporary employment for contractors in the area. This activity would take place entirely on MacDill AFB and have little potential to impact off-installation resources.

Infrastructure. No adverse effects on MacDill AFB's infrastructure would be expected. The proposed parking lot would be expected to generate negligible solid waste.

Hazardous Materials and Wastes. No adverse effects would be expected from the construction of the parking lot. There would be no new waste streams generated, and the amount of waste generated by the proposed parking lot would not result in modifications to MacDill AFB's existing RCRA permit.

The proposed parking lot would be near ERP sites contaminated with organic compounds and metals from previous activities. There is the potential for construction workers to encounter contamination from ERP sites during construction or during trenching to run new power lines to the parking lot. Therefore, a health and safety plan would be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers performing soil removal activities with ERP sites are required to have OSHA 40-hour HAZWOPPER training. Supervisors are also required to have an OSHA Site Supervisor certification. Should unexpected contamination be encountered, handling, storage, transportation, and

disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and MacDill AFB programs and procedures. HAZWOPPER regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. The Hazardous Sites Cleanup Act 108 of 1988 provides the regulations for the cleanup of hazardous waste sites, and response and investigation for liability and cost recovery; and established the Hazardous Sites Cleanup Fund.

B.3.2 Construct Soccer Field and Track

Noise. Short-term minor adverse effects on noise levels would be expected as a result of construction (see **Figure B-1**). The noise emanating from the proposed construction of 74,250 ft² of soccer field and track would be localized, short-term, and intermittent during operation of construction equipment. **Table 4-1** of the IDEA lists the noise levels from construction equipment at 50 feet from the source. The heavy construction equipment would not be operational during the entire construction period thus limiting the duration of increased noise levels. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise. Construction activities would take place only during daylight hours. This noise level would be similar to that of a typical airfield active day (see **Table 3-1** of the IDEA).

The construction of this field would be expected to result in the noise levels shown in **Table B-15**. The noise levels from simultaneous activities do not directly add to each other because the noise metric is a logarithmic function.

Table B-15. Expected Noise Levels Resulting from Construction of a Soccer Field and Track

Project Title	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Construction of Soccer Field and Track	74,250	90	86	70	65	56

Land Use. No impacts on land use would be expected from the construction of the soccer field and track. These facilities would be constructed in the existing outdoor recreation land use category. The location of the soccer field and track would be compatible with existing and future land uses as identified in the MacDill AFB General Plan.

Air Quality. Short-term minor adverse effects would be expected as a result of the construction of this field. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutant emissions as shown in **Table B-16**.

Table B-16. Tons of Criteria Pollutants Resulting from Construction of Soccer Field and Track

Proposed Project	Area (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Construction of Soccer and Track Field	74,250	1.0	0.2	3.0	0.05	0.5
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the renovation and construction activities would not exceed 10 percent of the regional emissions values.

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse impacts would be expected from grading, excavating, and grooming of the soil. Impacts on previously undisturbed soils would be expected to be minimal because this portion of MacDill AFB has historically been used for recreational and other purposes. MacDill AFB would ensure BMPs are employed during construction to minimize impacts on soil and prevent erosion and sediment runoff. All construction activities would comply with the installation's SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. Grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from construction of a soccer field and track.

Water Resources. All construction activities would adhere to the BMPs identified in the site-specific SWPPP in compliance with the MS4 NPDES construction permit. These construction and renovation projects would have the potential to result in minor adverse impacts on the underlying surficial aquifer and receiving surface water bodies, but the development of a site-specific SWPPP and adherence to the existing installation SWPPP, Hazardous Materials Management Plan, and SPCC Plan would minimize the potential for adverse effects. It is anticipated that the soccer field would be watered using recycled water.

Construction activities would result in minor adverse impacts on the 100-year floodplain as a result of the minor increase in impervious surfaces. The soccer field would be pervious following construction, and it is anticipated that the track would be constructed using semipervious material. This minor increase in impervious surfaces could cause an increase in water runoff and storm-related damage to facilities and possibly human safety risks. However, MacDill AFB is proactive in managing floodplain acreage. The proposed construction projects would be subject to the development guidelines identified in the FPMP (see **Appendix E**). Adherence to the MacDill AFB FPMP would ensure that potentially adverse effects associated with development in the floodplain are minimized in accordance with USAF and FEMA standards.

The proposed renovation and construction of facilities would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation's INRMP, SWPPP, and FPMP.

Biological Resources. Construction of a new soccer field and track would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. No impacts on vegetation, wildlife, or wildlife habitat would be expected. Vegetation at the proposed project site is mowed and maintained vegetation, making it not suitable for wildlife habitat. Sediment transport in runoff would not be expected to result in adverse effects on EFH because the proposed field and track would not be located near surface water bodies, and implementation of BMPs to reduce erosion and sedimentation would ensure that that no adverse effects would occur. There are drainage ditches that are considered wetlands in the vicinity of the proposed soccer field and track. The proposed field would not affect these wetlands. All construction activities

would adhere to BMPs that would reduce the potential for soil runoff. No impacts on wetlands would be expected.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed bird species are residents on the installation, but these species do not occur in the vicinity of the proposed soccer field and track; therefore, the proposed renovation and construction activities would not be expected to adversely affect these species. The gopher tortoise and burrowing owl (both Florida species of special concern) are known to occur in areas closer to the industrialized flightline area on MacDill AFB, but these species are not known to occur in the vicinity of the project (**Figure B-1**); therefore, the proposed soccer field and track would not be expected to adversely affect these species.

The proposed construction activities would not result in significant adverse effects on biological resources. MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. No impacts on cultural resources would be expected from the construction of the soccer field and track. This proposed location is not in or near the historic districts or NRHP-eligible buildings at MacDill AFB; known archaeological sites; or other sites of traditional, cultural, or religious significance. MacDill AFB is committed to managing cultural resources in accordance with the installation's ICRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Socioeconomics. Negligible impacts on socioeconomic resources would be expected from the proposed construction activities. The proposed soccer field and track would provide temporary employment for contractors in the area. This activity would take place entirely on MacDill AFB and have little potential to impact off-installation resources.

Infrastructure. No adverse effects on MacDill's infrastructure would be expected.

Hazardous Materials and Wastes. No adverse effects on hazardous materials or wastes would be expected.

B.3.3 Expand Great Egret Avenue

The proposed expansion would connect Great Egret Avenue to the parking lot proposed in **Section B.3.1**. The construction of the additional road section would involve approximately 20,000 ft² of new pavement and necessary storm water infrastructure.

Noise. Short-term minor adverse effects on noise levels would be expected from construction activities (see **Figure B-1**). The noise emanating from the proposed expansion of 20,000 ft² of roadway would be localized, short-term, and intermittent during operation of construction equipment. **Table 4-1** of the IDEA lists the noise levels from construction equipment at 50 feet from the source. The heavy 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 industrial flightline workers and some administrative personnel. The closest human and animal receptors to a construction site would be on the order of 500 feet from the source of noise. Construction activities would take place only during daylight hours. This noise level would be similar to that of a typical airfield active day (see **Table 3-1** of the IDEA).

The construction of this roadway would be expected to result in the noise levels shown in **Table B-17**. The noise levels from simultaneous activities do not directly add to each other because noise is a logarithmic function.

Table B-17. Expected Noise Levels Resulting from Expansion of Great Egret Avenue

Project Title	Project Size (ft ²)	dBA at 50 feet	dBA at 300 feet	dBA at 500 feet	dBA at 1,000 feet	dBA at 3,000 feet
Expand Great Egret Avenue	20,000	90	5	70	65	55

Land Use. No impacts on land use would be expected from the roadway expansion. The proposed expansion of roadway would foster compatible land uses.

Air Quality. Short-term minor adverse effects would be expected as a result of the roadway expansion. Construction activities would result in air emissions from the operation of heavy machinery. Fugitive particulate matter would be minimized by continually spraying water over the construction area. These activities would be expected to generate criteria pollutants shown in **Table B-18**.

MacDill AFB is in attainment for all criteria pollutants, so the General Conformity Rule does not apply. In addition, the criteria pollutants generated by the renovation and construction activities would not exceed 10 percent of the regional emissions values.

Table B-18. Tons of Criteria Pollutants Resulting from Expansion of Great Egret Avenue

Proposed Project	Area (ft ²)	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO _x (tpy)	PM (tpy)
Expansion of Great Egret Avenue	20,000	1.8	0.4	5.3	0.15	0.8
<i>10% of Regional Emissions Inventory</i>		<i>28,421</i>	<i>18,870</i>	<i>124,303</i>	<i>40,621</i>	<i>15,775</i>

Safety. Short-term minor adverse effects on safety would be expected as a result of increased risk associated with construction-type activities. No long-term effects would be expected. Although all contractors are required to follow and implement OSHA standards to establish and maintain safety procedures, there would be an increased risk of accidents. Construction workers could encounter contamination as a result of ERP sites. This hazard is discussed in more detail in the subsection addressing *Hazardous Materials and Wastes*. Construction activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances.

Geological Resources. Short-term minor adverse effects would be expected from grading, excavating, and grooming of the soil. Impacts on previously undisturbed soils would be expected to be minimal because this portion of MacDill AFB has historically been intensely used. MacDill AFB would ensure BMPs are employed during construction activities to minimize impacts on soil and prevent erosion and sediment runoff. All construction activities would comply with the installation's SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. Grading, excavation and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP (see **Appendix E**). Therefore, no significant impacts on soils would be expected from the expansion of Great Egret Avenue.

Water Resources. The proposed construction project would have the potential to result in minor adverse impacts on the underlying surficial aquifer and receiving surface water bodies as a result of runoff from the construction site, but adherence to the existing installation SWPPP, Hazardous Materials Management Plan, and SPCC Plan would minimize the potential for adverse effects.

Construction activities would result in minor adverse impacts on the 100-year floodplain as a result of the increase in impervious surfaces and modification of the existing flood flow and volume characteristic because at least a portion of the proposed road would be in the floodplain. The increase in impervious surfaces could cause a potential increase in water runoff and storm-related damage to facilities and possibly human safety risks. However, MacDill AFB is proactive in managing floodplain acreage. The proposed construction project would be subject to the development guidelines identified in the FPMP (see **Appendix E**). Adherence to the MacDill AFB FPMP would ensure that potentially adverse effects associated with development in the floodplain are minimized in accordance with USAF and FEMA standards. Increases in impervious surfaces or modifications to storm water systems would require coordination with the Southwest Florida Water Management District and an Environmental Resource Permit.

The proposed road expansion would not result in significant adverse effects on water resources. MacDill AFB is committed to managing water resources in accordance with the installation's INRMP, SWPPP, and FPMP.

Biological Resources. This roadway expansion would not affect the valued upland pine or hardwood forest habitats on MacDill AFB. No impacts on vegetation, wildlife, or wildlife habitat would be expected. The proposed road expansion would occur in area that is currently developed with little to no vegetation or wildlife habitat. Sediment transport in runoff would not be expected to result in adverse effects on EFH because Great Egret Avenue is not near surface water bodies and implementation of BMPs to reduce erosion and sedimentation would ensure that that no adverse effects would occur. There are no wetlands near the north and south runway aprons, so no effects on wetlands would be expected as a result of renovation and construction activities in that area.

As identified in **Section 3.7.2** of the IDEA, several Federal- and state-listed bird species are residents on the installation, but these species do not occur in the vicinity of the proposed road expansion; therefore, the proposed renovation and construction activities would not be expected to adversely affect these species. The gopher tortoise and burrowing owl (both Florida species of special concern) are known to occur in areas closer to the industrialized flightline area on MacDill AFB, but these species are not known to occur in the vicinity of the north and south runway aprons (**Figure B-1**); therefore, the proposed road construction would not be expected to adversely affect these species.

The proposed renovation and construction activities in support of BRAC actions would not result in significant adverse effects on biological resources. MacDill AFB is committed to managing biological resources in accordance with the installation's INRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Cultural Resources. No impacts on cultural resources would be expected from the proposed expansion of Great Egret Avenue. This road is not in or near the historic districts or NRHP-eligible buildings at MacDill AFB; known archaeological sites; or other sites of traditional, cultural, or religious significance. MacDill AFB is committed to managing cultural resources in accordance with the installation's ICRMP and all applicable Federal, state, DOD, and USAF regulations, legislation, and policy.

Socioeconomics. Negligible impacts on socioeconomic resources would be expected from the proposed road expansion. The activities would provide temporary employment for contractors in the area. This

activity would take place entirely on MacDill AFB and have little potential to impact off-installation resources.

Infrastructure. Long-term beneficial effects on MacDill AFB's infrastructure would be expected. This roadway expansion would improve traffic congestion on MacDill AFB and provide access to new facilities.

Hazardous Materials and Wastes. No effects would be expected from the roadway expansion. There would be no new waste streams generated, and the amount of waste generated by the Proposed Action would not result in modifications to MacDill AFB's existing RCRA permit.

B.4 Analysis of All Projects Listed in Appendix A

Tables B-19 through **B-21** summarize the potential environmental consequences associated with the installation development activities identified in **Appendix A** but not included as representative projects in the preceding sections of this appendix. The proposed locations for these projects are identified in **Figures B-2** through **B-6** at the end of this section. The intent of these tables is to focus on those potential environmental consequences that would be expected as a result of location- or operation-specific activities. All demolition and construction activities generally would be expected to result in increased noise, increased air emissions, potential for erosion and transport of sediment into surface water bodies, generation of small amounts of hazardous materials and wastes, and generation of solid waste. All demolition activities and construction activities generally would be expected to result in minor beneficial effects on socioeconomics as a result of job creation and materials procurement. Furthermore, it should be assumed that demolition or renovation activities in older buildings have the potential to disturb asbestos or LBP and the appropriate identification, handling, removal, and disposal of those materials would occur in accordance with existing MacDill AFB management plans and Federal, state, DOD, and USAF regulations and guidance. These types of short-term construction-related effects are identified in **Sections B.1, B.2, and B.3** in the analysis of the representative projects.

All construction and demolition activities would adhere to MacDill AFB's existing plans and policies that have been identified and referenced in **Sections 2, 3, 4, and 7** of the IDEA, as well as **Appendices B and E**. **Tables B-19** through **B-21** are not meant to substitute for or initiate coordination that might be required as a result of the activities that are identified; they are meant to identify potential effects on sensitive resources. The following summarizes the potential adverse effects for the projects identified in **Appendix A** and the existing management plans and policies regarding those affected resources.

Effects on Water Quality. Potentially adverse effects on water quality (for both the surficial aquifer and Hillsborough and Tampa bays) could result from increased sedimentation related to erosion during construction activities and from the long-term increase in impervious surfaces and storm water runoff. MacDill AFB would develop site-specific SWPPPs for each construction project greater than 1 acre in accordance with the MS4 NPDES Construction Permit. In accordance with the MSGP NPDES Permit, MacDill AFB operates under an installation-wide SWPPP to ensure that runoff associated with industrial processes is minimized and monitored. Other environmental management plans, which include the Pollution Prevention Management Plan, Spill Prevention Control and Countermeasures Plan, Facility Response Plan, and Hazardous Waste Management Plan, are in place to reduce the potential for degradation of water quality from MacDill AFB activities. The MacDill AFB FPMP (discussed below) contains development guidelines intended to reduce the effects of flooding and increased storm water, such as the construction of new storm water retention areas for projects that add impervious surfaces. Projects resulting in a net gain of impervious surfaces or a change in storm water discharge points must be coordinated with the Southwest Florida Water Management District.

Effects on the 100-Year Floodplain. Approximately 80 percent of MacDill AFB is in the 100-year floodplain, so development within the floodplain cannot be entirely avoided. All development within the regulated floodplain must comply with the MacDill AFB FPMP, which incorporates Federal, state, and local floodplain management and construction guidelines.

Effects on T&E Species. There are three federally protected bird species and numerous state species of special concern that have been documented on MacDill AFB, which are shown in **Figures B-2** through **B-6** (refer to **Section 3.7.2** of the IDEA for a detailed discussion of the T&E species that are known to occur on MacDill AFB). All development activities would be implemented in accordance with the MacDill AFB INRMP and the Endangered Species Management Plan. These plans identify long-term management goals and policies. It is not anticipated that any of the proposed projects would present conflicts in management practices.

Areas of the installation with burrowing owl or gopher tortoise burrows would be avoided (both are state species of special concern; refer to **Section 3.7.2** of the IDEA for a detailed discussion of the T&E species that are known to occur on MacDill AFB). Correspondence with FWC will occur prior to conducting any projects with the potential to adversely affect state-listed species so that all measures to reduce potentially adverse effects are identified and implemented.

There are also areas of the installation indicated as having high densities of shorebirds (refer to **Section 3.7.2** of the IDEA for a detailed discussion of the T&E species that are known to occur on MacDill AFB). Two projects would occur where there are high densities of shorebirds: demolishing Building 66 and constructing a pavilion on Building 682. The proposed demolition and construction projects would not affect habitat quality or breeding activities. Furthermore, the proposed development activities would not be expected to change the existing land use or have long-term adverse effects on shorebird species. Correspondence with USFWS and FWC will occur prior to conducting any projects with the potential to adversely affect Federal- or state-listed species so that all measures to reduce potentially adverse effects are identified and implemented.

Finally, there is one project that would occur within the 1,500-foot bald eagle nest buffer in the Weapons Storage Area. This project would include the installation of fire hydrants, which is a necessary infrastructure upgrade. Overall, this infrastructure upgrade would be minor and occur in a time period outside the bald eagle nesting season (nesting season is from October 1–May 15). The MacDill AFB Natural Resources Manager will coordinate with the USFWS prior to implementing this project; however, it is not anticipated that installation of fire hydrants would result in adverse effects on the bald eagle as long as it occurs outside the nesting season.

MacDill AFB coordinated with the USFWS and the FWC (through the Florida Clearinghouse) on two occasions during the preparation of this IDEA, once during the IICEP period (January 2006) and once during the public review period (September 2006), and has not received comment on the IDEA to date (see **Appendix D**). MacDill AFB will continue to coordinate any project with the potential to adversely affect T&E species prior to initiating that project. Projects that are identified as having adverse effects on any species would require additional NEPA documentation and continued consultation with the USFWS and FWC.

Effects on Wetlands. Several projects in **Tables B-19** through **B-21** are identified as having potential to adversely affect wetlands. These projects are not sited in wetlands; however, because of the proximity of some proposed projects to wetlands, the habitats would need to be delineated and a jurisdictional determination obtained prior to construction activities, which would require coordination with the USACE and Southwest Florida Water Management District. New construction would be sited to avoid wetlands. In the event that a proposed siting must occur within a wetland, additional NEPA

documentation and coordination with the USACE and the Southwest Florida Water Management District will be required. Demolition and construction activities and infrastructure upgrades would employ BMPs to minimize potentially adverse effects as a result of erosion and sedimentation so no effects as a result of activities near wetlands would be expected.

Effects on Archaeological Resources or Traditional Cultural Properties (TCP). Known archaeological sites or other sites of traditional, cultural, or religious significance (also called Traditional Cultural Properties, or TCP) would be avoided during all construction activities. One project (the demolition of Building 66) would occur in a general area of the installation that has yielded some archaeological finds. It is not likely that the demolition of this structure would disturb intact archaeological deposits because the area immediately around the building is heavily disturbed. However, in the event of an inadvertent discovery during this demolition project or any other installation development activities, the Standard Operating Procedure for inadvertent discovery in the MacDill AFB ICRMP will be followed to ensure the proper protection and treatment of any uncovered resources. There is only one identified site of traditional, cultural, or religious significance to Native American tribes within MacDill AFB; this location would be avoided during demolition and construction activities. However, in the event of an inadvertent discovery of human remains or gravesites during any installation demolition or construction activities, the Standard Operating Procedure for inadvertent discovery provided in the MacDill AFB ICRMP will be followed to ensure the proper protection and treatment of such items.

Effects on Historic Resources. There are numerous installation development activities that have the potential to result in adverse effects on historic properties. Demolition of buildings that are within the MacDill Field Historic District or have been identified as eligible for the NRHP (see **Section 3**) would be considered an adverse effect on historic properties, and coordination with the SHPO as outlined in the MacDill AFB ICRMP will be followed. One historic structure (Building 731) is proposed for demolition, so coordination with the SHPO would occur prior to any demolition activities. New construction within the historic district or adjacent to NRHP-eligible buildings would also require coordination with the SHPO to ensure that adverse effects on historic properties are avoided, minimized, or mitigated.

Effects Resulting from ERP Sites. ERP sites are present on much of the developed areas of MacDill AFB, making it impractical to avoid them entirely. A Health and Safety Plan would be prepared in accordance with OSHA for any construction activities that would occur in contaminated areas to protect the safety of construction workers. If soil or groundwater contamination is encountered, then handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations. Any projects occurring within ERP sites must be reviewed by the FDEP's Bureau of Waste Cleanup.

Table B-19. Potential Environmental Consequences Resulting from the Proposed Facilities Demolition Projects Listed in Appendix A

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood -plain	Habitat	EFH	T&E	Wet-lands	Archaeo-logical, TCP	Historic Structures		
Demolish Bldg. 66 (Wastewater Treatment Plant Control Building)	-	-	⊗	⊗	⊗	-	-	⊗	-	⊗	-	-	B-2
Demolish Bldg. 906 (Temporary Lodging Facilities)	-	-	⊗	⊗	⊗	-	-	-	-	-	-	-	B-2
Demolish Bldg. 43 (Terminal Instrument Procedures)	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Demolish Bldg. 1133 (Base Storage)	-	-	⊗	⊗	⊗	-	-	-	-	-	-	-	B-4
Demolish Bldg. 1056 (Mobile Corps of Engineers Facility)	-	-	-	-	-	-	-	-	-	-	-	-	B-5

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-19. Potential Environmental Consequences Resulting from the Proposed Facilities Demolition Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Demolish Bldg. 665 (Outdoor Recreation Program)	-	⊗	⊗	⊗	⊗	-	-	-	-	-	-	⊗	B-2
Demolish Airfield Obstructions	-	⊕	-	-	⊗	-	-	-	-	-	-	-	B-3
Demolish Bldg. 731 (Union Hall)	-	-	-	-	⊗	-	-	-	-	-	⊗	-	B-3
Demolish Bldg. 74 (Morale, Welfare, and Recreation Storage)	-	⊗	⊗	⊗	⊗	-	-	-	-	-	-	⊗	B-2
Demolish Bldg. 75 (Pumphouse)	-	⊗	-	-	⊗	-	-	-	-	-	-	⊗	B-5
Remove USTs at Bldg. 75 (Pumphouse)	⊗	⊗	⊗	⊗	⊗	-	-	-	-	-	-	⊗	B-5
Demolish Bldg. 24 (NOAA AGE Facility)	-	⊗	-	-	⊗	-	-	-	-	-	-	⊗	B-3
Demolish Bldg. 823 (“Med Fly” Building)	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Demolish Bldg. 728 (Morale, Welfare, and Recreation Storage)	-	⊗	⊗	⊗	⊗	-	-	-	-	-	-	⊗	B-2

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-20. Potential Environmental Consequences Resulting from the Proposed Facilities Construction Projects Listed in Appendix A

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Construct SOF SOAL (SOCOM)	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct Transportation/Supply Complex	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct SOF Information Technology Center (Bldg. 501D)	-	-	-	-	⊗	-	-	-	-	-	⊗	-	B-5
Construct SOCOM CSO	-	-	-	-	⊗	-	-	-	-	-	-	-	B-5
Construct Consolidated Base Support Facility	-	-	-	-	-	-	-	-	-	-	-	-	B-5
Construct BE Complex	-	-	-	-	⊗	-	-	-	-	-	-	-	B-5
Construct SOCCENT HQ Complex	-	⊗	⊗	⊗	⊗	-	-	-	-	-	⊗	⊗	B-5

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-20. Potential Environmental Consequences Resulting from the Proposed Facilities Construction Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Construct Security Forces Facility	-	⊕	-	⊕	⊕	-	-	-	-	-	-	⊕	B-5
Construct JCSE Squadron Facility	-	-	-	-	⊕	-	-	-	-	-	-	-	B-3
Construct JCSE Logistics-Mobility Facility	-	-	-	-	⊕	-	-	-	-	-	-	-	B-3
Construct 144-Room Dormitory (Phase 1)	-	-	-	-	⊕	-	-	-	-	-	-	-	B-3
Construct 144-Room Dormitory (Phase 2)	-	-	-	-	⊕	-	-	-	-	-	-	-	B-3
Construct Squadron Operations Facility	-	-	-	-	⊕	-	-	-	-	-	-	-	B-3
Construct Consolidated Communications Facility	-	-	-	-	⊕	-	-	-	-	-	⊕	-	B-3
Construct JCSE Headquarters Building	-	-	-	-	⊕	-	-	-	-	-	-	-	B-3
Add to/Alter Bldg. 501B	-	-	-	-	⊕	-	-	-	-	-	-	-	B-5

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-20. Potential Environmental Consequences Resulting from the Proposed Facilities Construction Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Construct Family Camp Annex	-	-	⊗	⊗	⊗	-	-	-	-	-	-	-	B-2
Construct VQ and Collocated Club	-	-	-	-	⊗	-	-	-	-	-	-	-	B-5
Construct JCSS Vehicle Maintenance Facility	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct Military Professional Development Center	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct Fuels Management Facility	-	⊗	-	-	⊗	-	-	-	-	-	-	⊗	B-5
Construct JCSE Vehicle Paint Facility	⊗	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct JCSS Vehicle Parking and Covered Storage Shed	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct Base Storage Warehouse	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct Flightline Dining Facility	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-20. Potential Environmental Consequences Resulting from the Proposed Facilities Construction Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Construct Services Pavilion at SeaScapes (Bldg. 682)	-	-	⊗	⊗	⊗	-	-	⊗	⊗	-	-	-	B-2
Expand AAFES Garden Center (Bldg. 926)	-	-	-	-	-	-	-	-	-	-	-	-	B-5
Add to/Alter CATM Facility (Bldg. 1882)	-	⊗	⊗	⊗	⊗	-	-	-	⊗	-	-	⊗	B-2
Add to Bldg. 1885	-	-	-	⊗	⊗	-	-	-	-	-	-	-	B-2
Construct Dumpster Enclosures, Phase 2	-	-	-	-	-	-	-	-	-	-	-	-	<i>Not on figures, would be small structures at various places on the installation behind buildings</i>
Construct SOCOM Memorial Addition	-	-	-	-	⊗	-	-	-	-	-	-	-	B-5
Construct CENTCOM Memorial	-	-	⊗	⊗	⊗	-	-	-	-	-	-	-	B-5
Expand Food Court (Bldg. 926)	-	-	-	-	-	-	-	-	-	-	-	-	B-5
Construct MacDill Gate Overwatch	-	-	-	-	⊗	-	-	-	-	-	-	-	B-5

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-20. Potential Environmental Consequences Resulting from the Proposed Facilities Construction Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Construct Dale Mabry Overwatch	-	-	-	-	-	-	-	-	-	-	-	-	B-5
Construct Bus Shelter (CENTCOM)	-	-	-	-	-	-	-	-	-	-	-	-	<i>Not on figures, would be small structure on existing pavement</i>
Construct Bus Shelter on Hillsborough Loop Drive	-	-	-	-	-	-	-	-	-	-	-	-	<i>Not on figures, would be small structure on existing pavement</i>

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-21. Potential Environmental Consequences Resulting from the Proposed Infrastructure Projects Listed in Appendix A

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Floodplain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Repair A-Parking Apron (BRAC)	-	-	-	-	⊗	-	-	-	-	-	-	-	B-5
Construct CENTCOM Parking	-	-	-	-	⊗	-	-	-	-	-	⊗	-	B-5
Construct Parking Lot for Life Support Building (BRAC)	-	⊕	-	-	⊗	-	-	-	-	-	⊗	⊗	B-5
Construct Parking Lot Near Bldg. 172	-	-	-	-	⊗	-	-	-	-	-	⊗	-	B-3
Construct Parking Lot for Add to/Alter Bldg. 501B	-	-	-	-	⊗	-	-	-	-	-	-	-	B-5
Construct Force Protection Parking Lot, Hangar Loop	-	⊕	-	-	⊗	-	-	-	-	-	-	⊗	B-5
Construct SOCOM Parking Lot (Bldg. 501)	-	-	-	-	⊗	-	-	-	-	-	⊗	-	B-5

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-21. Potential Environmental Consequences Resulting from the Proposed Infrastructure Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Construct Golf Course Parking Lot	-	-	⊗	⊗	⊗	-	-	-	-	-	-	-	B-2
Construct Fenced Parking Area at Bldg. 1065	-	⊗	-	-	⊗	-	-	-	-	-	-	⊗	B-5
Construct Military Professional Development Center Parking Lot	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Repair/Upgrade Multiple Intersections	-	⊕	-	-	⊗	-	-	-	-	-	⊗	⊗	<i>Not on figures, would include upgrades at multiple locations on previously disturbed ground in the cantonment area</i>
Construct Community Area Pedestrian Boulevard	-	-	-	-	⊗	-	-	-	⊗	-	-	-	B-3
Construct Military Working Dog Facility Parking Lot (Bldg. 824)	-	-	-	-	⊗	-	-	-	-	-	-	-	B-2
Construct N. Boundary Blvd. Sidewalk	-	⊗	-	-	⊗	-	-	-	-	-	-	⊗	B-5

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-21. Potential Environmental Consequences Resulting from the Proposed Infrastructure Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Floodplain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Construct Soccer Field	-	-	⊗	⊗	⊗	-	-	-	⊗	-	-	-	B-3
Construct Parking Lot at Family Housing Management Office (Bldg. 496)	-	-	-	⊗	⊗	-	-	-	-	-	-	-	B-5
Repair South Apron	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct Drainage Overflow Structure near Bldg. 741	-	-	-	-	⊕	-	-	-	⊗	-	-	-	B-3
Construct Lift Station Near Bldg. 1051 and Force Main	-	⊗	-	-	⊗	-	-	-	-	-	-	⊗	B-5
Construct MacDill Ave. Sidewalk	-	⊗	-	-	⊗	-	-	-	-	-	-	⊗	B-5
Construct Fitness Center Sidewalks (Bldg. 303)	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3
Construct Driveway (Bldg. 57)	-	-	⊗	⊗	⊗	-	-	-	-	-	-	-	B-6
Intersection Improvements (Hillsborough and Hangar Loop)	-	⊗	-	-	⊗	-	-	-	-	-	-	⊗	B-5

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-21. Potential Environmental Consequences Resulting from the Proposed Infrastructure Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Construct Tennis and Basketball Courts	-	-	⊗	⊗	⊗	-	-	-	⊗	-	-	-	B-3
Intersection Improvements (N. Boundary Blvd. and Bayshore Blvd.)	-	⊕	-	-	⊗	-	-	-	-	-	-	⊗	B-5
Intersection Improvements (Marina Bay Dr. at Southshore Ave.)	-	-	-	-	⊗	-	-	-	⊗	-	-	-	B-2 and B-3
Construct Tampa Point Blvd. Traffic Circle	-	-	-	-	⊗	-	-	-	-	-	-	-	B-3 and B-5
Install Transient Aircraft Barriers	-	-	-	-	-	-	-	-	-	-	-	-	<i>Not on figures, would be small structure on existing pavement</i>
Construct Flightline Fence, Deployed Unit Complex Area	-	⊕	-	-	⊗	-	-	-	-	-	⊗	⊗	B-3
Replace Taxiway Lighting	-	⊕	-	-	-	-	-	-	-	-	-	-	<i>Not on figures, no adverse effects would be expected from standard maintenance</i>

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-21. Potential Environmental Consequences Resulting from the Proposed Infrastructure Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Repair Sanitary Sewer System	-	-	-	-	-	-	-	-	-	-	-	-	<i>Not on figures, no adverse effects would be expected from standard repair</i>
Extend Dead End Water Line near Control Tower	-	-	-	-	⊗	-	-	-	⊗	-	-	-	B-4
Construct Force Main Extension	-	⊕	-	-	⊗	-	-	-	-	-	-	⊗	B-5
Repair Drainage Canal/Culvert	-	-	-	-	⊕	-	-	-	-	-	-	-	B-3
Install Fire Hydrants in Munitions Storage Area	-	⊕	-	-	⊗	-	-	⊗	⊗	-	-	-	B-2
Construct/Repair Sidewalks Basewide	-	-	-	-	⊗	-	-	-	-	-	-	-	<i>Not on figures, would be along existing roads in disturbed areas</i>
Repair Electrical on South Bayshore Blvd	-	⊗	-	-	-	-	-	-	-	-	-	-	<i>Not on figures, no adverse effects would be expected from standards repair</i>

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

Table B-21. Potential Environmental Consequences Resulting from the Proposed Infrastructure Projects Listed in Appendix A (continued)

Project Title	Air Quality	Safety	Geological Resources	Water Resources		Biological Resources				Cultural Resources		Hazardous Materials and Wastes (in ERP site)	Figure
				Water Quality	Flood-plain	Habitat	EFH	T&E	Wetlands	Archaeological, TCP	Historic Structures		
Repair Florida Keys Drainage	-	-	-	-	⊗	-	-	-	-	-	⊗	-	B-3
Repair/Alter Primary Roads	-	⊗	-	-	⊗	-	-	-	-	-	⊗	-	<i>Not on figures, would be along existing roads in disturbed areas</i>

Impacts Legend:

- No effects or negligible effects ⊕ Potential minor beneficial effects ⊗ Potential minor adverse effects ■ Potentially significant (greater magnitude than representative projects)

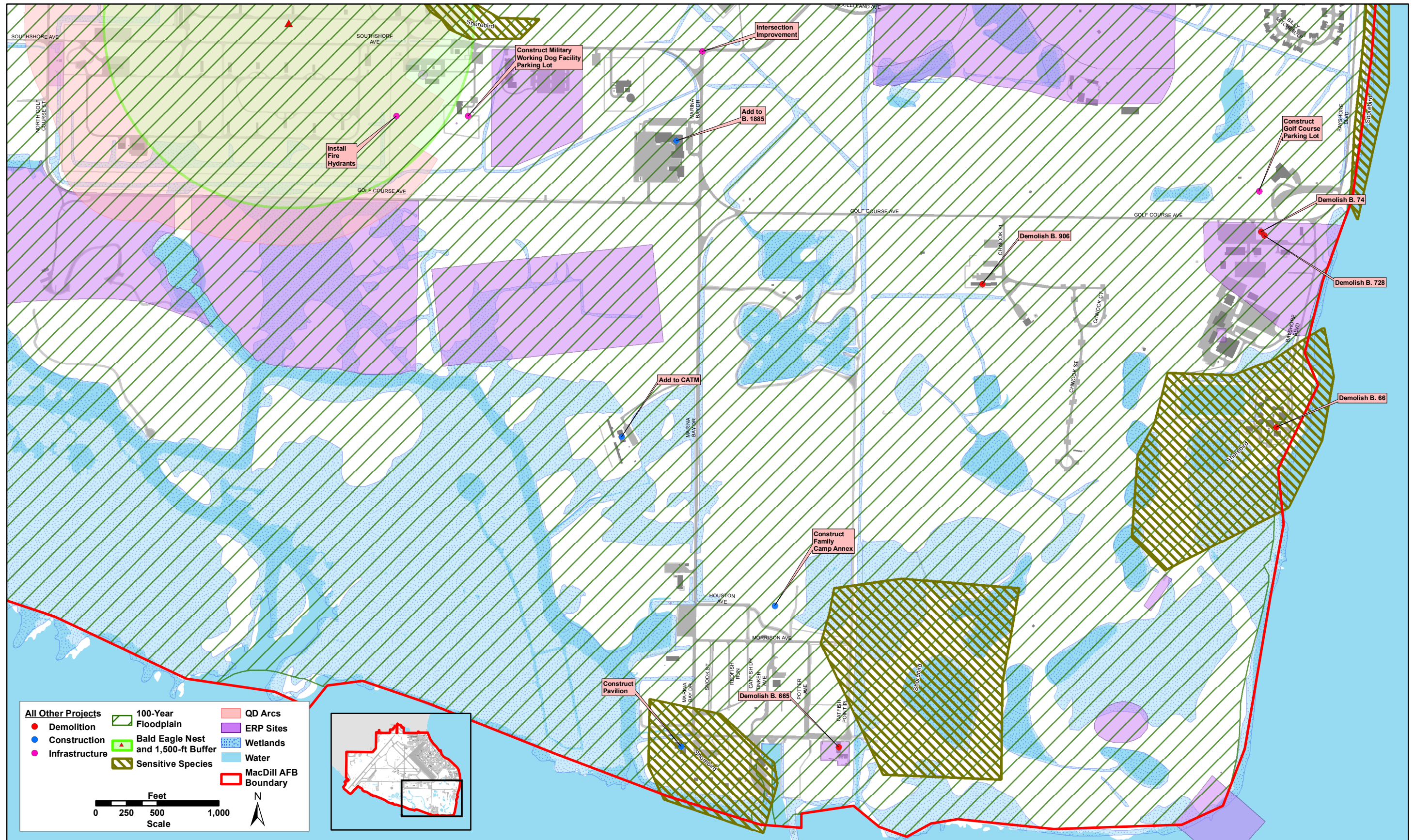


Figure B-2. Locations of Proposed Projects Relative to Known Land Use Constraints on the Southern Portion of MacDill AFB

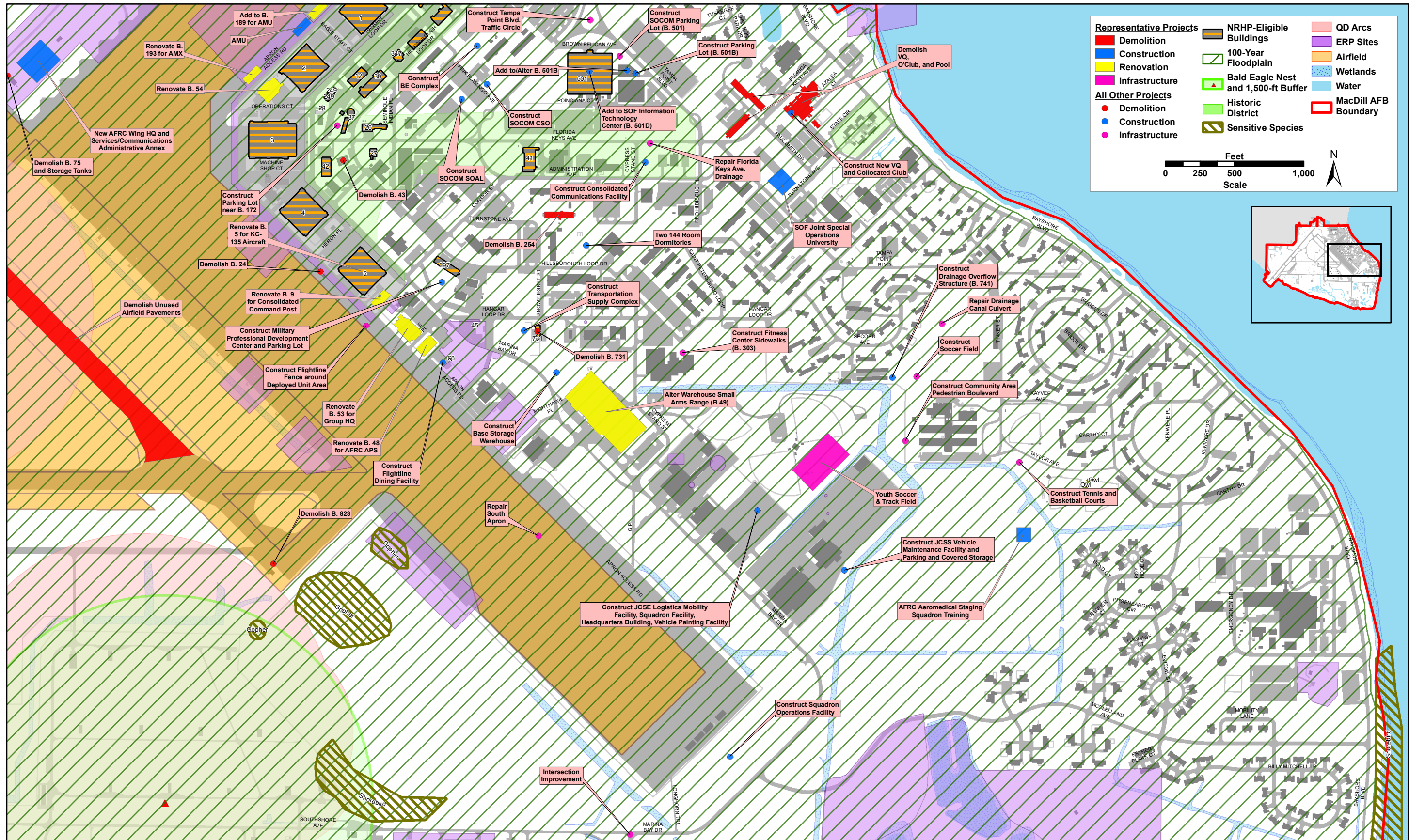


Figure B-3. Locations of Proposed Projects Relative to Known Land Use Constraints on the North-Central Portion of MacDill AFB

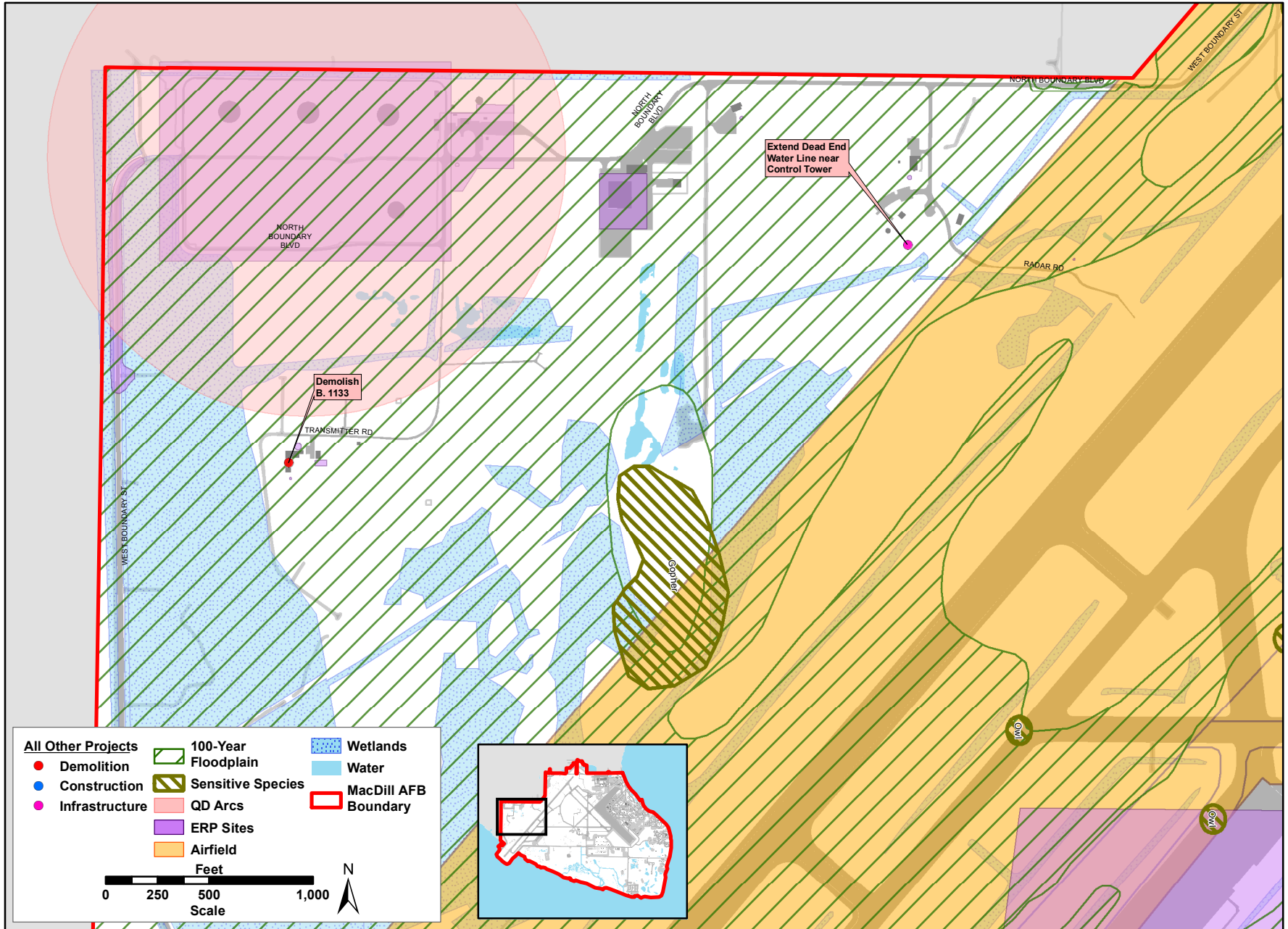


Figure B-4. Locations of Proposed Projects Relative to Known Land Use Constraints on the Western Portion of MacDill AFB

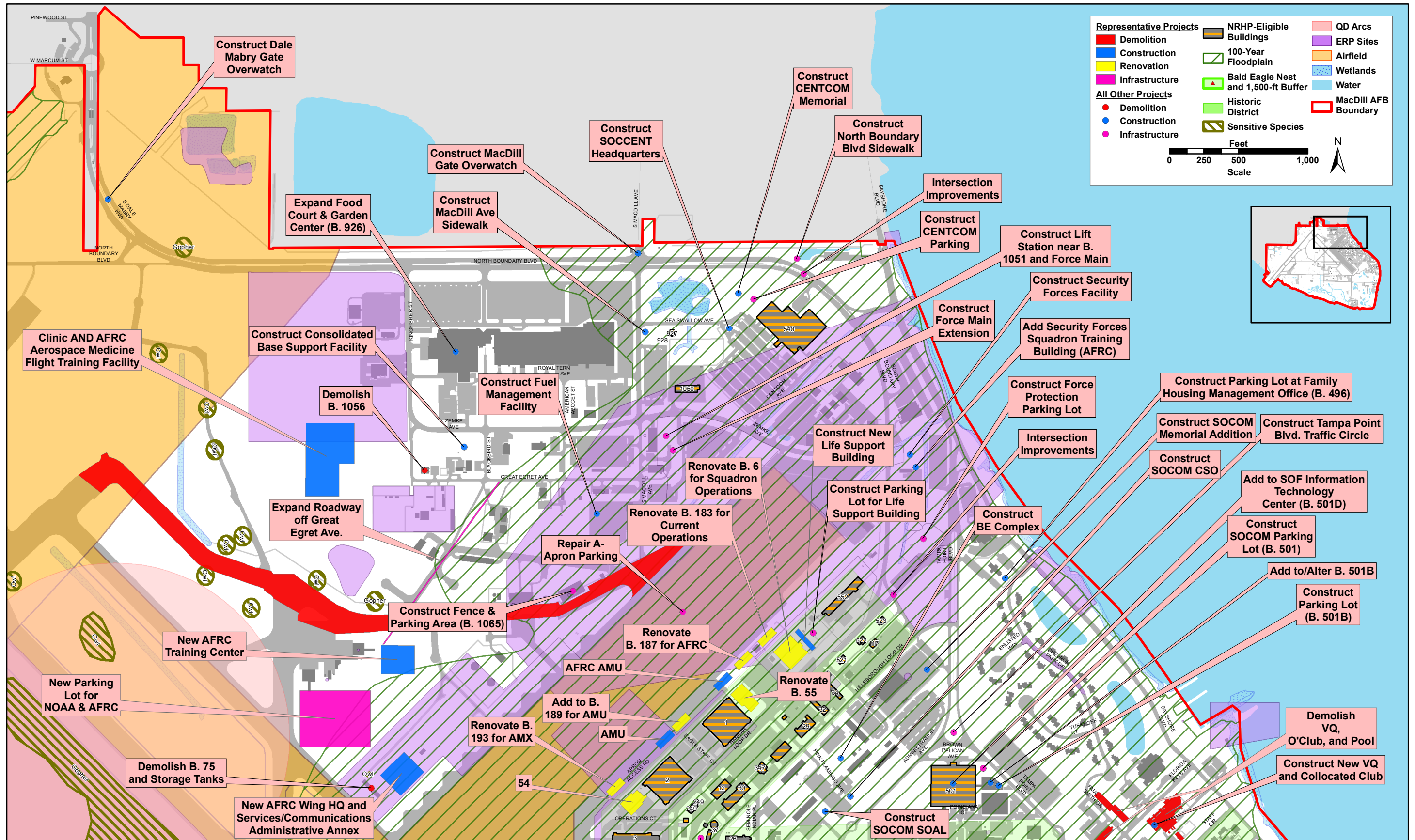


Figure B-5. Locations of Proposed Projects Relative to Known Land Use Constraints on the Northern Portion of MacDill AFB

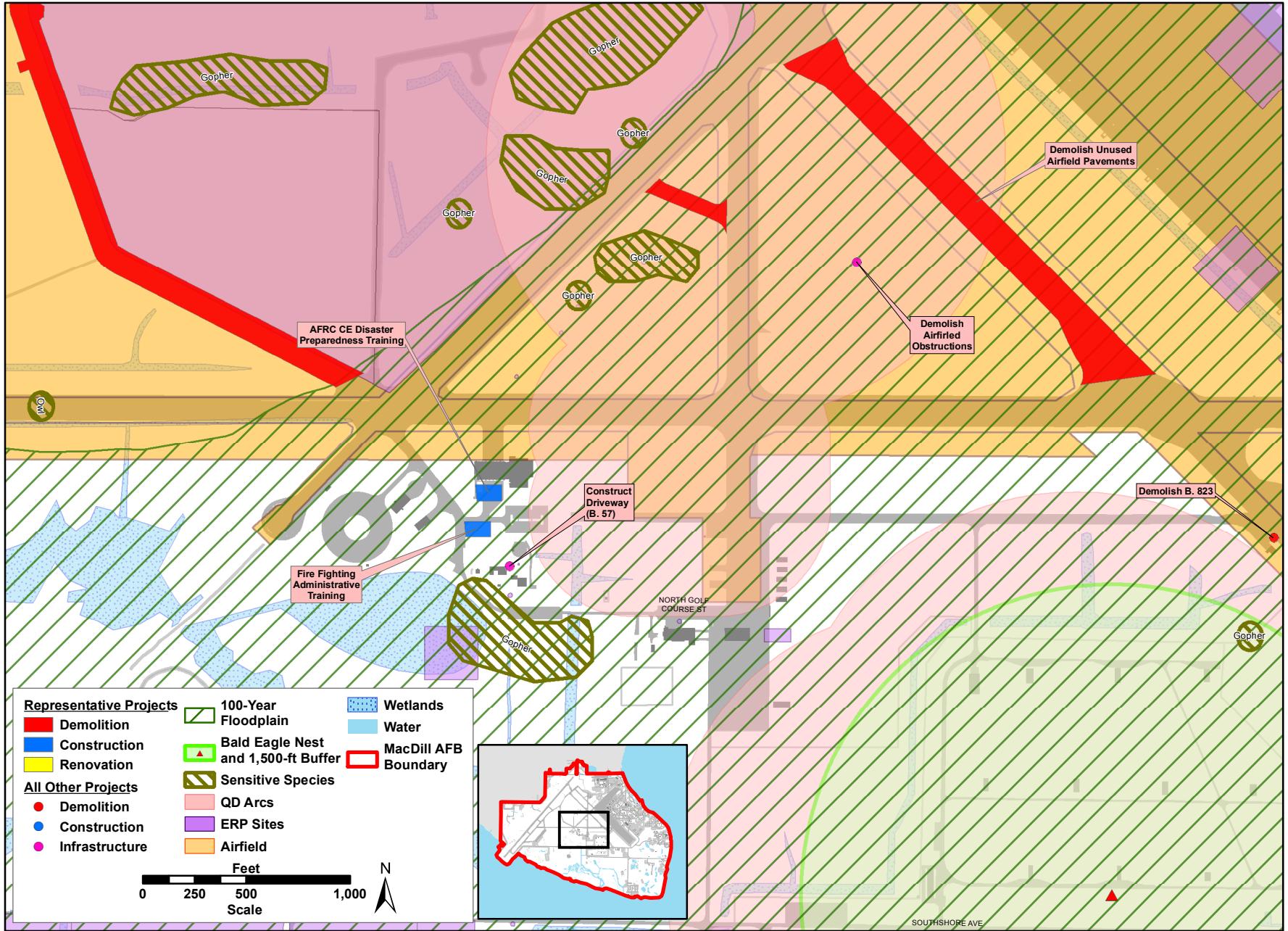


Figure B-6. Locations of Proposed Projects Relative to Known Land Use Constraints on the Central Portion of MacDill AFB

B.5 Cumulative Effects

Cumulative effects are the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. **Section 5** of the IDEA presents a discussion of cumulative effects. The intent of this section is to further analyze the potential cumulative effects of implementing all projects identified in **Appendix A**, as well as other past, present, or reasonably foreseeable future activities. The purpose of this discussion is to determine if the effects of each individual project, while minor and insignificant on their own, could cumulatively result in significant adverse effects when added incrementally with other projects.

Other than the projects identified in **Appendix A**, and analyzed in detail in **Sections B.1, B.2, B.3, and B.4** of this appendix, there are two projects identified for potential cumulative effects: the privatization of Military Family Housing (MFH) and the basing of the KC-X aircraft.

Under the MFH privatization proposal, the USAF would lease real property to a private developer; the private developer would be responsible for the demolition of 512 units and construction of 331 units for an end-state total of 571 MFH units. For a period of 50 years, the private developer would be responsible for maintaining the 571 MFH units and certain infrastructure and ancillary supporting facilities. The potential for cumulative adverse environmental effects would be during the 6-year demolition and construction period. NEPA analysis for MFH privatization is underway and anticipated to be complete in 2007; this cumulative effects analysis is based on the environmental consequences identified in the *Preliminary Draft Environmental Assessment of the Privatization of Military Family Housing at MacDill Air Force Base, Florida*, prepared for Headquarters AMC (AMC 2006). MFH units are currently and will remain in the eastern portion of MacDill AFB. For the purposes of this IDEA, it is assumed that the 6-year demolition, construction, and renovation period would begin in 2008. With the exception of the demolition and construction of MFH units as a result of privatization, there are few installation development activities planned for the area of MacDill AFB where the MFH units are located.

As a component of the USAF's tanker modernization plan, it is anticipated that MacDill AFB could receive as many as 32 KC-X tanker aircraft. The exact number, model, and types of aircraft operations as a result of this basing are not ripe for decisionmaking at the current time and therefore are not included in this cumulative effects analysis. Preliminary desktop surveys have identified the need for as many as six new hangars, alterations to existing hangars, new or repaired parking on Taxiway N, training facilities, and two facilities for squadron operations and aircraft maintenance. The timeline for construction and exact facilities requirements for this proposal are not known at this time. For the purposes of this IDEA, it is assumed that construction would begin in 2010–11 and last for 5 years. Structures have not been definitively sited for the proposed KC-X basing, but it is anticipated that the aircraft and industrial operations area between the north and south ramps would be the proposed location for the additional hangars and other facilities; the south ramp would be developed for KC-X parking.

Noise. Construction noise emanating off-site as a result of the construction and demolition activities would probably be noticeable in the immediate construction site vicinity but would not be expected to cumulatively result in significant adverse effects. It is likely that several different demolition, construction, renovation, or infrastructure activities could occur simultaneously, whether IDEA projects, MFH privatization projects, or KC-X basing projects. The noise emanating from the proposed activities at construction sites would be localized, short-term, and intermittent. The heavy 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 flightline area, office buildings, residential areas, schools, recreational areas, and in some cases wildlife. Larger projects would have longer construction periods and the intermittent noise levels would extend over a longer period of time. The noise impacts would be intermittent since the heavy construction equipment is not operational at all

times during the construction period. This noise level would be similar to that of a very noisy urban residential area (refer to **Table 3-1** of the IDEA). No significant adverse cumulative effects on the noise environment would be expected.

Land Use. The proposed installation development projects described in this IDEA and those anticipated under the MFH privatization and KC-X basing programs would have beneficial effects on the installation's organizational functions. Development of new facilities in functionally compatible areas increases the overall operational capability of the installation, resulting in long-term beneficial effects. All 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 the construction of some of the new facilities and, therefore, limit the increase in impervious surface. MacDill AFB seeks to avoid operational and environmental constraints that would result in land use conflicts, and correct existing land use conflicts through the demolition and modernization of facilities. No significant adverse cumulative effects on land use would be expected.

Air Quality. Construction and demolition activities would cumulatively result in increased criteria pollutant emissions. It is likely that several different demolition, construction, renovation, or infrastructure activities could occur simultaneously, whether IDEA projects, MFH privatization projects, or KC-X basing projects. **Sections B.1, B.2, and B.3** analyze representative installation development projects, or a sample of the largest demolition, construction, and infrastructure activities that would be expected to occur over the next 5 years. **Table B-22** shows the total air emissions from implementation of all representative projects, as well as the MFH project (AMC 2006), in one year. **Table B-22** is meant to be an example; in reality, these representative projects would not be expected to occur at the same time. As shown in **Table B-22**, if all these projects were to be implemented simultaneously, the proposed emissions would represent just a small fraction of regional air emissions and would be well below the 10 percent of regional emissions threshold; USEPA air quality standards and regulations would not be violated. No significant adverse cumulative effects on air quality would be expected.

Safety. Construction and demolition activities associated with the proposed IDEA projects, MFH privatization activities, and the KC-X basing would cumulatively increase safety risks. Ground-disturbing activities have the potential to expose workers to contamination from ERP sites, ACM, or LBP. Construction and demolition activities would be accomplished only in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances. No significant adverse cumulative effects on safety would be expected.

Geological Resources. Cumulative short-term minor adverse effects would be expected from grading, excavating, and grooming of the soil. It is estimated that the proposed IDEA projects would disturb approximately 4.1 million ft², the MFH privatization projects would disturb approximately 2.0 million ft², and the KC-X basing could disturb as much as 0.5 million ft² for a cumulative ground disturbance of approximately 6.6 million ft² (152 acres). Some construction and demolition projects would occur simultaneously but likely in different areas of the installation; these projects would also be spread out over several years. MacDill AFB would ensure that BMPs are employed during these activities to minimize impacts on soil and prevent erosion and sediment runoff. All activities would comply with the installation's SWPPP and employ erosion-control techniques such as silt fencing, sediment traps, and application of water sprays. In addition, MacDill AFB would revegetate, as appropriate, the disturbed areas with native vegetation. All grading, excavation, and recontouring of soil materials would adhere to all Federal, state, and local regulations and the MacDill AFB FPMP. No significant adverse cumulative effects on soils are expected.

Table B-22. Tons of Criteria Pollutants Produced by Representative Projects

Proposed Project	Area (ft²)	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM (tpy)
Representative IDEA Projects	2,044,840	80.6	53.3	133.7	3.4	54.6
<i>Demolish Bldg. 254 (Dormitory)</i>	25,390	1.2	0.2	2.8	0.01	0.5
<i>Demolish Unused Airfield Pavements</i>	1,000,000	24.0	40.6	40.4	1.5	17.6
<i>Demolish VQ, O'Club, and Swimming Pool</i>	75,000	3.0	0.6	10.4	0.4	1.6
<i>Construct and Renovate for Proposed BRAC Actions</i>	341,200	40.0	8.9	60.1	1.0	20.1
<i>Construct SOF University Facility</i>	50,000	1.0	0.3	1.5	0.04	0.04
<i>Construct Medical Facilities</i>	259,000	4.6	1.1	5.4	0.14	7.0
<i>Construct Parking Lot for NOAA and AFRC</i>	200,000	4.0	1.0	4.8	0.11	6.5
<i>Construct Soccer Field and Track</i>	74,250	1.0	0.2	3.0	0.05	0.5
<i>Expand Roadway off Great Egret Avenue</i>	20,000	1.8	0.4	5.3	0.15	0.8
Privatization of MFH (1 year of demolition & construction)	338,075	42.1	10.7	80.9	1.8	58.2
Total IDEA and MFH	2,382,915	122.7	64.0	214.6	5.2	99.6
<i>10% of Regional Emissions Inventory</i>		28,421	18,870	124,303	40,621	15,775

Sources: Appendix F of this IDEA, AMC 2006

Note: NEPA analysis for the KC-X basing has not yet begun, so proposed air emissions from construction activities are not included in these calculations.

Water Resources. Cumulative short-term minor adverse effects and long-term minor adverse effects would be expected. Short-term effects would be expected on groundwater and surface water resources as a result of construction activities. All construction activities would adhere to the BMPs identified in site-specific SWPPPs in compliance with the MS4 NPDES construction permit. Overall, the proposed IDEA projects, MFH privatization projects, and KC-X basing projects have the potential to result in minor adverse impacts on the underlying surficial aquifer and receiving surface water bodies, namely Hillsborough and Tampa bays, but the development of site-specific SWPPPs and adherence to the existing installation SWPPP, Hazardous Materials Management Plan, and SPCC Plan would likely result in no adverse effects.

Development activities would result in the creation of impervious surfaces and structures in the 100-year floodplain, which would be considered a long-term adverse effect. Increases in impervious surfaces would cause increases in water runoff and storm-related damage to facilities and possibly human safety. **Table B-23** shows the anticipated changes in impervious surfaces as a result of the proposed IDEA projects, MFH privatization projects, and KC-X basing projects. As a result of installation demolition

Table B-23. Anticipated Cumulative Changes in Impervious Surfaces

Project	Gain or Loss of Impervious Surfaces
Proposed IDEA Projects (Demolition) ^a	-1,200,000 ft ²
Proposed IDEA Projects (Construction) ^a	+1,800,000 ft ²
Proposed IDEA Projects (Infrastructure) ^a	+1,100,000 ft ²
MFH Privatization (Demolition) ^b	-768,000 ft ²
MFH Privatization (Construction) ^b	+640,000 ft ²
MFH Privatization (Infrastructure) ^b	+621,000 ft ²
KC-X Basing (Construction) ^c	+500,000 ft ²
Total (Net Gain)	+2,693,000 ft²

Notes:

^a Appendix A

^b Appendix C of AMC 2006

^c estimated

activities, the proposed net gain of 2.7 million ft² of new structures or pavements can and would be sited where possible in areas of the installation that were previously developed and impervious, resulting in fewer overall adverse effects. Increases in impervious surfaces or modifications to storm water systems would require coordination with the Southwest Florida Water Management District and an Environmental Resource Permit. It is likely that coordination and permitting would be done on a project-by-project basis, or for groups of projects occurring in the same temporal and spatial area.

MacDill AFB is proactive in managing floodplain acreage. All development within the 100-year floodplain is subject to the MacDill AFB FPMP. Adherence to the FPMP would ensure that potential adverse effects associated with development in the floodplain are minimized in accordance with USAF and FEMA standards. No significant cumulative adverse effects on water resources would be expected.

Biological Resources. The proposed IDEA projects, MFH privatization projects, and KC-X basing projects would be expected to result in minor adverse effects on biological resources. Sediment transport in runoff has the potential to result in adverse effects on EFH, but implementation of BMPs would reduce the potential for runoff so that no adverse effects would be expected. 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. It is not anticipated that implementation of installation development, MFH, or KC-X basing projects would result in the incremental loss of valuable habitat because most projects are proposed in developed areas of MacDill AFB. Furthermore, none of the proposed IDEA, MFH, or KC-X basing projects would be expected to occur in delineated wetlands, so no cumulative effects on wetlands would be expected. Project sites that are in the vicinity of wetlands would be preceded by wetland delineations so that wetlands can be avoided; this would require coordination with the USACE and Southwest Florida Water Management District prior to implementation. Overall, no significant adverse cumulative effects on biological resources would be expected.

Cultural Resources. No cumulative effects on archaeological sites, or other sites of traditional, cultural, or religious significance would be expected because these sites would be avoided during all development activities. There is the potential for long-term adverse cumulative effects as a result of modifications to structures within the historic districts or modifications to NRHP-eligible Cold War buildings. The IDEA

identifies modifications to the MacDill Field Historic District and Buildings 501 and 540. Furthermore, it is anticipated that the KC-X basing project would require construction within or modifications to historic hangars in MacDill Field as well. The MFH privatization project would result in the demolition of the SOQ Historic District. Consultation with the SHPO is required before modifications to any historic structures or within historic districts and is undertaken in accordance with Section 106 of the NHPA. MacDill AFB's ICRMP identifies installation policies for coordination. Consultation regarding individual or grouped projects would likely occur until either a Memorandum of Agreement or Programmatic Agreement is reached stipulating the specific measures that will be undertaken to reduce or mitigate for adverse effects on historic properties.

Socioeconomics. The proposed IDEA projects, MFH projects, and KC-X basing projects would cumulatively result in minor short-term beneficial effects on the socioeconomic environment. Procurement of goods and services would stimulate the local economy and create jobs in the short-term, and the KC-X basing would likely result in several personnel authorizations. However, most effects would be localized on MacDill AFB and not be noticeable in the surrounding urban Tampa area. No significant adverse cumulative effects on socioeconomics would be expected.

Infrastructure. The proposed IDEA projects, MFH projects, and KC-X basing projects would cumulatively be expected to result in major long-term beneficial effects on infrastructure systems. Removal of old, outdated structures and replacement with new and more efficient structures and utility systems would be expected to reduce the overall use of electricity, potable water, and sanitary sewer systems. Construction and expansion of parking lots and roads would improve installation traffic and circulation. Short-term adverse effects might occur as a result of interruptions to utility service during installation activities, but these would be localized and minor.

Demolition, construction, and infrastructure projects would result in long-term minor adverse effects as a result of increased solid waste generation. As indicated in **Table B-24**, approximately 131,407 tons would be generated. Clean demolition and construction debris (e.g., concrete, asphalt) would be ground, recycled, and used for fill and road work rather than disposed in a landfill. Waste that is landfilled would be the responsibility of the construction contractor and hauled to a government-approved landfill off MacDill AFB. Overall, no significant adverse effects on infrastructure would be expected.

Table B-24. Anticipated Cumulative Generation of Construction and Demolition Debris

Proposed Project	Project Size (ft ²)	Multiplier (pounds/ft ²)	C&D Waste Generated	
			pounds	tons
Proposed IDEA Projects (Demolition)	1,200,000	127	152,400,000	76,200
Proposed IDEA Projects (Construction)	1,800,000	4.38	7,884,000	3,942
MFH Privatization (Demolition)	768,000	127	97,536,000	48,768
MFH Privatization (Construction)	640,000	4.38	2,803,200	1,402
KC-X Basing (Construction)	500,000	4.38	2,190,000	1,095
Total			262,813,200	131,407

Source: Estimated using USEPA 1998

Hazardous Materials and Waste. The proposed IDEA projects, MFH privatization projects, and KC-X basing projects would cumulatively result in minor short-term adverse effects as a result of construction and demolition activities. Construction and demolition 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. ACM and LBP could be encountered during demolition and renovation of older buildings, but sampling, handling, and disposal of these materials would be in accordance with existing management plans.

The proposed construction and demolition activities for many identified projects are sited on ERP sites. Additionally, other facilities could be sited on ERP sites that might have contaminated groundwater or soil. The occupants of the facilities built on ERP sites would not use the groundwater that is the source of contamination and therefore there would be no harm to the people. Facilities or infrastructure that would be used recreationally or where people could encounter contaminated soil, such as the proposed soccer field or track, would not be constructed where potential soil contamination exists.

There is the potential for construction workers to encounter contamination from ERP sites during construction or during the utilities trench digging to run new utility lines. Therefore, a health and safety plan would be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers performing soil removal activities with ERP Sites are required to have OSHA 40-hour HAZWOPPER training. Supervisors are also required to have an OSHA Site Supervisor certification. Should unexpected contamination be encountered, handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and MacDill AFB programs and procedures. HAZWOPPER regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR 1926. The Hazardous Sites Cleanup Act 108 of 1988 provides the regulations for the cleanup of hazardous waste sites, and response and investigation for liability and cost recovery; and established the Hazardous Sites Cleanup Fund. No significant adverse cumulative effects as a result of hazardous materials and wastes, ACM and LBP, and ERP sites would be expected.

B.6 Additional References

In addition the references cited in **Section 7** of the IDEA, the following references were used to develop this appendix:

- | | |
|------------|--|
| AMC 2006 | Air Mobility Command (AMC). 2006. <i>Preliminary Draft Environmental Assessment of the Privatization of Military Family Housing at MacDill Air Force Base, Florida</i> . Prepared by e ² M. September 2006. |
| USEPA 1998 | U.S. Environmental Protection Agency (USEPA). 1998. <i>Characterization of Building-Related Construction and Demolition Debris in the United States</i> . Prepared by Franklin Associates. June 1998. |

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APPENDIX C

APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANNING CRITERIA

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Appendix C

Applicable Laws, Regulations, Policies, and Planning Criteria

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

Noise

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

Land Use

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

Air Quality

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

An agency should consider what effect an action could have on NAAQS due to short-term increases in air pollution during construction as well as long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a Federal agency might also be subject to USEPA's Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives Federal immunity from complying with the CAA and states all Federal agencies will comply with all Federal- and state-approved requirements.

Safety

AFI 91-202, *USAF Mishap Prevention Program*, implements Air Force Policy Directive (AFPD) 91-2, *Safety Programs*. It establishes mishap prevention program requirements (including the Bird/Wildlife Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information. This instruction applies to all USAF personnel.

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, implements AFPD 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

Water Resources

The Clean Water Act (CWA) of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, is administered by USEPA, and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires USEPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by USEPA or the appropriate state if it has assumed responsibility. Section 404 of the CWA establishes a Federal program to regulate the discharge of dredge and fill material into waters of the United States. Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands that are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into U.S. waters from construction, or the discharge of pollutants as a result of facility occupation.

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

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

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

The Wild and Scenic Rivers Act of 1968 provides for a wild and scenic river system by recognizing the remarkable values of specific rivers of the Nation. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for the enjoyment of present and future generations. Any river in a free-flowing condition is eligible for inclusion, and can be authorized as such by an Act of Congress, an act of state legislature, or by the Secretary of the Interior upon the recommendation of the governor of the state(s) through which the river flows.

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

Biological Resources

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

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties and conventions between the United States, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless otherwise permitted by regulations, the MBTA makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The MBTA also makes it unlawful to ship, transport or carry from one state, territory or district to another, or through a foreign country, any bird, part, nest, or egg that was captured, killed, taken, shipped, transported, or carried contrary to the laws from where it was obtained; and import from Canada any bird, part, nest, or egg obtained contrary to the laws of the

province from which it was obtained. The U.S. Department of the Interior has authority to arrest, with or without a warrant, a person violating the MBTA.

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

EO 11990, *Protection of Wetlands* (May 24, 1977) directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

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

Cultural Resources

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

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

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

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

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

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

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

Socioeconomics and Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994) directs Federal agencies to make achieving environmental justice part of

their mission. Agencies must identify and address the adverse human health or environmental effects that its activities have on minority and low-income populations, and develop agency-wide environmental justice strategies. The strategy must list “programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health of and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations.” A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. Responsibility for compliance with EO 12898 is with each Federal agency.

Hazardous Materials and Waste

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes USEPA to respond to spills and other releases of hazardous substances to the environment, and authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA also provides a Federal “Superfund” to respond to emergencies immediately. Although the “Superfund” provides funds for cleanup of sites where potentially responsible parties cannot be identified, USEPA is authorized to recover funds through damages collected from responsible parties. This funding process places the economic burden for cleanup on polluters.

The Pollution Prevention Act (PPA) of 1990 encourages manufacturers to avoid the generation of pollution by modifying equipment and processes, redesigning products, substituting raw materials, and making improvements in management techniques, training, and inventory control. EO 12856, *Federal Compliance with Right-to Know Laws and Pollution Prevention Requirements* (August 3, 1993) requires Federal agencies to comply with the provisions of the PPA and requires Federal agencies to ensure all necessary actions are taken to prevent pollution. In addition, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to Federal agencies on how to “incorporate pollution prevention principles, techniques, and mechanisms into their planning and decision making processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA.”

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

The Superfund Amendments and Reauthorization Act (SARA) of 1986 mandates strong clean-up standards and authorizes USEPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which requires facility operators with “hazardous substances” or “extremely hazardous substances” to prepare comprehensive emergency plans and to report accidental releases. EO 12856 requires Federal agencies to comply with the provisions of EPCRA. If a Federal agency acquires a contaminated site, it can be held liable for clean-up as the property owner/operator. A Federal agency can also incur liability if it leases a property, as the courts have found lessees liable as “owners.” However, if the agency exercises due

diligence by conducting a Phase I Environmental Site Assessment, it can claim the “innocent purchaser” defense under CERCLA. According to Title 42 U.S. Code (U.S.C.) 9601(35), the current owner/operator must show it undertook “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” before buying the property to use this defense.

The Toxic Substance Control Act (TSCA) of 1976 consists of four titles. Title I established requirements and authorities to identify and control toxic chemical hazards to human health and the environment. TSCA authorized USEPA to gather information on chemical risks, require companies to test chemicals for toxic effects, and regulate chemicals with unreasonable risk. TSCA also singled out polychlorinated bi-phenyls (PCBs) for regulation, and, as a result, PCBs are being phased out. PCBs are persistent when released into the environment and accumulate in the tissues of living organisms. They have been shown to cause adverse health effects on laboratory animals and can cause adverse health effects in humans. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, clean-up, and release reporting requirements for numerous chemicals like PCBs. TSCA Title II provides statutory framework for “Asbestos Hazard Emergency Response,” which applies only to schools. TSCA Title III, “Indoor Radon Abatement,” states indoor air in buildings of the United States should be as free of radon as the outside ambient air. Federal agencies are required to conduct studies on the extent of radon contamination in buildings they own. TSCA Title IV, “Lead Exposure Reduction,” directs Federal agencies to “conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards.” Further, any Federal agency having jurisdiction over a property or facility must comply with all Federal, state, interstate, and local requirements concerning lead-based paint.

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APPENDIX D
INTERAGENCY COORDINATION AND PUBLIC REVIEW

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND

MEMORANDUM FOR DISTRIBUTION

18 January 2006

FROM: HQ AMC/A75
507 Symington Drive
Scott AFB IL 62225-5022

SUBJECT: Description of Proposed Action and Alternatives (DOPAA) for Installation Development (ID) at MacDill Air Force Base (AFB), Florida

1. The Air Mobility Command is preparing an Environmental Assessment (EA) of Installation Development (ID) at MacDill AFB. Consistent with the MacDill Air Force Base Commander's Vision, MacDill AFB proposes numerous future installation projects to ensure MacDill AFB can meet its required operations for the future national security of the United States. Under the Proposed Action, numerous projects such as capital improvements, utilities upgrades, community living upgrades, infrastructure upgrades, new facilities, demolition of aging facilities, and recreation would be planned until 2015. The DOPAA is included with this correspondence.
2. The environmental impact analysis process for the Proposed Action and the No Action Alternative is being conducted by the Air Mobility Command in accordance with the Council on Environmental Quality guidelines pursuant to the requirements of the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached DOPAA and solicit your comments concerning the proposal and any potential environmental consequences. Also enclosed is the distribution list of those Federal, state, and local agencies that have been contacted. If there are any additional agencies that you feel should review and comment on the proposal, please include them in your distribution of this letter and the attached materials.
3. Please provide any comments or information directly to HQ AMC/A75, 507 Symington Dr., Scott AFB, IL 62225-5022 by 21 February 2006.
4. If members of your staff have any questions, our point of contact is Mr. Doug Allbright, HQ AMC/A75C, (618) 779-0846, or e-mail to doug.allbright@scott.af.mil.

MICHAEL W. HUTCHISON, Colonel USAF
Chief, Plans and Programs Division
Directorate of Installations & Mission Support

2 Attachments:

1. DOPAA
2. DISTRIBUTION: (listed on next page)

AMC— GLOBAL REACH FOR AMERICA

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**Environmental Assessment for the Installation Development at
MacDill Air Force Base, Florida**

Interagency and Intergovernmental Coordination for Environmental Planning List

U.S. Fish and Wildlife Service
Attn: Linda Smith
9549 Koger Blvd.
Suite 111
St. Petersburg, FL 33702

Division of Historical Resources
Compliance Review Section
Attn: Laura Kammerer, Deputy SHPO
500 South Bronough Street
Tallahassee, FL 32399-0250

Florida Coastal Management Program
Department of Environmental Protection
Attn: Jasmine Ruffington
3900 Commonwealth Blvd., MS 47
Tallahassee, FL 32399-3000

Florida State Clearinghouse
Department of Environmental Protection
Attn: Lauren Milligan
3900 Commonwealth Blvd., MS 47
Tallahassee, FL 32399-3000

U.S. Army Corps of Engineers
Mobile District
P.O. Box 6230
MacDill AFB, FL 33608-6230

National Marine Fisheries Service
Attn: David Dale
263 13th Avenue South
St. Petersburg, FL 33701

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**UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5317; FAX 824-5300
<http://sero.nmfs.noaa.gov>

January 27, 2006 F/SER46:MS/mt

Mr. Doug Allbright
HQ AMC/A75
507 Symington Drive
Scott Air Force Base, Illinois 62225-5022

Dear Mr. Allbright:

RE: Description of Proposed Action and Alternatives (DOPAA) for Installation Development (ID) At MacDill Air Force Base (AFB), Florida.

The National Marine Fisheries Service (NMFS), Southeast Region, Habitat Conservation Division, has reviewed your letter and accompanying Description of the Proposed Action Alternatives dated January 18, 2006. The Air Mobility Command is preparing an Environmental Assessment (EA) of multiple proposed Installation Development activities at MacDill Air Force Base, adjacent to Tampa Bay, in Hillsborough County, Florida.

Estuarine habitats within the project area are designated as Essential Fish Habitat (EFH) as identified in the 2006 generic amendment of the Fishery Management Plans for the Gulf of Mexico. The generic amendment was prepared by the Gulf of Mexico Fishery Management Council as required by the 1996 amendment to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Estuarine emergent wetlands are a specific category of EFH that may be impacted by the proposed projects. Federal agencies which permit, fund, or undertake activities which may adversely impact EFH are required to consult with NMFS and, as a part of the consultation process, prepare an EFH assessment. Regulations require that EFH assessments include:


1. A description of the proposed action;
2. An analysis of the effects (including cumulative effects) of the proposed action on EFH, the managed fish species, and major prey species;
3. The Federal agency's views regarding the effects of the action on EFH; and,
4. Proposed mitigation, if applicable.



EFH consultation should be initiated as soon as specific project design and construction impact information are available. EFH consultation can be initiated independent of other project review tasks or can be incorporated in environmental planning documents. Upon review of the EFH assessment, NMFS will determine if it is necessary to provide EFH conservation recommendations on the project.

If you have questions regarding preparation of an EFH assessment for this project, please contact Mr. Mark Thompson in our Panama City Field Office by calling (850) 234-5061, or e-mail at Mark.Thompson@noaa.gov.

Sincerely,


for Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

cc:
F/SER4
F/SER46



FLORIDA DEPARTMENT OF STATE
Sue M. Cobb
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Mr. Michael W. Hutchinson, Colonel USAF
Directorate of Installations & Mission Support
HQ AMC/A75
507 Symington Drive
Scott Air Force Base, IL 62225-5022

February 20, 2006

RE: DHR Project File Number: 2006-367
Received by DHR January 23, 2006
Description of the Proposed Action and Alternatives for the Installation Development at
MacDill Air Force Base, Hillsborough County

Dear Colonel Hutchinson:

Our office received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended and *36 CFR Part 800: Protection of Historic Properties* and the *National Environmental Policy Act of 1969*, as amended. The State Historic Preservation Officer is to advise Federal agencies as they identify historic properties (listed or eligible for listing in the *National Register of Historic Places*), assess effects upon them, and consider alternatives to avoid or minimize adverse effects.

Thank you for providing our office advance notice for the above-referenced project. We look forward to continuing our mutually beneficial dialogue for any future plans that may involve "construction within or demolition of cultural resource sites" mentioned on page 2-3.

If you have any questions concerning our comments, please contact James Toner, Historic Sites Specialist, by electronic mail at jtoner@dos.state.fl.us, or at 850-245-6333 or 800-847-7278.

Sincerely,

Frederick P. Gaske, Director, and
State Historic Preservation Officer

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

Director's Office
(850) 245-6300 • FAX: 245-6436

Archaeological Research
(850) 245-6444 • FAX: 245-6452

Historic Preservation
(850) 245-6333 • FAX: 245-6437

Historical Museums
(850) 245-6400 • FAX: 245-6433

Southeast Regional Office
(954) 467-4990 • FAX: 467-4991

Northeast Regional Office
(904) 825-5045 • FAX: 825-5044

Central Florida Regional Office
(813) 272-3843 • FAX: 272-2340

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The Draft IDEA and Draft FONSI/FONPA were made available for public review from August 2 through September 1, 2006. The below Notice of Availability was published in the *Tampa Tribune* on August 2, 2006. All responses received to date are included on the following pages.

**Notice of Availability
Finding of No Significant Impact for the
Environmental Assessment of Installation Development at MacDill
AFB, Florida**

The United States Air Force Air Mobility Command (AMC) and MacDill Air Force Base, Florida are proposing to issue a Finding of No Significant Impact (FONSI)/Finding of No Practical Alternative based on an Environmental Assessment (EA) of Installation Development on MacDill AFB. The analysis considered potential effects of the proposed action on eleven resource areas: airspace management, air quality, noise, safety, hazardous materials and waste management, geological resources, water resources, biological resources, land use, cultural resources, and socioeconomics and environmental justice. The results, as found in the EA, show that the future proposed installation development projects would not have a significant impact on the environment – indicating that a FONSI/FONPA would be appropriate. An Environmental Impact Statement should not be necessary to implement the proposed action.

Copies of the FONSI/FONPA and the EA showing the analysis are available for review until 1 September 2006 at the Tampa/Hillsborough County Public Library, located at 900 N. Ashley Drive, Tampa, FL 33606. The documents may be found in the Humanities Section of the Main Library. Address written comments to the 6 AMW Public Affairs, 8209 Hangar Loop Drive, Suite 14, MacDill AFB, FL 33621-5502. The telephone number is (813) 828-2215.

The Privacy Advisory below appeared on the Cover Sheet of the Draft IDEA.

Privacy Advisory

Your comments on this EA are welcome. Letters or other written comments provided to the proponent concerning this document may be published in the EA. Comments will normally be addressed in the EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EA. However, only the names of the individuals making comments and specific comments will be disclosed; personal home addresses and phone numbers will not be published in the EA.

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Jeb Bush
Governor

Department of Environmental Protection

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

Colleen M. Castille
Secretary

September 26, 2006

Mr. Jason W. Kirkpatrick
Department of the Air Force
6 CES / CEVN
2610 Pink Flamingo Avenue, Bldg. 147
MacDill AFB, FL 33621-5207

RE: Department of the Air Force – Draft Environmental Assessment and FONSI,
Installation Development at MacDill Air Force Base – Hillsborough County, Florida.
SAI # FL200608032659C

Dear Mr. Kirkpatrick:

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

The Florida Department of Environmental Protection's (DEP), Southwest District office has reviewed the project and notes that there are no proposed wetland impacts related to the projects. The proposed construction projects may require Environmental Resource Permits (ERP) for stormwater management if new impervious surfaces are built on existing pervious areas, or existing impervious areas and stormwater discharges are modified. The Southwest Florida Water Management District is the responsible permitting agency for stormwater ERPs. Best Management Practices should be utilized during all construction activities to prevent the discharge of sediments into Tampa Bay.

The DEP's Division of Waste Management has reviewed the proposed project and notes that two projects, removal of underground storage tanks and demolition of Pumphouse 75, are contained within and found consistent with the Waste Management Installation Restoration Program. If other construction activities occur within the restoration program boundaries, the projects will be reviewed by the MacDill Partnering Team and coordinated with the DEP Bureau of Waste Cleanup.

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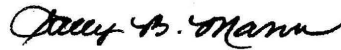
Mr. Jason Kirkpatrick
September 26, 2006
Page 2 of 2

The Hillsborough County Environmental Protection Commission (EPC) advises that wetlands on-site should be delineated, all efforts should be taken to avoid or reduce wetland impacts, and authorization from the EPC's Wetlands Management Division would be required for any proposed wetland impacts. Should the DEA projects cause an air pollution nuisance, the EPC's Air Management Division may require a plan to address and mitigate any dust, odor, or noise emissions caused by the construction/demolition activities. Please also note that asbestos demolition notification is required for all commercial facilities, military installations, and certain residential structures. For further information and details, please refer to the enclosed letter from the Hillsborough County EPC.

Based on the information contained in the DEA and the enclosed state agency comments, the state has determined that, at this stage, the proposed federal activities are consistent with the Florida Coastal Management Program (FCMP). The federal agency must, however, address the concerns identified by our reviewing agencies prior to project implementation. The state's continued concurrence with the proposal 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 this proposal. If you have any questions regarding this letter, please contact Ms. Jacqueline Larson at (850) 245-2182.

Sincerely,



Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/jl
Enclosures

cc: Brenda Williams, DEP, Southwest District
Linda Frohock, DEP, DWM
John Meyer, TBRPC
Daniel Alberdi, Hillsborough County EPC



Florida

Department of Environmental Protection

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Project Information	
Project:	FL200608032659C
Comments Due:	09/05/2006
Letter Due:	10/01/2006
Description:	DEPARTMENT OF THE AIR FORCE - DRAFT ENVIRONMENTAL ASSESSMENT OF INSTALLATION DEVELOPMENT AT MACDILL AIR FORCE BASE - HILLSBOROUGH COUNTY, FLORIDA.
Keywords:	USAF - DEA OF INSTALLATION DEVELOPMENT AT MACDILL AFB - HILLSBOROUGH CO.
CFDA #:	12.200
Agency Comments:	
TAMPA BAY RPC - TAMPA BAY REGIONAL PLANNING COUNCIL	
No Comment	
HILLSBOROUGH - HILLSBOROUGH COUNTY	
The Hillsborough County Environmental Protection Commission (EPC) advises that wetlands on-site should be delineated, all efforts should be taken to avoid or reduce wetland impacts, and authorization from the EPC's Wetlands Management Division would be required for any proposed wetland impacts. Should the DEA projects cause an air pollution nuisance, the EPC's Air Management Division may require a plan to address and mitigate any dust, odor, or noise emissions caused by the construction/demolition activities. Please also note that asbestos demolition notification is required for all commercial facilities, military installations, and certain residential structures. For further information and details, please refer to the enclosed letter from the Hillsborough County EPC.	
COMMUNITY AFFAIRS - FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS	
FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION	
No Comments	
STATE - FLORIDA DEPARTMENT OF STATE	
No Comments Received	
TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION	
No Comment/Consistent	
ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	
The DEP Southwest District office has reviewed the project and notes there are no proposed wetland impacts related to the project. The proposed construction projects may require Environmental Resource Permits (ERP) for stormwater management if new impervious surfaces are built on existing pervious areas, or existing impervious areas are changed so that points of stormwater discharges are changed or the new activity increases pollutant loading. The Southwest Florida Water Management District is the responsible permitting agency for stormwater ERPs. Best Management Practices should be utilized during all construction activities to prevent the discharge of sediments into Tampa Bay. The DEP's Division of Waste Management has reviewed the proposed project and notes that two projects, removal of underground storage tanks and demolition of Pumphouse 75, are contained within and found consistent with the Waste Management Installation Restoration Program. If other construction activities occur within the restoration program boundaries, the projects will be reviewed by the MacDill Partnering Team and coordinated with the DEP Bureau of Waste Cleanup.	
SOUTHWEST FLORIDA WMD - SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT	
No Comments	

For more information please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000

COMMISSION
Brian Blair
Kathy Castor
Ken Hagan
Jim Norman
Thomas Scott
Mark Sharpe
Ronda Storms



Roger P. Stewart Center
3629 Queen Palm Dr. • Tampa, FL 33619
Ph: (813) 627-2600

Fax Numbers (813):
Admin. 627-2620 Waste 627-2640
Legal 627-2602 Wetlands 627-2630
Water 627-2670 ERM 627-2650
Air 627-2660 Lab 272-5157

Executive Director
Richard D. Garrity, Ph.D.

September 15, 2006

John M. Meyer
Tampa Bay Regional Planning Council
4000 Gateway Centre Boulevard, Suite 100
Pinellas Park, Florida 33782

SUBJECT: EPC REVIEW OF SAI: FL200608032659C/ DRAFT ENVIRONMENTAL ASSESSMENT FOR INSTALLATION DEVELOPMENT AT MACDILL AIR FORCE BASE/ RECEIVED BY EPC AUGUST 21, 2006

Dear Mr. Meyer:

Staff from the Environmental Protection Commission of Hillsborough County ("EPC") has conducted a preliminary review of the subject Draft Environmental Assessment (the "DEA") and offers the following comments.

EPC Wetlands Management Division

1. The subject property contains wetland areas, which have not been delineated pursuant to Chapter 1-11, Wetlands, Rules of the EPC. Prior to any construction-related or land alteration activities, the wetland areas should be delineated. Knowledge of the actual extent of the wetlands is necessary in order to verify the avoidance of wetland impacts in accordance with Chapter 1-11 requirements. Development within wetlands of Hillsborough County which destroys, reduces, or impairs the wetland or which contributes to the present or potential future destruction, reduction, or impairment of the environmental benefits provided by the wetland, or a portion thereof, constitutes pollution as defined by Chapter 84-446, Laws of Florida, as amended. Impacts to wetlands are prohibited except unless specifically authorized in writing by the EPC Executive Director or his authorized agent. Pursuant to EPC Wetland Rule Section 1-11.07(1), Rules of the EPC, "[w]ritten authorization may be given to conduct proposed development affecting wetlands only if reasonable use of the land cannot be accomplished without affecting the wetland."
2. EPC staff requires that all efforts be taken to avoid or reduce wetland impacts prior to submittal of any plans. The size, location, and configuration of the wetlands may result in requirements to reduce or reconfigure proposed building footprints, re-align

www.epchc.org
E-Mail: eninfo@epchc.org

roadways, and make other changes necessary to avoid or minimize wetland impacts. If the applicant chooses to proceed with any proposed wetland impact, a separate wetland impact/mitigation proposal and appropriate fees must be submitted to this agency for review. Please be aware that EPC staff cannot approve plans at the construction phase if unapproved wetland impacts are depicted.

3. Any activity interfering with the integrity of wetland(s), such as clearing, excavating, draining or filling, without written authorization from the Executive Director of the EPC or his authorized agent, pursuant to Section 1-11.07, Rules of the Commission, would be a violation of Section 17 of the Environmental Protection Act of Hillsborough County, Chapter 84-446, and Chapter 1-11, Rules of the EPC.
4. Review of this DEA by EPC staff does not constitute a guarantee that the Environmental Protection Commission approvals/permits necessary for any development as proposed will be issued, does not itself serve to justify any impact to wetlands, and does not grant any implied or vested right to environmental approvals.
5. At any time prior to approval of any land alteration/construction plans for this project, EPC staff may identify other legitimate concerns as they become obvious.

Air Management Division

1. Should the DEA projects cause an air pollution nuisance, the Air Management Division may require a plan to address and mitigate any emissions of dust, odor, or noise caused by construction/demolition activities.
2. In Hillsborough County, asbestos demolition notification is required for all commercial facilities and military installations, and for demolition projects involving residential structures with more than four dwelling units, or if the demolition of more than one residential structure is planned. In addition, any regulated removal of asbestos containing materials from structures to be renovated or demolished requires notification. Notification and appropriate fee must be submitted to the EPC at least ten working days prior to the regulated renovation or demolition activity. For both demolitions and renovations, include a copy of the asbestos survey report with the notice. Waste materials must be properly handled and disposed of per local, state, and federal regulation. Contact our office or visit <http://www.epchc.org/Asbestos.htm> for more information concerning asbestos notification requirements.
3. All open burning is prohibited unless authorized by EPC. An air pollution permit is required for potential industrial sources of air pollution that meet or exceed the pollutant criteria established by rule.
4. The emergency power generators and fuel storage tanks with capacities less than 500 gallons that will be installed can be considered insignificant and incorporated in the next Title V permit opening (either revision or renewal).

Mr. John Meyer
September 15, 2006
Page 3

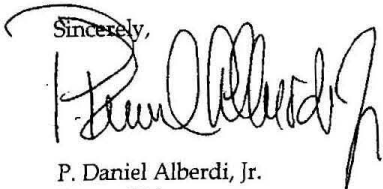
5. The applicant is subject to the provisions on Chapter 1-10, Rules of the EPC, which requires adherence to the following:

Construction activities occurring between the hours of 7 a.m. and 6 p.m. Monday through Friday, 8 a.m. and 6 p.m. Saturday, and 10 a.m. and 6 p.m. Sunday are exempt if reasonable precautions are taken to abate the noise from those activities. Reasonable precautions shall include but not be limited to noise abatement measures such as enclosure of the noise source, use of acoustical blankets, and change in work practice. Construction activities occurring at all other times shall be subject to the Rule.

The above comments are not inclusive and may be amended based on additional data and further review. Please be advised, these comments do not exempt the applicant from any permitting or notification requirements. It is the responsibility of the applicant to comply with all applicable rules and regulations on a continuing basis.

If you have any questions or need further assistance, please feel free to call me at (813) 627-5960, extension 1266.

Sincerely,



P. Daniel Alberdi, Jr.
General Manager
Wetlands Management Division
Environmental Protection Commission
of Hillsborough County

cc: Jason Kirkpatrick, MacDill AFB
Lauren Milligan, FDEP



FLORIDA DEPARTMENT OF STATE
Sue M. Cobb
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Mr. Jason Kirkpatrick
6 CES/CEVN
2610 Pink Flamingo Avenue
MacDill AFB, Florida 33621

October 12, 2006

Re: DHR Project File No.: 2006-7815 / Received by DHR: August 2, 2006
United States Air Force
Draft Finding of No Significant Impact (FONSI)/Finding of No Practical Alternative (FONPA)
Environmental Assessment (EA) of Installation Development at MacDill Air Force Base, Florida
Hillsborough County

Dear Mr. Kirkpatrick:

Our office received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended; and the National Environmental Policy Act, as amended; and implementing regulations. The purpose for this review was to identify possible impacts to historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The State Historic Preservation Officer is to advise and assist federal agencies when identifying historic properties, assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

This was a thorough evaluation and submission. We look forward to working with the personnel at MacDill Air Force Base to preserve the historic properties addressed in Section 3.8, particularly the Staff Officer's Quarters Historic District (SOQ Historic District). The importance of these historic properties is aptly described on pages 3-26 and 3-27:

"The SOQ District is on the east side of the base along Staff Loop and includes six structures.... Like the MacDill Field Historic District, the SOQ Historic District is eligible for the NRHP under Criteria A and C. The SOQ Historic District provided housing for the operations commanders at MacDill AFB during World War II. It displays a cohesiveness of design and continuity of workmanship and materials in a setting that retains architecture and landscape integrity...."

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

☐ Director's Office
(850) 245-6300 • FAX: 245-6436

☐ Archaeological Research
(850) 245-6444 • FAX: 245-6452

☑ Historic Preservation
(850) 245-6333 • FAX: 245-6437

☐ Historical Museums
(850) 245-6400 • FAX: 245-6433

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(954) 467-4990 • FAX: 467-4991

☐ Northeast Regional Office
(904) 875-5045 • FAX: 875-5044

☐ Central Florida Regional Office
(407) 327-2812 • FAX: 327-2812

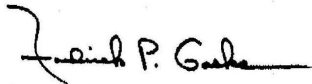
Mr. Jason Kirkpatrick
October 12, 2006
Page 2

However, we note that the ongoing Section 106 consultation regarding the demolition of the SOQ Historic District for a visitor's quarters/club was not "a component of this analysis." Is that because it is ongoing, and, therefore, excluded from inclusion in this EA?

Finally, we note that Appendix A is a list of proposed installation development projects, including numerous modification, demolition and new construction projects. How was the evaluation and determination of a FONSI/FONPA assessed with regards to historic properties? Were cumulative effects of five years of modifications and demolition of historic properties, and new construction considered during the analysis?

If you have any questions concerning our comments, please contact **James Toner, Historic Sites Specialist**, by electronic mail at jtoner@dos.state.fl.us, or at 850-245-6333. Thank your for helping us to preserve Florida's cultural resources.

Sincerely,



Frederick P. Gaske, Director, and
State Historic Preservation Officer



Jeb Bush
Governor

Department of Environmental Protection

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

Colleen M. Castille
Secretary

October 16, 2006

Mr. Jason W. Kirkpatrick
Department of the Air Force
6 CES / CEVN
2610 Pink Flamingo Avenue, Bldg. 147
MacDill AFB, FL 33621-5207

RE: Department of the Air Force – Draft Environmental Assessment and FONSI, Installation
Development at MacDill Air Force Base – Hillsborough County, Florida.
SAI # FL200608032659C

Dear Mr. Kirkpatrick:

The enclosed comments provided by the Florida Department of State (DOS) were received after our previous letter, dated September 26, 2006, was mailed. Please be advised that these comments do not change our finding that, at this stage, the federal activities are consistent with the Florida Coastal Management Program. Please continue to coordinate with the DOS Division of Historical Resources to ensure protection of historic properties in the proposed project area.

If you have any questions or need further assistance, please don't hesitate to contact me at (850) 245-2170.

Sincerely,

Lauren P. Milligan
Environmental Consultant
Office of Intergovernmental Programs

LPM/vh
Enclosure

cc: Laura Kammerer, DOS

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FLORIDA DEPARTMENT OF STATE
Sue M. Cobb
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Ms. Lauren Milligan
Florida State Clearinghouse
3900 Commonwealth Boulevard MS 47
Tallahassee, FL 32399-3000

October 12, 2006

RECEIVED

OCT 13 2006

OIP / OLGA

RE: DHR Project File Number: 2006-7600
Received by DHR: August 8, 2006
SAI #: FL 200608032659C
United States Air Force
Draft Environmental Assessment of Installation Development
MacDill Air Force Base, Hillsborough County

Dear Ms. Milligan:

Our office received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992, and *36 C.F.R., Part 800: Protection of Historic Properties*, Chapter 267, *Florida Statutes*, Florida's Coastal Management Program, and implementing state regulations, for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*, or otherwise of historical, architectural or archaeological value. The State Historic Preservation Officer (SHPO) is to advise and assist state and federal agencies when identifying historic properties, assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

We note that Appendix A is a list of proposed installation development projects that include numerous demolition, modification, and new construction projects. How was the evaluation and determination of a FONSI/FONPA assessed with regards to historic properties? Were cumulative effects of five years of modifications and demolition of historic properties, and construction considered during the analysis?

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

<input type="checkbox"/> Director's Office (850) 245-6300 • FAX: 245-6436	<input type="checkbox"/> Archaeological Research (850) 245-6444 • FAX: 245-6452	<input checked="" type="checkbox"/> Historic Preservation (850) 245-6333 • FAX: 245-6437	<input type="checkbox"/> Historical Museums (850) 245-6400 • FAX: 245-6433
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Ms. Milligan
October 11, 2006
Page 2

If you have any questions, **please contact James Toner, Historic Sites Specialist, by electronic mail at jtoner@dos.state.fl.us, or at 850-245-6333.** Thank you for assisting us to preserve Florida's historic resources.

Sincerely,

A handwritten signature in black ink that reads "Frederick P. Gaske". The signature is written in a cursive style with a long horizontal line extending to the right.

Frederick P. Gaske, Director, and
State Historic Preservation Officer

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APPENDIX E
MACDILL AFB FLOODPLAIN MANAGEMENT PLAN

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**FLOODPLAIN MANAGEMENT PLAN
MACDILL AIR FORCE BASE, FLORIDA**



HEADQUARTERS AIR MOBILITY COMMAND



July 2006

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Floodplain Management Plan MacDill Air Force Base, Florida

HEADQUARTERS AIR MOBILITY COMMAND
COMMUNITY PLANNING BRANCH
507 SYMINGTON DRIVE
SCOTT AIR FORCE BASE, ILLINOIS 62225-5022

July 2006

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Executive Summary

MacDill Air Force Base (MAFB) developed this floodplain management plan (FPMP) to guide future actions that are being considered for location in the 100-year floodplain. Executive Order (EO) 11988 seeks to avoid construction of facilities or structures within floodplains to reduce the risk of flood loss; to minimize the impact of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Some of these beneficial values include an increase in water quality through the prevention of erosion and other biological damage such as wave and water damage. Approximately 80 percent (4,510 acres) of the landmass at MAFB is in the 100-year floodplain. The portions of the installation outside the 100-year floodplain are designated primarily for airfield operations and support facilities. This document provides an overview of regulations, an inventory of structures and assets located in the floodplain, and guidelines for future development.

The U.S. Air Force (USAF) is required to prepare a Finding of No Practicable Alternative (FONPA) in accordance with EO 11988, *Floodplain Management* and 32 Code of Federal Regulations (CFR) 989 Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process (EIAP)* when no practical alternative site can be identified. FONPAs are prepared in conjunction with EIAP and are attached to a Finding of No Significant Impact (FONSI) or a Record of Decision (ROD). On 11 December 2000, The Deputy Under Secretary for Environmental Safety and Occupational Health (SAF/MIQ) delegated approval authority of Environmental Assessments (EA) to the Air Force Civil Engineer, HQ USAF/IL, where impacts to wetlands and floodplains could not be avoided. In a March 2003 memorandum, AMC/CV re-delegated this authority to AMC/A7.

A FONPA is required before construction can begin in the floodplain at MacDill AFB. The project EIAP documentation along with the FONPA requires Headquarters (HQ) Air Mobility Command (AMC) approval. This approval cycle at MacDill AFB is time consuming and delays the start of many projects by months. To streamline the MacDill AFB EIAP, this document will serve as a guide to be followed when proposing or conducting activities within the 100-year floodplain. It would also serve as a reference for future FONPA documentation as part of the USAF EIAP.

Section 1 (Introduction) provides an overview of MacDill AFB's location and environmental setting. It also describes the purpose and need of this plan. Section 2 (Regulations) lists the Federal, state, and local regulations related to this plan. Each regulation can be found in its entirety in Appendices B through G. Section 3 (Inventory of Structures/Assets) provides a discussion and map of structures located in various areas of the floodplain. This section also provides a discussion on the use of computer models for identifying potential flood hazards. Section 4 (Guidelines for Future Land Use) provides floodplain compliance and construction standards. This section also summarizes the operating procedures for floodplain management. Section 5 (Guidelines for Use of this Plan in Conjunction with the Environmental Impact Analysis Process) discusses the use of this plan in conjunction with National Environmental Policy Act (NEPA) requirements for development on MacDill AFB.

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PRELIMINARY DRAFT FLOODPLAIN MANAGEMENT PLAN
MACDILL AIR FORCE BASE, FLORIDA

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY	ES-1
1. INTRODUCTION.....	1-1
1.1 Location.....	1-1
1.2 Conservation and Wetland Areas	1-1
1.3 Topography.....	1-3
1.4 Geology	1-3
1.5 Soil.....	1-3
1.6 Drainage and Impoundments.....	1-4
1.6.1 Surface Water	1-4
1.6.2 Ground Water	1-4
1.7 Floodplains	1-5
1.8 Purpose and Need	1-5
1.9 Types of Threats	1-6
2. REGULATIONS	2-1
2.1 Federal & Military	2-1
2.1.1 EO 11988, Floodplain Management.....	2-1
2.1.2 National Flood Insurance Program Regulations.....	2-1
2.1.3 FEMA Technical Bulletin 3-93: Non Residential Floodproofing-Requirements and Certification.....	2-2
2.2 State	2-3
2.2.1 The Florida Department of Community Affairs	2-3
2.2.2 Department of Environmental Protection and the Southwest Florida Water Management District	2-3
2.3 Local	2-3
2.3.1 Hillsborough County	2-3
2.3.2 City of Tampa.....	2-3
3. INVENTORY OF STRUCTURES/ASSETS	3-1
3.1 Inventory of the Structures/Assets in the Floodplain.....	3-1
3.2 The Use of GIS for Future Land Use.....	3-1
3.3 The Use of Computer Models for Identifying the Potential Flooding Hazards.....	3-1
4. GUIDELINES FOR FUTURE LAND USE	4-1
4.1 Floodplain Management and Compliance	4-1
4.2 Construction Guidelines	4-1
5. GUIDELINES FOR USE OF THIS PLAN IN CONJUNCTION WITH THE ENVIRONMENTAL IMPACT ANALYSIS PROCESS.....	5-1
6. LIST OF PREPARERS.....	6-1

7. REFERENCES 7-1

APPENDICES

A Acronyms and Abbreviations
B Executive Order 11988
C FEMA Technical Bulletin 3-93
D Florida Department of Community Affairs Regulatory Programs
E Southwest Florida Water Management District Environmental Resource Permits
F Hillsborough County Construction Code
G City of Tampa Floodplain Regulations

FIGURES

<u>Figure</u>	<u>Page</u>
1-1. MacDill AFB Location Map.....	1-2
3-1. MacDill AFB Infrastructure Map.....	3-3
3-2. MacDill AFB Aerial Photograph and FEMA Floodplain Map	3-4
3-3. MacDill AFB Storm Surge Map.....	3-5
5-1. AF Form 813 Process Flow.....	5-2

TABLES

<u>Table</u>	<u>Page</u>
1-1. Land Use and the 100-Year Floodplain at MacDill AFB.....	1-1
3-1. Storm Surge Estimations for MacDill AFB.....	3-2
4-1. Summary of Operating Procedures for Floodplain Management.....	4-1

1. Introduction

MacDill Air Force Base (MAFB) developed this floodplain management plan (FPMP) to guide future actions that are being considered for location in the 100-year floodplain. Executive Order (EO) 11988 seeks to avoid construction of facilities or structures within floodplains to reduce the risk of flood loss; to minimize the impact of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Some of these beneficial values include an increase in water quality through the prevention of erosion and other biological damage such as wave and water damage. This document provides an overview of regulations, an inventory of structures and assets located in the floodplain, and guidelines for future development.

Approximately 80 percent (4,510 acres) of the landmass at MAFB is in the 100-year floodplain. Furthermore, approximately 80 percent of land mass outside the floodplain on MacDill AFB is designated as runway and airfield and is constrained from being developed for safety reasons (clear zones, noise constraints). Another 17 percent is occupied by drainage ditches, culvert, roads and sidewalks. Therefore, approximately 34 acres (3 percent) are outside the 100-year floodplain and are suitable for development (Table 1-1).

Table 1-1. Land Use and the 100-Year Floodplain at MacDill AFB

Description	Acres
Total Acres at MacDill AFB	5,638 Acres
Acres in the 100-Year Floodplain	4,510 Acres
Remaining Acres Outside the 100-Year Floodplain	1,128 Acres
Acres Outside the 100-Year Floodplain Containing Constraints	1,094 Acres
Remaining Acres Outside the 100-Year Floodplain Suitable for Future Development	34 Acres

1.1 Location

MacDill AFB is a 5,638-acre military base in Hillsborough County, Florida, approximately eight miles south of downtown Tampa, Florida (MacDill 2005). The base is in the Special Flood Hazard Zone on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). MacDill AFB sits at the southern tip of the Interbay peninsula adjacent to Tampa and Hillsborough bays (Figure 1-1) (MacDill AFB 2005).

1.2 Conservation and Wetland Areas

There are 1,195 acres of wetlands on MacDill AFB. The acreage and classification of these wetlands is 880 acres of estuarine scrub/shrub emergent wetlands, 200 acres of palustrine wetlands, and 115 acres of needle-leaved forested wetlands (MacDill AFB 2005).

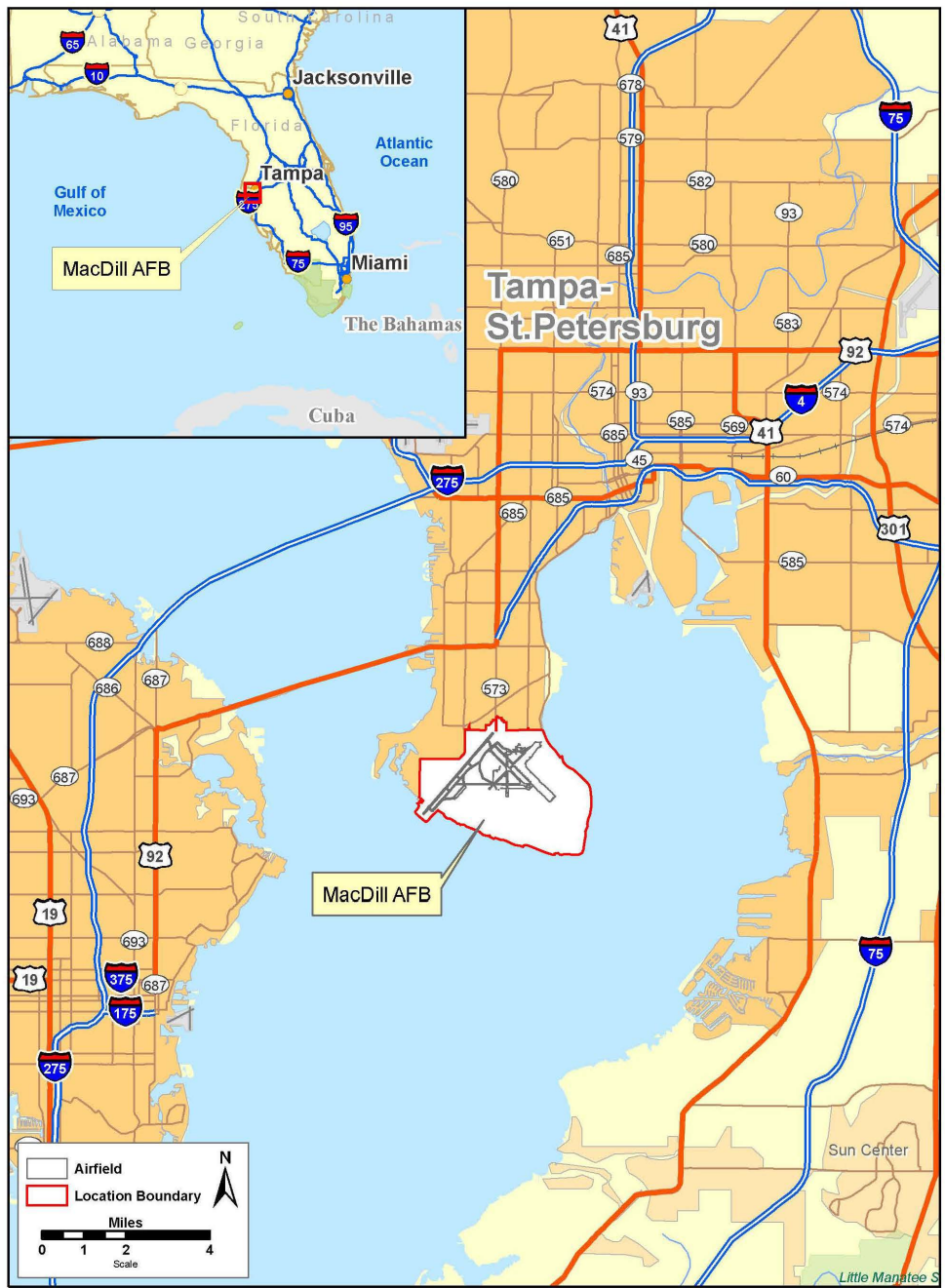


Figure 1-1. MacDill AFB Location Map

MacDill AFB, FL

July 2006

The forested land at MacDill AFB is dominated by remnant natural and planted pine communities with slash pine (*Pinus elliottii*) the dominant species in the plantation areas. Remnant natural stands are dominated by longleaf pine (*Pinus palustris*) and mixed hardwood forest species. Mixed hardwood species commonly include oaks (*Quercus spp.*), maples (*Acer spp.*), cabbage palm (*Sabal palmetto*), and southern magnolia (*Magnolia grandiflora*). Understory contains a mixture of shrubs dominated by wax myrtle (*Myrica cerifera*), salt bush (*Baccharis halimifolia*), saw palmetto (*Serenoa repens*), and gallberry (*Ilex glabra*). Brazilian pepper (*Schinus tetebinthefolius*), an aggressive, exotic invasive species, has replaced the understory in many places (MacDill AFB 2005).

The estuarine scrub-shrub wetland is the other major vegetative community at MacDill AFB. This community is dominated by black mangroves (*Avicennia germinans*) and white mangroves (*Laguncularia racemosa*). There are seagrass beds adjacent to the tidal swamp that provide habitat to many vertebrates and invertebrates. The dominant seagrass is *Halodule wrightii* (shoal grass) (MacDill AFB 2005).

1.3 Topography

MacDill AFB is in the Pamlico Terrace which rises gently from the coast to about 25 feet above sea level. Elevations on the base range from sea level at the southern edge to about 15 feet above sea level in the northern portions. Much of the base is less than 5 feet above mean sea level. There are no natural “hilly” features on the base (MacDill AFB 2005).

1.4 Geology

MacDill AFB is situated in the Gulf Coastal Lowlands physiographic region. There are three principal lithologic sequences in the area. The top unit is unconsolidated sand, clay, and marl. This unit can include remnants of the Hawthorn Formation composed of sand, clay, and thin lenses of limestone. Sands in this unit range from 5 to 20 feet thick with clay layers up to 40 feet thick. This surficial layer is very thin or even absent on the eastern side of the base, and underlying limestone formations sometimes outcrop in this area (MacDill AFB 2005).

The next deepest layer is comprised of Tampa and Suwannee limestones which range from 250 to 500 feet thick. Below this layer are the Ocala Group; Avon Park, Lake City, and Oldsmar limestones; and Cedar Keys Limestone. These formations are about 2,300 feet deep (MacDill AFB 2005).

Sinkholes in this type of geology form from dissolution of limestone due to percolation of groundwater followed by subsidence of overlying materials. However, due to overlying layers of clay, limited groundwater recharge, and the presence of a slow discharge zone for the Floridan aquifer, sinkhole activity at MacDill AFB is minimal with only one identified during a 1985 study (MacDill AFB 2005).

1.5 Soil

There are no prime or unique farmland soils at MacDill AFB. Two MacDill AFB soils are hydric and therefore have jurisdictional wetland implications. Myakka Fine Sand (frequently flooded) is in tidal areas and occurs mainly on mangrove areas. These soils are subject to tidal flooding, are very level, and are poorly drained. Malabar Fine Sand is generally adjacent to the Myakka Fine Sand. This includes flatwood areas, portions of the golf course, and some development. They are nearly level and poorly drained, often occurring in low-lying sloughs and shallow flatwoods depressions (MacDill AFB 2005).

1.6 Drainage and Impoundments

1.6.1 Surface Water

MacDill AFB is an independent drainage area with no surface waters entering or leaving the base prior to discharge into Tampa Bay. The road on the northern boundary acts as a drainage divide between the base and the community to the north (MacDill AFB 2005).

The drainage system at the base is greatly affected by ditches and pipes, primarily constructed to drain the developed portion. There are 24.4 miles of culverts, 6 to 48 inches in diameter, and 56.3 miles of open ditches and canals. There are five drainage basins on MacDill AFB, largely created by ditches. Drainage routes occur in all directions with the exception of north (MacDill AFB 2005).

Surface water flows at MacDill AFB primarily result from storm water runoff. This is to be expected considering that almost 2,000 acres of the base are either concrete or buildings. Impervious surfaces increase surface runoff (MacDill AFB 2005).

There are two larger man-made ponds, Lake McClelland and Lewis Lake, in the eastern portion of the base. These lakes comprise about 20 acres combined. There are also about 20 acres of small, unnamed freshwater impoundments on the north and south gold course, in the family housing area, and near United States Central Command (USCENTCOM). The main natural drainage features on the base are Coon's Hammock and Broad creeks to the south. These creeks can flood during naturally high tides (MacDill AFB 2005).

Tampa Bay is classified as a Class III water body (includes recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife) The bay waters east of the base (Hillsborough Bay) are Class III waters, but the bay waters south and southwest of the base are Class II waters (includes recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife, and shellfish propagation or harvesting). Class I includes potable water supplies and Class IV includes agricultural water supplies (FLDEP 2006). Water quality in Tampa Bay around the base is consistently equal to or better than that along other areas of the Hillsborough Bay and Tampa Bay coastlines (MacDill AFB 2005).

1.6.2 Ground Water

The base is within the southern west-central Florida groundwater basin. The surficial aquifer system (sand, clayey sand, and shell) is about 20 feet thick and is used to supply small irrigation systems beyond base boundaries. It is not used at MacDill AFB. Recharge of the aquifer is primarily through precipitation. It ranges from the surface to about five feet beneath the surface at inland locations (MacDill AFB 2005).

The surficial aquifer is separated from the Floridan aquifer by heterogeneous calcareous clays and limestone with varying permeability. The aquifer is composed of Tampa and Suwannee limestones, the Ocala Group, and the Avon Park Limestone, all of which are highly permeable. The clay and limestone barrier between the two aquifers is nonexistent in some portions of the northeastern portion of MacDill AFB to more than 40 feet thick along the southern portion of the base. The Floridan aquifer is not significantly recharged from the surface of MacDill AFB. The base is primarily a discharge zone for the aquifer, and the flow of water is upward. The City of Tampa is MacDill AFB's source of potable water (MacDill AFB 2005).

The surficial aquifer is highly susceptible to groundwater contamination, primarily due to shallow water table depth and permeable sediments. MacDill AFB operations have affected the aquifer. Underground storage tanks, landfills, and the golf courses are sources of known contamination (MacDill AFB 2005).

Groundwater quality of the Floridan aquifer has not been fully defined due to a lack of monitoring wells. It is rated as moderately susceptible to contamination. There is slight contamination of the aquifer, apparently from base operations, but not enough to meet clean-up criteria. The aquifer is not used for drinking water at MacDill AFB, but it is used for potable water in the Tampa area and west-central Florida (MacDill AFB 2005).

1.7 Floodplains

Floodplains are normally dry or semidry land areas to which water naturally flows as water levels rise. Floodplains are typically found near rivers, lakes, and the coast; however, many flood-prone lands are simply low-lying areas or depressions where water naturally collects when it rains. The 100-year floodplain has a one percent chance of flooding in any one year (SWFWMD 2005).

Floodplains reduce the number and severity of floods, help handle stormwater runoff, and minimize nonpoint source water pollution. The natural vegetation attenuates and assimilates the nutrients in stormwater as they enter the aquifer, thus maintaining water quality. Development within the inland floodplain can take up necessary flood storage volume, thereby increasing the risk of flooding to structures within the floodplain (SWFWMD 2005).

1.8 Purpose and Need

Proposed construction by a Federal agency within a floodplain must comply with EO 11988, *Floodplain Management*, and the appropriate National Flood Insurance Program guidelines. Section 2 provides more details on these regulations including state and local programs.

The purpose of this FPMP is to help guide future development at MacDill AFB, in relation to the 100-year floodplain. EO 11988 seeks to avoid construction of facilities or structures within floodplains to reduce the risk of flood loss; to minimize the impact of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Some of these beneficial values include an increase in water quality through the prevention of erosion and other biological damage such as wave and water damage. Approximately 80 percent (4,510 acres) of the landmass at MAFB is in the 100-year floodplain. The portions of the base outside the 100-year coastal floodplain are designated primarily for airfield operations and support facilities. This document provides an overview of regulations, an inventory of structures and assets located in the floodplain, and guidelines for future development.

The U.S. Air Force (USAF) is required to prepare a Finding of No Practicable Alternative (FONPA) in accordance with EO 11988, *Floodplain Management*; EO 11990, *Wetlands Protection*, and 32 Code of Federal Regulations (CFR) 989 Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process (ELAP)*. FONPAs are prepared in conjunction with EIAP and are attached to a Finding of No Significant Impact (FONSI) or a Record of Decision (ROD). On 11 December 2000, The Deputy Under Secretary for Environmental Safety and Occupational Health (SAF/MIQ) delegated approval authority of Environmental Assessments (EA) to the Air Force Civil Engineer, HQ USAF/IL, where impacts to wetlands and floodplains could not be avoided. In a March 2001 memorandum, HQ USAF/IL re-delegated this authority to the Major Command Vice-Commanders.

A FONPA is required for all projects planned in the floodplain at MacDill AFB. The project EIAP documentation along with the FONPA requires Headquarters Air Mobility Command (HQ AMC) approval. This approval cycle at MacDill AFB is time consuming and has delayed the start of construction projects by months. To streamline the MacDill AFB EIAP, this document will serve as a guide to be followed when conducting activities such as new construction within the 100-year floodplain. It would also serve as an inclusion for future MacDill AFB FONPA documentation as part of the USAF EIAP.

1.9 Types of Threats

Tropical storms typically flood much of the southern and northeastern portions of MacDill AFB, and the entire base is subject to damage by Category 3 hurricanes (MacDill AFB 2005). Hurricanes and severe storms (especially during high tide) can cause storm surge, wave damage, and wind damage.

Average annual rainfall in the Tampa area is about 50 inches with 58 percent during the June–September wet season. Most rainfall events are heavy thunderstorms of short duration in summer months. Monthly rainfall averages (in inches) reported are as follows: January - 1.86, February - 2.09, March - 2.99, April - 1.87, May - 5.90, June - 8.34, July - 10.49, August - 7.20, September - 10.76, October - 2.17, November - 0.85, and December - 1.29 (MacDill AFB 2005).

2. Regulations

This section provides summaries of Federal, state, and local regulations related to management and construction within a floodplain. Each regulation can be found in its entirety in Appendices B through G at the end of this document. State and local regulations are provided for general reference.

2.1 Federal & Military

2.1.1 EO 11988, Floodplain Management

EO 11988 seeks to avoid construction of facilities or structures within floodplains to reduce the risk of flood loss; to minimize the impact of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial values served by floodplains.

When the only practicable alternative consistent with the law and with the policy set forth in the order requires sitting in a floodplain, the agency shall design or modify its action to minimize potential harm to or within the floodplain, consistent with regulations issued in accord with Section 2(d) of the order, and prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain (EO 11988 1977).

The construction of Federal structures and facilities must be in accordance with the standards and criteria and be consistent with the intent of those promulgated under the National Flood Insurance Program (NFIP). New structures shall deviate only to the extent that the standards of the NFIP are demonstrably inappropriate for a given type of structure or facility. If new construction of structures or facilities are to be located in a floodplain, accepted floodproofing and other flood protection measures shall be applied to new construction or rehabilitation. To achieve flood protection, agencies shall, wherever practicable, elevate structures above the base flood level rather than filling in land.

2.1.2 National Flood Insurance Program Regulations

The NFIP was created by Congress in 1968 to provide federally backed flood insurance coverage, because flood insurance was generally unavailable from private insurance companies. The NFIP is also intended to reduce future flood losses by identifying floodprone areas and ensuring that new development in these areas is adequately protected from flood damage. FEMA, through the Federal Insurance Administration (FIA), makes flood insurance available to the residents of a participating community provided that the community adopts and enforces adequate floodplain management regulations that meet the minimum NFIP requirements. The NFIP encourages communities to adopt floodplain management ordinances that exceed the minimum NFIP criteria. Included in the NFIP requirements, found under 44 CFR, are minimum building design and construction standards for buildings (FEMA 1994).

The NFIP regulations that specifically apply to the design of floodproofing for nonresidential buildings are within Section 60.3(c)(3), which states that the community shall

Require that all new construction and substantial improvements of non-residential structures within Zones A1 -A30, AE, and AH on the community's FIRM (i) have the lowest floor (including basement) elevated to or above the base flood level, or (ii) together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

Additionally, Section 60.3(c)(4) requires that any floodproofing design be certified in the following manner

Provide that where a non-residential structure is intended to be made watertight below the base flood level, (i) a registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with the accepted standards of practice for meeting the applicable provisions of paragraphs (c)(3)(ii) or (c)(8)(ii) of this section, and (ii) a record of such certificates which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained with the official designated by the community.

Section 60.3(c)(8) further states that the community shall

Require within any AO zone on the community's FIRM that all new construction or substantial improvements of non-residential structures (i) have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified), or (ii) together with attendant utility and sanitary facilities, be completely floodproofed to that (base flood) level to meet the floodproofing standard specified in paragraph 60.3(c)(3)(ii).

2.1.3 FEMA Technical Bulletin 3-93: Non Residential Floodproofing- Requirements and Certification

The FEMA bulletin describes design, construction, and planning requirements for the floodproofing of nonresidential buildings under the NFIP regulations and how to correctly complete the NFIP's Floodproofing Certificate for NonResidential Structures form (FEMA 1994).

A Floodproofing Certificate for NonResidential Structures (FEMA Form 81-65) has been developed by FEMA for use in the certification of nonresidential floodproofing designs. Because of the increased potential for significant building damage due to the failure of the floodproofing system, the NFIP requires a design certification for all floodproofed buildings (FEMA 1994).

The following are the minimum engineering considerations for floodproofing:

1. The building must be watertight.
2. The building's utilities and sanitary facilities, including heating, air conditioning, electrical, water supply, and sanitary sewage services, must be located above the Base Flood Elevation (BFE), completely enclosed within the building's watertight walls, or made watertight and capable of resisting damage during flood conditions.
3. All of the building's structural components must be capable of resisting specific flood-related forces.
4. Like all construction that falls under the NFIP regulations, the building must meet the requirements of all applicable portions of local and state building codes.

2.2 State

2.2.1 The Florida Department of Community Affairs

Section 1604 of the Florida Building Code contains the General Design Requirements for building construction. Sections 1612 to 1626 contain specific standards for High-Velocity Hurricane Areas. The entire code can be viewed on the Florida Department of Community Affairs Website at: http://www2.iccsafe.org/2004_florida_codes.

2.2.2 Department of Environmental Protection and the Southwest Florida Water Management District

Florida has a comprehensive state regulatory program that regulates most land (upland, wetland, and surface water) alterations throughout the state. The regulatory program also includes a State Programmatic General Permit and implementation of a statewide National Pollutant Discharge Elimination System (NPDES) program. The comprehensive nature of the state program is broader than the Federal program in that it also regulates alterations of uplands that could affect surface water flows, including addressing issues of flooding and stormwater treatment (FLDEP 2002).

2.3 Local

2.3.1 Hillsborough County

Chapter 3 of the Hillsborough County Construction Code, Flood Damage Control Regulations (updated October 2005), provides a list of the required standards. Elevation Certificates are required for construction within the Special Flood and Coastal High Hazard Areas where verification of floor elevation(s) or hydrostatic vent placement and area is required (Hillsborough County 2005).

2.3.2 City of Tampa

City of Tampa Code: Floodplain Regulations, Chapter 5-111 applies to special flood hazard areas within the jurisdiction of the city. The City requires a permit for new development and repairs and upgrades to existing structures (City of Tampa 2005).

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3. Inventory of Structures/Assets

3.1 Inventory of the Structures/Assets in the Floodplain

There are currently 880 buildings within the 100-year floodplain (Figure 3-1). There are 2,440 acres of land classified as Airfield, 342.76 acres classified as Operations and Maintenance, and 654.37 acres of land classified as Outdoor Recreation in the floodplain. The remaining 1,073 acres included in the floodplain in land use include Accompanied Housing, Administrative, Community Commercial, Community Service, Industrial, Medical Dental, and Unaccompanied Housing. Figure 3-2 provides an aerial view of MacDill and the FEMA flood map data.

3.2 The Use of GIS for Future Land Use

A Geographical Information System (GIS) is a collection of computer hardware, software, and geographic data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. ESRI's ArcGIS 9.1 software was used to analyze existing spatial data on MacDill AFB that was provided by MacDill AFB. To calculate MacDill AFB structures within the 100-year floodplain, the CLIP tool in ESRI's ArcToolbox was used to clip the buildings feature class (provided in MacDill_CIP.mdb) with the flood zone area feature class (provided in MacDill_MDS.mdb). This operation will take the Input features (buildings) and Clip feature (100-year floodplain) and extract all of the Input features that exist within the boundary of the Clip feature.

To calculate the acreage of runways/taxiways and recreation areas within the 100-year flood plain, the CLIP tool in ESRI's ArcToolbox can be used to clip the current land use area (provided in MacDill_MDS.mdb) with the flood zone area (mentioned above). This operation will take the Input features (runways/taxiways and recreation areas) and Clip feature (100-year floodplain) and extract all of the Input features that exist within the boundary of the Clip feature. The current land zone area classified the land use into several categories including Airfield, Operations and Maintenance, and Outdoor. The area in acres can be calculated using a script in XToolsPro.

3.3 The Use of Computer Models for Identifying the Potential Flooding Hazards

The National Hurricane Center has developed a very sophisticated hurricane modeling application for forecasting storm surge threats. Known as SLOSH (Sea, Lake, and Overland Surge from Hurricanes), this model produces an atlas of projected heights of storm surge and extents of flood inundations (Keim 2005).

SLOSH works with various combinations of hurricane strength, forward tracking speed, and direction of storm motion. Strength is modeled by use of the central pressure and storm eye size using the five categories of storm intensity. Ten storm-track headings were selected as being representative of storm behavior in this region on the basis of observations at the National Hurricane Center (Keim 2005).

The Tampa Bay Regional Planning Council, an association of local governments and gubernatorial representatives, acts as a clearing house for the maps that are generated by Hillsborough County's GIS Department from the SLOSH modeling application. Table 3-1 shows the estimated storm surge in feet (ft) that would occur at two SLOSH coordinates on MacDill AFB from each hurricane category.

Storm surge is water that is pushed toward the shore by the force of the winds swirling around the storm. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level 15 ft or more. In addition, wind driven waves are superimposed on the

storm tide. The level of surge in a particular area is also determined by the slope of the continental shelf. A shallow slope off the coast will allow a greater surge to inundate coastal communities (NOAA 2006).

Figure 3-3 was generated by the Tampa Bay Regional Planning Council showing the Storm Tide Limits for the Port Tampa and Gibsonton quads. The figure provides the location of SLOSH coordinates #54 and #55 from Table 3-1, and the areas of MacDill AFB that would receive flooding from category 1 through 4 hurricanes.

Table 3-1. Storm Surge Estimations for MacDill AFB

Location on Figure 3-3	SLOSH Coordinates	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Cat. 5
MacDill AFB 54	18,22	6.2	11.3	15.9	20.1	23.7
MacDill AFB 55	20,20	6.3	11.5	16.1	20.1	23.8

Source: Tampa Bay Regional Planning Council 1999

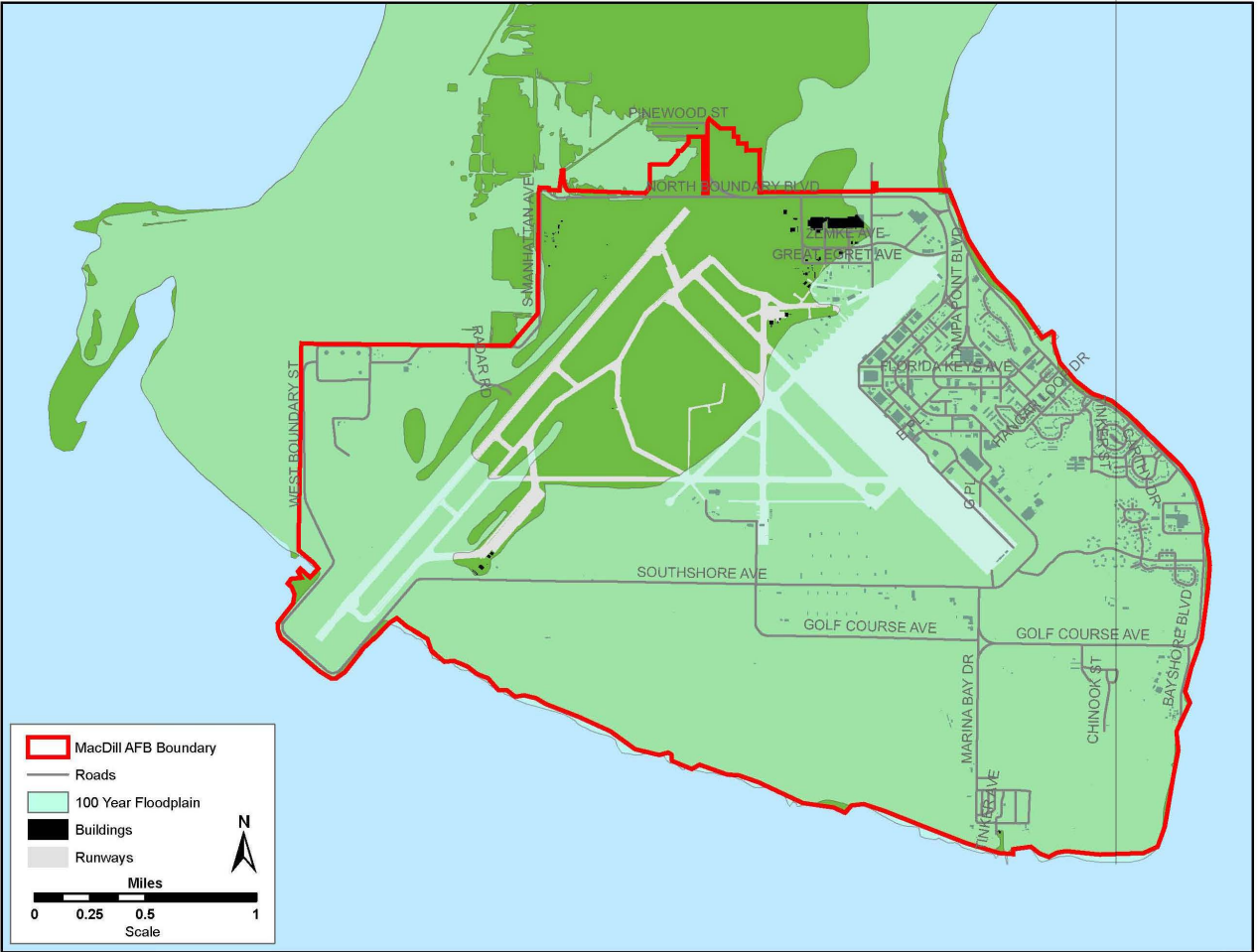


Figure 3-1. MacDill AFB Infrastructure Map

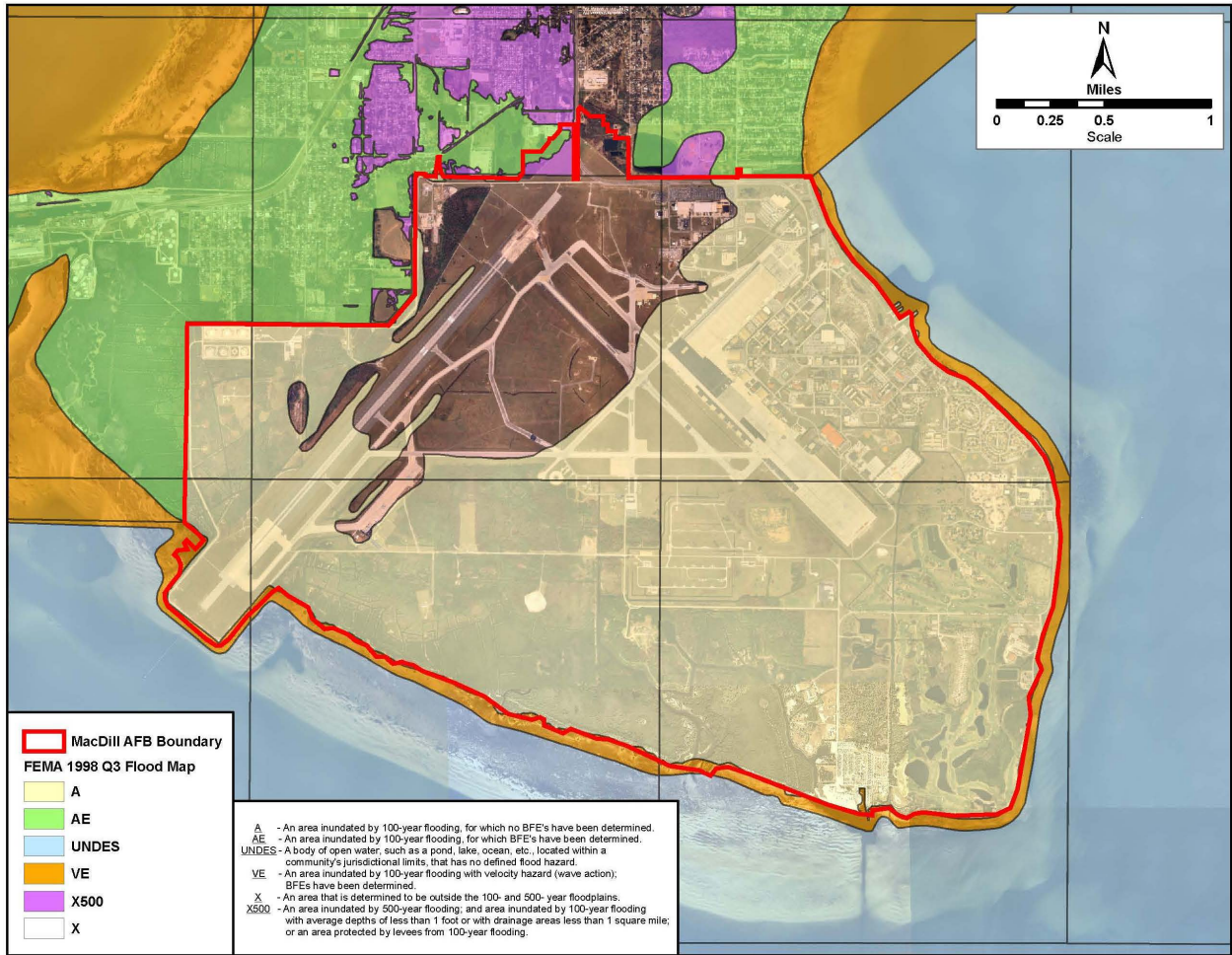
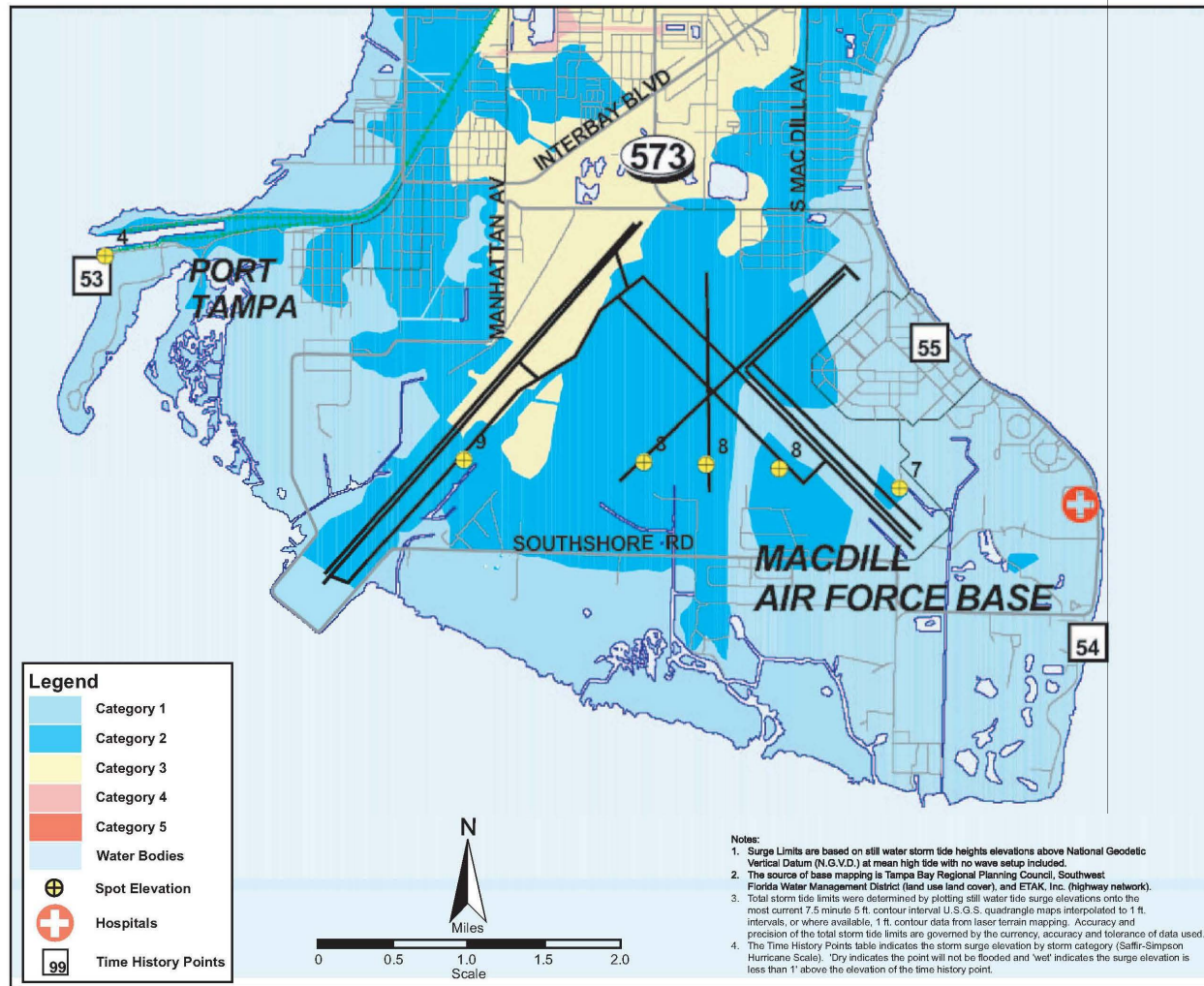


Figure 3-2. MacDill AFB Aerial Photograph and FEMA Floodplain Map



Adapted from: Storm Tide Limits map for Hillsborough County, FL, produced with Funding and Cooperation from the Florida Department of Community Affairs by the Tampa Bay Regional Planning Council

Figure 3-3. MacDill Storm Surge Map

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4. Guidelines for Future Land Use

Avoiding construction in the floodplain would prevent future loss and damage to structures and assets and preserve the floodplain's beneficial values. EO 11988 encourages Federal agencies to avoid construction in the floodplain. However, 80 percent of the land mass of MacDill AFB lies within the 100-year floodplain, which severely limits the amount of land available for construction outside the floodplain. Furthermore, approximately 80 percent of land mass outside the floodplain on MacDill AFB is designated as runway and airfield and is constrained from being developed for safety reasons (clear zones, noise constraints). Another 17 percent is occupied by drainage ditches, culvert, roads and sidewalks. Therefore, approximately 34 acres (3 percent) are outside the 100-year floodplain and are suitable for development. Given these conditions, and the active construction programs being implemented at MacDill AFB, construction within the floodplain is inevitable.

4.1 Floodplain Management and Compliance

Table 4-1 provides a summary of operating procedures for floodplain management and compliance.

Table 4-1. Summary of Operating Procedures for Floodplain Management

Procedure	Notes
1. Determine whether the action will occur in a floodplain.	Review the FIRM and GIS Maps. See Section 3. Proceed with the action if the action occurs in an area outside of the floodplain, or it affects a structure or area that would not be damaged in the event of a flood such as a tower or facilities solely used for parking.
2. Identify and evaluate practicable alternatives for those action proposed for location in the floodplain.	See Section 5
3. Identify the impacts of the action in the floodplain.	Identify all direct, indirect, and cumulative impacts of the action including human health and safety and floodplain functions and values.
4. Review Federal, state, and local regulations and prepare a Public Notice for the action.	See Section 2. Notify local government agencies. Address public comments.
5. Minimize threats to life, property and the natural functions and values of the floodplain.	See Section 4.
6. Issue FONPA and public explanation.	Include the location, flood protection techniques being used, and other mitigation that will be used to minimize floodplain impacts.
7. Implement the action	See Section 5.

4.2 Construction Guidelines

If the following guidelines for construction and proper stormwater management activities are properly followed, the loss and damage to structures, the impact to human safety, health, and welfare, and the impact on the beneficial floodplain values can be reduced or prevented.

- All new structures not used solely for parking, storage or infrastructure utilities that can't be impacted by flooding constructed on MacDill AFB should be elevated at least 11.5 ft and must be able to withstand sustained winds of 100 miles per hour (mph) and wind gusts of 120 mph.
- The lowest floor (including basement) should be elevated above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM (or 11.5 ft), or together with attendant utility and sanitary facilities, be completely floodproofed to the (base flood) level to meet the floodproofing standard.
- A registered professional engineer or architect should develop or review structural design, specifications, and plans for the construction, and should certify that the design and methods of construction are in accordance with the accepted standards of practice.
- Sensitive equipment should be placed on the upper levels of buildings or flood-proofed if they can not be placed in these areas. Utilities should be flood-proofed to prevent damage.
- Implement the creation of new stormwater retention areas as needed for all projects that add impervious surfaces. Stormwater retention areas should be maintained for invasive plant species which can interfere with the drainage.
- Sidewalks, parking lots, and roads should be constructed with pervious material. Pervious materials permit water to enter the ground by virtue of their porous nature or by large spaces in the material. This material limits the direct discharge of pollutants into the environment and reduces the impacts of pollution. Pervious surfaces can be made of concrete, asphalt, open-celled stones, and gravel that are mixed in a manner that creates an open cell structure allowing water and air to pass through.

5. Guidelines for Use of this Plan in Conjunction with the Environmental Impact Analysis Process

This FPMP would be used in conjunction with the MacDill AFB EIAP. Since 80 percent of the MacDill AFB land mass is in the 100-year floodplain, and construction activities are necessary to meet the national security mission of the USAF, construction within the floodplain is unavoidable at MacDill AFB. Sections 2, 3, and 4 of this plan provide guidelines that describe how construction activities are to be accomplished with the floodplain. Following the construction practices outlined in this FPMP will insure MacDill AFB remains in compliance with floodplain management regulations provided in EO 11988 and the FEMA.

This document becomes a planning tool for the planners and programmers for the future development on MacDill AFB. The Installation Development Environmental Assessment (IDEA) has established that there is a need for development within the MacDill AFB floodplain. The IDEA has been assigned a FONSI (and FONPA) with the stipulation that proposed development activities (construction, demolition, and infrastructure installation) will comply with the construction practices presented in this FPMP.

The IDEA is a basewide evaluation of the substantial development activities programmed for the next five years at MacDill AFB. The IDEA evaluates a range of projects from minor infrastructure upgrades to major MILCONs. The complete list of projects addressed is provided in Appendix B of the IDEA. Projects were evaluated to determine if planned installation development at MacDill AFB would result in significant cumulative impacts to resources such as air quality, noise, socioeconomics, and hazardous materials and waste. The projects were also evaluated for conflicts or impacts to existing base constraints such as wetlands, explosive arcs, Environmental Restoration Program (ERP) sites, threatened and endangered species habitat, airfield restrictions, and cultural resources. The IDEA determined that the project currently programmed for installation development would not significantly impact the environment or resources at MacDill AFB. If, in the future, new projects are added to the bases development program or existing projects are substantially modified (location, footprint, design) then a project specific AF Form 813 shall be prepared. If the AF Form 813 demonstrates that the new or modified project fits within the size, scope and scale of projects evaluated in the IDEA and does not conflict with existing base constraints, then the project may be CATEXed "as similar" to projects addressed in the IDEA. If the project-specific AF Form 813 determines that the proposed project changes would not result in unknown or significant impacts, then the AF Form 813 will be signed and the IDEA FONPA will be applied to the AF Form 813 to complete EIAP.

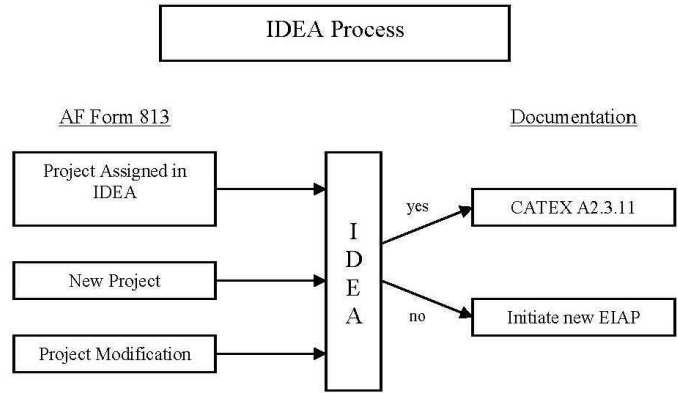


Figure 5-1. AF Form 813 Process Flow

6. List of Preparers

Brian Hoppy

B.S. Biology

Years of Experience: 16

Bridget Kelly

B.S. Biology

Years of Experience: 8

Michael J. Moran, Ph.D., REM

Ph.D. Biochemistry

B.S. Chemistry

Registered Environmental Manager

Years of Experience: 23

Daniel Savercool

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B.A. Zoology

A.A.S. Natural Resources Conservation

Certified Senior Ecologist

Years of Experience: 22

Stuart Gottlieb

B.A. Geography

Years of Experience: 4

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7. References

- City of Tampa 2005 City of Tampa. 2005. *City of Tampa Floodplain Regulations Chapter 5-111*.
- FEMA 1994 Federal Emergency Management Agency (FEMA). 1994. *Non-Residential Floodproofing- Requirements and Certification for Buildings Located in Special Flood Hazard Areas*. Technical Bulletin 3-93.
- FLDEP 2002 Florida Department of Environmental Protection (FLDEP). 2002. *Summary of the Wetland and other Surface Water Regulatory and Proprietary Programs in Florida*.
- FLDEP 2006 Florida Department of Environmental Protection (FLDEP). 2006. *Surface Water Quality Classifications*. Available at <http://www.dep.state.fl.us/water/wqssp/classes.htm>. Accessed June 12, 2006.
- Hillsborough County 2005 Hillsborough County. 2005. *Hillsborough County Construction Code, Chapter 3, Flood Damage Control Regulations*.
- Keim 2005 Keim, Robert B. 2005. *The Eye of the Storm: GIS and the Hurricane Business*. Hillsborough County Information and Technology Services.
- MacDill AFB 2005 MacDill Air Force Base (AFB). 2005. *Integrated Natural Resources Management Plan*.
- NOAA 2006 National Oceanic and Atmospheric Administration's (NOAA). 2006. *National Hurricane Center Website. Storm Surge*. Available at http://www.nhc.noaa.gov/HAW2/english/storm_surge.shtml. Accessed May 31, 2006.
- SWFWMD 2005 Southwest Florida Water Management District (SWFWMD). 2005. *The Floodplain Facts*.
- Tampa Bay Regional Planning Council 1999 Tampa Bay Regional Planning Council. 1999. *Storm Tide Atlas*. Available at <http://www.tbrpc.org/gis/atlas99.htm>. Accessed October 26, 2005.

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Floodplain Management Plan appendices are not included in the IDEA appendices.

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APPENDIX F
COASTAL ZONE CONSISTENCY STATEMENT

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Appendix F

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 (CMP).

Of the Florida Statutory Authorities included in the CMP, impacts in the following areas are addressed in the EA: beach and shore preservation (Chapter 161), historic preservation (Chapter 267), economic development and tourism (Chapter 288), public transportation (Chapters 334 and 339), saltwater living resources (Chapter 370), living land and freshwater resource (Chapter 372), water resources (Chapter 373), environmental control (Chapter 403), and soil and water conservation (Chapter 582). This consistency statement discusses how the proposed options may meet the CMP objectives.

CONSISTENCY DETERMINATION

Chapter 161: Beach and Shore Preservation

No disturbances to the base's canals are foreseen under the Proposed Action or Alternative Actions.

Chapter 267: Historic Preservation

The Air Force and the Florida State Historic Preservation Officer have determined that there are two areas on MacDill AFB with buildings that are potentially eligible for the National Register of Historic Places. The Proposed Action site is not located in either of the historic districts. Consultations between the Air Force and State Historical Preservation Officer have been completed to ensure compliance with Section 106 of the National Historic Preservation Act.

Chapter 288: Economic Development and Tourism

The EA presents the new employment impact and net income impact of the Proposed Action and alternatives. The options would not have significant adverse effects on any key Florida industries or economic diversification efforts.

The EA quantitatively addresses potential impacts to transportation systems and planning and implementation of transportation improvements.

Chapter 372: Saltwater Living Resources

The EA addresses potential impacts to local water bodies. Water quality impacts were surveyed for existing conditions at the Proposed Action and alternatives. Results indicate that no significant long-term impacts would result from the Proposed Action or alternatives.

Chapter 372: Living Land and Freshwater Resources

Threatened and endangered species, major plant communities, conservation of native habitat, and mitigation of potential impacts to the resources are addressed in the EA. The Proposed Action and alternatives would not result in permanent disturbance to native habitat and should not impact threatened or endangered species.

Chapter 373: Water Resources

There would be no impacts to surface water or groundwater quality under the Proposed Action or alternatives as discussed in the EA.

Chapter 403: Environmental Control

The EA addresses the issues of conservation and protection of environmentally sensitive living resources; protection of groundwater and surface water quality and quantity; potable water supply; protection of air quality; minimization of adverse hydrogeologic impacts; protection of endangered or threatened species; solid, sanitary, and hazardous waste disposal; and protection of floodplains and wetlands. Where impacts to these resources can be identified, possible mitigation measures are suggested. Implementation of mitigation will, for the most part, be the responsibility of MacDill AFB.

Chapter 582: Soil and Water Conservation

The EA addresses the potential of the Proposed Action and alternatives to disturb soil and presents possible measures to prevent or minimize soil erosion. Impacts to groundwater and surface water resources also are discussed in the EA.

CONCLUSION

The Air Force finds that the conceptual Proposed Action and alternatives plans presented in the EA are consistent with Florida's CMP.

APPENDIX G
EXAMPLE AIR QUALITY EMISSIONS CALCULATIONS

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- Summary** Summarizes total emissions by calendar year.
- Combustion** Estimates emissions from non-road equipment exhaust as well as painting.
- Fugitive** Estimates fine particulate emissions from earthmoving, vehicle traffic, and windblown dust
- Grading** Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions
- AQCR Tier Report** Summarizes total emissions for the West Central Florida Intrastate AQCR Tier Reports for 2001, to be used to compare project to regional emissions.

Construction Emissions from Proposed Action

	NO_x (ton)	VOC (ton)	CO (ton)	SO₂ (ton)	PM₁₀ (ton)
CY2007 Construction Combustion	4.614	1.095	5.349	0.138	0.156
Construction Fugitive Dust	0.000	0.000	0.000	0.000	7.069
TOTAL CY2007	4.614	1.095	5.349	0.138	7.225

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

West Central Florida Intrastate AQCR

Year	Point and Area Sources Combined				
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO₂ (tpy)	PM₁₀ (tpy)
2001	284,206	188,704	1,243,036	406,216	157,745

Source: USEPA-AirData NET Tier Report (<http://www.epa.gov/air/data/geosel.html>). Site visited on 19 September 2006.

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

	Point and Area Sources Combined				
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO₂ (tpy)	PM₁₀ (tpy)
Minimum - 2001	284,206	188,704	1,243,036	406,216	157,745
2007 Emissions	4.614	1.095	5.349	0.138	7.225
Proposed Action %	0.0016%	0.00058%	0.00043%	0.00003%	0.0046%

Construction Combustion Emissions for CY 2007

Combustion Emissions of VOC, NO_x, SO₂, CO and PM₁₀ Due to Construction

Includes:

100% of Construct Medical Clinic (Replacement)	254,000 ft ²	5.83	acres
--	-------------------------	------	-------

Total Building Construction Area:	254,000 ft ²	
Total Demolished Area:	0 ft ²	(None)
Total Paved Area:	0 ft ²	(None)
Total Disturbed Area:	254,000 ft ²	
Construction Duration:	1.0 year(s)	
Annual Construction Activity:	230 days/yr	

Emission Factors Used for Construction Equipment

Reference: Guide to Air Quality Assessment, SMAQMD, 2004

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

Grading

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Bulldozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	3	60.51	9.02	70.69	1.21	2.03

Paving

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Roller	1	5.01	0.86	7.34	0.10	0.14
Total per 10 acres of activity	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Haul Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equipment ^d	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Stationary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industrial Saw	1	17.02	2.12	14.52	0.34	0.68
Welder	1	4.48	0.56	3.83	0.09	0.18
Mobile (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Forklift	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Total per 10 acres of activity	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

- a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.
- b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.
- c) The SMAQMD 2004 reference does not provide SO₂ emission factors. For this worksheet, SO₂ emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO₂ factor was found to be approximately 0.04 times the NO_x emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NO_x emission factor for all other equipment (based on AP-42, Table 3.4-1)
- d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emission Factors (lb/day)				
		NO _x	VOC	CO	SO ₂ **	PM ₁₀
Grading Equipment	1	35.284	5.260	41.220	0.706	1.184
Paving Equipment	1	0.000	0.000	0.000	0.000	0.000
Demolition Equipment	1	0.000	0.000	0.000	0.000	0.000
Building Construction	1	39.161	5.819	45.500	1.178	1.324
Air Compressor for Architectural Coating	1	3.983	0.496	3.394	0.080	0.157
Architectural Coating**			41.075			

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

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

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

Summary of Input Parameters

	Total Area (ft ²)	Total Area (acres)	Total Days	
Grading:	254,000	5.83	4	(from "CY2007 Grading" worksheet)
Paving:	0	0.00	0	
Demolition:	0	0.00	60	
Building Construction:	254,000	5.83	230	
Architectural Coating	254,000	5.83	20	(per the SMAQMD "Air Quality of Thresholds of Significance", 1994)

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

Total Project Emissions by Activity (lbs)

	NO _x	VOC	CO	SO ₂	PM ₁₀
Grading Equipment	141.13	21.04	164.88	2.82	4.73
Paving	-	-	-	-	-
Demolition	-	-	-	-	-
Building Construction	9,007.09	1,338.46	10,464.90	270.88	304.44
Architectural Coatings	79.65	831.41	67.87	1.59	3.15
Total Emissions (lbs):	9,227.87	2,190.90	10,697.66	275.30	312.32

Results: Total Project Annual Emission Rates

	NO _x	VOC	CO	SO ₂	PM ₁₀
Total Project Emissions (lbs)	9,227.87	2,190.90	10,697.66	275.30	312.32
Total Project Emissions (tons)	4.61	1.10	5.35	0.14	0.16

Construction Fugitive Dust Emissions for CY 2007Calculation of PM₁₀ Emissions Due to Site Preparation (Uncontrolled).User Input Parameters / Assumptions

Acres graded per year:	5.83 acres/yr	(From "CY2007 Combustion" worksheet)
Grading days/yr:	3.26 days/yr	(From "CY2007 Grading worksheet)
Exposed days/yr:	90 assumed days/yr	graded area is exposed
Grading Hours/day:	8 hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)
Soil percent silt, s:	8.5 %	(mean silt content; expected range: 0.56 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	85 %	(http://www.cpc.noaa.gov/products/soilmst/w.shtml)
Annual rainfall days, p:	110 days/yr	rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)
Wind speed > 12 mph %, l:	8.64 %	Ave. of wind speed at Tampa, FL (ftp://ftp.wcc.nrcs.usda.gov/downloads/climate/windrose/florida/tampa)
Fraction of TSP, J:	0.5	per California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993, p. A9-99
Mean vehicle speed, S:	5 mi/hr	(On-site)
Dozer path width:	8 ft	
Qty construction vehicles:	3.00 vehicles	(From "CY2007 Grading worksheet)
On-site VMT/vehicle/day:	5 mi/veh/day	(Excluding bulldozer VMT during grading)
PM ₁₀ Adjustment Factor k	1.5 lb/VMT	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
PM ₁₀ Adjustment Factor a	0.9 (dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
PM ₁₀ Adjustment Factor b	0.45 (dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM ₁₀ for unpaved roads)
Mean Vehicle Weight W	40 tons	assumed for aggregate trucks

TSP - Total Suspended Particulate

VMT - Vehicle Miles Traveled

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

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

Equations Used (Corrected for PM10)

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

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

Calculation of PM₁₀ Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.04 lbs/hr	4.5 hr/acre	0.20 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.80 lbs/acre
Vehicle Traffic (unpaved roads)	2.46 lbs/VMT	8.4 VMT/acre	20.70 lbs/acre

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

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

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

Soil Piles EF = 3 lbs/day/acre covered by soil piles

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

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
 Soil Piles EF = 0.3 lbs/day/acres graded

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

Calculation of Annual PM₁₀ Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	0.20 lbs/acre	5.83	NA	1	0.001
Grading	0.80 lbs/acre	5.83	NA	5	0.002
Vehicle Traffic	20.70 lbs/acre	5.83	NA	121	0.060
Erosion of Soil Piles	0.30 lbs/acre/day	5.83	90	157	0.079
Erosion of Graded Surface	26.40 lbs/acre/day	5.83	90	13,855	6.927
TOTAL				14,139	7.07

Soil Disturbance EF: 21.70 lbs/acre
 Wind Erosion EF: 26.7 lbs/acre/day

Back calculate to get EF: 744.49 lbs/acre/grading day

Construction (Grading) Schedule for CY 2007

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 5.83 acres/yr (from "CY2007 Combustion" Worksheet)
 Qty Equipment: 3.00 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions.

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

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

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

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
2230 200 0550	Site Clearing	Dozer & rake, medium brush	8	acre/day	8	0.13	5.83	0.73
2230 500 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	5.83	2.85
2315 432 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	2.92	2.94
2315 120 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	2.92	1.21
2315 310 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	2,300	cu. yd/day	2.85	0.35	5.83	2.05
TOTAL								9.77

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

(Equip)(day)/yr: 9.77
 Qty Equipment: 3.00
 Grading days/yr: 3.26

West Central Florida Intrastate Air Quality Control Region

Row # SORT	State	County	Area Source Emissions						Point Source Emissions					
			CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
1	FL	Citrus Co	67,663	5,302	12,767	4,248	379	8,139	1,374	38,833	5,709	4,907	101,842	321
2	FL	Hardee Co	15,025	1,194	4,799	1,481	114	1,579	24.6	727	29.4	29.4	8.71	6.2
3	FL	Hernando Co	55,224	4,514	8,686	3,160	330	6,474	1,558	5,283	351	142	2,690	103
4	FL	Hillsborough Co	311,208	47,433	29,010	9,584	4,648	49,861	2,710	63,804	5,807	4,560	161,868	2,344
5	FL	Levy Co	65,373	2,762	9,302	5,008	385	6,192	0	0	0	0	0	39.3
6	FL	Manatee Co	89,896	9,867	8,444	2,613	818	13,293	16,187	9,239	710	641	30,610	1,819
7	FL	Pasco Co	124,494	12,450	19,026	5,533	789	16,797	927	10,182	571	515	34,634	210
8	FL	Pinellas Co	260,617	30,216	12,213	4,239	1,845	44,165	870	8,279	426	367	29,372	914
9	FL	Polk Co	183,747	19,086	28,597	8,788	1,472	27,332	4,554	10,752	4,444	4,062	34,115	4,994
10	FL	Sumter Co	41,584	4,280	6,853	2,723	292	4,086	0.28	2.76	0.57	0.57	4.61	35.4
Grand Total			1,214,831	137,104	139,697	47,377	11,072	177,918	28,205	147,102	18,048	15,224	395,144	10,786

SOURCE:

<http://www.epa.gov/air/data/geosel.html>

USEPA - AirData NET Tier Report

*Net Air pollution sources (area and point) in tons per year (2001)

Site visited on 16 September 2006

West Central Florida Intrastate AQCR : Citrus Co, Hardee Co, Hernando CO, Hillsborough Co, Levy Co, Manatee Co, Pasco Co, Pinellas Co, Polk Co, and Sumter Co.