DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)
AND
FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)
INSTALLATION DEVELOPMENT
PATRICK SPACE FORCE BASE, FLORIDA

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) Parts 1500-1508, and 32 CFR Part 989, Environmental Impact Analysis Process (EIAP), the United States Space Force (USSF) has prepared an Environmental Assessment (EA) to identify and evaluate the potential impacts on the natural and human environment associated with the proposed infrastructure improvement projects at Patrick Space Force Base (SFB), Florida.

PURPOSE OF AND NEED FOR PROPOSED ACTION

The overall purpose of the Proposed Action is to implement multiple infrastructure improvements described in the Patrick SFB District Development Plan (DDP) to meet Space Launch Delta (SLD) 45 and tenant unit mission requirements. The proposed construction of new facilities and new infrastructure, as well as the demolition and repair of existing facilities, is needed to improve operational safety and functionality of Patrick SFB. Further, implementation of the Proposed Action would support the SLD 45 mission to conduct launch operations at Cape Canaveral Space Force Station.

The EA, incorporated by reference into this finding, analyzes the potential environmental consequences of the Proposed Action and provides environmental protection measures to avoid or reduce adverse environmental impacts.

DESCRIPTION OF THE PROPOSED ACTION/ALTERNATIVES

Selection Criteria for Alternatives (EA Section 2.2)

Potential alternatives for the individual projects included in the Proposed Action were evaluated based on three universal selection standards:

Standard 1: Planning Constraints – Planning constraints are man-made or natural elements that can create substantial limitations to the operation or construction of buildings, roadways, utility systems, airfields, training ranges, and other facilities. These constraints, when considered collectively with the installation's capacity opportunities, inform the identification of potential areas for development, as well as those areas that can be redeveloped to support growth. This standard addresses compatibility with overall installation operations, land use compatibility, and natural and built resources, and largely dictates the location/placement of a proposed facility.

Standard 2: Installation Capacity Opportunities – Installation capacity refers to the capabilities of the installation's existing facilities/infrastructure to meet existing and future mission needs. This standard largely drives the scope of the facility/infrastructure development and/or improvement and requires that proposed facility/infrastructure development and improvements support mission operations; mission support; built infrastructure; and quality of life.

Standard 3: Sustainability Development Indicators – Sustainable development refers to the ability to operate into the future without a decline in either the mission or the natural and man-made systems that support it, ensuring long-term sustainability of the installation. Sustainability is a holistic approach to asset management that seeks to minimize the negative impacts of USSF operations on the environment within and surrounding the installation. This standard supports sustainability of the installation through consideration of energy, water, waste water, air quality, facilities space optimization, encroachment, and natural/cultural resources.

Description of the Proposed Action (EA Section 2.3)

The Proposed Action consists of 19 projects; all projects have an action alternative and a no-action alternative, while some projects have multiple action alternatives. Each project involves several components, including ground disturbing activities, demolition, and construction. A summary is provided below:

Table 1. Summary of Proposed Projects and Alternatives Evaluated in the EA

Project Name	Project ID	Action Alternative	Planning Area	Project Area (SF)	Approximate Implementation Year
Construct SLD 45 Headquarters	C1	C1	SAMSA	300,000	2028
Construct Lodging Facility	C2	C2	NAA	115,000	2025
Construct SLD 45/Judge Advocate Facility	C3	C3	NAA	15,000	2024
Construct 3-Bay C-130J Hangar	C4	C4	AOA	210,000	2024
Construct 920 RQW Equipment Storage Facility	C5	C5-1	AOA	6,300	2024
		C5-2		24,300	
		C5-3		11,300	
Construct 920 RQW Aquatic Training Center	C6	C6	NMSA	8,000	2024
Construct 45 CES Administration, Operations, and Storage Complex	C7	C7	SAMSA	220,000	2025
Improve Space Lift Avenue	N1	N1-1	NAA	30,000	2022
		N1-2		15,000	
Construct Low-Impact Recreation Area	N2	N2	CRA	37,000	2027
Construct Multi-use Path from A1A East Gate to South Gate	N3	N3-1	Multi	121,600	2026
		N3-2		88,000	
Repair and Upgrade 750 Ramp Lighting	R1	R1	AOA	N/A	2022
Relocate Main Sewer Lift Station (Building 650)	R2	R2-1	NAA	4,500	2028
		R2-2	NMSA	4,500	
		R2-3	NAA	4,500	
Improve RV Sites at FAMCAMP	R3	R3	CRA	42,000	2024
Improve MSA Capacity	R4	R4	SAMSA	10,000	2025
Repair Marina Bulkhead	R5	R5	SRA	7,600	2025
Demolish Buildings 556, 560, 561	D1-D3	D1-D3	NAA	30,000	2022– 2028
Demolish Building 961	D4	D4	SAMSA	7,000	2024

920 RQW: 920th Rescue Wing; 45 CES: 45th Civil Engineer Squadron; MSA: Munitions Storage Area; FAMCAMP: Family Campground; NAA: North Administration Area; AOA: Airfield Operations Area; NMSA: North Mission Support Area; CRA: Central Recreation Area; SAMSA: South Administration and Mission Support Area; SRA: South Recreation Area; Multi: Multiple Planning Districts

Depending on projects selected and implemented, site preparation to allow for demolition, new construction, facility renovation, and infrastructure improvements would result in up to approximately 27 acres of ground disturbance throughout the installation and would include less than 0.5 acre of wetland disturbance at the Patrick SFB marina. Up to a half-acre of surface waters and up to seven acres of floodplains may be impacted as a result of the Proposed Action.

Alternatives Eliminated from Further Consideration

This EA has considered all reasonable alternatives under the CEQ regulation, 40 CFR 1502.14(a), which states that that all reasonable alternatives that have been eliminated must be briefly discussed. The scope and location of each proposed project underwent extensive review by 45th Civil Engineer Squadron (45 CES) personnel, local government agencies, and supporting installation and USSF staff specialists. SLD 45 considered alternative siting locations/configurations for each of the projects included in the Proposed Action. Alternatives that were dismissed from further consideration did not meet the purpose and need for the Proposed Action or the Selection Standards listed above. For example, alternative locations for siting the SLD 45 headquarters facility were evaluated but eliminated based on size and accessibility requirements and existing environmental and land use constraints. Further discussion of eliminated alternatives are documented in Section 2.3 of the EA.

Description of the No-Action Alternative

Under the No-Action Alternative, none of the proposed infrastructure improvement projects within the Proposed Action would be implemented. Consequently, no upgrades or additions to the existing infrastructure would occur as described for the Proposed Action, and Patrick SFB would continue to maintain the installation in its existing condition and configuration. For example, under the No-Action Alternative, the SLD 45 Operations staff and associated personnel would continue to use a portion of Building 423, which does not provide adequate functional space for current mission operations or future mission growth. However, because CEQ regulations stipulate that the No-Action Alternative be analyzed to assess any environmental consequences that may occur if the Proposed Action is not implemented, this alternative is carried forward for analysis in the EA. The No-Action Alternative also provides a baseline against which the Proposed Action can be compared.

SUMMARY OF ENVIRONMENTAL FINDINGS

Environmental analysis focused on the following areas: airspace, noise, human health and safety, air quality, greenhouse gases (GHG), geology and earth resources, water resources, biological resources, cultural resources, land use and coastal zone resources, socioeconomics, environmental justice, hazardous and solid materials/waste, and infrastructure (transportation and utilities). USSF has concluded that no significant impacts would result to these resources as summarized below.

Airspace (EA Section 4.2)

No significant impacts have been identified. None of the proposed projects impose any major restrictions on air commerce opportunities, significantly limit access, or require any modifications to ATC systems.

Noise (EA Section 4.3)

No significant impacts have been identified. Construction activities related to the Proposed Action and planned actions would result in short-term, minor, adverse impacts to the noise environment; however, no change to the noise contours currently experienced within the region of Patrick SFB are anticipated. None of the projects evaluated would have an impact on operations-related noise activities.

Health and Human Safety (EA Section 4.4)

No significant impacts to health and human safety have been identified. Short-term, negligible, adverse impacts on health and safety (e.g., slips, falls, heat exposure, exposure to mechanical, electrical, vision, and chemical hazards) could occur from construction, demolition, maintenance, and repair activities associated with the Proposed Action. Construction workers could also encounter soil or groundwater contamination as a result of an Installation Restoration Program (IRP) site or previously unknown soil or groundwater contamination. However, implementation of appropriate safety methods and following Occupational Safety and Health Administration (OSHA) and Air Force Office of Safety and Health (AFOSH) safety standards during these activities would minimize the potential for such impacts. Additional Best Management Practices (BMPs) to minimize impacts to human health and safety are listed in the EA. With these protocols in place, health and safety risks from all planned projects would be reduced to acceptable levels. The removal of contaminated materials would result in a long-term, beneficial impact on safety and occupational health for personnel and residents at Patrick SFB.

Air Quality (EA Section 4.5)

No significant impacts have been identified. Long-term, minor, adverse impacts on ambient air quality (pollutant and GHG emissions) would be expected following implementation of the Proposed Action (including construction/demolition activities and new facility operations); however, none of the estimated emissions for criteria pollutants associated with the Proposed Action would exceed the established significance indicators. Brevard County and Patrick SFB are in attainment with the National Ambient Air Quality Standards (NAAQS), and therefore the General Conformity Rule does not apply. BMPs would include implementing Best Available Control Technologies (e.g., application of water sprays, dust suppressants, use of coverings or enclosures, paving, enshrouding, and planting) during project construction/demolition and complying with United States Environmental Protection Agency (USEPA) regulations to control exhaust emissions. Additional BMPs to minimize impacts on air quality are listed in the EA.

Earth Resources (EA Section 4.6)

No significant impacts have been identified. The Proposed Action may result in short-term, minor, adverse impacts on earth resources during construction through increased erosion. None of the soils affected are considered as prime or unique farmland soils and all are locally or regionally common. All projects discussed (present and future) would be required to comply with United States Army Corps of Engineers (USACE), Florida Department of Environmental Protection (FDEP), and St. Johns River Water Management District (SJRWMD) permitting requirements. Under these permits, Patrick SFB would be required to implement BMPs as part of the Erosion, Sediment, Pollution Control Plan (ESPC) Plan. Implementation of the BMPs listed in the EA would minimize the potential for incremental impacts associated with soil erosion. Since the proposed projects involving construction, road building, and grading activities are small to moderate in size and localized, any potential impacts would be short term.

Water Resources (EA Section 4.7)

No significant impacts have been identified. The Proposed Action may result in long-term, negligible to minor, adverse impacts on water resources; however, those impacts would not result in a permanent loss of function, threaten hydrologic characteristics, endanger public health, or violate laws.

Three proposed projects (Projects C4, C7, and R5) would impact up 0.5 acre of wetlands and surface waters (one acre total). During the design and permitting phase of the Proposed Action, jurisdictional wetlands and surface waters would be delineated in accordance with the USACE *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* and Rule 62-340, Florida Administrative Code (FAC). Efforts would be made to

minimize impacts to wetlands and surface waters to the greatest extent practicable, in compliance with Executive Order (EO) 11990 and Section 404 of the Clean Water Act. Any necessary agency coordination and required permits would be acquired prior to commencing any ground-breaking activities associated with construction. The permit would state in detail the mitigations required to offset this loss. Measures to minimize wetland impacts may include site plan reconfiguration, installation of buffer areas along the perimeter of wetlands, or erosion controls to prevent sedimentation in adjacent wetlands. Construction activities associated with these projects would be conducted in accordance with a Construction Site National Pollutant Discharge Elimination System (NPDES) permit and its associated procedures as detailed in required plans (e.g., ESCP; Stormwater Pollution Prevention Plan [SWPPP]; and Spill Prevention, Control, and Countermeasures [SPCC] Plan).

The Proposed Action would result in temporary construction activity and the construction of new structures within up to seven acres of the 100-year floodplain. The proposed projects within the floodplain (Projects C7, N2, N3, R3, R4, and R5) would not reduce the flood storage capacity of the floodplain in any substantive manner. Construction related impacts to floodplains in general would be minimized through implementation of an approved ESCP and other appropriate environmental protection measures and through adherence to the NPDES permit and SWPPP. Long-term impacts to floodplains from the Proposed Action would be minimized by implementing guidelines provided in EO 11988 for construction in a floodplain to the extent practicable, including site grading so that structures are elevated above the base flood elevation and providing compensatory storage within the floodplain. Additional BMPs to minimize impacts to water resources are listed in the EA.

Biological Resources (EA Section 4.8)

No significant impacts have been identified. The Proposed Action could result in short-term, minor, adverse impacts on biological resources; however, no impacts would result in effects that would jeopardize the continued existence of a species or result in an overall significant decrease in population diversity, abundance, or fitness for any species. Short-term, negligible to minor, adverse impacts to vegetation, essential fish habitat (EFH), critical habitat, and wildlife may occur as a result of the Proposed Action; however, wildlife utilization and habitats are limited within the proposed project areas as most of the installation is developed. No clearing of forested habitat is proposed. Project areas contain suitable habitat and/or documented occurrences for several sensitive species; however, no significant impacts are anticipated. Further detail and anticipated effects determinations for these species are discussed in the EA. Conservation measures identified during informal consultation under Section 7 of the Endangered Species Act will be implemented to minimize potential effects to threatened and endangered species. Additionally, the Proposed Action would avoid and minimize impacts to biological resources by following the methodologies described in the most recent Integrated Natural Resources Management Plan (INRMP) and implementing the BMPs listed in the EA.

Cultural Resources (EA Section 4.9)

No significant impacts have been identified. The Proposed Action may impact cultural resources; however, any adverse effects would be resolved with the State Historic Preservation Office (SHPO) and required actions would be integrated into the Mitigation Monitoring Plan (MMP), in accordance with the Section 106 process in the National Historic Preservation Act (NHPA) and the Patrick SFB Integrated Cultural Resources Management Plans (ICRMP). If prehistoric or historic artifacts that could be associated with Native American, early European, or American settlement, or unmarked human remains were encountered at any time within a project site, all activities involving subsurface disturbance in the vicinity of the discovery would cease and work would not be resumed without authorization from the Florida Division of Historical Resources.

Land Use (EA Section 4.10)

No significant impacts have been identified. The Proposed Action would further the mission of maximizing land use at Patrick SFB, including removal of deteriorating, unused structures for other beneficial use, providing long-term and beneficial land use.

Socioeconomics (EA Section 4.11)

No significant impacts have been identified. The Proposed Action and other actions that would occur over the next five years would have short-term, minor to moderate, beneficial economic effects within Patrick SFB and surrounding communities through the increased demand for construction workers and the procurement of goods and services. Construction-related expenditures would not be expected to generate long-term socioeconomic benefits. In the event that construction workers contracted for the Proposed Action were obtained outside of the local or regional area, the temporary increase in the workforce during the construction phase would result in a temporary increase in local housing and lodging needs. Because the Proposed Action would not result in a long-term increase in the installation or regional population, it would not contribute to cumulative demographic impacts in the region.

Environmental Justice (EA Section 4.12)

No significant impacts have been identified. Possible adverse effects from construction activities could include increased traffic and noise levels and decreased air quality and infrastructure capacity. These effects would be short-term, intermittent, and minor, and are not anticipated to impact off-installation populations. The possible adverse effects would impact the entire base and would not result in disproportionately high and adverse impacts on environmental justice populations.

Hazardous Materials/Waste and Solid Waste (EA Section 4.13)

No significant impacts have been identified. Demolition and construction activities would increase the use and storage of hazardous materials (e.g., solvents, paints, adhesives, etc.) at Patrick SFB for the short-term. Some short-term increases would be realized in terms of the quantity of fuel used during construction activities for these actions. Demolition would increase the amount of hazardous/solid wastes generated, but these activities would last for less than 10 years and all wastes would be disposed of properly. No increases or substantial changes in current quantities and types of hazardous materials or wastes would be expected upon completion of the projects.

Several Solid Waste Management Units (SWMUs) managed by IRP are collocated with the proposed project sites, and planned construction activities have potential to cause short-term, adverse impacts to ongoing remediation activities at these sites. Construction or excavation work within SWMUs must be coordinated with IRP, the Florida Department of Environmental Protection (FDEP), and 45 CES Environmental Office, and any applicable land use controls would be evaluated to ensure continued protection of human health and the environment.

The Proposed Action would involve demolition of existing structures, construction of new buildings and pavements, and potential remediation of contaminated sites, resulting in the generation of construction and demolition debris and removal of soils and other contaminated debris. However, the estimated quantity of generated debris, when compared to regional landfill capacity, would not represent a significant impact to the life expectancy of the landfills. BMPs listed in the EA would be employed to minimize impacts to or from hazardous materials/waste associated with implementing the Proposed Action.

Infrastructure (EA Section 4.14)

No significant impacts have been identified. The Proposed Action would improve the existing utility infrastructure and capacity for Patrick SFB. Minor, short-term transportation impacts would occur during construction, but the proposed improvements to Space Lift Avenue and construction of a

multi-use path would improve the existing transportation infrastructure. Temporary impacts would be minimized through the implementation of BMPs listed in the EA.

Cumulative Effects (EA Section 4.15)

Overall, the Proposed Action would result in short-term, minor to moderate, adverse impacts that would be below significance thresholds described for each resource area. Impacts of the Proposed Action would predominately be limited to the duration of the project implementation and BMPs would minimize impacts to the greatest extent practicable. As such, the projects included in the Proposed Action would not significantly contribute to cumulative impacts when considered with other past, present, and reasonably foreseeable future actions occurring at or in the vicinity of Patrick SFB.

MITIGATIONS

As the proponent for the proposed installation development at Patrick SFB, USSF will be responsible for ensuring that the mitigations listed above in the environmental findings section and in the EA are in place prior to taking any specific action. USSF will oversee and verify mitigations are fully funded by the proponent and are in place and being carried out, as identified in this FONSI/FONPA and the MMP. The MMP will be developed subsequent to this FONSI and will include points of contact for oversight and completion of the mitigation as well as the anticipated timing for mitigation completion. It is expected the mitigation monitoring will generally consist of on-the-ground inspections and any subsequent actions necessary to address deficiencies discovered during the inspections. The EA refers to the use of BMPs. For this FONSI/FONPA and in compliance with Air Force regulation, BMPs will be carried forward and monitored in the MMP.

PUBLIC REVIEW

In September 2021, letters and emails were sent to federal, state, and local agencies and municipalities potentially affected by the Proposed Action informing them of the intent to prepare the EA and requesting input. USSF received comments from five public agencies during the review period. When requested, additional information was provided, and agency comments were addressed in the Draft EA. Copies of the notice and coordination are included in Appendix A of the EA.

Tribal consultation letters were mailed to federally recognized tribes in September 2021. No comments were received. Additional attempts to contact tribal representatives were made throughout the duration of EA development by the SLD 45 Cultural Resources Manager. Appendix A of the EA includes records of all correspondence with the tribes.

In November 2021, an Early Public Notice was published in the *Florida Today* and *The Hometown News (Beaches and North Brevard Editions)* announcing commencement of the EA, detailing that the action would take place in a floodplain/wetland, and seeking advanced public comment. No comments were received.

40 CFR 1500-1508 and 32 CFR 989 require that the public have an opportunity to review and comment on draft NEPA documents. A Notice of Availability for public review of the Draft EA and Draft FONSI/FONPA was published in the *Florida Today* and *The Hometown News (Beaches and North Brevard Editions)* on DATE. The documents were also made available for review on the internet at the Patrick SFB website (https://www.patrick.spaceforce.mil/) and at the following locations:

Cocoa Beach Public Library 550 North Brevard Ave. Cocoa Beach, FL 32931	Satellite Beach Public Library 751 Jamaica Blvd, Satellite Beach, FL 32937	Melbourne Public Library 540 E. Fee Ave. Melbourne, FL 32901
Patrick SFB Library Building 722 842 Falcon Ave Patrick SFB, FL 32925	Suntree / Viera Public Library 902 Jordan Blass Dr Melbourne, FL 32940	

Public comments were received for 30 days. All comments received on the Draft EA will be incorporated into the Final EA.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR 989, I conclude that the implementation of the Proposed Action (19 projects identified in the EA) would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. This analysis fulfills the requirements of NEPA, the President's CEQ 40 CFR 1500-1508 and the Air Force EIAP regulations 32 CFR 989. The signing of this Finding of No Significant Impact completes the EIAP.

FINDING OF NO PRACTICABLE ALTERNATIVE

Pursuant to Executive Order(s) 11988 and 11990, and considering all supporting information, I find there is no practicable alternative to the proposed projects (Projects C7, N2, N3, R3, R4, and R5), which will impact floodplains and wetlands. As noted in the attached EA, there are no practicable alternatives that would avoid all impacts or further minimize impacts to wetlands because the objectives sought by Project R5 (marina bulkhead repair) preclude the selection of any practicable alternatives due to the location of the project. The location of existing infrastructure precludes any other options to implement proposed infrastructure improvement and repair projects (Projects N2, N3, R3, R4, and R5) outside of the 100-year floodplain. These facilities are currently located in the floodplain and proposed projects would improve functionality, sustainability, quality of life, and safety. Existing and future mission requirements, the location of existing infrastructure, and the size and configuration requirements of the proposed 45 CES complex (Project C7) preclude any other siting options. This finding fulfills both the requirements of the referenced Executive Orders and the EIAP regulation, 32 CFR 989.14 for a Finding of No Practicable Alternative.

_____ _____

SIGNATORY NAME **Date**

RANK

TITLE

DRAFT

ENVIRONMENTAL ASSESSMENT (EA)
FOR
INSTALLATION DEVELOPMENT AT
PATRICK SPACE FORCE BASE, FLORIDA

PREPARED FOR:

Department of the Air Force
United States Space Force

1 June 2022

PRIVACY ADVISORY

This Draft Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) NEPA Regulations (40 Code of Federal Regulations [CFR] 1500-1508), and 32 CFR 989, Environmental Impact Analysis Process (EIAP).

The EIAP provides an opportunity for public input on United States Space Force (USSF) decision-making, allows the public to offer input on alternative ways for the USSF to accomplish what it is proposing, and solicits comments on the USSF's analysis of environmental effects.

Public commenting allows the USSF to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only 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 their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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ABBREVIATIONS AND ACRONYMS

AAFES	Army and Air Force Exchange Service
ACAM	Air Conformity Applicability Model
ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-Containing Materials
ACS	American Community Survey
ADA	Americans with Disabilities Act
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFOSH	Air Force Occupational Safety and Health
AFTAC	Air Force Technical Applications Center
AGE	Aerospace Ground Equipment
AHPA	Archeological and Historic Preservation Act
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
AOA	Airfield Operations Area
APE	Area of Potential Effects
APIMS	Air Program Information Management System
APZ	Accident Potential Zone
ASSRT	Atlantic Sturgeon Status Review Team
AT/FP	Antiterrorism Force Protection
ATC	Air Traffic Control
BACT	Best Available Control Technologies
BASH	Bird/wildlife Aircraft Strike Hazard
BFE	Base Flood Elevation
BGEA	Bald and Golden Eagle Act
BLS	Below Land Surface
BMAP	Basin Management Action Plan
BMP	Best Management Practice
BO	Biological Opinion
BRNAS	Banana River Naval Air Station
C&D	Construction & Demolition
CAA	Clean Air Act
CATEX	Categorical Exclusion
CATM	Combat Arms Training and Maintenance
CCTL	Contaminant Cleanup Target Level
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Civil Engineer Squadron
CES/CEIE	Environmental Office
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
CRA	Central Recreation Area
CWA	Clean Water Act
CZ	Clear Zone
CZMA	Coastal Zone Management Act
dB	Decibels
dBA	"A-weighted" Decibel
DDESB	Department of Defense Explosives Safety Board
DDP	District Development Plan
DEOMI	Defense Equal Opportunity Management Institute
DESR	Defense Explosives Safety Regulations
DLA	Defense Logistics Agency

DNL	Day/Night Sound Level
DO	Dissolved Oxygen
DoD	Department of Defense
DoS	Department of State
DRI	Developments of Regional Impact
DRSL	DoD Regional Seal Level
EA	Environmental Assessment
ECM	Earth Covered Magazine
EFH	Essential Fish Habitat
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
ER	Eastern Range
ERP	Environmental Resource Permit
ESA	Endangered Species Act
ESQD	Explosive Safety Quantity Distance
FAA	Federal Aviation Administration
FAC	Florida Administrative Code
FAMCAMP	Family Campground
FCMP	Florida Coastal Management Program
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDHR	Florida Division of Historical Resources
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FETSA	Florida Endangered and Threatened Species Act
FICAN	Federal Interagency Committee on Aviation Noise
FLIGHT	Facility Level Information on Greenhouse Gases Tool
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FNAI	Florida Natural Areas Inventory
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FPL	Florida Power & Light
F.S.	Florida Statutes
FSA	Fuel Storage Area
FWC	Florida Fish and Wildlife Conservation Commission
GHG	Greenhouse Gas
GPD	Gallons per Day
HAP	Hazardous Air Pollutant
HAPC	Habitat Areas of Particular Concern
HazMat	Hazardous Materials
HAZWOPER	Hazardous Waste, Operations, and Emergency Response
HQ	Headquarters
HUD	Housing and Urban Development
HVAC	Heating, Ventilation, & Air Conditioning
HWMP	Hazardous Waste Management Plan
IBA	Important Birding Areas
ICRMP	Integrated Cultural Resources Management Plan
IDP	Installation Development Plan
IFS	Installation Facilities Standards
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
IRP	Installation Restoration Program
ISWMP	Integrated Solid Waste Management Plan
JA	Judge Advocate

JDMTA	Jonathan Dickinson Missile Tracking Annex
LBP	Lead-based Paint
LED	Light Emitting Diode
LF	Linear Feet
LRS	Logistics Readiness Squadron
LRTP	Long Range Transportation Plan
LTM	Long-Term Monitoring
LUC	Land Use Control
MAJCOM	Major Command
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MNA	Monitored Natural Attenuation
MOA	Military Operations Areas
MRTFB	Major Range and Test Facility Base
MSA	Munitions Storage Area
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSL	Mean Sea Level
MS4	Municipal Separate Storm Sewer System
MTA	Malabar Transmitter Annex
MWR	Morale, Welfare, and Recreation
NAA	North Administration Area
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFA	No Further Action
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NMSA	North Mission Support Area
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
ODS	Ozone Depleting Substance
ORC	Optimized Remediation Contract
OSHA	Occupational Safety and Health Administration
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PFAS	Per- and Polyfluoroalkyl Substances
PFBS	Perfluorobutane Sulfonic Acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PM	Particulate Matter
PPE	Personal Protective Equipment
PTE	Potential to Emit
PVC	Polyvinyl Chloride
QOL	Quality of Life
RCRA	Resource Conservation and Recovery Act
RCP	Representative Concentration Pathway
RI	Remedial Investigation
ROI	Region of Influence
ROSA	Radar Open System Architecture
RQS	Rescue Squadron

RQW	Rescue Wing
RV	Recreational Vehicle
SAFMC	South Atlantic Fishery Management Council
SAGE	Semi-Automatic Ground Environment
SB	Statement of Basis
SCADA	Supervisory Control and Data Acquisition
SF	Square Feet
SFB	Space Force Base
SFS	Space Force Station
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Officer
SI	Site Investigation
SJRWMD	St. Johns River Water Management District
SLD 45	Space Launch Delta 45
SLR	Sea Level Rise
SAMSA	South Administration and Mission Support Area
SR	State Road
SRA	South Recreation Area
SRCO	Site Rehabilitation Completion Order
SSURGO	Soil Survey Geographic Database
SVOC	Semi-Volatile Organic Compound
SW	Space Wing
SWI	Space Wing Instruction
SWMP	Stormwater Management Plan
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Properties
THPO	Tribal Historic Preservation Officer
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Load
TPY	Tons per Year
TRPH	Total Recoverable Petroleum Hydrocarbon
TSCA	Toxic Substance Control Act
UFC	Unified Facilities Criteria
U.S.	United States
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USSF	United States Space Force
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VQ	Visiting Quarters
WOTUS	Waters of the United States

1 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

The Space Launch Delta 45 (SLD 45) at Patrick Space Force Base (SFB), Florida and Headquarters United States Space Force (HQ USSF) have identified priorities for installation development projects and proposes to implement them over the next five years (2023–2028). This Environmental Assessment (EA) for installation development was prepared to evaluate the potential environmental impacts of these proposed projects in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4331 et seq), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA (40 Code of Federal Regulations [CFR] 1500-1508), the United States Air Force (USAF) Environmental Impact Analysis Process (EIAP) at 32 CFR Part 989, and Air Force Instruction (AFI) 32-1015, *Integrated Installation Planning*.

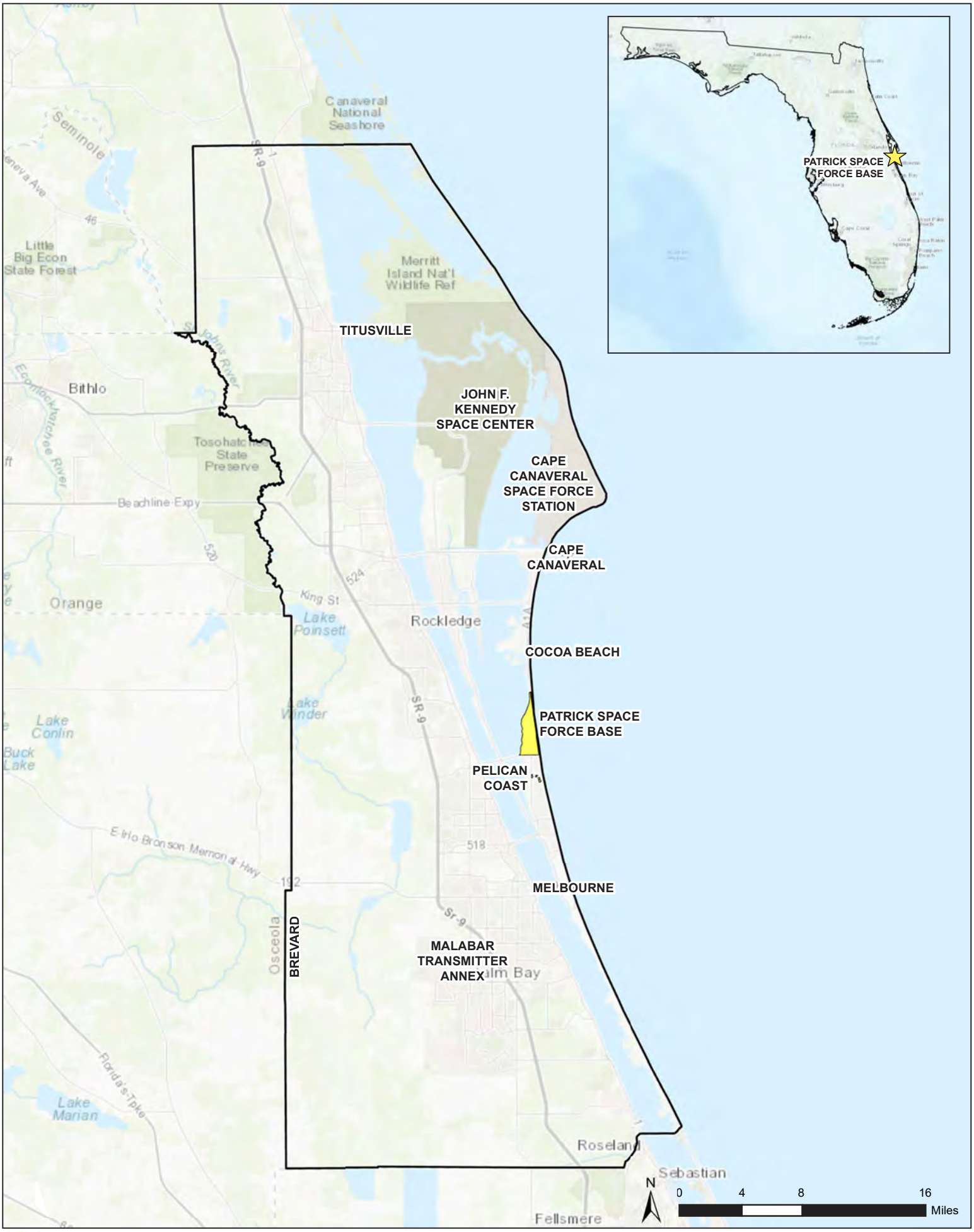
The intent of the ongoing process of installation development at Patrick SFB (formerly Patrick Air Force Base [AFB]) is to provide infrastructure improvements that would most efficiently support the mission of SLD 45 and tenant units, while promoting sustainability within the installation and the surrounding community. The 19 projects (Proposed Action) considered in this EA were identified as priorities for installation development in the Patrick SFB District Development Plan (DDP) (publication pending). The DDP planning process included input from stakeholders about project priorities and goals. The process incorporated relevant projects from existing approved plans for installation development, including the *Patrick AFB Installation Development Plan* (IDP) (USAF 2017b) and the *Patrick AFB General Plan* (USAF 2011a). These plans identify requirements for improving the physical infrastructure and functionality of Patrick SFB based on current and future mission needs, development constraints and opportunities, and land use relationships.

Patrick SFB is located on a barrier island on the central east coast of Florida, south of the City of Cocoa Beach, and north of South Patrick Shores and the City of Satellite Beach (Figure 1-1). The main base covers approximately 2,004 acres and is bounded by the Atlantic Ocean on the east and the Banana River Aquatic Preserve (Banana River) on the west. Small parcels remain as USAF property in Pelican Coast (formerly South Housing), approximately one mile south of Patrick SFB proper.

Patrick SFB, originally the Banana River Naval Air Station (BRNAS), was transferred from the United States (U.S.) Navy to USAF in 1948, becoming Patrick AFB (USAF 2017b). In 2020, following the creation of USSF, Patrick AFB was renamed Patrick SFB. The installation has hosted a variety of missions and aircraft types throughout its history. It is home to SLD 45 and other tenants, including the 920th Rescue Wing (920 RQW), the Air Force Technical Applications Center (AFTAC), the Defense Equal Opportunity Management Institute (DEOMI), and the Department of State (DoS).

Patrick SFB is part of the Eastern Range (ER), which is managed by SLD 45. The launch center of the ER is Cape Canaveral Space Force Station (SFS), formerly Cape Canaveral Air Force Station. The ER also includes Malabar Transmitter Annex (MTA), Jonathan Dickinson Missile Tracking Annex (JDMTA), Ascension Auxiliary Airfield, and off-base meteorological instrumentation sites. The primary SLD 45 mission is to manage ER launch operations; therefore, the aircraft traffic at Patrick SFB is primarily associated with tenant and transient operations.

The intent of SLD 45 and HQ USSF is to streamline NEPA compliance and facilitate the installation development process by evaluating potential environmental impacts of the 19 proposed projects at Patrick SFB in one integrated EA. These projects are listed and described in Section 1.4.



PATRICK SPACE FORCE BASE EA
FIGURE 1-1: LOCATION OF PATRICK SFB

The information presented in the EA will serve as the basis for deciding whether the Proposed Action may result in a significant impact to the environment, requiring the preparation of an Environmental Impact Statement (EIS), or whether no significant impacts may occur, resulting in a Finding of No Significant Impact (FONSI). Because the Proposed Action would involve "construction" in a wetland as defined in Executive Order (EO) 11990, *Protection of Wetlands*, or "action" in a floodplain under EO 11988, *Floodplain Management*, a Finding of No Practicable Alternative (FONPA) shall be prepared in conjunction with the FONSI.

1.2 PURPOSE OF INSTALLATION DEVELOPMENT

The DDP provides a comprehensive planning framework to identify and prioritize future requirements and goals for base development to ensure successful base operations, adequate support capacity, and continued ability to support its assigned mission sets. The goals of the DDP are to maximize the installation's long-term capabilities; identify areas suitable for future development; direct the scale of development; and define how and where that development should occur to best meet the ongoing mission needs and long-term planning vision. Installation planning must integrate the NEPA process: to ensure that planning and decisions reflect environmental and community values; to identify alternatives considered and document which alternatives shall be carried forward for full analysis (and the rationale for those dismissed); and to avoid delays and potential conflicts later in the process.

1.3 NEED FOR INSTALLATION DEVELOPMENT

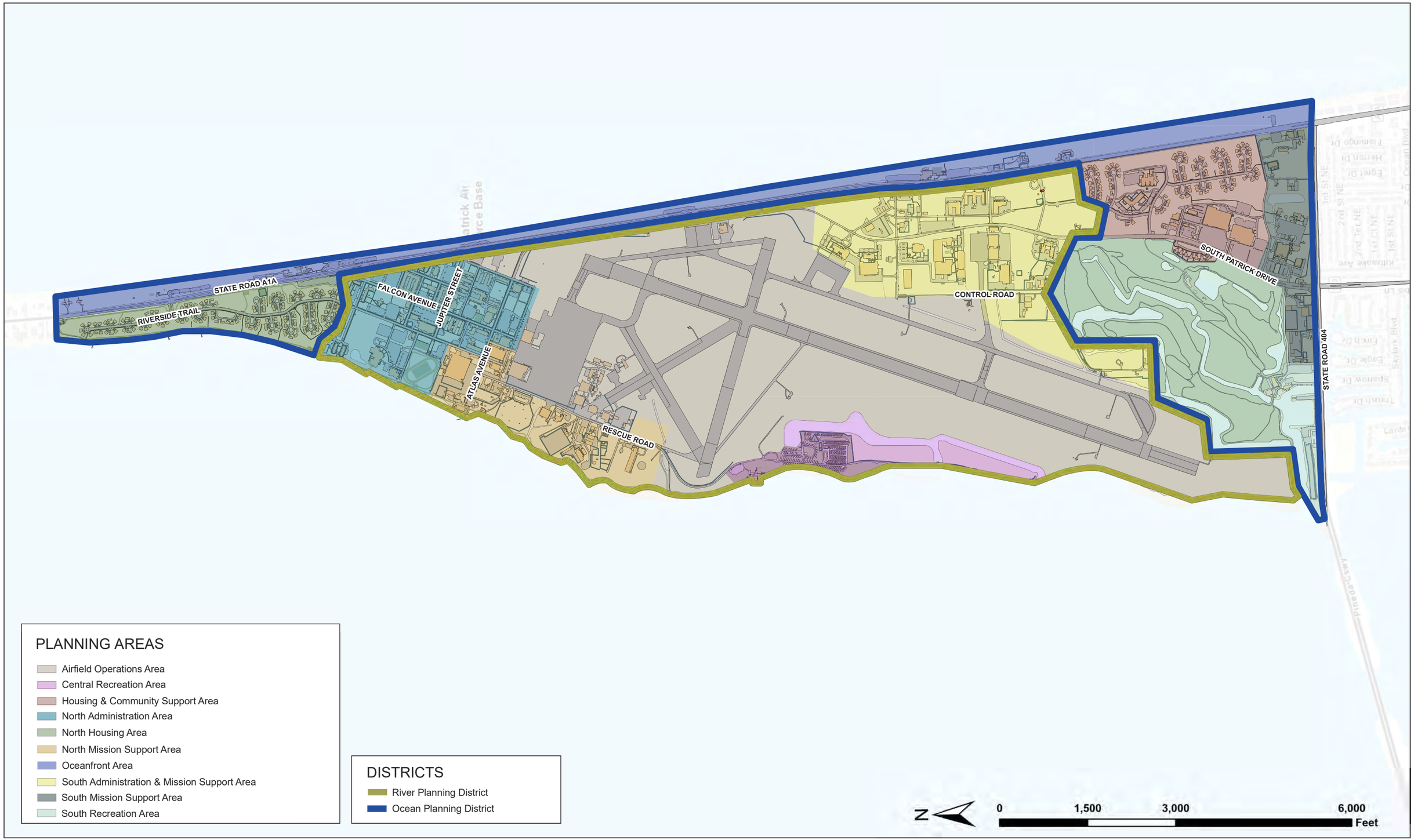
Installation development at Patrick SFB is needed to improve the physical infrastructure and functionality of the base in support of SLD 45 and tenant unit missions in a manner that:

- Accommodates increased launch operations at Cape Canaveral SFS, tenant and transient flying missions, Major Range and Test Facility Base (MRTFB) operations, pararescue and combat rescue training, and expanded Department of Defense (DoD) training requirements.
- Supports the quality of life (QOL) of tenants and service members hosted at Patrick SFB.
- Meets applicable DoD installation master planning criteria, consistent with Unified Facilities Criteria (UFC) 2-100-01, *Installation Master Planning*, and USAF comprehensive planning policy/directives.
- Meets all applicable DoD, federal, state, and local laws and regulations including EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Clean Water Act (CWA), Clean Air Act (CAA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), and Migratory Bird Treaty Act (MBTA). More detailed information regarding resource-specific laws and regulations are in the respective resource sections in Section 3.

1.4 PROJECTS IDENTIFIED IN THE DDP

As part of installation development, planning districts are delineated based on the existing transportation network, architecture, and land use patterns. Within each district, planning areas are defined by land use in relation to mission and operations. The DDP identifies projects that are correlated with the goals and objectives of the planning districts and areas.

Patrick SFB is divided into two planning districts and 10 planning areas (Figure 1-2). Descriptions of the planning districts and areas are summarized in Table 1-1.



PATRICK SPACE FORCE BASE EA

FIGURE 1-2: PATRICK SFB PLANNING DISTRICTS AND PLANNING AREAS

Table 1-1. Patrick SFB Planning District and Area Descriptions

River Planning District • Encompasses central areas of the base between the Banana River and State Road (SR) A1A, north to the fence line at the North Housing Area's southern perimeter and south to the Manatee Cove Golf Course's northern perimeter. • Includes the following five planning areas:
North Administration Area
• Serves as the Patrick SFB administrative center. • Includes SLD 45 Headquarters and administrative offices, DEOMI training center, dormitory housing, lodging quarters, wellness and recreational facilities, chapel, A1A East Gate, Housing Administration office, and other storage and support facilities.
Airfield Operations Area
• Consists of runways, associated taxiways, aprons/ramps, and airfield facilities (e.g., hangars, equipment storage, and support facilities).
North Mission Support Area
• Characterized by facilities and operations that support 920 RQW and optimize airfield access. • Includes fuel storage, 920 RQW operations and maintenance facilities, Squadron Operations and Aircraft Maintenance, indoor Combat Arms Training and Maintenance (CATM) facility, Guardian Angel facilities, and various Civil Engineer Squadron (CES) functions.
Central Recreation Area
• Contains facilities supporting physical fitness training and recreational activities. • Includes Chevron Park and the Family Campground (FAMCAMP).
South Administration and Mission Support Area
• Characterized by maintenance, operations, or mission-specific buildings and facilities. • Includes the fire station, AFTAC facilities, Hazardous Materials (HazMat) operations facility, DoS air operations, the air passenger terminal, Traffic Management, Logistics Readiness Squadron (LRS) storage facility, Security Forces Squadron, CES storage, mechanical, and electrical shops, Commercial Vehicle Gate, and Munitions Storage Area (MSA).
Ocean Planning District • Encompasses the area east of SR A1A from the installation's northern boundary to SR 404; west of SR A1A, this district includes the north housing area and is bounded by the South Administration and Mission Support Area, the Airfield Operations Area, and SR 404. Pelican Coast is also located in this district. • Includes the following five planning areas:
North Housing Area
• Provides permanent housing and includes the privately operated North Housing.
Housing and Community Support Area
• Supports health and welfare through retail, health care, entertainment, and leased housing facilities. • Includes the Child Development Center, Exchange, pharmacy, fueling station with car wash, and fast food restaurant.
South Mission Support Area
• Provides mission and support services for Patrick SFB. • Includes Security Forces Squadron kennel and operations, medical, dental, and veterinary clinics, Air Rescue Medical Training facilities, South Gate, warehouse facilities, and recreational vehicle (RV) parking.
South Recreation Area
• Provides recreational opportunities. • Includes the Patrick SFB Golf Course and Clubhouse and support facilities and Patrick SFB Marina and Club.
Oceanfront Area
• Provides beachfront recreational, dining, and lodging opportunities with public access to the Atlantic Ocean. • Includes the beachfront cottages, the Beach House, Tides Club, Patrick SFB Beaches, base radar facilities, and Pineda Beach Park.

The land use goals of each planning area were used to identify 19 individual projects within the DDP evaluated for this EA. These projects include initiatives for facility construction (C), infrastructure improvement (N), renovation/repair (R), and facility demolition (D). Table 1-2 lists these projects.

Table 1-2. Projects Identified in the DDP to be Evaluated in the EA

Project ID	Project Name	Description of Project	Approximate Implementation Year
River Planning District			
North Administration Area			
C1	Construct SLD 45 Headquarters	Construct a headquarters facility with administrative and operations areas for SLD 45 Operations staff.	2028
C2	Construct Lodging Facility	Construct a Visiting Quarters (VQ) lodging facility to replace the current VQ facilities that would be demolished for the construction of the proposed A1A East Gate (See Table 1-3).	2025
C3	Construct SLD 45/Judge Advocate (JA) Facility	Construct a facility to support the SLD 45/JA mission that would include a courtroom, office space, and administrative support functions.	2024
N1	Improve Space Lift Avenue	Construct an intersection at the proposed A1A East Gate (Matador Street) and Space Lift Avenue, resurface Space Lift Avenue, and improve sidewalks in the project area.	2023
D1–D3	Demolish Buildings 556, 560, and 561	Demolish obsolete buildings within the airfield operation clear zone (CZ).	2023–2028
Airfield Operations Area			
C4	Construct 3-Bay C-130J Hangar	Construct a 3-bay C-130J hangar and associated facilities, including corrosion control and washing stations.	2024
C5	Construct 920 RQW Equipment Storage Facility	Construct a high-bay, industrial, climate-controlled Aerospace Ground Equipment (AGE) storage facility.	2024
R1	Repair and Upgrade 750 Ramp Lighting	Repair and upgrade the lighting at the 750 Ramp for nighttime and low-visibility operations in accordance with AFI 31-118, *Security Forces Standards and Procedures*.	2024
North Mission Support Area			
C6	Construct 920 RQW Aquatic Training Center	Construct an outdoor, deep-water pararescue, and combat rescue aquatic training center.	2024
R2	Relocate Main Sewer Lift Station (Building 650)	Relocate main sewer lift station away from the Banana River.	2028
Central Recreation Area			
N2	Construct Low-impact Recreation Area	Construct low-impact recreational area near FAMCAMP for use by visitors and base personnel.	2027
R3	Improve RV Sites at FAMCAMP	Pave the existing gravel RV sites at FAMCAMP.	2024
South Administration and Mission Support Area			
C7	Construct 45 CES Administration, Operations, and Storage Complex	Construct an administrative building, maintenance shop, storage facility, and supporting infrastructure to consolidate 45 CES operations.	2025
R4	Improve MSA Capacity	Demolish and replace existing munitions storage bunkers.	2025
D4	Demolish Building 961	Demolish vacant building that is beyond practical repair.	2024
Ocean Planning District			
South Recreation Area			
R5	Repair Marina Bulkhead	Repair bulkhead and add electric power connections to existing slips at F Dock.	2025
Multi-District			
N3	Construct Multi-use Path from A1A East Gate to South Gate	Construct a multi-use path for pedestrians and cyclists that connects the proposed A1A East Gate to recreational facilities near the South Gate.	2026

Actions that were analyzed under previous, separate NEPA documents (Table 1-3) will be used as tiering documents per 32 CFR 989.10 to "eliminate repetitive discussions and focus on the issues related to the specific actions" evaluated under this EA. Previously approved actions will be incorporated by reference in Section 3 of this EA, which provides a baseline description of the existing physical, social, and economic environment within and around Patrick SFB.

Table 1-3. Previously Approved Actions at Patrick SFB

Project Name	Approval Document (Year)	Project Status
River Planning District		
North Administration Area		
Construct A1A East Gate	*Environmental Assessment of the General Plan and Maintenance of Patrick Air Force Base, Florida* (2012)	Awaiting funding
Construct Consolidated Network Communications Control Center (Communications Facility)	*Environmental Assessment of the General Plan and Maintenance of Patrick Air Force Base, Florida* (2012)	Awaiting funding
North Mission Support Area		
Construct 39th Rescue Squadron (39 RQS) Building Addition	*Environmental Assessment for the 920th Rescue Wing Beddown, Patrick Air Force Base, Florida* (2005).	Awaiting funding
Construct Guardian Angel Facility	*Categorical Exclusion (CATEX), Construct Guardian Angel Facility* (2016)	Under Construction
South Administration and Mission Support Area		
Construct Commercial Vehicle Gate	*Environmental Assessment of the General Plan and Maintenance of Patrick Air Force Base, Florida* (2012)	Awaiting funding
Ocean Planning District		
South Mission Support Area		
Construct South Gate	*Environmental Assessment of the General Plan and Maintenance of Patrick Air Force Base, Florida* (2012)	Awaiting funding
Oceanfront Area		
Construct Beach Cottages	*Environmental Assessment for Outdoor Recreation Beach Cottages on Patrick Air Force Base, Florida* (2020)	Awaiting funding

1.5 ENVIRONMENTAL ANALYSIS APPROACH

The environmental analysis within this EA evaluates the 19 priority projects identified in the DDP that may be implemented over the next five years (2023–2028). This analysis focuses on future development activities and priorities of the installation as established by the Delta Commander in conjunction with Major Command (MAJCOM) and USSF mission planning. Changing the order of projects or selecting/removing projects would not preclude action on the remaining projects. Any additional projects or future activities proposed on areas associated with the installation must be evaluated on their own merit under the USAF EIAP guidelines to determine the scope of environmental impacts and the appropriate level of NEPA analysis.

1.6 PURPOSE AND NEED FOR INDIVIDUAL PROPOSED PROJECTS

Each of the proposed projects included in the EA has a specific purpose and need that supports the land use and development goals of its planning area. The goals for planning areas with projects evaluated in this EA are summarized in Table 1-4. The purpose and need for each of the projects considered for analysis are presented in Table 1-5.

Table 1-4. Goals of Planning Areas with Projects Evaluated in the EA

River Planning District
North Administration Area
• Create a campus plan with pedestrian-friendly circulation, perimeter parking and vehicular circulation, and buildings to maximize green space and river viewsheds. • Focus development on administration, training, lodging, community support, physical fitness, and recreation facilities. • Consolidate functions, where possible, and utilize existing buildings efficiently. • Relocate functions from the airfield operation CZ into developable areas within this planning area, where appropriate.
Airfield Operations Area
• Optimize land use for airfield operations. • Focus development on airfield operations, maintenance, and repair activities.
North Mission Support Area
• Optimize land use for airfield access. • Focus development on mission support functions for SLD 45, 920 RQW, and other tenants, as required.
Central Recreation Area
• Provide additional features to support physical fitness training, and recreational activities.
South Administration and Mission Support Area
• Optimize land use for administration, maintenance, storage, and operations facilities to support mission operations for SLD 45, 45 CES, and other tenants. • Optimize land use for airfield access. • Maximize MSA storage capacity. • Relocate functions from the airfield operation CZ into developable areas within this planning area, where appropriate.
Ocean Planning District
South Recreation Area
• Provide additional features to support physical fitness, entertainment, and recreational activities.

Table 1-5. Purpose and Need for Each Proposed Action

Project ID	Project Name	Purpose of the Action	Need for the Action
River Planning District			
North Administration Area			
C1	Construct SLD 45 Headquarters	Provide a headquarters facility for SLD 45 Operations staff to meet current and future launch mission requirements.	The current headquarters facility does not provide adequate functional space for current space launch mission operations or future mission growth.
C2	Construct Lodging Facility	Provide on-base lodging to accommodate visiting military personnel within walking distance of installation facilities.	Three existing lodging facilities would be demolished to allow for the construction of the proposed A1A East Gate (See Table 1-3), which would result in a shortage of required lodging opportunities on base in accordance with Air Force Manual (AFMAN) 34-135, *Air Force Lodging Program*.
C3	Construct SLD 45/JA Facility	Provide continual SLD 45/JA support for the space launch mission.	The SLD 45/JA mission currently uses the courtroom in Building 562, which contains unsafe levels of mold and mildew and would require extensive renovation to meet mission requirements. Building 562 is in the airfield operation CZ and is planned for demolition in accordance with UFC 3-260-01, *Airfield and Heliport Planning and Design*. A new facility is required prior to demolition to maintain continual SLD 45/JA functions.
N1	Improve Space Lift Avenue	Improve the traffic flow and visual quality of the base while enhancing driver and pedestrian safety at the proposed A1A East Gate location.	The relocated A1A East Gate is anticipated to increase traffic on Space Lift Avenue. The current intersection pattern would result in traffic congestion with pedestrian and vehicle conflicts.
D1-D3	Demolish Buildings 556, 560, and 561	Reduce unnecessary operation of facilities no longer required to support the Patrick SFB mission.	Buildings 556, 560, and 561 are obsolete, have no future use, and are beyond practical repair. Demolition would eliminate the maintenance costs associated with sustaining these facilities. These buildings are in the airfield operation CZ; therefore, demolition would also eliminate the need for a permanent CZ waiver in accordance with UFC 3-260-01.
Airfield Operations Area			
C4	Construct 3-Bay C-130J Hangar	Maximize the life span of the C-130J aircraft stored at Patrick SFB.	The existing C-130J storage and maintenance area is outside on the apron/ramp and exposed to the salt-air environment, which reduces the aircraft lifespan by approximately 15 years and increases maintenance costs.
C5	Construct 920 RQW Equipment Storage Facility	Maximize the service life of AGE at Patrick SFB.	The 920 RQW AGE is currently stored on aprons/ramps that are exposed to the salt-air environment, reducing equipment lifespan by 70% and increasing maintenance costs.
R1	Repair and Upgrade 750 Ramp Lighting	Enhance personnel safety and physical security at the 750 Ramp.	The existing lighting on the 750 Ramp provides insufficient nighttime visibility on the apron/ramp and surrounding area. In addition, the existing lighting does not meet Security Forces requirements in accordance with AFI 31-118.

Purpose of and Need for Action

Project ID	Project Name	Purpose of the Action	Need for the Action
North Mission Support Area			
C6	Construct 920 RQW Aquatic Training Center	Enable 920 RQW to conduct deep-water rescue training at Patrick SFB.	920 RQW does not have a facility to conduct deep-water rescue training. An aquatic training center with adequate depth is necessary to develop and maintain core proficiencies vital to the pararescue and combat rescue mission.
R2	Relocate Main Sewer Lift Station (Building 650)	Provide continued and enhanced wastewater conveyance for the base and to reduce the potential for environmental impacts to the Banana River.	The infrastructure of the current wastewater facility has reached the end of its life expectancy and is failing. A complete system failure could result in loss of service or raw sewage entering the Banana River.
Central Recreation Area			
N2	Construct Low-impact Recreation Area	Improve QOL and morale by providing recreational facilities on base.	The base lacks outdoor recreational opportunities near FAMCAMP. Currently, Rescue Road beyond FAMCAMP is utilized as a walking trail; however, parking, restrooms, and other amenities are not provided.
R3	Improve RV Sites at FAMCAMP	Increase the efficiency of FAMCAMP maintenance.	The RV sites at FAMCAMP are frequently washed out during storm events, which requires regular maintenance and repair.
South Administration and Mission Support Area			
C7	Construct 45 CES Administration, Operations, and Storage Complex	Increase the efficiency of 45 CES operations.	The current 45 CES operations buildings are not in a consolidated location, which reduces efficiency. The current 45 CES administrative and office facilities are in the airfield operation CZ and are scheduled for demolition in accordance with UFC 3-260-01. The existing maintenance shop and storage facility are planned for demolition to construct the proposed Communications Facility (see Table 1-3).
R4	Improve MSA Capacity	Bring magazines to current standards, provide safer and more modern munitions storage, and increase storage capacity for SLD 45 and 920 RQW.	The current MSA is over 80 years old and does not have sufficient storage capacity to support the 920 RQW and SLD 45 missions.
D4	Demolish Building 961	Reduce unnecessary operation of facilities no longer required to support the Patrick SFB mission.	Building 961 has no future use and is beyond practical repair. Demolition would eliminate the maintenance costs associated with sustaining facilities.
Ocean District			
South Recreation Area			
R5	Repair Marina Bulkhead	Improve the safety of the marina bulkhead at F Dock.	The existing marina bulkhead at F Dock is in poor condition, resulting in increased safety risks and maintenance costs.
Multi-District			
N3	Construct Multi-use Path from A1A East Gate to South Gate	Enhance pedestrian and cyclist safety and circulation between the north and south ends of the base.	Patrick SFB does not have a contiguous multi-use path connecting the A1A East Gate to the recreational facilities near the South Gate. Pedestrians and cyclists must utilize existing roadways and roadway shoulders, which increases driver and pedestrian conflicts.

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1.7 INTERAGENCY COORDINATION/INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

1.7.1 Interagency Coordination and Consultations

Scoping is an early and open process for developing the breadth of issues to be addressed in the EA and for identifying substantial concerns related to the Proposed Action. Per the requirements of Intergovernmental Cooperation Act of 1968 (42 USC 4231(a)) and EO 12372, *Intergovernmental Review of Federal Programs*, federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action were notified during the development of this EA. The agencies contacted during this analysis are listed in Section 6. Copies of agency correspondence are included in Appendix A.

1.7.2 Government to Government Consultations

NHPA implementing regulations at 36 CFR Part 800 directs federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. Consistent with those regulations, DoD Issuance 4710.02, *Interactions with Federally-Recognized Tribes*, and AFI 90-2002, *Air Force Interactions with Federally Recognized Tribes*, federally-recognized tribes that are historically affiliated with the Patrick SFB geographic region were invited to consult on proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification to all relevant tribes. The timelines for tribal consultation are also distinct from those of other consultations. The Patrick SFB point-of-contact for Native American tribes is the Installation Commander.

In September 2021, the USSF solicited early comment from the three Native American tribal governments whose interests might be directly and substantially affected by the Proposed Action. Letters and emails informing the tribes of the intent to prepare the EA and requesting input from the tribes were sent to the Seminole Nation of Oklahoma, Miccosukee Tribe of Indians of Florida, and the Seminole Tribe of Florida. Correspondence with the Native American tribal governments regarding these actions is included in Appendix A.

1.7.3 Other Agency Consultations

Pursuant to the requirements of Section 106 of the NHPA and implementing regulations (36 CFR Part 800), findings of effect and request for concurrence will be transmitted to the Florida Division of Historic Resources (FDHR), State Historic Preservation Officer (SHPO). Similarly, per Section 7 of the ESA and implementing regulations (50 CFR 402), and the MBTA (16 USC 703-711), findings of effect and request for concurrence will be transmitted to the U.S. Fish and Wildlife Service (USFWS). Correspondence from SHPO and USFWS regarding the findings, concurrence, and/or resolution of any adverse effect will be included in the Final EA.

Other state and local agencies will be consulted through the Florida Department of Environmental Protection (FDEP) Office of Intergovernmental Programs State Clearinghouse Process. These agencies will be provided an opportunity to review the Draft EA. Correspondence with state agencies regarding the findings, concurrence, and/or resolution of any adverse effect will be included in the Final EA.

In September 2021, letters and emails were sent to federal, state, and local agencies and municipalities potentially affected by the Proposed Action informing them of the intent to prepare the EA and requesting input. This correspondence is included in Appendix A.

1.8 PUBLIC AND AGENCY REVIEW

The Proposed Action may impact wetlands and/or floodplains; therefore, it is subject to the requirements of EO 11990, EO 11988, and EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*. USSF published early notice that the Proposed Action may occur in a floodplain/wetland in *Florida Today* and the *Hometown News* (Beaches and North Brevard Editions) in November 2021. The comment period for public and agency input on these projects lasted for 30 days. A copy of this notice is included in Appendix A. No public comments were received.

Upon completion of the Draft EA and FONSI/FONPA, a Notice of Availability (NOA) will be published in *Florida Today* and *The Hometown News* (North Brevard and Beaches Editions) announcing the availability of the NEPA documents for review. The NOA will invite the public to review and comment on the Draft NEPA documents. The public review period will last for 30 days. The NOA and comments received will be included in the Final EA.

Copies of the Draft EA and FONSI/FONPA will also be made available for review on the Patrick SFB website (https://www.patrick.spaceforce.mil/) and at the following locations:

Cocoa Beach Public Library 550 North Brevard Ave. Cocoa Beach, FL 32931	Satellite Beach Public Library 751 Jamaica Blvd, Satellite Beach, FL 32937	Melbourne Public Library 540 E. Fee Ave. Melbourne, FL 32901
Patrick SFB Library Building 722 842 Falcon Ave Patrick SFB, FL 32925	Suntree / Viera Public Library 902 Jordan Blass Dr Melbourne, FL 32940	

1.9 DECISION TO BE MADE

The EA evaluates whether the Proposed Action may result in significant impacts on the environment. If significant impacts are identified, Patrick SFB would: quantify impacts, define mitigation to minimize impacts, and provide the analysis in the EA; undertake the preparation of an EIS addressing the Proposed Action; or abandon the Proposed Action.

This EA is a planning and decision-making tool that will be used to guide Patrick SFB in implementing the Proposed Action in a manner consistent with USSF standards for environmental stewardship.

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

This EA evaluates the potential environmental impacts that may occur from the Proposed Action, which includes 19 projects identified in the DDP anticipated for implementation within the next five years (2023–2028) at Patrick SFB. This EA treats each project as a discrete action and evaluates each project and its alternatives separately.

2.2 SELECTION STANDARDS FOR PROJECT ALTERNATIVES

The scope and location of each proposed project have undergone extensive review by 45 CES personnel, local government agencies, and supporting installation and USSF staff specialists. Project alternatives were each evaluated based on three universal selection standards. Each project description in Section 2.3 provides details regarding how these universal selection standards apply to specific project requirements.

Standard 1: ***Planning Constraints (IDP Chapter 6; USAF 2017b)*** – Planning constraints are man-made or natural elements that can create substantial limitations to the operation or construction of buildings, roadways, utility systems, airfields, training ranges, and other facilities. These constraints, when considered collectively with the installation's capacity opportunities, inform the identification of potential areas for development, as well as those areas that can be redeveloped to support growth. This standard addresses compatibility with installation operational aspects, climate change adaptation and resilience, natural and cultural resources, and built constraints, and largely dictates the location/placement of a proposed facility.

- *Operational and Mission* – Operational and mission constraints at Patrick SFB are generally related to launch critical communications and telemetry; flying and maintaining aircraft; and operating training ranges or fulfilling similar operational requirements that can limit future development activity. Operational constraints at Patrick SFB include airfield operation CZ, Accident Potential Zone (APZ), noise contours, lines of sight, and air installation compatible use zones (AICUZ).
- *Natural* – Natural constraints at Patrick SFB include environmental and cultural resources. These resources provide positive aesthetic, social, cultural, and recreational attributes that substantially contribute to the overall QOL on base. At the same time, these resources can also constrain development and restrict where mission activities can occur. Areas of concern at Patrick SFB include sea-level rise, floodplains, erosion, Installation Restoration Program (IRP) sites, bird/wildlife aircraft strike hazard (BASH), threatened and endangered species, wetlands, the Banana River, and cultural and historical sites.
- *Built* – The built constraints at Patrick SFB associated with explosive safety quantity distance (ESQD) arcs, antiterrorism force protection (AT/FP) standards, and fuel storage are included in this standard. The condition and functionality of the remaining built infrastructure (utility systems, airfield and transportation infrastructure, and facilities) are in Standard 2 (below).

Standard 2: ***Installation Capacity Opportunities (IDP Chapter 7; USAF 2017b)*** – The capability of the installation's existing facilities/infrastructure to meet existing and future mission requirements drives the scope of base development and/or improvement. This standard requires that proposed facility and infrastructure development and improvement support the following aspects:

- *Mission Operations* – Mission operations include a broad range of functions with specific requirements in terms of facilities, infrastructure, and systems needed to adequately support the Patrick SFB launch support and tenant missions. At Patrick SFB, the capacity or condition of the following systems, resources, or facilities could limit development or threaten mission operations: developable land, airfield pavements, apron/ramp space, MSA, radar and mission communications facilities, and fire protection.
- *Mission Support* – The ability of the installation and its facilities to accommodate and manage essential mission support needs and related facilities is key to maintaining the ongoing mission and potentially accepting expanded missions. Patrick SFB mission support facilities include the fitness center, medical facilities, privatized housing, dormitories, dining facilities, and lodging.
- *Built Infrastructure* – The capacity of the installation's infrastructure and utility systems to accommodate both the ongoing mission and potential growth is an important factor in assessing overall installation capacity opportunities. At Patrick SFB, built infrastructure encompasses fundamental assets such as gates, roadway network, electrical system, water system, wastewater system, stormwater infrastructure, and natural gas system.
- *Quality of Life* – QOL capacity metrics are measurements of facilities intended to maintain high personnel, family, and employee morale and welfare. These facilities impact the installation's ability to accommodate future growth and development. At Patrick SFB, the Exchange, commissary, child development centers, youth center, and Morale, Welfare, and Recreation (MWR) facilities are the primary QOL capacity metrics considered.

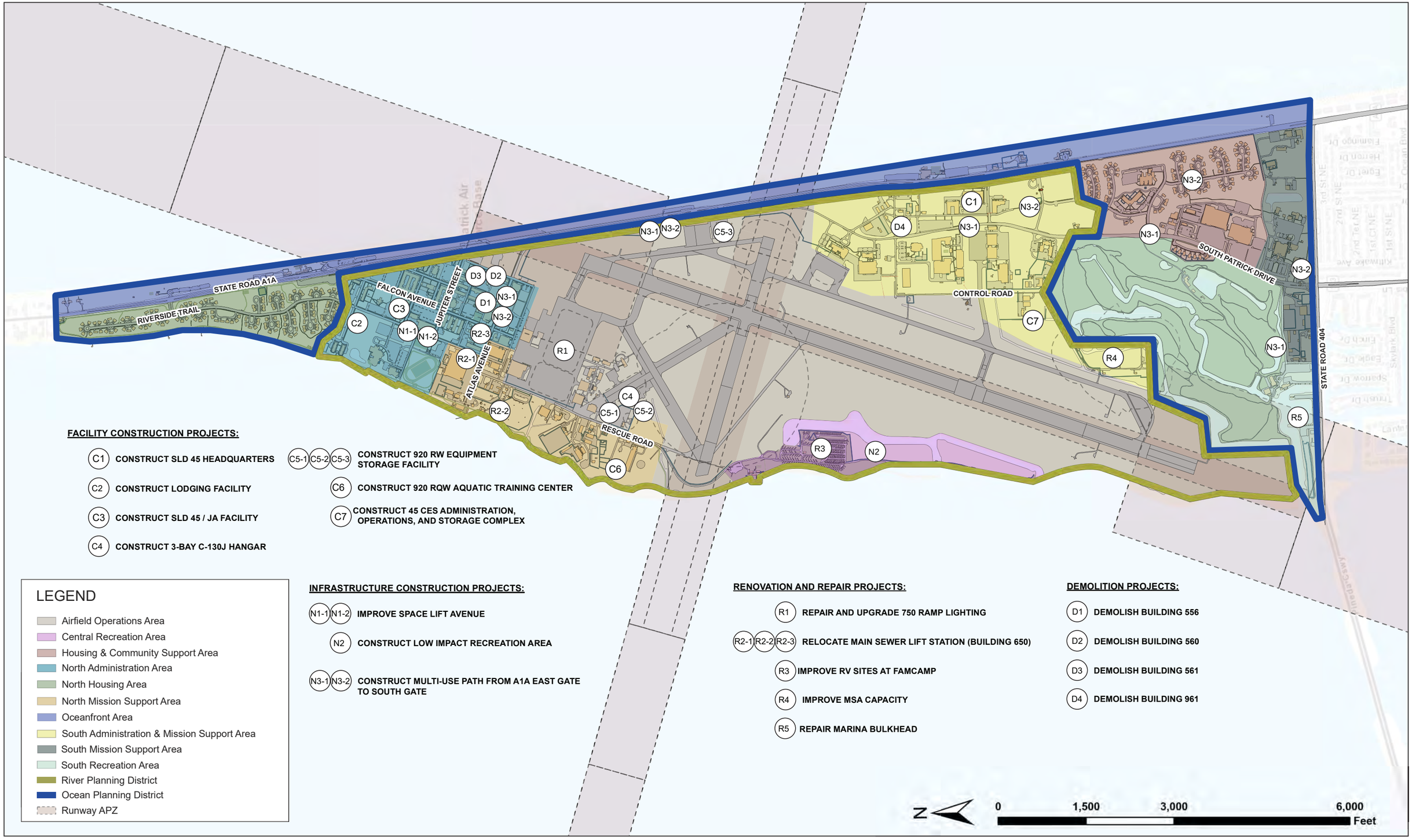
Standard 3: ***Sustainability Development Indicators (IDP Chapter 8; USAF 2017b)*** – A sustainable installation can operate into the future without a decline in either the mission or the natural and man-made systems that support it. Sustainability is a holistic approach to asset management that seeks to minimize the negative impacts of USSF and tenant missions and operations on the environment. This standard also generally drives the scope of the facility and infrastructure development and/or improvement and supports sustainability of the installation. In addition, alternatives would avoid adverse impacts to, and promote sustainability within, the communities surrounding Patrick SFB.

Patrick SFB sustainability measures include energy use, renewable energy, water quantity and quality, stormwater, wastewater quantity and quality, potable water intensity, air quality, waste reduction, space optimization, facilities, housing, encroachment, airfields, natural/cultural resources, community planning/land use, and socioeconomics.

2.3 PROPOSED PROJECTS AND ALTERNATIVES

NEPA and CEQ regulations mandate the consideration of reasonable alternatives to the Proposed Action, where multiple viable courses of action exist. "Reasonable alternatives" are those that could be utilized to meet the purpose and need for the Proposed Action. Among the alternatives evaluated for each project is a No-Action Alternative. The No-Action Alternative substantively analyzes the consequences of not undertaking the Proposed Action and serves to establish a comparative baseline for analysis.

The scope, location, and objectives of the proposed projects and reasonable alternatives are described here and depicted on Figures 2-1 through 2-9. Alternatives that were considered, but were not reasonable relative to the selection standards described in Section 2.2, are documented in this section but were eliminated from further study in the EA.



PATRICK SPACE FORCE BASE EA

FIGURE 2-1: PROJECT OVERVIEW: LOCATIONS OF PROJECTS INCLUDED IN THE PROPOSED ACTION

A1A EAST GATE
PROPOSED CONSTRUCTION SITE
(BUILDINGS 264 (VOQ), 265 (VOQ), 266,
404 (VOQ), 429, 543, 577 TO BE DEMOLISHED)

CHAPEL
439
440
431
577
543
EXISTING
SLD 45 HQ
423
EDWARD WHITE STREET
TITAN ROAD
EXISTING
SLD 45/JA
FACILITY
562
537
536
535
534
533
530
559
561
560
D2
D3
D1
556
N3-1
N3-2
732
430
425
432
401
402
FALCON AVENUE
JUPITER STREET
C3
546
545
424
408
N1-1
N1-2
C2
MINI MALL
415
502
503
505
506
VOQ
MATADOR STREET
SPACE LIFT AVENUE
ATLAS AVENUE
R2-3
720
LIBRARY
722
306
308
DEOMI
352
DINING
350

COMMUNICATIONS
FACILITY PROPOSED
CONSTRUCTION SITE
(BUILDINGS 511, 513,
515, 522, 523, 524 TO
BE DEMOLISHED)

*THIS MAP SHOWS POTENTIAL PROJECT FOOTPRINTS AND EXAMPLE LAYOUTS.

LEGEND

- North Administration Area Boundary
- Proposed Building Footprint
- Proposed Pavement
- Proposed Infrastructure Improvements
- Proposed Building Demolition
- Proposed Construction Site for Actions Approved in Previous NEPA Documents
- Actions Approved in Previous NEPA Documents
- Existing Building Footprint
- Existing Pavement
- Recreation Areas
- Runway APZ
- Installation

C2 CONSTRUCT LODGING FACILITY

C3 CONSTRUCT SLD 45/JUDGE ADVOCATE (JA) FACILITY

N1-1 N1-2 IMPROVE SPACE LIFT AVENUE

N3-1 N3-2 CONSTRUCT MULTI-USE PATH FROM A1A EAST GATE TO SOUTH GATE
- SEE FIGURES 2-3, 2-6, 2-7, 2-8, 2-9 FOR CONTINUATION OF ALTERNATIVES N3-1 AND N3-2

R2-3 RELOCATE MAIN SEWER LIFT STATION (BUILDING 650)
- SEE FIGURE 2-4 FOR ALTERNATIVES R2-1 AND R2-2

D1 DEMOLISH BUILDING 556

D2 DEMOLISH BUILDING 560

D3 DEMOLISH BUILDING 561

N

0 400 800 1,600 Feet

PATRICK SPACE FORCE BASE EA

FIGURE 2-2: NORTH ADMINISTRATION AREA PROJECTS INCLUDED IN THE PROPOSED ACTION

C4 CONSTRUCT 3-BAY C-130J HANGAR

C5-1 C5-2 C5-3 CONSTRUCT 920 RW EQUIPMENT STORAGE FACILITY

R1 REPAIR AND UPGRADE 750 RAMP LIGHTING

N3-1 N3-2 CONSTRUCT MULTI-USE PATH FROM A1A EAST GATE TO SOUTH GATE
• SEE FIGURES 2-2, 2-6, 2-7, 2-8, 2-9 FOR CONTINUATION OF ALTERNATIVES N3-1 AND N3-2

*THIS MAP SHOWS POTENTIAL PROJECT FOOTPRINTS AND EXAMPLE LAYOUTS.

LEGEND

- Airfield Operations Area Boundary
- Proposed Building Footprint
- Proposed Pavement
- Proposed Infrastructure Improvements
- Proposed Construction Site for Actions Approved in Previous NEPA Documents
- Existing Building Footprint
- Existing Pavement
- Recreation Areas
- Runway APZ
- Installation

SOUTH PATRICK DRIVE

EXISTING VEHICLE BARRIER SYSTEM

802

750 RAMP APRON

RESCUE ROAD

751

750

680

678

9678

624

759

647

651

630

632

629

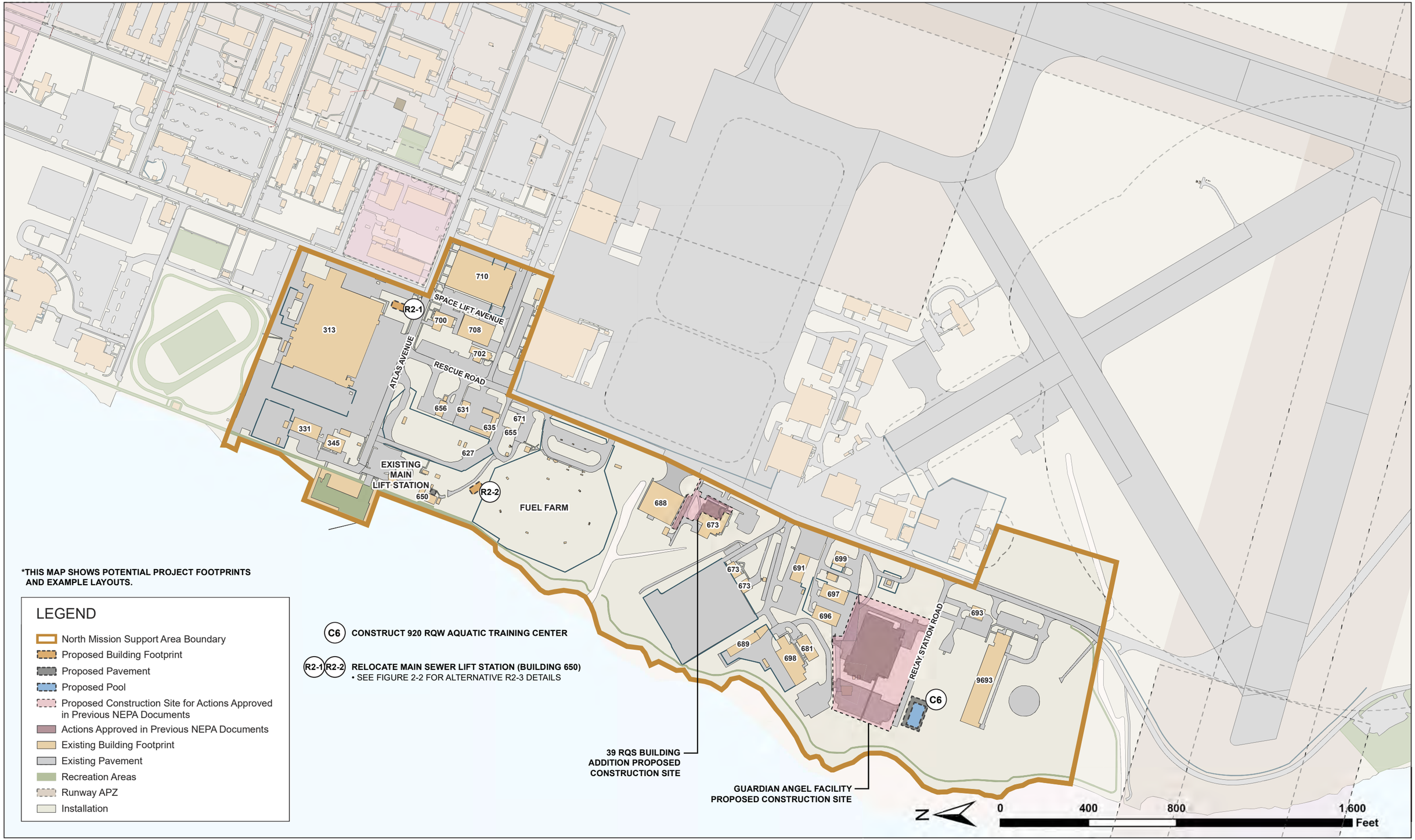
606

605

603

PATRICK SPACE FORCE BASE EA

FIGURE 2-3: AIRFIELD OPERATIONS AREA PROJECTS INCLUDED IN THE PROPOSED ACTION



*THIS MAP SHOWS POTENTIAL PROJECT FOOTPRINTS AND EXAMPLE LAYOUTS.

LEGEND

- North Mission Support Area Boundary
- Proposed Building Footprint
- Proposed Pavement
- Proposed Pool
- Proposed Construction Site for Actions Approved in Previous NEPA Documents
- Actions Approved in Previous NEPA Documents
- Existing Building Footprint
- Existing Pavement
- Recreation Areas
- Runway APZ
- Installation

C6 CONSTRUCT 920 RQW AQUATIC TRAINING CENTER

R2-1 R2-2 RELOCATE MAIN SEWER LIFT STATION (BUILDING 650)
• SEE FIGURE 2-2 FOR ALTERNATIVE R2-3 DETAILS

PATRICK SPACE FORCE BASE EA

FIGURE 2-4: NORTH MISSION SUPPORT AREA PROJECTS INCLUDED IN THE PROPOSED ACTION

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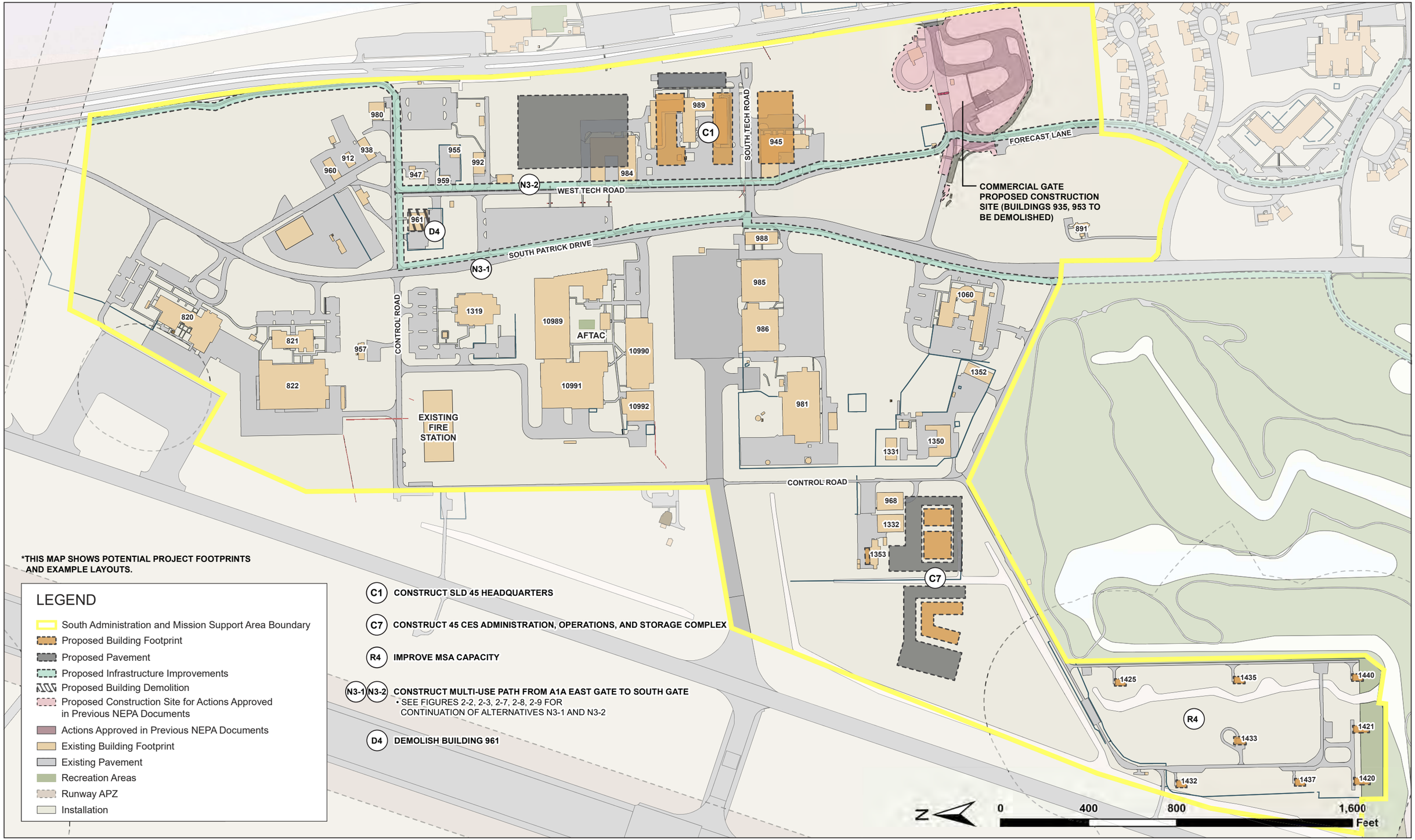
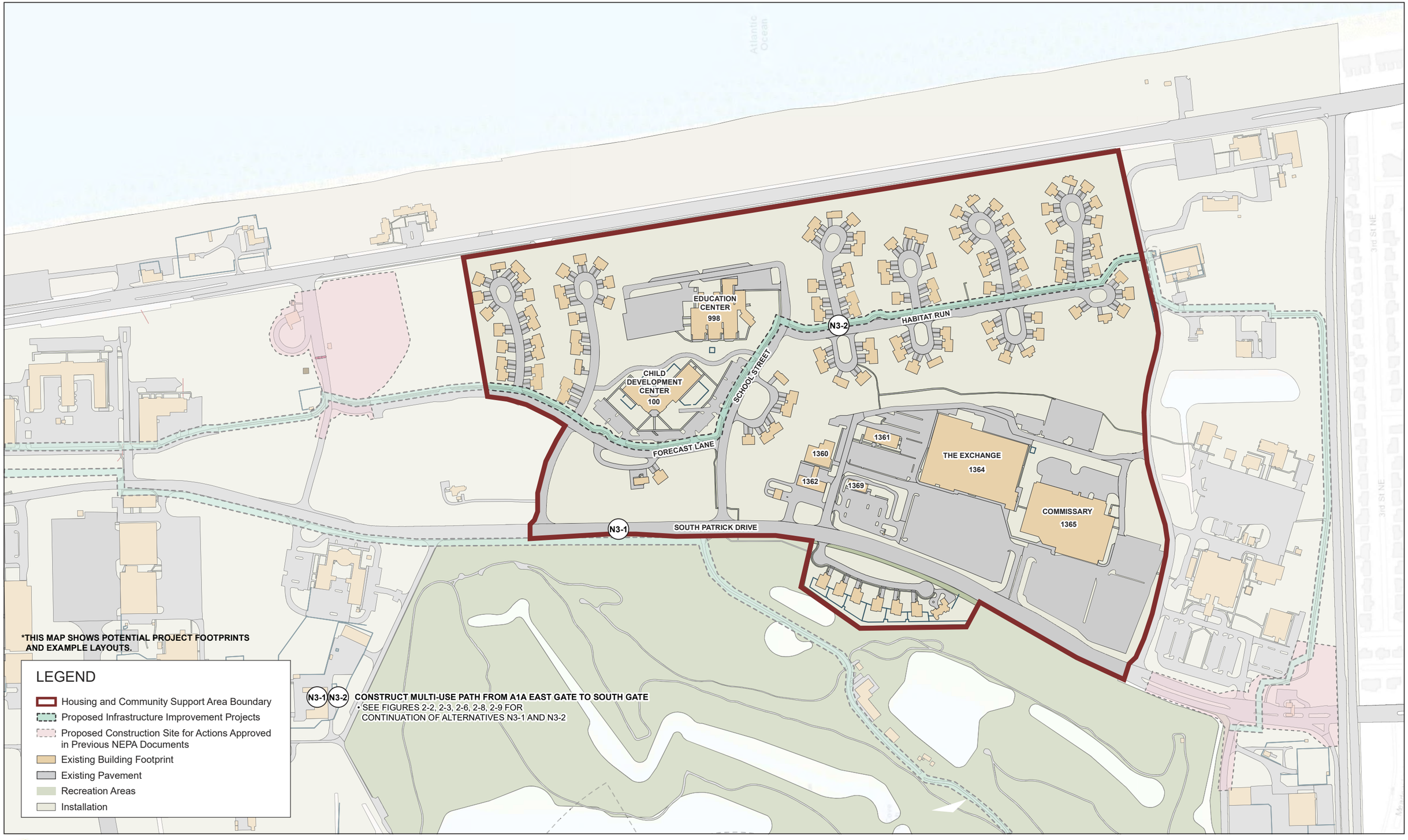
FIGURE 2-5: CENTRAL RECREATION AREA PROJECTS INCLUDED IN THE PROPOSED ACTION



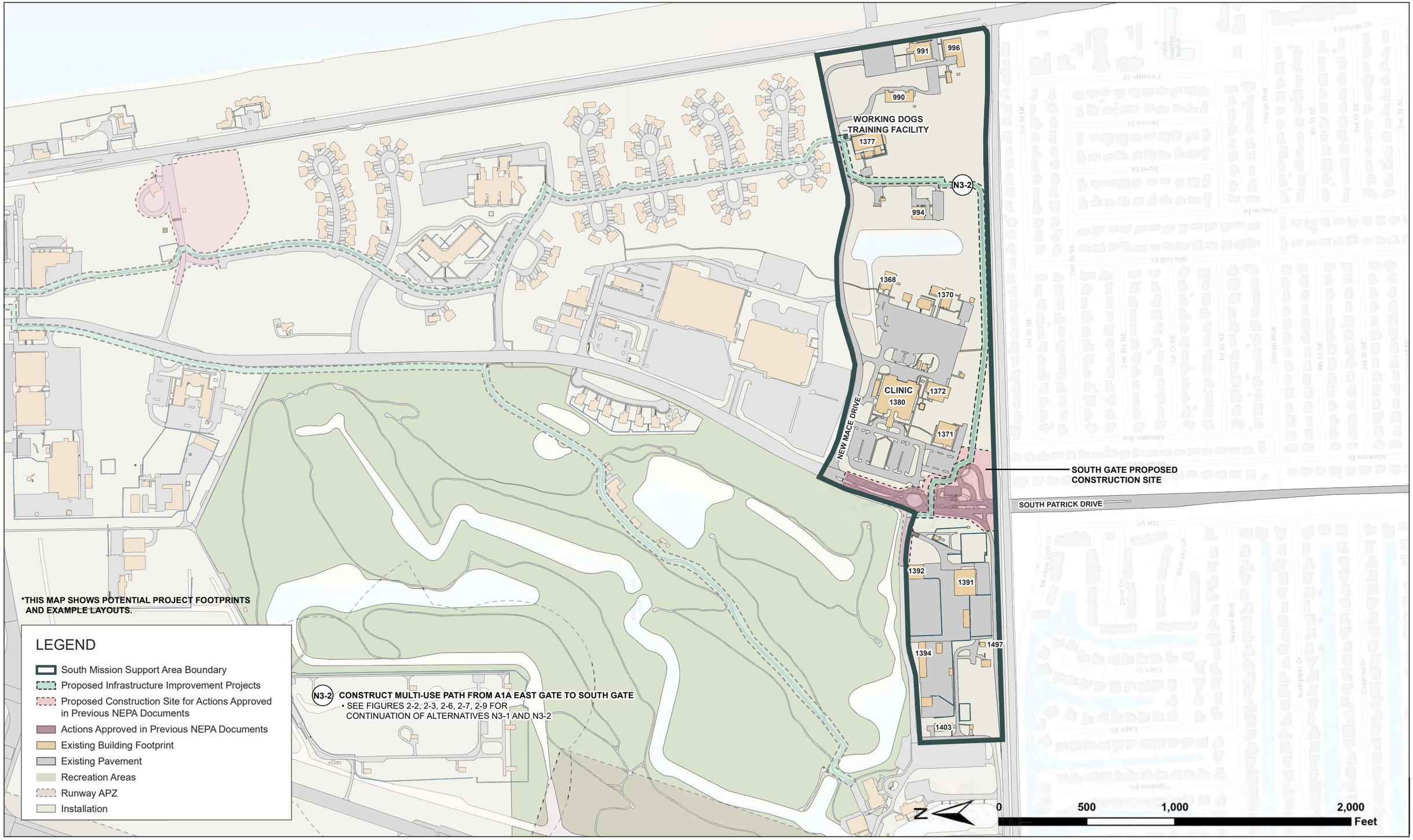
PATRICK SPACE FORCE BASE EA

FIGURE 2-6: SOUTH ADMINISTRATION AND MISSION SUPPORT AREA PROJECTS INCLUDED IN THE PROPOSED ACTION



PATRICK SPACE FORCE BASE EA

FIGURE 2-7: HOUSING AND COMMUNITY SUPPORT AREA PROJECTS INCLUDED IN THE PROPOSED ACTION



PATRICK SPACE FORCE BASE EA

FIGURE 2-8: SOUTH MISSION SUPPORT AREA PROJECTS INCLUDED IN THE PROPOSED ACTION

PATRICK SPACE FORCE BASE EA

FIGURE 2-9: SOUTH RECREATION AREA PROJECTS INCLUDED IN THE PROPOSED ACTION

2.3.1 North Administration Area

The facility construction and infrastructure improvement projects identified in the North Administration Area are described below. Demolition projects are discussed in Section 2.3.8.

Project C1: Construct SLD 45 Headquarters

This proposed project would construct headquarters facility with administrative and operations areas for SLD 45 Operations staff. The facility would include two four-story buildings (totaling 250,000 SF of operational space and 62,500-SF footprint). To support parking requirements, a 700-space parking garage would be constructed with four levels and a 61,000-SF footprint. Additional site improvements would include approximately 34,000 SF of sidewalks, hardscape, and access and service roads. The current SLD 45 headquarters facility, located in Building 423 (Figure 2-2), would be renovated and reallocated to personnel from Building 989. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

The site must support a facility large enough to house existing functions as well as new personnel and operations associated with current and future USSF mission requirements, including enhanced risk assessment, specialized space, and new command entities (Selection Standards 1 and 2).

Alternatives must allow for continual SLD 45 operations throughout construction (Selection Standard 2).

The site should be located along a main thoroughfare for visibility and comply with land use goals as outlined in the DDP (Selection Standards 1 and 3).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, the headquarters facility would be constructed on a 300,000 SF site located along West Tech Road, east of the AFTAC headquarters facility, in the South Administration and Mission Support Area (Figure 2-6). Buildings 945, 984, and 989 (180,000 SF) would be demolished. An existing 70-space parking lot and access drive would be improved. A new access drive would be constructed at the intersection of South Patrick Drive and the AFTAC entrance, where there is an existing traffic signal. This alternative meets Selection Standards 1, 2, and 3.

No-Action Alternative: Under the No-Action Alternative, the SLD 45 headquarters facility would not be constructed and SLD 45 Operations staff would continue to utilize a portion of Building 423 (Figure 2-2). Building 423 is 166,294 SF and space is shared between SLD 45 Operations and other users. This alternative does not meet Selection Standard 2, as Building 423 does not have adequate functional space to allow for current and future mission expansion nor does it support the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Additional sites for consolidating SLD 45 Operations functions on base were limited by environmental and operational constraints (e.g., wetlands, floodplain, airfield operation CZ, and existing/planned development) (Selection Standards 1 and 2). Accommodating the SLD 45 headquarters by using existing facilities on base or leased space off base was eliminated early in the planning process as there are no existing base facilities available and locating operations off base would create unacceptable inefficiencies (Selection Standards 1 and 2). Renovating Building 423

would not allow for continual SLD 45 operations during the renovation (Selection Standard 2); therefore, these alternatives were eliminated from consideration and not analyzed further.

Project C2: Construct Lodging Facility

This proposed project would construct a VQ lodging facility to replace the current VQ facilities that would be demolished with the construction of the proposed A1A East Gate. Proposed construction would include a 138,000-SF four-story building (34,500 SF footprint) with 200 guest rooms and 79,000 SF of parking, sidewalks, and other impervious pavement. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

The site must be located within the North Administration Area and allow visitors convenient and safe pedestrian access to base amenities and DEOMI and 920 RQW facilities without having to traverse major roadways (Selection Standard 1 and 2).

The site must be large enough to accommodate the proposed lodging facility with required parking, sidewalks, and stormwater management (Selection Standards 1 and 2).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, the lodging facility would be constructed on an approximately 250,000-SF vacant, grassed site south of Matador Street (Figure 2-2). The proposed location meets Selection Standards 1 and 2.

No-Action Alternative: Under the No-Action Alternative, the lodging facility would not be constructed, and visitors would continue to use the existing lodging facility (Buildings 265, 264, and 404) located near the intersection of Matador Street and Falcon Avenue (Figure 2-2). These facilities are scheduled for demolition with the construction of the proposed A1A East Gate. This alternative does not support the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Additional sites for constructing a new lodging facility on base are limited by environmental and operations constraints (e.g., wetlands, floodplain, and facility adjacency and access requirements) (Selection Standards 1 and 2). There are no existing base facilities available that meet the project's purpose and need and requiring visitors to find housing off base would create unacceptable inefficiencies (Selection Standards 1 and 2). Therefore, these alternatives were eliminated from consideration and not analyzed further.

Project C3: Construct SLD 45/JA Facility

This proposed project would construct a facility to consolidate SLD 45/JA operations that would include a courtroom, office space, and administrative support functions. The SLD 45/JA mission is currently housed in Building 423 since Building 562 was deemed to be unsafe due to mold and mildew levels; however, JA still utilizes the courtroom in Building 562. This proposed project would also demolish Building 562 (9,000 SF) upon move out and return the lot to greenspace. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives must comply with land use and operational goals as outlined in the DDP and with requirements as designated in UFC 3-260-01 (Selection Standards 1 and 3).

Alternatives must allow for continual SLD 45/JA operations during construction (Selection Standard 2).

Alternatives should maximize the use of existing facilities before considering development on previously undeveloped land (Selection Standard 3).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, Building 402 would be renovated to support the SLD 45/JA mission. Building 402 is located on the northwest corner of Falcon Avenue and Edward White Street (Figure 2-2). The repair and upgrades to the existing facility would house office space and administrative support functions. A 4,500-SF courtroom facility would be added to Building 402 and would include a courtroom, judge's chamber, jury deliberation room, witness waiting area, defense waiting area, restrooms, mechanical room, and circulation space. The addition would be constructed on the greenspace north of Building 402. Approximately 1,500 SF of parking, sidewalks, and other impervious surfaces would be constructed under this alternative, which meets Selection Standards 1, 2, and 3.

No-Action Alternative: Under the No-Action Alternative, the JA facility would not be relocated, and the mission would continue to operate courtroom proceedings in Building 562. Building 562 (14,506 SF) is located near the intersection of Saturn Road and O'Malley Drive (Figure 2-2). This alternative does not meet Selection Standards 1 and 3 because Building 562 needs substantial repair and is in the airfield operation CZ. This alternative does not support the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the action alternative(s) impacts can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Additional sites for constructing a new JA facility are limited by environmental and planning constraints (e.g., floodplain and area development) (Selection Standards 1 and 3). The renovation of Building 562 was eliminated early in the planning process because of its location in the airfield operation CZ and the need to maintain continual SLD 45/JA operations during construction (Selection Standards 1 and 2). This alternative was eliminated and not analyzed further.

Project N1: Improve Space Lift Avenue

This proposed project would construct an intersection at the proposed A1A East Gate (Matador Street) and Space Lift Avenue (Figure 2-2). Additional proposed improvements would include repaving approximately 0.5 miles of Space Lift Avenue from Riverside Trail to Atlas Avenue and constructing an 8-foot multi-use path along the east and west sides of Space Lift Avenue. Design would repurpose approximately 635 linear feet (LF) of existing 5-foot concrete sidewalk on the east side of the roadway. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives should meet the Patrick SFB *Installation Facilities Standards* (IFS) Section B02.2. Hierarchy of Intersections (Selection Standard 1).

Alternatives must improve traffic flow at the proposed A1A East Gate (Figure 2-2), provide for safe vehicle and pedestrian circulation, and reduce potential traffic congestion on SR A1A (Selection Standard 2).

Alternatives Considered for this Proposed Project:

Alternative N1-1: Under this alternative, a traffic circle would be constructed at the intersection of Matador Street and Space Lift Avenue. The traffic circle would consist of a single, oversized lane with exits to the A1A East Gate, Riverside Trail, Matador Street, and Space Lift Avenue. This alternative meets Selection Standards 1 and 2.

Alternative N1-2: Under this alternative, a two-stop intersection would be constructed at Matador Street and Space Lift Avenue. The roadway would be realigned such that the westbound traffic from the A1A East Gate would proceed through a continuous lane, curving to the south onto Space Lift Avenue southbound. Similarly, northbound traffic on Space Lift Avenue would proceed through a continuous lane eastward to the A1A East Gate. The approaching traffic from Riverside Trail and Matador Street would encounter stop signs at the intersection. This alternative meets Selection Standards 1 and 2.

No-Action Alternative: Under the No-Action Alternative, the Space Lift Avenue improvements would not be constructed, maintaining a four-way stop at the intersection of Matador Street and Space Lift Avenue, which would not meet Selection Standard 2 or the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Eliminated from Further Analysis:

A signalized intersection was considered; however, this alternative does not meet Selection Standards 1 and 2 because it is not a passive intersection, as prioritized by the Patrick SFB IFS, and it would not improve traffic flow. This alternative was eliminated from consideration and not analyzed further.

2.3.2 Airfield Operations Area

The facility construction and repair projects identified in the Airfield Operations Area are described below.

Project C4: Construct 3-Bay C-130J Hangar

This proposed project would construct a C-130J hangar (140,000 SF) and associated pavement (70,000 SF). The facility would include three hangar bays and C-130J aircraft maintenance shop facilities. One of the bays would be equipped with aircraft corrosion control and washing stations. Buildings 605 (3,800 SF) and 651 (2,500 SF), which are existing maintenance and equipment storage facilities, would be demolished. The functions of these facilities would be relocated within the proposed 3-bay hangar or to existing storage facilities. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

The site should be located near 920 RQW facilities and adjacent to an aircraft apron/ramp with access to the runway (Selection Standards 1 and 2).

Alternatives must not breach the imaginary surface(s) of Runways 03-21 or 11-29, as described in UFC 3-260-01 (Selection Standard 1).

Alternatives must not impede mission requirements of SLD 45 or tenant units that utilize the airfield (Selection Standard 2).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, the three-bay hangar would be constructed on an improved, grassy 230,000-SF site southeast of Building 629 (Figure 2-3). The proposed location meets Selection Standards 1 and 2.

No-Action Alternative: Under the No-Action Alternative, the hangar would not be constructed, and the aircraft and equipment would continue to be stored on the apron/ramp (approximately 90,000 SF). This alternative does not support the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

The range of potential sites was limited due to the building size requirements with access to the airfield (Selection Standards 1 and 2). A location between Buildings 750 and 751 was eliminated early in the planning process because the new hangar would impede access to these 920 RQW facilities (Selection Standard 2). The former fire station location was evaluated; however, the required hangar height would breach the imaginary surface(s) of Runway 03-21 based on the slope of transitional surfaces requirements, as described in UFC 3-260-01 (Selection Standard 1). This site is also not near existing 920 RQW facilities (Selection Standard 2). These alternatives were eliminated from consideration and not analyzed further.

Project C5: Construct 920 RQW Equipment Storage Facility

The proposed project would construct an approximately 5,000-SF, high-bay, industrial, climate-controlled AGE storage facility to support the 920 RQW mission. Buildings 605 (3,800 SF) and 606 (2,500 SF), which are existing maintenance and equipment storage facilities, would be demolished. The functions of these facilities would be relocated within the proposed storage facility or to existing storage facilities. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives must not breach the imaginary surface(s) of Runways 03-21 or 11-29, as described in UFC 3-260-01 (Selection Standard 1).

The site should be collocated with existing 920 RQW airfield facilities with access to the runway (Selection Standards 1 and 2).

Alternatives must not impede mission requirements of SLD 45 or tenant units that utilize the airfield (Selection Standard 2).

Alternatives Considered for this Proposed Project:

Alternative C5-1: Under this alternative, the AGE storage facility would be constructed on the site of Buildings 605 and 606 (Figure 2-3). The building and supporting pavement would be located on a previously paved area; no additional pavement would be required. This alternative meets Selection Standards 1 and 2.

Alternative C5-2: Under this alternative, the AGE storage facility would be constructed on a 25,000-SF site adjacent to the proposed 3-bay hanger access road (Figure 2-3). Approximately 13,000 SF of pavement would be added to allow access to all sides of the building and provide space for exterior storage and parking. The proposed location meets Selection Standards 1 and 2.

Alternative C5-3: Under this alternative, the AGE storage facility would be constructed on the east side of the runway (Figure 2-3). The building and supporting pavement would be located on a previously paved area; no additional pavement would be required. The proposed location meets Selection Standard 2; however, the facility would be subject to height limitations due to imaginary surface(s) related to Runway 03-21. This alternative does not fully meet Selection Standard 1 because it is not collocated with 920 RQW facilities.

No-Action Alternative: Under the No-Action Alternative, the storage facility would not be constructed. The AGE would continue to be stored in Building 691 and on the apron/ramp. This alternative is not supportive of the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

No practicable alternatives were eliminated from consideration.

Project R1: Repair and Upgrade 750 Ramp Lighting

This project would repair and upgrade the lighting at the 750 Ramp (Figure 2-3) for nighttime and low-visibility operations. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives should avoid conflict with natural resource constraints (e.g., threatened and endangered species) (Selection Standard 1).

Alternatives must comply with AFI 31-118 (Selection Standard 2).

Alternatives must provide a replacement for low-pressure sodium lighting, as its manufacture is being phased out (Selection Standard 3).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, the low-pressure sodium lighting at the 750 Ramp would be replaced with sea turtle compliant, limited wavelength, amber light emitting diode (LED) lighting. A waiver from UFC 3-260-01 would be obtained based on the superseding requirement in AFI 31-118 for illumination at 0.2 foot-candles, instead of 0.5 foot-candles, for security of aircraft aprons/ramps. Additional lighting would be installed to provide uniform illumination across the 750 Ramp. Directed light carts would be used for operational/maintenance activities that have color rendition requirements. This alternative meets Selection Standards 1, 2, and 3.

No-Action Alternative: Under the No-Action Alternative, lighting at the 750 Ramp would not be repaired and upgraded and the existing low-pressure sodium would be maintained. This alternative does not meet Selection Standards 1, 2, and 3 and does not support the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

No practicable alternatives were eliminated from consideration.

2.3.3 North Mission Support Area

The facility construction and repair projects identified in the North Mission Support Area are described below.

Project C6: Construct 920 RQW Aquatic Training Center

The proposed project would construct a 20-foot deep, outdoor rescue training pool (3,000 SF) with a concrete pool deck (5,000 SF) enclosed by a fence. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives should minimize conflicts with environmental constraints (e.g., wetlands and floodplains) and comply with land use goals as outlined in the DDP (Selection Standards 1 and 3).

The site must be collocated with existing 920 RQW support facilities (Selection Standard 2).

Alternatives must meet pararescue and combat search and rescue training requirements (Selection Standard 2).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, the facility would be constructed on a 10,000-SF, cleared site on the west end of Relay Station Road, across from the Guardian Angel facility (Figure 2-4). The proposed location meets Selection Standards 1, 2 and 3.

No-Action Alternative: Under the No-Action Alternative, the pool would not be constructed. This alternative is not supportive of the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Use of the fitness center pool for training exercises was considered early in the planning process; however, the existing pool does not meet the depth requirements necessary for rescue training (Selection Standard 2). An alternative site located west of the Guardian Angel facility was evaluated; however, it does not meet Selection Standard 1 because it is located in the 100-year floodplain and in an existing stormwater management area. These alternatives were eliminated and not analyzed further.

Project R2: Relocate Main Sewer Lift Station (Building 650)

This proposed project would construct a one-million gallons per day lift station to replace the main lift station, which would be demolished following construction of the new facility. A 50,000-gallon storage tank would be installed on a 500-SF concrete slab adjacent to the lift station to hold wastewater if the northern discharge line was disrupted. A 4,000-SF concrete basin surrounded by a 2-foot wall would be constructed adjacent to the new lift station to provide emergency containment in the event of a system failure. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives must be compatible with the installation's existing water/sewer distribution network and minimize the installation of new lines (Selection Standard 1).

Alternatives should minimize the risk of service disruption during the construction and demolition phases (Selection Standard 2).

Alternatives must minimize the risk of a sewage leak or spill into the Banana River (Selection Standards 1 and 3).

Alternatives Considered for this Project:

Alternative R2-1: This alternative would construct the lift station on the northwest corner of Atlas Avenue and Space Lift Avenue, adjacent to Building 313 in the North Administration Area (Figure 2-2). This alternative meets Selection Standards 1, 2, and 3.

Alternative R2-2: This alternative would construct the lift station in the open field approximately 200 feet southeast of its current location (Figure 2-4). This alternative meets Selection Standard 2; however, it does not fully meet Selection Standards 1 and 3 because the lift station would remain close to the Banana River.

Alternative R2-3: This alternative would construct the lift station in the open field located in the northwest corner of Atlas Avenue and Falcon Avenue in the North Administration Area (Figure 2-2). This alternative meets Selection Standards 1, 2, and 3.

No-Action Alternative: Under the No-Action Alternative, the main lift station would not be relocated, and existing maintenance would continue. This alternative conflicts with Selection Standards 1, 2, and 3 and is not supportive of the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

No practicable alternatives were eliminated from consideration.

2.3.4 Central Recreation Area

The infrastructure improvement and repair projects identified in the Central Recreation Area are described below.

Project N2: Construct Low-impact Recreation Area

This proposed project would construct a recreation area near FAMCAMP. Site improvements would include day-use, Americans with Disabilities Act (ADA) accessible, paved trails (35,000 SF), picnic areas, safety fencing, waterless toilets, educational pavilion, fitness stations, disc golf facility, landscaping, and a 5,000-SF parking lot. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives must allow for convenient and safe pedestrian access from FAMCAMP without having to traverse major roadways (Selection Standard 1).

Alternatives must minimize conflicts with environmental resources (e.g., wetlands) and must comply with land use goals as outlined in the DDP and with requirements as designated in UFC 3-260-01 (Selection Standards 1 and 3).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, a 1,000,000-SF (approximately 24 acres) site would be developed for recreational land use on the closed landfill located south of FAMCAMP between the Banana River and Rescue Canal (Figure 2-5). This alternative meets Selection Standards 1 and 3.

No-Action Alternative: Under the No-Action Alternative, additional recreational facilities would not be constructed, and visitors and base personnel would continue to utilize existing facilities for recreation. Existing recreational facilities near FAMCAMP include Chevron Park, small sandy outcrops along the Banana River, and Rescue Road south to Rescue Canal, which is used as a

walking trail. This alternative is not supportive of the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Alternative locations near Chevron Park, north of FAMCAMP, were evaluated; however, development in this area would involve clearing wetlands (Selection Standard 1). Sites north and east of FAMCAMP were also evaluated; however, they are within the Airfield Operations Area and airfield operation CZ (Selection Standards 1 and 3). These alternatives were eliminated from consideration and not analyzed further.

Project R3: Improve RV Sites at FAMCAMP

This proposed project would improve the existing gravel RV sites at FAMCAMP (Figure 2-5). Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives must not increase sedimentation or turbidity in the Banana River (Selection Standards 1 and 3).

Alternatives must not increase the required maintenance for the RV sites (Selection 3).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, 79 existing gravel RV sites (approximately 42,000 SF) would be paved using standard, non-permeable asphalt. Pavement markings would also be added. This alternative meets Selection Standards 1 and 3.

No-Action Alternative: Under the No-Action Alternative, the RV sites would not be paved, and RVs would continue parking on gravel sites. This alternative does not meet Selection Standards 1 and 3 and is not supportive of the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Paving the gravel RV sites with permeable asphalt was considered; however, the porous capacity of permeable asphalt degrades when sand is introduced to the surface, thus requiring more frequent maintenance (Selection Standard 3). Additionally, permeable asphalt may result in increased runoff and sedimentation into the Banana River (Selection Standards 1 and 3). This alternative was eliminated from consideration and not analyzed further.

2.3.5 South Administration and Mission Support Area

The facility construction and repair projects identified in the South Administration and Mission Support Area are described below. The demolition project is discussed in Section 2.3.8.

Project C7: Construct 45 CES Administration, Operations, and Storage Complex

This proposed project would construct three new buildings (totaling approximately 70,000 SF): an administrative facility, a maintenance shop, and a storage facility, with paved parking areas, driveways, driveway aprons, and supporting infrastructure to consolidate 45 CES Engineering, Installation Management, Operations Shops (Metal, Wood, and Welding Shops), and storage. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

The site must be large enough to accommodate a multi-facility complex that would support heavy equipment storage, maintenance activities, administrative functions, and required infrastructure (e.g., parking, drive-through facilities, and driveways) (Selection Standards 1 and 2).

Alternatives should be collocated with existing 45 CES facilities (Selection Standard 2).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, the 45 CES complex would be constructed on a 330,000-SF site near Buildings 1353, 1332, and 968, west of Control Road and north of the golf course (Figure 2-6). A 1,500-SF addition would be added to Building 1353. Site improvements would include approximately 120,000 SF of parking, sidewalks, and service roads. Driveway access would be off Control Road to the east. This alternative meets Selection Standards 2 and 3; however, it does not fully meet Selection Standard 1 because a portion of the site is within the 100-year floodplain.

No-Action Alternative: Under the No-Action Alternative, the 45 CES administration, operations, and storage complex would not be constructed. The 45 CES operations shops would continue to reside in Buildings 511, 515, 522 and 523, which would all be demolished with the construction of the proposed Communications Facility. The 45 CES administrative and operations offices would continue to reside in Buildings 534 and 535. This alternative does not fully meet Selection Standards 1 and 2 because Buildings 534 and 535 are in the airfield operation CZ and it does not consolidate 45 CES facilities. It is also not supportive of the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Additional sites for the 45 CES complex are limited by environmental and land use constraints (e.g., wetlands, floodplain, and existing/planned development) (Selection Standards 1 and 2). Siting the complex near the AFTAC complex was evaluated; however, the requirements for the SLD 45 headquarters facility and the location of existing 45 CES facilities preclude this alternative (Selection Standards 1 and 2). Consolidating functions by using existing facilities on base or leased space off base was eliminated early in the planning process as there are no existing base facilities available and locating operations off base would create unacceptable inefficiencies (Selection Standards 1, 2, and 3). These alternatives were eliminated from consideration and not analyzed further.

Project R4: Improve MSA Capacity

This proposed project would demolish and replace existing munitions storage bunkers and expand capacity to the extent possible without altering the existing ESQD arcs. Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives must be located within the existing ESQD arcs as a function of their use for explosives storage (Selection Standard 1).

Alternatives must comply with Department of Defense Explosives Safety Board (DDESB) Regulations (Selection Standard 2).

Alternatives should minimize munitions transport off base via local roads (Selection Standard 2).

Alternatives must maximize the use of existing facilities and/or infrastructure and should not increase maintenance and security costs (Selection Standard 3).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, the existing munitions bunkers (Buildings 1420, 1425, 1435, 1440, 1421, 1437, 1433, and 1432) (Figure 2-6), at approximately 9,800 SF, would be demolished and replaced with earth covered magazines (ECM). Existing utilities would remain in use. This alternative meets Selection Standards 1, 2, and 3.

No-Action Alternative: Under the No-Action Alternative, the project would not be constructed and use of the existing MSA would continue. This alternative would not support the purpose and need for the proposed project. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Replacing the MSA bunkers with multi-cube munitions storage was considered early in the planning process; however, multi-cube storage has not been approved by DDESB (Selection Standard 2). The alternative to move all the munitions storage to Cape Canaveral SFS or MTA was also considered; however, transporting munitions on the local road network increases safety and security risks (Selection Standard 2). Additionally, storing munitions at MTA would require all new construction (Selection Standard 3), the development of new ESQD arcs (Selection Standard 1), and increased security measures (Selection Standard 3). These alternatives were eliminated from consideration and not analyzed further.

2.3.6 South Recreation Area

The repair project identified in the South Recreation Area is described below.

Project R5: Repair Marina Bulkhead

This proposed project would repair the marina bulkhead at F Dock (Figure 2-9). Alternatives for implementing the proposed project are described below.

Selection Standard Applicability:

Alternatives must minimize work within wetlands and surface waters jurisdictional to the U.S. Army Corps of Engineers (USACE) and the St. Johns River Water Management District (SJRWMD) (Selection Standard 1).

Alternatives Considered for this Proposed Project:

Action Alternative: Under this alternative, the marina at F Dock (Figure 2-9) would be repaired by replacing the sheet pile wall (approximately 270 LF) around the existing bulkhead (approximately 8,000 SF) and replacing fill in areas of subsidence. This alternative would also extend electrical power to the slips at F Dock. This alternative meets Selection Standard 1, as it would be constructed within the footprint of the existing bulkhead.

No-Action Alternative: Under the No-Action Alternative, the bulkhead at F Dock would not be repaired and regular maintenance would continue. This would not support the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Eliminated from Further Analysis:

No practicable alternatives were eliminated from consideration.

2.3.7 Multi-District

One project was identified that spans multiple planning areas in the River and Ocean Planning Districts. This project is depicted on Figures 2-2, 2-3, 2-6, 2-7, and 2-8 and described below.

Project N3: Construct Multi-Use Path from A1A East Gate to South Gate

This proposed project would construct an 8-foot, multi-use, asphalt path connecting the proposed A1A East Gate to recreational facilities near the South Gate. The path would be marked with designated pedestrian and bicycle lanes. The project would improve existing sidewalks and the existing multi-use path from the proposed A1A East Gate to Control Road. Alternative paths from Control Road to Recreation Road are described below.

Selection Standard Applicability:

Alternatives must minimize conflicts with environmental constraints (e.g., wetlands) and comply with requirements as designated in UFC 3-260-01 (Selection Standard 1).

Alternatives should be near existing paved rights-of-way with convenient access to base facilities and amenities (Selection Standards 1 and 2).

Alternatives should minimize travel distance and maximize efficiency (Selection Standard 2).

Alternatives should utilize existing facilities where practicable (Selection Standard 3).

Alternatives Considered for this Proposed Project:

Alternative N3-1: Under this alternative, a multi-use path would be constructed from the terminus of the existing multi-use path at Control Road, along South Patrick Drive, and through the golf course to Recreation Road, approximately 1.7 miles. This alternative meets Selection Standards 1, 2, and 3.

Alternative N3-2: Under this alternative, a multi-use path would be constructed from the terminus of the existing multi-use path at Control Road, along Control Road and West Tech Road to its terminus, a distance of approximately 0.5 miles. The existing multi-use path from West Tech Road to Recreation Road would be resurfaced and marked, approximately 1.5 miles. This alternative meets Selection Standard 3; however, it does not fully meet Selection Standards 1 and 2 because it does not provide easy access to many community support facilities.

No-Action Alternative: Under the No-Action Alternative, a multi-use path from the A1A East Gate to the South Gate would not be constructed, and the existing sidewalk network would be maintained. This alternative does not support the project's purpose and need. The No-Action Alternative is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Eliminated from Further Analysis:

No practicable alternatives were eliminated from consideration.

2.3.8 Demolition Projects

These proposed projects would demolish four facilities at Patrick SFB that no longer meet mission requirements, have deteriorated beyond repair, and/or are located in the airfield operation CZ.

Selection Standard Applicability for All Demolition Projects:

Alternatives must comply with requirements as designated in UFC 3-260-01 (Selection Standard 1).

Alternatives must maximize existing operations and maintenance funding (Selection Standards 2 and 3).

Alternatives Considered for Demolition Projects:

Action Alternative for D1–D4: Under these alternatives, Buildings 556, 560, 561, and 961 would be demolished. Buildings 556, 560, and 561 are located in a developed area near the intersection of O'Malley Drive and Pershing Place, within the airfield operation CZ (Figure 2-2). Building 961 is located in a developed area at the intersection of Control Road and West Tech Road (Figure 2-6). Salvageable materials would be recycled, and unsalvageable materials would be disposed of properly. Existing utility lines would be isolated, cut, and capped, and the building sites would be backfilled/stabilized and graded for positive drainage. The sites of Buildings 556, 560, and 561 would be returned to open green space. The site of Building 961 would be available for future development. None of the buildings are listed or eligible for listing on the National Register of Historic Places (NRHP). These alternatives meet Selection Standards 1, 2, and 3. Table 2-1 provides a summary of the proposed demolition projects.

Table 2-1. Proposed Demolition Projects at Patrick SFB Evaluated in the EA

Project ID	Building Number	Function	Construction Year	Square Feet (SF)
River Planning District				
North Administration Area				
D1	556	Dormitory	1945	8,861
D2	560	Vacant	1940	9,107
D3	561	Vacant	1945	8,996
South Administration and Mission Support Area				
D4	961	Vacant	1959	6,235

No-Action Alternative for D1-D4: Under the No-Action Alternatives, Buildings 556, 560, 561, and 961 would not be demolished, and a permanent CZ waiver in accordance with UFC 3-260-01 would be required for Buildings 556, 560, and 561. This conflicts with Selection Standard 1. Under the No-Action Alternative, buildings would be maintained and climate controlled. This alternative would not include major repairs or renovation. Ongoing maintenance of these aging facilities would result in continued expenditure of funds for sustainment and would not accomplish the goal of removing excess, obsolete, deteriorating, and underused facilities and pavements throughout the installation, which would conflict with Selection Standards 2 and 3. This is not supportive of the project's purpose and need. The No-Action Alternatives are carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the action alternative(s) can be assessed.

Alternatives Considered but Eliminated from Further Analysis:

Renovating the facilities was considered but would not be feasible because Buildings 556, 560 and 561 are in the airfield operation CZ and Building 961 has deteriorated beyond repair (Selection Standards 1 and 2). Mothballing (i.e., abandoned but secured for future potential use) unneeded and obsolete facilities was also considered; however, without maintaining operational climate control systems, facilities would rapidly deteriorate due to the Florida climate (Selection Standard 3). These alternatives were eliminated from consideration and not analyzed further.

3 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This section serves as a baseline to identify potential project impacts on resource areas and to determine which resource areas will be carried forward for detailed analysis in this EA. Because of the geographic scope of the projects evaluated in the EA, the Affected Environment section describes the resource areas at the installation level rather than the discrete project level. Further location-specific analyses are detailed in Section 4.

3.2 AIRSPACE

3.2.1 Definition of the Resource/Regulatory Setting

Airspace management is defined as the direction, control, and handling of flight operations in the navigable airspace that overlies the U.S. and its territories. "Navigable airspace" is airspace above the minimum altitudes of flight prescribed by regulations under 49 USC, Subtitle VII, Part A and includes airspace needed to ensure safety in the takeoff and landing of aircraft. The U.S. Congress has charged the Federal Aviation Administration (FAA) with administering this limited natural resource in the interest of the public as necessary to ensure aircraft safety and its efficient use (FAA 2020). The FAA has designated four types of airspace within the U.S.: controlled, special use, other, and uncontrolled. Military operations areas (MOAs) are airspace of defined vertical and lateral limits outside of controlled airspace that are used to separate certain military flight activities and areas where concentrated military aircraft operations may occur (USAF 2016d). All MOAs within the U.S. are depicted on sectional aeronautical charts identifying the exact area, the name of the MOA, altitudes of use, published hours of use, and the corresponding controlling agency.

AFI 91-212 (Air Force Guidance Memorandum 2021-01), *Bird/wildlife Aircraft Strike Hazard (BASH) Management Program*, requires a course of action for reduction of bird attractants to the airfield area and active harassment protocol to prevent habituation by birds. Maintenance of the airfield area includes techniques to deter bird nesting such as cutting grass regularly, removal and trimming of vegetation within specific height criteria depending on its proximity to active runways, dredging of canals, and removal of roosting/perching platforms in the airfield zone.

Accident Potential Zones (APZs), rectangular zones extending outward from the ends of active runways at military bases, delineate those areas recognized as having the greatest risk of aircraft mishaps, most of which occur during takeoff or landing. Airfield operation CZs are the areas closest to the end of the runway, which are considered the most hazardous areas. APZs and noise zones together form the AICUZ for an air installation. USAF guidance on the AICUZ program is found in AFI 32-1015.

AICUZ guidelines are based on operational factors that aim to influence the use of land near airfields by informing and working with local governments on the dangers and annoyances related to military airfields. These include height restrictions, noise contours, and APZ. The AICUZ program includes land use compatibility guidelines based on these factors, which are defined in order to minimize the exposure of the public to noise and safety hazards, provide safer aircraft operations, and help protect the airfield from encroachment by incompatible land development.

UFC 3-260-01 limits location and heights of objects around the airfield to minimize hazards to airfield operations. Certain obstructions are permitted, if necessary to airfield operations. Other pre-existing non-conforming features may be granted a waiver by MAJCOM.

3.2.2 Affected Environment/Existing Conditions

The airfield at Patrick SFB comprises approximately 728 acres and contains two active runways (USAF 2017b). Runway 3-21, the primary runway, is 9,000 feet long by 260 feet wide and runs northeast to southwest. This runway is classified as a Class B runway and is primarily intended for large, heavy aircraft. The secondary runway, Runway 11-29, crosses northwest to southeast and is 4,000 feet long and 200 feet wide. This runway is a Class A runway primarily intended for small, lighter aircraft such as fighter jets.

The region of influence (ROI) for airspace includes areas within five miles of Patrick SFB. Areas with an altitude of 2,500 feet and lower are controlled by USSF personnel at the Patrick SFB tower. Airspace areas within five miles and at an altitude greater than 2,500 feet or at any altitude outside of five miles from Patrick SFB are controlled by the Jacksonville Air Route Traffic Control Center (USAF 2016d).

The airfield APZ for Patrick SFB crosses parts of the Patrick SFB beaches and extends into the Atlantic Ocean as well as the Banana River (Figure 3-1). All equipment use within the APZ must be coordinated with SLD 45 Airfield Operations to prevent/reduce accident risk.

The CZ for Runway 3-21 is 3,000 by 3,000 feet at each end. For Runway 11-29, the CZ is 1,000 feet wide and 3,000 feet long (Figure 3-1). These areas must generally be kept free of aboveground structures. However, there are several existing buildings within the CZ for Runway 3-21. The long-term planning goal for Patrick SFB is to remove facilities and obstructions out of the CZ and eliminate hazards in the APZ to align more closely with planning and AICUZ objectives.

3.3 NOISE

3.3.1 Definition of the Resource/Regulatory Setting

Any unwanted sound that interferes with normal activities or the natural environment is defined as noise. The measurement and human perception of sound are based on three principal physical characteristics: intensity, frequency, and duration. Intensity is a measure of a sound's acoustic energy and is related to sound pressure. The greater the sound pressure, the more energy is carried by the sound and the louder the perception of that sound. Frequency, which is measured in terms of cycles per second, also called hertz, determines how the pitch of the sound is perceived. Duration is the length of time a sound can be detected.

Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between the source and receptor, receptor sensitivity, and time of day. Affected receptors are specific (e.g., residential areas, schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists. These are generally referred to as noise sensitive receptors.

The decibel (dB), which is a logarithmic unit that accounts for the large variation in sound pressure amplitudes, is the standard unit for the measurement of sound. Sound levels that have been adjusted to correspond to the frequency response of the human ear are referred to as A-weighted (dBA) sound pressure levels. Environmental noise is often expressed in terms of dBA. The threshold of audibility is generally within the range of 10 to 25 dBA for normal hearing. The threshold of pain occurs at the upper boundary of audibility, which is normally in the region of 135 dBA (USEPA 1981). Table 3-1 compares common sounds and shows how they rank in terms of auditory impacts.

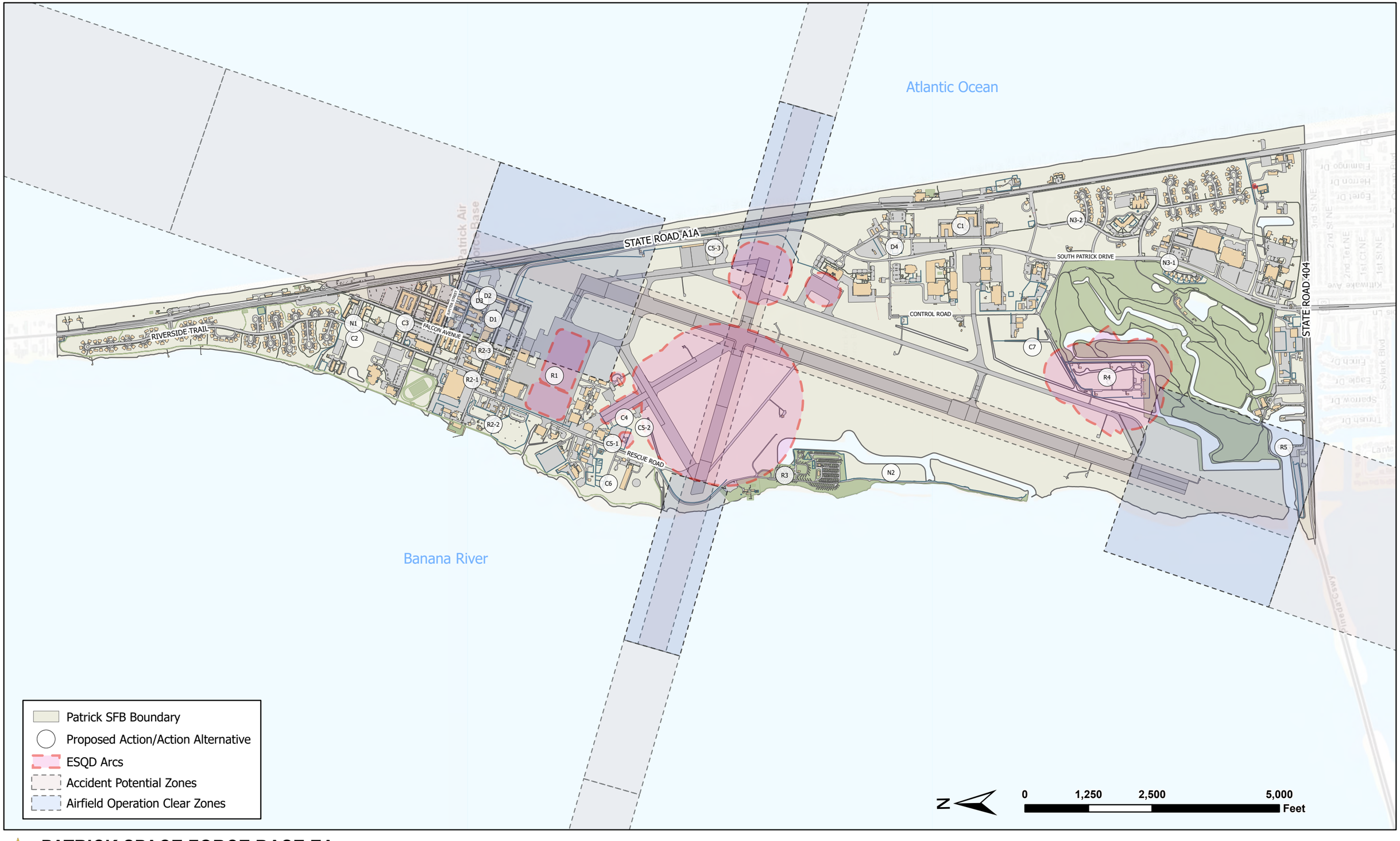


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FIGURE 3-1: AIRFIELD & MISSION SAFETY ZONES

Table 3-1. Sound Levels and Human Response

Noise Level (dBA)	Common Sounds	Effect
10	Just audible	Negligible
30	Soft whisper (15 feet)	Very quiet
50	Light auto traffic (100 feet)	Quiet
60	Air conditioning unit (20 feet)	Intrusive
70	Noisy restaurant or freeway traffic	Telephone use difficult
80	Alarm clock (2 feet)	Annoying
90	Heavy truck (50 feet) or city traffic	Very annoying. Hearing damage (8 hours)
100	Garbage truck	Very annoying
110	Pile drivers	Strained vocal effort
120	Jet takeoff (200 feet) or auto horn (3 feet)	Maximum vocal effort
140	Carrier deck jet operation	Painfully loud

Source: USEPA 1981.

Under the Noise Control Act of 1972 (42 USC 4901), the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed to is 115 dBA, and exposure to this level must not exceed 15 minutes within an 8-hour period. These standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

The average day/night sound level (DNL) metric is a measure of the total community noise environment. DNL is the average A-weighted sound level over a 24-hour period, with a 10-dBA adjustment added to the nighttime levels (between 2200 and 0700 hours). This adjustment is an effort to account for increased human sensitivity to nighttime noise events. Noise levels occurring at night generally produce a greater annoyance than those of the same levels occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 dBA louder than those occurring during the day, at least in terms of its potential for causing community annoyance.

DNL is endorsed by the U.S. Environmental Protection Agency (USEPA) for use by federal agencies (USEPA 1974, FICAN 1997) in quantifying annoyance to humans from general environmental noise, including aviation and construction noise. Land use compatibility and incompatibility are determined by comparing the predicted DNL at a site with the recommended land uses. Values of DNL can be measured with standard monitoring equipment or predicted with computer models such as NOISEMAP. AFI 32-1015 requires plotting DNL contours of 65, 70, 75, 80, and 85 dB for use in analyzing land use compatibility for both the current mission and the projected mission in the 5- to 10-year range. Air Force Handbook 32-7084, *AICUZ Program Manager's Guide* (USAF 2017c), requires the use of NOISEMAP to produce these noise contours and to analyze noise levels at noise-sensitive areas, except at major commercial airports where the NEPA noise requirement is met using the FAA methodology and noise model.

3.3.2 Affected Environment/Existing Conditions

Patrick SFB operates within the AICUZ program in accordance with AFI 32-1015. Noise levels around industrial facilities at Patrick SFB approximate those of any urban industrial area, reaching levels of 60 to 80 dBA. Flight operations remain the largest source of noise generation at the base. The AICUZ study and *Aircraft Noise Study for Patrick AFB* identifies noise contours that range from 65 dBA to 80+ dBA (USAF 2001, 2011b). The majority of noise exposure occurs on base, with

reduced levels over the Atlantic Ocean and Banana River. At Patrick SFB, no incompatibly sited facilities are within the 65 to 80 dBA noise contours (USAF 2017b).

The 2001 AICUZ study identified Tortoise Island and Merritt Island as primary areas where development should be restricted for noise due to their proximity to the Patrick SFB airfield (USAF 2001). Tortoise Island is partially located within the installation's 65 dB DNL noise contour (USAF 2001). With the exception of the 45th Medical Group Medical Center, which is located on Patrick SFB, the only sensitive receptor in the vicinity is Sea Park Elementary School to the south. All other hospitals, churches, and schools in the vicinity of Patrick SFB are located more than 1 mile from the base's boundaries (USAF 2017a). The ROI for noise includes the installation, adjacent sections of the Atlantic Ocean and Banana River, and the closest populated areas (i.e., Cocoa Beach and Satellite Beach).

3.4 HUMAN HEALTH AND SAFETY

3.4.1 Definition of the Resource/Regulatory Setting

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. The elements of an accident-prone environment include the presence of a hazard and an exposed population at risk of encountering the hazard. Numerous approaches are available to manage the operational environment to improve safety, including reducing the magnitude of a hazard or reducing the probability of encountering the hazard. Factors involving primary occupational safety and health issues are addressed in the OSHA and Air Force Occupational Safety and Health (AFOSH) Standards (29 CFR 1910 and AFI 91-202, *The USAF Mishap Prevention Program*, respectively).

Both natural and man-made environmental hazards may be present on base at any time due to the varied activities that take place at Patrick SFB. Naturally occurring potential health and safety hazards include insects, snakes, climatic conditions, and flash floods. Potential man-made health and safety hazards can include construction, demolition, transportation, maintenance and repair activities, the creation of noisy environments, and certain military activities. 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 processes create unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

The primary safety categories discussed in this analysis include construction and demolition safety and mission safety.

3.4.1.1 Construction and Demolition Safety

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 risk of illness, injury, death, and property damage.

All contractors performing construction and demolition activities on Patrick SFB are responsible for following OSHA regulations, as well as AFOSH standards set forth in AFI 91-202 and AFMAN 91-203, *Air Force Occupational Safety*, *Fire, and Health Standards*. AFOSH standards follow OSHA regulations (29 CFR 1926) and require work activities to be conducted in a manner that does not increase risk to workers or the public.

For activities during which there is the potential for construction workers to encounter contamination from IRP sites, it is recommended that a health and safety plan be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers

performing soil-removal activities within IRP sites are required to have OSHA 40-hour Hazardous Waste, Operations, and Emergency Response (HAZWOPER) training. In addition to this training, supervisors are required to have an OSHA Site Supervisor certification. Should contamination be encountered, the handling, storage, transportation, and disposal activities would be conducted in accordance with applicable federal, state, and local regulations; AFMAN/AFI; and Patrick SFB programs and procedures.

3.4.1.2 Mission Safety

Mission safety on USSF installations is maintained through adherence to DoD and Air Force safety policies and plans. The Air Force safety program ensures the safety of personnel and the public on the installation by regulating mission activities in accordance with AFI 91-225, *Safety Aviation Programs*.

The primary safety concern at facilities with aircraft operations is the potential for aircraft mishaps (i.e., crashes), which may be caused by mid-air collisions with other aircraft or objects, weather difficulties, pilot error, equipment malfunction, or bird-aircraft strikes.

Defense Explosives Safety Regulation (DESR) 6055.09_AFMAN 91-201, *Explosives Safety Standards*, requires that defined ESQD arcs be maintained between explosive materials storage (e.g., munitions) and handling facilities and a variety of other types of facilities. Within ESQD arcs, development is either restricted or altogether prohibited in order to maintain personnel safety and minimize the potential for damage in the event of an accident.

3.4.2 Affected Environment/Existing Conditions

Patrick SFB is a secure military installation with access limited to military personnel, civilian employees, military dependents, and approved visitors. Operations and maintenance activities conducted on the installation are performed in accordance with applicable Patrick SFB safety regulations, published Air Force Technical Orders, and standards prescribed by AFOSH requirements. Adherence to industrial-type safety procedures and directives ensures safe working conditions. The safety-related ROI for this EA corresponds to the footprints of the individual project sites where construction, demolition, and operational activities would occur.

Patrick SFB has one fire station that is located within two miles of the proposed project sites. The USSF is also party to mutual-aid agreements with fire protection in local communities and the fire department at Cape Canaveral SFS. Fire hydrants are distributed around the installation and tied to the potable water supply system. Fire flow capability is 1,000 gallons per minute at any single point (USAF 2012). The Cocoa Beach Fire Department is located approximately 3.3 miles north of the installation, and the Satellite Beach Fire Department is located 2.8 miles to the south.

Development at Patrick SFB is managed to ensure compliance with explosive safety requirements (DESR 6055.09_AFMAN 91-201). ESQD arcs cover 268 acres at Patrick SFB (Figure 3-1), primarily around the MSA and airfield. Incompatible development is restricted within the ESQD arc boundaries to reduce the safety risk and protect the mission requirements. None of the proposed projects would utilize explosives; however, several projects would require construction within existing ESQD arcs.

3.5 AIR QUALITY

3.5.1 Definition of the Resource/Regulatory Setting

Air quality impacts can range from localized effects to the dispersal and transport of air pollutants across large geographic areas. Air quality is determined by the type and amount of pollutants

emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The levels of pollutants are generally expressed on a concentration basis in units of parts per million (ppm) or micrograms per cubic meter (µg/m^3). For the air quality impact assessment, potential air emissions associated with the Proposed Action are quantified and disclosed, compared against any applicable thresholds, and discussed in the context of the air quality control framework applicable to Brevard County, which is the ROI for air quality.

USEPA sets National Ambient Air Quality Standards (NAAQS) for specific pollutants determined to be of concern with respect to the health and welfare of the general public (42 USC 7401 et seq). Ambient air quality standards are classified as either primary or secondary (40 CFR 50). The major pollutants of concern, or criteria pollutants, are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) less than 10 microns (PM_{10}), PM less than 2.5 microns ($PM_{2.5}$), and lead (Pb). NAAQS represent the maximum levels of background pollution that are considered safe, within an adequate margin of safety, to protect the public health and welfare. NAAQS are included in Table 3-2.

Table 3-2. Federal Air Quality Standards

Pollutant		Primary/Secondary Standards*	Averaging Time	Level	Threshold
Carbon Monoxide (CO)		Primary	1 Hour	35 ppm	Not to be exceeded more than once per year
			8 Hours	9 ppm	
Lead (Pb)		Primary/Secondary	Rolling 3 Month Average	0.15 µg/m^3	Not to be exceeded
Nitrogen Dioxide (NO_2)		Primary	1 Hour	100 ppb	98th percentile of 1-hour daily maximum concentrations (averaged over 3 years)
		Secondary	1 Year	53 ppb	Annual Mean
Ozone (O_3)		Primary/Secondary	8 Hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration (averaged over 3 years)
Particle Pollution (PM)	$PM_{2.5}$	Primary	1 Year	12.0 µg/m^3	Annual Mean (averaged over 3 years)
		Secondary	1 Year	15.0 µg/m^3	Annual Mean (averaged over 3 years)
		Primary/Secondary	24 Hours	35 µg/m^3	98th percentile (averaged over 3 years)
	PM_{10}	Primary/Secondary	24 Hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		Primary	1 Hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, (averaged over 3 years)
		Secondary	3 Hours	0.5 ppb	Not to be exceeded more than once per year

Source: https://www.epa.gov/criteria-air-pollutants/naaqs-table
*Primary standards provide public health protection and secondary standards provide public welfare protection.
ppb: parts per billion by volume; ppm: parts per million by volume; µg/m^3: micrograms per cubic meter

Areas where monitored outdoor air concentrations exceed the NAAQS are designated by the USEPA as nonattainment areas. Nonattainment designations for some pollutants (e.g., O_3) can be further classified based on the severity of the NAAQS exceedances. Areas that have historically exceeded the NAAQS but have since instituted controls and programs that have successfully remedied these exceedances are known as maintenance areas. Areas that meet both primary and secondary standards are known as attainment areas. The Federal Conformity Final Rule (40 CFR Parts 51 and

93) specifies criteria or requirements for conformity determinations for federal projects occurring in non-attainment areas. The rule mandates that a conformity analysis must be performed when a federal action generates air pollutants in a region that has been designated as a nonattainment or maintenance area for one or more NAAQS.

The General Conformity Rule divides the air conformity process into two distinct areas, applicability and determination. Federal agencies must initially assess if an action is subject to the Conformity Rule (Applicability Analysis) and then if the action conforms to an applicable implementation plan (Conformity Determination). A Conformity Applicability Analysis is the process used to determine whether a federal action meets the requirements of the General Conformity Rule. It requires the responsible federal agency to evaluate the nature of a Proposed Action and associated air pollutant emissions and calculate emissions as a result of the Proposed Action. If the emissions exceed established limits, known as *de minimis* thresholds, a more detailed Conformity Determination is required. The CAA provides that federal actions occurring in non-attainment and maintenance areas should not hinder future attainment with the NAAQS and would conform to the applicable State Implementation Plan.

In 2020, the State of Florida repealed sections of the Chapter 62-204, Florida Administrative Code (FAC), *Air Pollution Control*, which outlines the general provisions for air pollution control in the state. In its place, the State of Florida adopted all federal regulations under a modified Chapter 62-204.800, FAC. FDEP is responsible for administering the air quality program in the state. In July 2021, USEPA approved FDEP's State Implementation Plan for attaining and maintaining compliance with NAAQS under 40 CFR Part 52, Subpart K-Florida. Table 3-3 lists the applicable air quality regulations, laws, and the responsible agencies.

3.5.1.1 Hazardous Air Pollutants

According to USEPA, hazardous air pollutants (HAPs) are those pollutants that cause or may cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects. Although HAPs (e.g., benzene, which is found in gasoline) do not have established NAAQS, USEPA is required under the CAA to control 188 HAPs (42 USC 7412). Some volatile organic compounds (VOCs) are classified as HAPs. VOCs are also ozone precursors and include any organic compound involved in atmospheric photochemical reactions, except those designated by a USEPA administrator as having negligible photochemical reactivity.

Table 3-3. Air Quality Regulation Requirements

Law or Regulation	Actions and Requirements	Agency
Clean Air Act of 1970, as amended (42 USC 7401 et seq)	Comprehensive Federal law that regulates all sources of air emissions.	USEPA
40 CFR Part 50	Establishes primary and secondary ambient air quality standards and the requirements for air emissions reporting.	
40 CFR Part 51		
40 CFR Part 52, Subpart K	Gives the states the authority to establish air quality rules and regulations and provide oversight on meeting federal regulations and State Implementation Plan on air quality. FDEP is required to establish the State Implementation Plan and monitoring stations to ensure compliance with the CAA.	USEPA/FDEP Division of Air Resource Management
62-204.800, FAC, *Federal Regulations Adopted by Reference*		
62-210, FAC, *Stationary Sources*	Establishes the general permit requirements and programs for stationary sources of air emissions for the State of Florida.	
40 CFR Part 61	Establishes National Emissions Standards for Hazardous Air Pollutants (NESHAPs), which are emissions standards for air pollutants not covered by NAAQS that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness (e.g., National Emission Standards for Asbestos). Additionally, 40 CFR Part 63 identifies and categorizes sources that emit or have the potential to emit one or more hazardous pollutants. FDEP is required to ensure compliance with the CAA and these regulations.	
40 CFR Part 63		
40 CFR Part 70	Establishes comprehensive state air quality permitting systems consistent with the requirements of CAA. It also regulates the facilities that are required to have air quality permits. Permits include federal and state pollution-control requirements that apply to a source. USEPA has oversight of this program and FDEP is responsible for review of permit applications, issuance, and compliance for the State of Florida.	
40 CFR Part 93, Subpart B	Requires a federal action to conform with Federal or State Implementation Plan in accordance with CAA before the action is taken.	USEPA
EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*	Directs federal agencies to consider all available tools and resources in assessing greenhouse gas emissions and climate change effects of their proposed actions, including, as appropriate and relevant, the *Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (2016).	USEPA
EO 14008, *Tackling the Climate Crisis at Home and Abroad*	Requires that federal permitting decisions consider the effects of greenhouse gas emission.	DoD
AFI 32-1001, *Civil Engineer Operation*, Chapter 15	Formulates Air Force instructions and implementing guidance for facility asbestos management programs.	DoD
AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*	Requires USSF to minimize loss and recovery, stockpile, recycle, and use of ozone depleting substance (ODS) to the maximum practical extent and to manage the release of ODS into the environment.	DoD

3.5.1.2 Greenhouse Gases and Climate Change

Greenhouse gases (GHGs) affect the earth's atmospheric temperature through physical processes involving both light and thermal energy. GHGs trap the sun's radiation in the Earth's lower atmosphere and re-radiate the absorbed energy, warming the atmosphere and the planet's surface (i.e., the greenhouse effect). GHGs exist in the atmosphere as a result of both natural processes and human activity. Among the most prominent GHGs associated with human activities are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). These gases are a combustion byproduct of fossil fuel (i.e., gasoline, diesel, oil, coal, and natural gas) and other organic matter such as wood. Other pollutants that are considered to be GHGs, but which are much less prevalent in the atmosphere, include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF), and nitrogen trifluoride (NF_3). GHGs are presented in terms of CO_2 equivalent (CO_{2e}) emissions per year. The CO_{2e} is a term for describing different greenhouse gases in a common unit (metric tons).

Under EO 13990, CEQ is reviewing, revising, and updating the 2016 *Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change*. Currently, the EO recommends using the guidance for assessing the Proposed Action's potential effect on climate change. The guidance also emphasizes that agency analyses should be commensurate with projected GHG emissions and climate impacts and ensure useful information is available to inform the public and the decision-making process in distinguishing between alternatives and evaluating required mitigation. Currently, there are no published thresholds of significance for greenhouse gas emissions, but the federal government recognizes the need to reduce energy consumption and shift to renewable and alternative fuels to reduce emissions.

DoD Directive 4715.21, *Climate Adaptation and Resilience*, states that DoD must assess and manage risks associated with the impacts of climate change on DoD missions and installations and strengthen resilience to those impacts. DoD must consider all the strategic implications of climate, as well as continue to assess the ways climate impacts DoD installations, operations, and planning. Additionally, EO 14008, *Tackling the Climate Crisis At Home and Abroad*, requires DoD to review hazards, risks, and security implications of climate change as well as incorporate consideration of climate into relevant strategy, planning, and processes (DoD 2021a, 2021b).

3.5.2 Affected Environment/Existing Conditions

3.5.2.1 Climate

Climate is defined as the year-to-year persistence of weather patterns over time in a particular area. Patrick SFB is located on a barrier island on the central east coast of Florida approximately 3.3 miles south of the City of Cocoa Beach. Because of its geographic position, Patrick SFB has a humid, subtropical climate that is influenced by the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea. In Cocoa Beach, the summers are long, hot, oppressive, wet, and mostly cloudy and the winters are short, cool, windy, and partly cloudy. Over the course of a year, the temperature typically varies from 55 degrees Fahrenheit (°F) (13 degrees Celsius [C°]) to 88°F (31°C) and is rarely below 42°F (6°C) or above 91°F (33°C) (Southeast Regional Climate Center 2021). The climate of central Florida is characterized with two seasons: warm and cool. The warm season is from May to October, with an average daily high temperature above 84°F (29°C), and the cool season is from November to April with an average daily high temperature below 73°F (23°C).

The average precipitation for Cocoa Beach is 53.0 inches per year. The wet season is from June to September. The peak of wet season is the month of August with 18.1 days of rain and an average precipitation accumulation of 1.7 inches per day (Southeast Regional Climate Center 2021). The dry

season is from October to May. The peak of the dry season is the month of January with 4.5 days of rain and an average precipitation accumulation of 0.28 inches per day.

Increasing temperatures, changing precipitation patterns, and more frequent, intense, and unpredictable extreme weather conditions are predicted due to climate change. Climate projections for Patrick SFB suggest minimum and maximum temperatures will increase over time under two emission scenarios (Representative Concentration Pathway [RCP] 4.5 and RCP 8.5). For the decade centered around 2030, both scenarios project a similar increase in annual average temperature of between 2.2 °F (1.2 °C) and 2.6 °F (1.4 °C) over the historic average. The two emission scenarios show higher warming by 2050, with RCP 4.5 expressing a warming of 2.8 °F (1.6 °C) and RCP 8.5 expressing a slightly greater warming of 4.0 °F (2.2 °C). However, due to uncertainties with ocean-atmosphere dynamics, the annual average precipitation varies between emission scenarios with RCP 4.5 predicting a 0.4% increase in precipitation and RCP 8.5 predicting a 5% decrease. Projections for a 20-year storm surge event (5% probability occurring in any year) at Patrick SFB estimate between 53.9% inundation of the installation area for the RCP 4.5 scenario in 2035 to 85% for the RCP 8.5 scenario in 2065 (USAF 2020a). Section 2.2.1.4 of the SLD 45 Integrated Natural Resources Management Plan (INRMP) contains additional information on climate change projections for SLD 45 installations.

3.5.2.2 Ambient Air Quality of Brevard County

Brevard County is considered by the USEPA to be in attainment for all criteria pollutants (40 CFR 81.310 - Florida); therefore, the General Conformity rule does not apply, nor are there any requirements posed by FDEP for a conformity analysis of the Proposed Action. Although General Conformity does not apply, USSF is required to evaluate the significance of the emissions increases from the Proposed Action (40 CFR 1500-1508).

FDEP measures ambient air pollutant levels throughout Florida, and there are two monitoring stations located in Brevard County: Cocoa Beach and Melbourne. The Melbourne monitoring station measures for O_3, $PM_{2.5}$, and PM_{10}, and the Cocoa Beach monitoring station measures for O_3. No other criteria pollutants are currently measured within Brevard County. Table 3-4 summarizes levels of criteria pollutants for 2020 in Brevard County.

Table 3-4. Highest Ambient Air Quality of Criteria Pollutants by Monitoring for 2020 Station

Site Name and Number	Address	Criteria Pollutants				
		Highest Daily Average of Ozone Concentrations (ppb)			Highest Daily Average of PM Concentrations (µg/m³)	
		1-hour Average	Max 1-hour Average	Max 8-hour Average	$PM_{2.5}$	PM_{10}
Melbourne C009-0007	400 West Florida Avenue Brevard County Melbourne, FL 32901	68	69	63	27.6	93.7
Cocoa Beach C009-4001	400 South. 4th Street Cocoa Beach, FL 32931-2734	73	73	64	-	-
Source: https://fldep.dep.state.fl.us/air/flaqs/selectreport.asp?						

3.5.2.3 Emissions at Patrick SFB

Patrick SFB prepares annual air emissions inventories using the Air Program Information Management System (APIMS), which identify actual emission levels associated with operations at the base. The 2020–2021 air emissions inventory for Patrick SFB is presented in Table 3-5. Common sources of emissions include emergency generators, cooling towers, natural gas boilers, and munitions training. Patrick SFB, which had previously been permitted under the federal Title V air permitting program, was reclassified in March 2017 as an exempt air emission source due to a reduction in stationary source air emission levels.

Table 3-5. 2020-2021 Facility Emissions for Patrick SFB

Year	Emissions (tons/year)							
	CO	Lead	NO_x	$PM_{2.5}$	PM_{10}	SO_x	VOC	HAPs
2020	2.14	0.002	3.18	0.61	0.88	0.01	1.84	0.19
2021	2.76	0.002	4.68	0.77	1.11	0.01	2.13	0.22

3.5.2.4 Greenhouse Gases

The Facility Level Information on Greenhouse gases Tool (FLIGHT) was reviewed to provide the CO_{2e} factor for Brevard County (USEPA 2021b). The review of this database indicated that Brevard County had approximately 2,444,972 metric tons of CO_{2e} emitted into the atmosphere in 2019. Over 99% of these emissions (2,444,548 metric tons of CO_{2e}) are generated from power plants.

3.6 EARTH RESOURCES

3.6.1 Definition of the Resource/Regulatory Setting

Earth resources include the soil, underlying geology, and potential for geologic hazards and erosion within the ROI of the Proposed Action. The term "soil" refers to unconsolidated materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability of the ground to support man-made structures and facilities, provide a landscaped environment, and control the transport of eroded soils into nearby drainages. In undeveloped areas, the quality and productivity of soil are critical components of agricultural production. The ROI for earth resources includes Patrick SFB north of SR 404 and adjacent sections of the Banana River and Atlantic Ocean, with a focus on the locations of the 19 projects evaluated within this EA.

3.6.2 Affected Environment/Existing Conditions

Patrick SFB is located on a barrier island off the central east coastline of Florida. The barrier islands are a system of beach ridges that separate the Atlantic Ocean from brackish lagoons such as the Banana River, which forms the western boundary of Patrick SFB. The island attains a maximum width of approximately 4.5 miles and is approximately 90 miles long. Land surface elevations across Patrick SFB range from 0 to 16 feet above mean sea level (MSL), with the highest elevations corresponding to the sand dunes that parallel the Atlantic Ocean beachfront (USAF 2011a). From the dunes, the land slopes down gently west toward the shorelines along the Banana River. Some artificially high locations are found close to the southern end of the installation along a closed landfill that was in operation from the 1950s to the 1970s.

The geology of Patrick SFB consists of the Anastasia Formation, Caloosahatchee Marl Formation, and Tamiami Formation (in descending order from the land surface) (USAF 2012). The Anastasia formation lies 10 feet below land surface (bls) and has a thickness of 20 feet. Its lithology is coquina and shell conglomerates, quartz sand and clay. The Caloosahatchee Marl Formation is found at a

depth of approximately 30 feet bls and is 50 feet thick. Within the ROI, it is described as a gray to greenish-gray sandy shell marl with green clay and fine sand of Pliocene age. The approximate thickness of the Tamiami Formation is 20 feet, and it is located 80 feet bls. It is composed predominantly of a white sandy limestone that is discontinuous in the region.

The unconsolidated surficial materials that underline Patrick SFB are the undifferentiated Pleistocene/Holocene deposits known as the Pamlico sands (USAF 2012). These deposits are primarily composed of marine sands, which are sandy, well drained, and generally suitable for development. Along the shorelines of the Banana River and Atlantic Ocean, soils are less stable, highly susceptible to erosion, and more suitable for lower intensity development.

Ten soil types are located within Patrick SFB (Table 3-6 and Figure 3-2). Most of the mapped soils on Patrick SFB are sands. The most prominent soil association is the Canaveral-Anclote complex. This association is composed of nearly level and gently sloping ridges interspersed with narrow wet sloughs that generally parallel the ridges and includes areas of broad floodplains (Huckle et al. 1974). No prime or unique farmland soils occur within Patrick SFB (Natural Resources Conservation Service [NRCS] 2021).

Table 3-6. Major Soil Type Descriptions for Patrick SFB

Soil Type	Acres	Slope	Description	Action Alternative by Soil Type
Canaveral-Anclote complex, gently undulating	812	0-5%	Somewhat poorly drained soil, with a water table that is 12 to 36 inches below ground surface. This soil is highly susceptible to wind erosion.	C4, C5, C6, N2, N3, R3, R4, C7
Urban land	512	N/A	Nearly level to moderately steep areas where the soils have been altered or obscured by urban works and structures. Buildings and pavement cover more than 85% of the surface.	C1, C2, C3, D1, D2, D3, D4, C5-3, N1, N3, R2
Canaveral-Palm Beach-Urban land complex	246	0-2%	Somewhat poorly drained soil, with a water table that is 12 to 36 inches below ground surface. This soil is highly susceptible to wind erosion.	N3-2
Immokalee sand	169	0-2%	Poorly drained sandy soil, with a water table that is 10 to 40 inches below ground surface. This soil is highly susceptible to wind erosion.	C7, N3-1
Welaka sand	41	0-2%	Excessively drained soil, with a water table that is more than 80 inches below ground surface. This soil is highly susceptible to wind erosion.	N3-1
Beaches	34	N/A	Beaches on marine terraces.	-
Canaveral-Urban land complex	31	0-2%	Moderately well drained soil, with a water table that is 30 to 60 inches below ground surface. This soil is highly susceptible to wind erosion.	R5
Palm Beach sand	15	0-5%	Excessively drained soil, with a water table that is more than 80 inches below ground surface. This soil is highly susceptible to wind erosion.	N3-1
Basinger sand	15	0-2%	Poorly drained sand soil, with a water table that is 10 to 40 inches below ground surface. This soil is highly susceptible to wind erosion.	C7
Pomello-Urban land complex	7	0-2%	Moderately well drained soil, with a water table that ranges between 30 and 60 inches. This soil is highly susceptible to wind erosion.	-

Source: U.S. Department of Agriculture (USDA) NRCS Soil Survey Geographic Database (SSURGO) accessed September 2021.

PATRICK SPACE FORCE BASE EA

FIGURE 3-2: NRCS SOILS

3.7 WATER RESOURCES

3.7.1 Definition of the Resource/Regulatory Setting

Water resources analyzed in this EA include surface water, wetlands, floodplains, and groundwater. Surface water resources include lakes, rivers, and streams and are important for a variety of reasons, including economic, ecological, recreational, and human health factors. Wetlands are areas of transition between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water (Mitsch & Gosselink 2000). Wetlands provide a variety of functions, including groundwater recharge and discharge, flood flow attenuation, sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, aquatic and terrestrial diversity and abundance, and uniqueness. Floodplains are lowland areas adjacent to surface water bodies (i.e., lakes, rivers, oceans), where flooding events periodically cover areas with water. Floodplains and riparian habitat are biologically unique and highly diverse ecosystems providing a rich diversity of aquatic and terrestrial species, as well as promoting stream bank stability and regulating water temperatures. Floodplain areas are likely to be impacted by predicted sea level rise (SLR). Recent predictions for SLR in Florida are approximately 1-4 feet in the next century (USEPA 2016). Groundwater resources include all water reserves contained in soil and geologic deposits below the ground surface. These resources are important for a variety of reasons, including drinking water, irrigation, power generation, recreation, agriculture, and human health. Additionally, this section includes a discussion of coastal resources management for consistency with the Federal Coastal Zone Management Act (CZMA) (16 USC 1451 et seq). The ROI for water resources includes Patrick SFB north of SR 404 and adjacent sections of the Atlantic Ocean and Banana River, with a focus on the 19 project locations evaluated in this EA.

Water quality is defined as the chemical, physical, and biological condition of water resources. The CWA (33 USC 1251-1387), as amended, is the primary law that seeks to ensure water quality in the U.S. The CWA established water quality standards, surface water classifications, state reporting of impairment of water quality in streams and open water bodies, development of programs to remediate impairment by setting Total Maximum Daily Load (TMDL), and the requirement of water quality certification for federally permitted projects under Section 401 of the CWA (33 USC 1341-1342). In Florida, the Environmental Resource Permit (ERP) Program (62-330, FAC), administered jointly by FDEP and Florida's Water Management Districts, regulates activities involving the alteration of water resources. This includes new activities in uplands that generate stormwater runoff from upland construction, as well as dredging and filling in wetlands and other surface waters. SJRWMD is regulatory agency responsible for implementing the ERP program on Patrick SFB. Water resource laws and requirements related to the projects are summarized in Table 3-7.

3.7.2 Affected Environment/Existing Conditions

3.7.2.1 Surface Water

Patrick SFB is located within the Northern Indian River Lagoon watershed (SJRWMD Drainage Basin 21) and the South Banana River subwatershed (Hydrologic Unit Code 030802020203) (USAF 2012). Major surface waters that affect Patrick SFB include the Banana River to the west and the Atlantic Ocean to the east. The Banana River is part of the Indian River Lagoon complex. The Indian River Lagoon was established as an Estuary of National Significance and joined the National Estuary Program in 1990 (USAF 2012). FDEP classifies most of the Banana River as Class II waters, which provide protection of coastal waters where shellfish harvesting occurs (FDEP 2021). The Banana River is designated as an "Outstanding Florida Water," and the majority of the lagoon south of the Beachline Expressway (SR 528) is managed by FDEP as the Banana River Aquatic Preserve.

Affected Environment

The topography at Patrick SFB is flat and storm water runoff is managed through a network of upland cut drainage ditches, canals, and stormwater retention ponds. Patrick SFB contains five man-made ponds (totaling 31.3 acres), 4.1 miles of drainage ditches, and 40.2 acres of canals (USAF 2020a). Most of the drainage ditches contain water throughout the year because they intersect the shallow water table aquifer. A few canals are connected to the Banana River and are slightly brackish. Projects C4, C7, R4, and R5 contain surface waters.

Table 3-7. Summary of Water Resource Regulation Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Clean Water Act (Sections 401 and 402; 33 USC 1341-1342)	A National Pollutant Discharge Elimination System (NPDES) permit and a state water quality certificate for pollutant discharge from a "point source" into any surface water. Facilities that store oil and oil-based products are required to have Spill Prevention, Control, and Countermeasures Plans.	Ensure the "restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters."	USEPA/FDEP/ Water Management Districts
Clean Water Act (Section 404; 33 USC 1342)	A general or individual permit for discharge of dredge or fill material into waters of the U.S. (WOTUS).	Regulate the discharge of dredged and fill material into WOTUS, including wetlands.	USACE/FDEP
62-330, FAC, *Environmental Resource Permitting*	A general or individual permit for work in wetlands and surface waters (as defined and delineated in Chapter 62-340, FAC) or construction/alteration of stormwater management systems.	Implement the comprehensive, statewide environmental resource permit (ERP) program under Section 373.4131, F.S.	FDEP/Water Management Districts
403.067 Florida Statutes (F.S.)	Establishment and implementation of TMDLs.	Promote improvements in water quality throughout the state through the coordinated control of point and nonpoint sources of pollution.	FDEP
Section 10 of the Rivers and Harbors Act (33 USC 403)	A general or individual permit for any work or creation of structures in, over, under, or affecting the course, location, or condition of navigable waters.	Prohibit the unauthorized obstruction or alteration of any navigable WOTUS.	USACE
EO 11988, *Floodplain Management*	Avoidance of floodplain impacts to the extent practicable, prepare Finding of No Practicable Alternative if necessary.	Reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains.	DoD
EO 11990, *Protection of Wetlands*	Avoidance of wetland impacts to the extent practicable, prepare Finding of No Practicable Alternative if necessary.	Minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.	DoD
EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*	Follow implementing guidelines to increase the resilience against flooding and help preserve the natural values of floodplains.	Improve the resilience of communities and Federal assets against the impacts of flooding and provide guidance to agencies on the implementation of EO 11988.	
Energy Independence and Security Act	Development of a federal facility with a footprint that exceeds 5,000 SF must use site planning, design, construction,	Manage stormwater on federal facilities.	DoD

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
of 2007 (42 USC 17001 et seq) and UFC 3-210-10, *Low Impact Development*	and maintenance strategies to maintain or restore the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.		
Fish and Wildlife Coordination Act (16 USC 661-667)	Consultation/coordination with the USFWS and the Florida Fish & Wildlife Conservation Commission (FWC)	Regulate the impoundment, diversion or modification of streams or other bodies of water.	USFWS/FWC
Coastal Zone Management Act (16 USC 1451 et seq)	Coordination with FDEP and Federal Consistency Determination.	Conserve and protect coastal environment through standards and criteria for regulations and guidelines for uses of the coastal zone consistent with Florida Coastal Management Program (FCMP).	FDEP

3.7.2.2 Wetlands

Wetland habitats on Patrick SFB are largely concentrated along the Banana River and Atlantic coast and include estuarine and marine wetlands. The USFWS National Wetlands Inventory (NWI) also identified surface water features on Patrick SFB, which are primarily excavated canals used for storm water drainage. Isolated wetlands are present on Patrick SFB and are identified on a case by case basis with delineations through USACE and SJRWMD based on proposed project limits and permitting requirements (USAF 2020a). Figure 3-3 identifies the location of wetlands on Patrick SFB based on the NWI (USFWS 2018). Project R5 contains estuarine wetlands.

3.7.2.3 Floodplains and SLR

Floodplains are defined by EO 11988 as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, the area subject to a 1 percent or greater chance of flooding in any given year" (that area inundated by a 100-year flood). Recent federal guidance (EO 13690) refers to the 500-year floodplain. The 500-year flood is a flood that has a 0.2 percent chance of occurring in any given year. According to Federal Emergency Management Agency (FEMA) maps for Patrick SFB, flood elevations extend from 3 to 9 feet above MSL along the Banana River and from 12 to 16 feet above MSL along the Atlantic Ocean (USAF 2011a). Areas most prone to flooding include the golf course and the open areas surrounding the runways and taxiways. Designs for structures in the 100-year floodplain must incorporate measures per EO 11988 to reduce loss of property and life. The location and extent of floodplain areas within Patrick SFB are shown on Figure 3-4 (FEMA 2021). Projects C7, N2, N3, R3, R4, and R5 would occur within the 100-year floodplain.

Climate change and sea level rise may also modify the Patrick SFB landscape in the long term. The DoD Regional Sea Level (DRSL) Database (DoD 2021c) was used to predict future SLR at Patrick SFB (https://drsl.serdp-estcp.org/sealevelrise/1273). Details on the development and use of this database are described in Hall et al (2016). Coastal flooding projections at Patrick SFB were modeled for five SLR scenarios in 2035, 2065, and 2100. Model outputs for the "medium" SLR 2065 scenario and the "low" SLR 2100 scenario predict approximately a two-foot SLR for Patrick SFB. Figure 3-5 displays the predicted permanent coastline and inundation in low-lying areas given a two-foot SLR. Portions of Projects C7, N2, and R3 would occur within these areas.

3.7.2.4 Groundwater

Patrick SFB is underlain by both confined and unconfined aquifers. The hydrologic units (aquifers) underlying Patrick SFB include the surficial water table aquifer; semi-artesian and artesian aquifers

within the Caloosahatchee Marl, Tamiami Limestone, and Hawthorn Group; and the artesian Floridian aquifer (USAF 2012). The surficial water table aquifer underlying Patrick SFB is the major hydro-stratigraphic system that can be influenced by installation operations. This system, consisting primarily of marine sands, shell fragments, and coquina limestone, extends approximately 50 feet bls. The water table is generally within five feet of the ground surface. The general direction of groundwater flow in the surficial aquifer is westward, toward the Banana River. Localized flow in the surficial aquifer is from topographic highs (e.g., mounds, swells, and dune ridges) toward surface water bodies (e.g., creeks, ponds, and drainage canals).

3.7.2.5 Coastal Zone Management Act Consistency

In 1972, the U.S. Congress enacted the CZMA (16 USC 1451-1464) to assist coastal states, Great Lakes states, and U.S. territories with the development of coastal management programs that comprehensively manage and balance competing uses of coastal resources. The FCMP was approved by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) in 1981 and is codified as Florida Statutes, Chapter 380, Part II. The geography of Florida and the CZMA dictate that the entire state, including Patrick SFB, be designated as a Coastal Zone and be subject to the FCMP. The FCMP consists of a network of 24 Florida Statutes administered by eight state agencies and five Water Management Districts. Under provisions of the CZMA, any federal activity that has the potential to affect Florida's coastal resources is reviewed for consistency with the FCMP, which is administered by FDEP. The USSF CZMA Federal Consistency Determination is included as Appendix B. The consistency statement will be submitted to the Florida Clearinghouse as part of the Draft EA multi-agency review.

3.7.2.6 Water Quality

A TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. The CWA requires FDEP to establish TMDLs for impaired waters and implement plans to reduce impairment by point and non-point sources. For the State of Florida, FDEP is responsible for development of Basin Management Action Plans (BMAPs). These plans provide the framework for water quality restoration and contain commitments from federal, state, and local stakeholders to reduce pollutant loading through current and future projects. The BMAPs contain a comprehensive set of solutions, such as permit limits on wastewater facilities, urban and agricultural best management practices (BMPs), and conservation programs designed to achieve pollutant reductions established by a TMDL. BMAPs are adopted by FDEP Secretarial Order and are legally enforceable pursuant to 403.121, 403.141, and 403.161, F.S.

The Banana River Lagoon has been listed on the CWA Section 303(d) as impaired for nutrients (i.e., nitrogen and phosphorous) and dissolved oxygen (DO). The Banana River BMAP identifies structural BMPs (e.g. stormwater ponds, stormwater reuse, and shoreline restoration) and non-structural BMPs (e.g., public education, discontinuing fertilizer application, and street sweeping) (FDEP 2021). Patrick SFB is a stakeholder in the BMAP and has committed to implementing projects and BMPs that will reduce nutrient and DO loading to the Banana River.

Patrick SFB operates an NPDES Phase II Municipal Separate Storm Sewer System (MS4) permitted under FDEP Facility Identification Number FLR04E074 (expires August 21, 2023). Under this permit, Patrick SFB is identified as a point source of urban runoff into the Banana River and structural and non-structural BMPs that reduce nutrient loading are listed. Patrick SFB also has an NPDES Multi-Sector Generic Permit (FL05A948, expires September 30, 2025). This permit addresses stormwater management and pollution prevention from the industrial activities that occur at Patrick SFB including hazardous waste storage facilities, scrap and recycling facilities, air transportation facilities, and water transportation facilities.

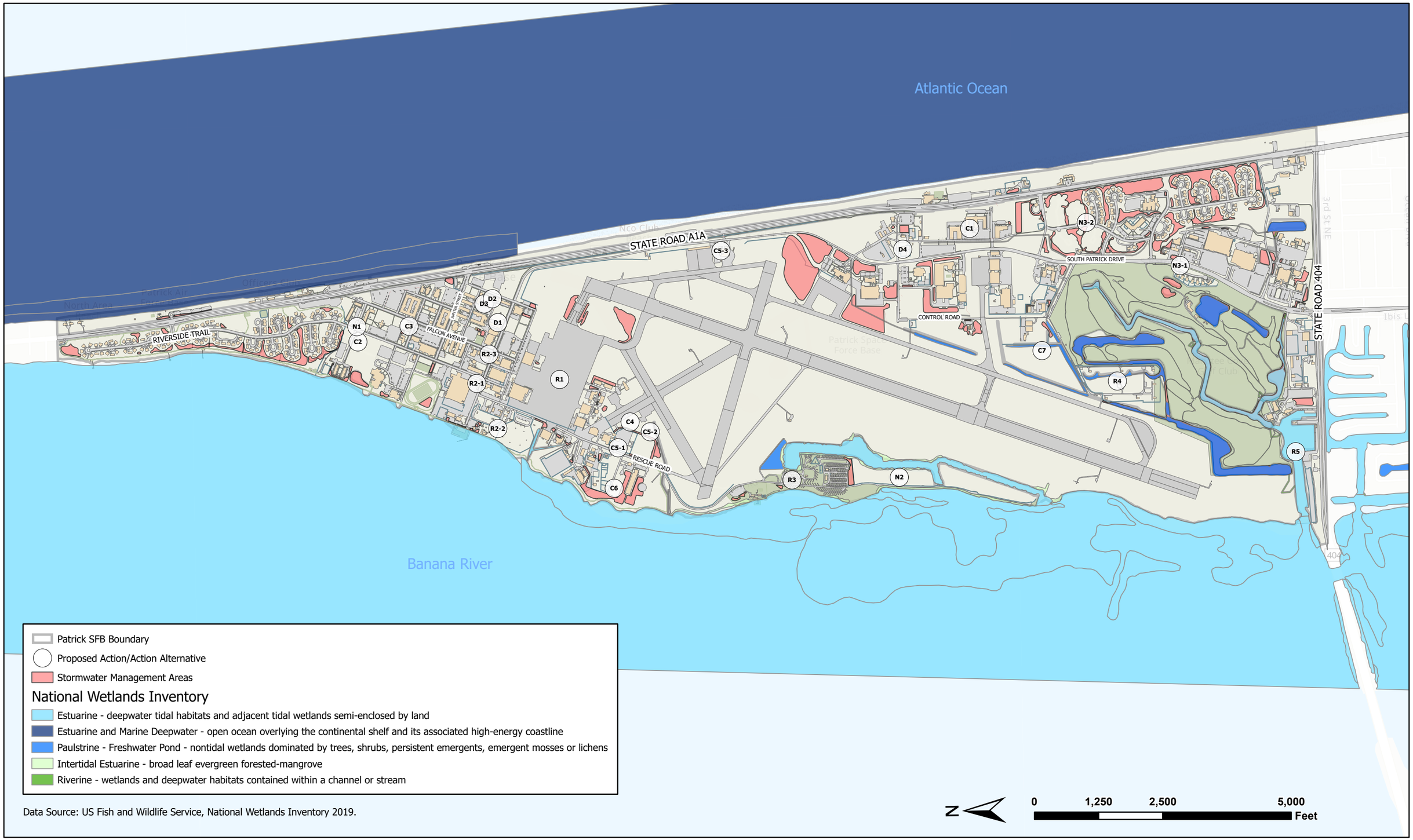

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FIGURE 3-3: NATIONAL WETLANDS INVENTORY

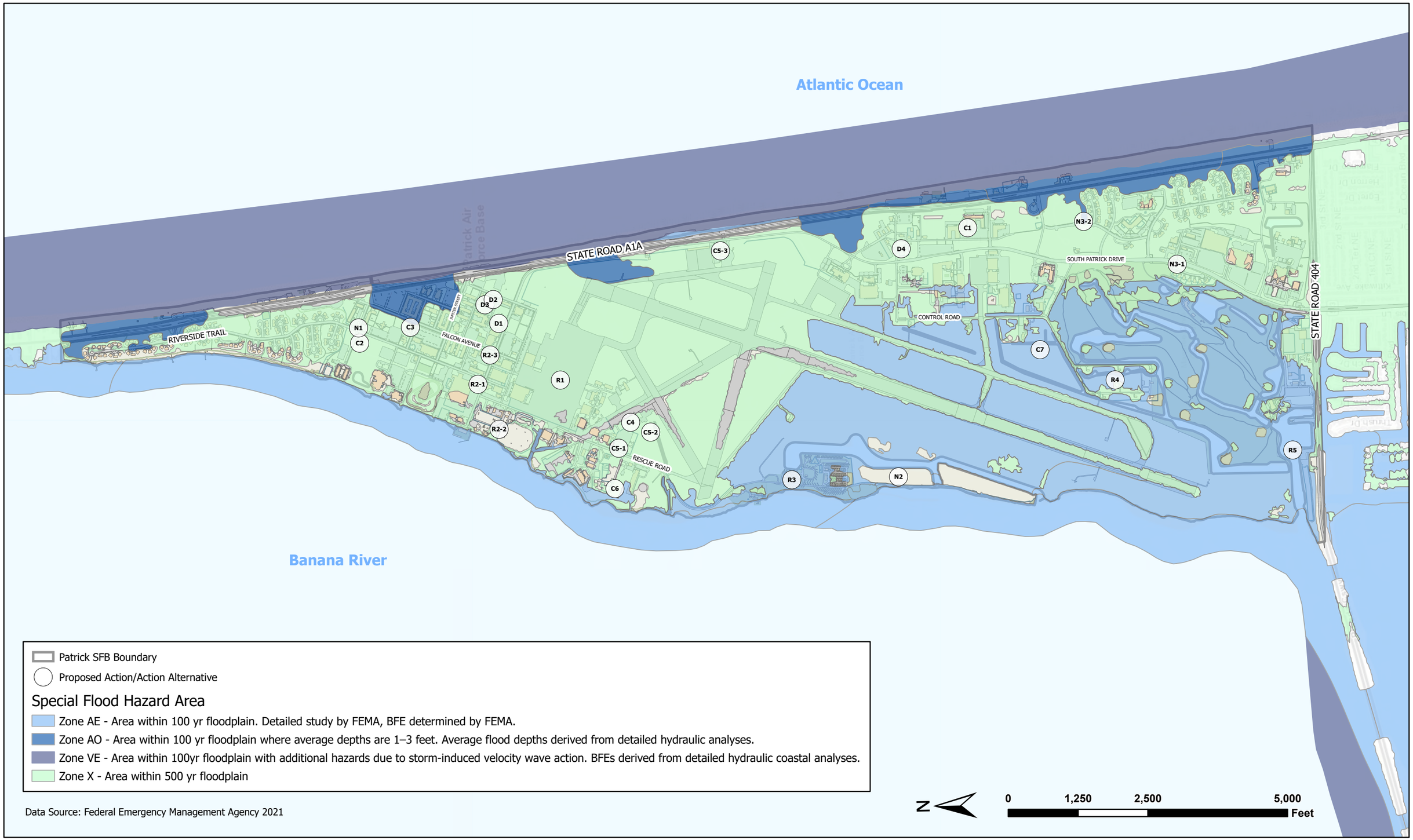

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FIGURE 3-4: FEMA FLOODPLAINS

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FIGURE 3-5: SEA LEVEL RISE

3.8 BIOLOGICAL RESOURCES

3.8.1 Definition of the Resource/Regulatory Setting

Biological resources include native or naturalized plants, fish, wildlife, and the habitats in which they occur. Sensitive biological resources are defined as plant, fish, and wildlife species that are federally and state-listed as threatened, endangered, or candidate and their habitat. Sensitive habitats include those areas designated as critical habitat protected by the ESA and sensitive ecological areas as designated by federal or state court rulings. Sensitive habitats also include wetlands, sensitive upland communities, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, feeding/forage areas, and crucial summer/winter habitats). The ROI for biological resources includes Patrick SFB north of SR 404 and adjacent sections of the Atlantic Ocean and Banana River, with a focus on the 19 project locations evaluated within this EA.

The ESA (16 USC 1531 et seq) of 1973, as amended, was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. Federal species of concern are not protected under the ESA; however, these species could become listed and therefore are given consideration when addressing biological impacts of an action.

The National Marine Fisheries Service (NMFS) and USFWS share responsibility for implementing the ESA. Generally, USFWS manages land and freshwater species, while NMFS manages marine and anadromous species. USFWS and NMFS also share responsibility for implementing the Marine Mammal Protection Act (MMPA) (16 USC 1361 et seq): NMFS is responsible for the protection of whales, dolphins, porpoises, seals, and sea lions, and USFWS is responsible for the protection of walrus, manatees, sea otters, and polar bears. NMFS is also the regulatory agency responsible for the nation's living marine resources and their habitats, including Essential Fish Habitat (EFH). This authority is designated by the MSFCMA (16 USC 1801 et seq), as amended. FWC identifies and lists state-protected species and habitats. Florida state-listed species and their habitats are protected in accordance with 379.2291, F.S. Specific biological resource laws and requirements related to the Proposed Action are summarized in Table 3-8.

Table 3-8. Summary of Natural Resource Regulation Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Endangered Species Act (16 USC 1531 et seq)	Consultation with USFWS and if necessary, obtain and comply with biological opinions/incidental take permits, and comply with existing threatened and endangered species permits and commitments.	Conserve ecosystems that support threatened and endangered species. Section 7 requires federal agencies to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat.	USFWS
Florida Endangered and Threatened Species Act (FETSA) of 1977 (379.2291, F.S.)	Follow approved Species Conservation Measures and Permitting Guidelines for projects that may adversely affect protected species.	Conserve and protect threatened and endangered species as a natural resource.	FWC
Sikes Act (16 USC 670 et seq)	Cooperation between the Department of Interior and DoD with state agencies to plan, develop and maintain fish and	Develop an INRMP that is reviewed/approved by USFWS, NMFS, FDEP, and FWC.	DoD

Affected Environment

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
	wildlife resources on U.S. military installations.		
Migratory Bird Treaty Act (16 USC 703-712)	Consultation with USFWS as necessary.	Prohibit intentional destruction of the eggs or nest of migratory birds without a permit. Beach nesting locations must be protected and avoided during beach restoration activities.	USFWS
Marine Mammal Protection Act (16 USC 1361 et seq)	Consultation with USFWS and NMFS as necessary.	Prohibit, with certain exceptions, the "take" of marine mammals in WOTUS and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S.	USFWS/NMFS
Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801 et seq)	Consultation with NMFS as necessary.	Promote the conservation and management of marine fisheries and essential fish habitat.	NMFS
Bald and Golden Eagle Act (BGEA, 16 USC 668-668c)	Coordination with USFWS and if necessary, obtain individual or programmatic permits.	Prohibit, without a permit issued by the USFWS, the taking of bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*).	USFWS
EO 13112, *Invasive Species*	Remove and control invasive species.	Prevent the introduction of invasive species and provide for their control.	DoD
EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*	Incorporate migratory bird protection measures into federal agency activities.	Protect migratory birds, in accordance with the MBTA, BGEA, the Fish and Wildlife Coordination Act, ESA, and NEPA.	DoD
AFMAN 32-7003, *Environmental Conservation*	Long-term management of natural and cultural resources on the installation.	Implement INRMP and Integrated Cultural Resources Management Plan (ICRMP). Protect listed species, biodiversity, migratory birds, wetlands, floodplains, and cultural/historic resources.	DoD
45 Space Wing Instruction (SWI) 32-7001, *Exterior Lighting Management*	Use full cut off, well shielded, low wattage, limited wavelength amber LED lights.	Reduce the amount of exterior lighting visible from the beach during the sea turtle nesting season to reduce mortality.	SLD 45
Marine Animal Regulation, Florida Marine Turtle Protection Act (379.2431, F.S.)	Coordination with FWC and consultation with USFWS as necessary.	Ensure FWC has the appropriate authority and resources to implement its responsibilities under the recovery plans of the USFWS for five species of marine turtle.	USFWS/FWC

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Model Lighting Ordinance for Marine Turtle Protection Rule (62B-55, FAC)	Consultation with USFWS as necessary.	Protect hatchling marine turtles from the adverse effects of artificial lighting, provide overall improvement in nesting habitat degraded by light pollution, and increase successful nesting activity and production of hatchlings.	USFWS
Mangrove Trimming and Preservation Act (403.9323, F.S.)	Coordination with FDEP and SJRWMD.	Protect and preserve mangrove resources valuable to the environment and economy from unregulated removal, defoliation, and destruction.	FDEP/SJRWMD

3.8.2 Affected Environment

3.8.2.1 Vegetation and Habitat

Patrick SFB is heavily developed, with most of the vegetation consisting of turf and landscaped areas. However, small areas of natural communities occur along the Banana River and Atlantic Ocean. The Florida Land Use, Cover, and Forms (FLUCFCS) classification (SJRWMD 2014) identifies four undeveloped vegetative communities at Patrick SFB: swimming beach, mixed scrub-shrub wetland, shrub and brushland, and mixed upland (non-forested) (Figure 3-6).

The beach dune community, east of SR A1A, is the most extensive natural community at Patrick SFB (29 acres). The dunes are dominated by sea oats (*Uniola paniculata*), beach elder (*Iva imbricata*), saltgrass *(Distichlis spicata*), and beach cordgrass (*Spartina patens*). Mixed scrub-shrub wetlands include the mangrove and salt marsh communities that primarily occur along the Banana River shoreline. A 35-acre shrub and brushland area along the Survival Canal is an active restoration area that is being returned to native vegetation, including cabbage palm (*Sabal palmetto*) and native shrubs. Project N2 would occur within this area.

3.8.2.2 Essential Fish Habitat

The MSFCMA defines EFH as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC 1802 [10]). Habitat Areas of Particular Concern (HAPCs) have also been designated within EFH areas; these include localized areas that are vulnerable to degradation or are especially important ecologically. NMFS defines EFH for highly migratory species under its jurisdiction, while regional management councils define EFH for species under their jurisdiction. The South Atlantic Fishery Management Council (SAFMC) currently manages fisheries for several species in the vicinity of Patrick SFB, including the South Atlantic snapper and grouper fishery; dolphin and wahoo fishery; South Atlantic shrimp; coastal migratory pelagic species; highly migratory species; spiny lobster; golden crab (*Chaceon fenneri*); coral, coral reefs, and live/hardbottom habitats; and sargassum (*Sargassum* spp.). Substrates designated as EFH and HAPC include live/hard bottom, coral reefs, submerged aquatic vegetation (e.g., seagrasses and macroalgae), outcroppings around the shelf break zone, estuarine nursery areas, oyster reefs or shell banks, unconsolidated bottom (i.e., soft sediments), estuarine scrub/shrub (e.g., mangrove fringe), shelf current systems, sandy offshore shoals/bars, tidal creeks, coral, and coastal inlets.

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FIGURE 3-6: SJRWMD LAND USE LAND COVER

Coquina and Sabellariid rock reef, also identified as EFH, is found in the nearshore Atlantic Ocean waters of Patrick SFB in patches starting in the central section with a concentration along the southern half and beyond, past the Patrick SFB south boundary.

Seagrass has been observed in the Banana River along Patrick SFB's western shoreline by SJRWMD. Seagrass is generally in patchy distribution with occasional dense beds in addition to several macroalgae species. Mangroves are found along the Banana River shoreline, within canals connected to the Banana River, and along some docks of the Manatee Cove Marina. These mangroves are noncontiguous and interspersed in between mostly herbaceous wetland vegetation. Florida laws also provide some protection to mangroves through the Mangrove Trimming and Preservation Act (403.9323, F.S.). Mangroves adjacent to Project R5 may provide EFH.

3.8.2.3 Wildlife

The developed areas of Patrick SFB may provide roosting and/or nesting habitat for bird and bat species and the landscaped areas may also support foraging, nesting, and other behaviors of wildlife. Patrick SFB provides habitat to various wildlife species, including nine mammalian species, four fish species, three amphibian species, 21 reptile species, 15 bird species, and one invertebrate species with documented observations on, or in waters adjacent to, the installation. A detailed list of the wildlife documented at Patrick SFB is provided in the SLD 45 INRMP (USAF 2020a). Wildlife occurrence in the developed portions of the base is likely limited, consisting mostly of species found in urban areas and tolerant of human presence and activity (e.g., rodents and other small mammals, lizards, and some bird species).

In addition, Patrick SFB manages birds and wildlife under the AFI 91-212. The purpose of this program is to minimize bird/wildlife strike damage to aircraft by reducing the presence of wildlife in the developed areas.

3.8.2.4 Critical Habitat

Critical habitat is generally defined as specific areas that contain physical or biological features essential to the conservation of the species, which may need special management or protection. Although there are no federally designated critical habitat areas located on Patrick SFB, critical habitat does occur within the waterways that border of Patrick SFB. The Atlantic Coast, along the eastern border, is critical habitat for the North Atlantic right whale (*Eubalaena glacialis*), loggerhead sea turtle (*Caretta caretta*), and the West Indian manatee (*Trichechus manatus*). The Banana River, which forms the western border, is also critical habitat for the West Indian manatee (Figure 3-7).

3.8.2.5 Other Protected Species or Habitats

Bald Eagle

The bald eagle was removed from protection under the ESA in August 2007; however, it is still protected under the MBTA (16 USC 703-712), BGEA (16 USC 668-668c), Lacey Act (16 USC 3371-3378) and Chapter 68A-16.002, FAC. The USFWS has jurisdictional responsibility for the species. To reduce the potential for human activity to adversely affect bald eagles, *USFWS Management Guidelines* suggest the protection of a 660-ft habitat buffer around each active and alternate bald eagle nest (USFWS 2007). A bald eagle nest (BE106) is documented within the Pelican Cove residential area near the baseball fields, approximately 1.8 miles south of the nearest proposed project (Audubon 2022).

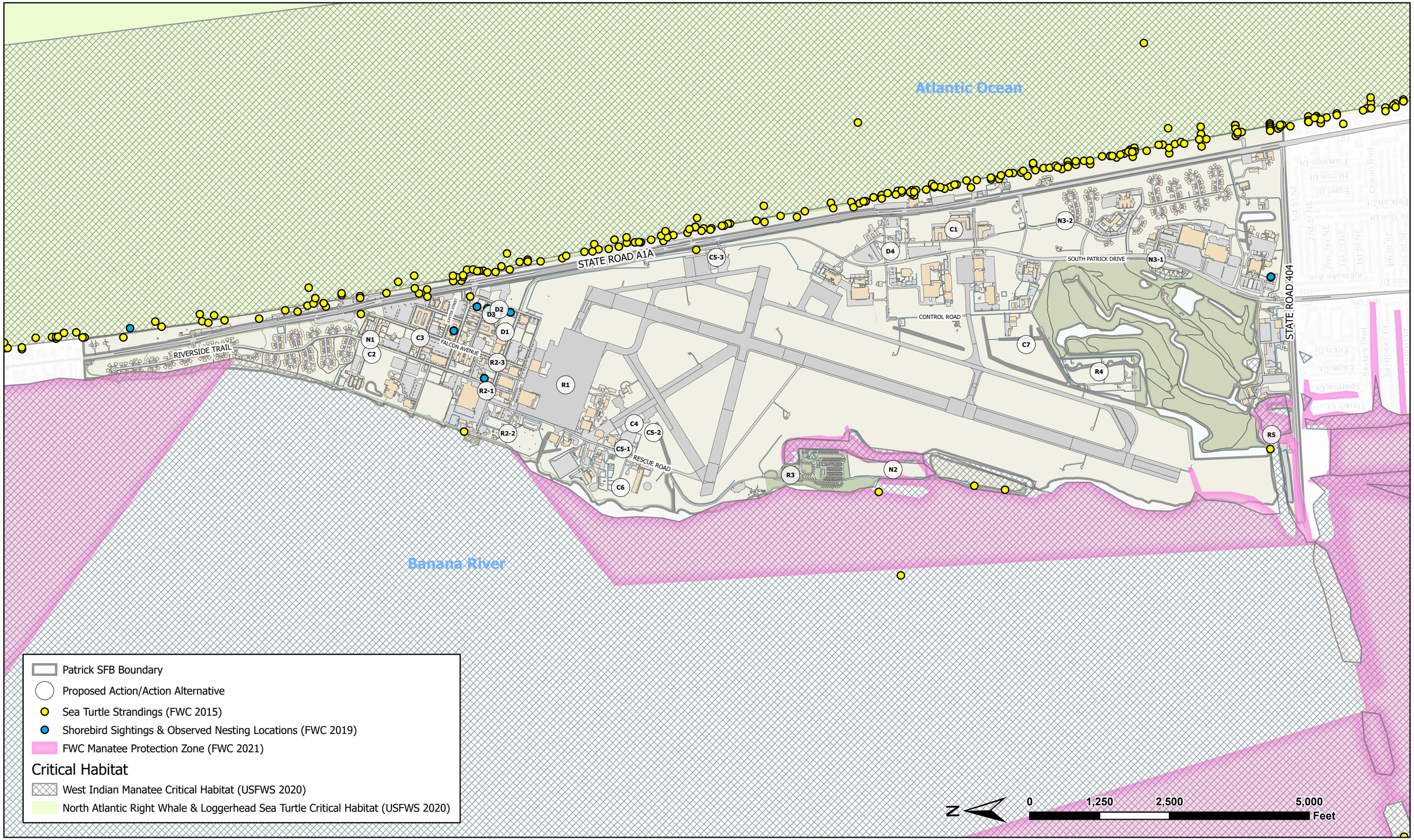

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FIGURE 3-7: PROTECTED SPECIES & CRITICAL HABITAT

Migratory Birds

Migratory birds are protected under the MBTA. Patrick SFB is located along one of the major migratory flyways for neo-tropical migrants that breed in eastern North America. The USFWS has jurisdictional responsibility for species covered under MBTA. During migratory bird surveys at Patrick SFB, many neotropical migrants were observed using the dune habitat. There are no state-recognized Important Birding Areas (IBA) at Patrick SFB.

Bats

There are 13 bat species native to Florida, and the majority of these species are listed by Florida as Species of Greatest Conservation Need (SGCN). Patrick SFB has five of these insectivorous bat species (2019 survey), some of which are more solitary while others can be colonial. They can be found roosting/nesting in trees and buildings, and a few bat houses on base. It is illegal to kill bats per 68A-4.001 and 68A-9.010, FAC. Loss of natural roosting sites such as trees and caves are a threat to the species. The most critical times to avoid activities near roosting bats are during maternity/breeding season, defined as April 15th to August 15th. Should bats need to be removed from buildings, the Florida Code requires exclusions to be conducted outside of maternity season and exclusionary devices must be in place a minimum of four nights when the overnight temperature is forecast to be at least 50°F (10°C).

3.8.2.6 Sensitive Species

Sensitive species within this document are defined as those listed under Section 7 of the ESA; Chapter 68A-27, FAC, *Florida Endangered and Threatened Species List*; Chapter 5B-40, FAC, *Regulated Plant Index* (Florida Department of Agriculture and Consumer Services (FDACS)); species with other regulatory protection; and those that are otherwise considered rare or vulnerable to human disturbance. The SLD 45 INRMP (USAF 2020a) identifies 27 threatened, endangered, or rare species with a known occurrence on the installation. A review of the Florida Natural Areas Inventory (FNAI) Biodiversity Matrix (FNAI 2021) and USFWS Information for Planning and Consultation (IPaC) database (USFWS 2021a), identified an additional 32 sensitive species with the potential to occur at Patrick SFB. The resulting list of sensitive species is included in Table 3-9.

Table 3-9. Sensitive Species with Known or Potential Occurrence within or near Patrick SFB

Common Name	Scientific Name	Federal Status	State Status	Potential of Occurrence
Birds				
American oystercatcher	*Haematopus palliates*	-	T	Low
Bald eagle[1]	*Haliaeetus leucocephalus*	BGEA	68A-16.002, FAC	Observed
Black skimmer	*Rynchops niger*	-	T	Observed
Florida scrub-jay	*Aphelocoma coerulescens*	T	T	Low
Eastern black rail	*Laterallus jamaicensis ssp.*	T	T	Low
Florida burrowing owl	*Athene cunicularia floridana*	-	T	Observed
Florida sandhill crane	*Grus canadensis pratensis*	-	T	Low
Least tern	*Sternula antillarum*	-	T	Observed
Little blue heron	*Egretta caerulea*	-	T	Observed
Piping plover	*Charadrius melodus*	T	T	Low
Red knot	*Calidris canutus rufa*	T	T	Low
Reddish egret	*Egretta rufescens*	-	T	Observed
Southeastern American kestrel	*Falco sparverius paulus*	-	T	Observed
Roseate spoonbill	*Platalea ajaja*	-	T	Observed
Tricolored heron	*Egretta tricolor*	-	T	Observed
Wood stork	*Mycteria americana*	T	T	Observed
Fish				
Atlantic sturgeon	*Acipenser oxyrinchus*	E	E	Moderate

Affected Environment

Common Name	Scientific Name	Federal Status	State Status	Potential of Occurrence
Oceanic whitetip shark	*Carcharhinus longimanus*	T	T	Low
Giant manta ray	*Manta birostris*	T	T	Low
Smalltooth sawfish	*Pristis pectinata*	E	E	Moderate
Reptiles				
American alligator	*Alligator mississippiensis*	T(S/A)	T	Observed
Atlantic salt marsh snake	*Nerodia clarkia taeniata*	T	T	Moderate
Eastern indigo snake	*Drymarchon corais couperi*	T	T	Low
Gopher tortoise	*Gopherus polyphemus*	C	T	Observed
Green sea turtle	*Chelonia mydas*	T	T	Observed
Hawksbill sea turtle	*Eretmochelys imbricata*	E	E	Low
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	E	Low
Loggerhead sea turtle	*Caretta*	T	T	Observed
Leatherback sea turtle	*Dermochelys coriacea*	E	E	Observed
Mammals				
North Atlantic right whale	*Eubalaena glacialis*	E	E	Low
Southeastern beach mouse	*Peromyscus polionotus niveiventris*	T	T	Low
West Indian manatee	*Trichechus manatus*	T	T	Observed
Plants				
Beach star	*Cyperus pedunculatus*	-	T	Observed
Blunt-leaved peperomia	*Peperomia obtusifolia*	-	E	Low
Carter's mustard	*Warea carteri*	E	E	Low
Celestial lily	*Nemastylis floridana*	-	E	Low
Coastal hoary-pea	*Tephrosia angustissima var. curtissii*	-	E	Low
Coastal vervain	*Glandularia maritima*	-	E	Low
Curtiss' sandgrass	*Calamovilfa curtissii*	-	T	Low
Giant orchid	*Pteroglossaspis ecristata*	-	T	Low
Florida beargrass	*Nolina atopocarpa*	-	T	Low
Hand fern	*Ophioglossum palmatum*	-	E	Low
Hay scented fern	*Dennstaedtia bipinnata*	-	E	Low
Inkberry	*Scaevola plumieri*	-	T	Observed
Atlantic Coast Florida lantana	*Lantana depressa var. floridana*	-	E	Low
Large-flowered rosemary	*Conradina grandiflora*	-	T	Low
Lewton's polygala	*Polygala lewtonii*	E	E	Low
Many-flowered grass-pink	*Calopogon multiflorus*	-	T	Low
Nodding pinweed	*Lechea cernua*	-	T	Low
Piedmont jointgrass	*Coelorachis tuberculosa*	-	T	Low
Pine pinweed	*Lechea divaricata*	-	E	Low
Sea rosemary	*Heliotropium gnaphalodes*	-	E	Low
Shell mound prickly-pear cactus	*Opuntia stricta*	-	T	Observed
Short-leaved rosemary	*Conradina brevifolia*	E	E	Low
Sand butterfly pea	*Centrosema arenicola*	-	E	Low
Sand-dune spurge	*Euphorbia cumulicola*	E	E	Low
Terrestrial peperomia	*Peperomia humilis*	-	E	Low
Titusville balm	*Dicerandra thinicola*	-	E	Low
Tampa vervain	*Glandularia tampensis*	-	E	Low

Sources: USAF 2020; USFWS 2021a; FNAI 2021.
Notes: E: Endangered; T: Threatened; C: Candidate, BGEA: Bald and Golden Eagle Act, T(S/A): Threatened by Similarity of Appearance; Observed: species that were observed and documented in previous studies and reports at Patrick SFB
[1]Removed from Florida's Endangered and Threatened Species List in 2008, but is still protected under the Bald and Golden Eagle Act (BGEA) and FAC.

1

The species identified with a "Low" potential of occurrence are not described further, because although potential foraging or nesting habitat may occur within the region (i.e. within Brevard County), there is no/minimal suitable habitat present within project areas. Additionally, species have not been documented during general wildlife or species-specific surveys within the installation. Live trap studies for southeastern beach mouse were conducted at Patrick SFB in the 1990s and again in the early 2000s and no beach mice were captured (Oddy et al. 1999); therefore, it is assumed there are no longer viable populations of this species within Patrick SFB due to habitat fragmentation and isolation. The nearest documented occurrence of the Florida scrub-jay is approximately 4.5 miles to the north of Patrick SFB with little to no habitat between the two locations. None of the project areas within the Proposed Action contain scrub habitat. Three federally listed species (giant manta ray, oceanic whitetip shark, and North Atlantic right whale) may occur in Atlantic Ocean deep-water habitats adjacent to Patrick SFB; however, no suitable habitat or documented occurrences occur within the proposed project areas. Full descriptions of the species listed in Table 3-9 can be found in the SLD 45 INRMP (USAF 2020a) and *Florida's Endangered and Threatened Species* list (FWC 2021a, 2021b).

Species with a "Moderate" potential of occurrence based on available habitat and documented occurrences within Patrick SFB are discussed below. Documented protected species observations on Patrick SFB and adjacent critical habitats are depicted on Figure 3-7.

3.8.2.6.1 Federally Listed Species

Birds

Wood Stork

Wood storks, federally listed as threatened pursuant to the ESA and state listed as threatened pursuant to the FETSA, are large, long-legged wading birds. USFWS has jurisdictional responsibility for the management and continued existence of this species. Wood storks nest in hardwood swamps, sloughs, mangroves, and cypress domes (USFWS 1997). They forage on small to medium-sized fish, crayfish, amphibians, and reptiles in a variety of wetlands including both freshwater and estuarine marshes where depths are typically less than 10-12 inches. Wood storks are very social in nesting habitats, as they are often seen nesting in large colonies of 100-500 nests. Wood storks need periodic flooding and drying of the environment for successful rookeries. Patrick SFB falls within the 15-mile core foraging area of three wood stork colonies (USFWS 2019). The nearest colony is located approximately 13 miles northwest of Patrick SFB. There is no nesting habitat present within Patrick SFB; however, wood storks have been observed occasionally foraging in shallow canals in the interior of Patrick SFB. Proposed project areas that contain upland-cut surface waters (i.e., Projects C4, C7, and R4) may provide limited suitable foraging habitat for this species.

Fish

Atlantic Sturgeon

The Atlantic sturgeon, federally listed as endangered pursuant to the ESA and state listed as endangered pursuant to the FETSA, inhabits both salt and fresh water habitats. NFMS has jurisdictional responsibility for the management and continued existence of this species. Some sturgeon migrate into brackish and saltwater during the fall and feed there throughout the winter months and migrate into fresh water rivers during the spring and summer months, while others remain at sea for years (Atlantic Sturgeon Status Review Team [ASSRT] 2007). This species of sturgeon can be found from Canada to the St. Johns River in Florida. Patrick SFB does not contain habitat for the Atlantic sturgeon, but the adjacent waters of the Banana River may provide suitable habitat (USAF 2020a). Surface waters adjacent to Project R5 may support Atlantic sturgeon.

Smalltooth Sawfish

The smalltooth sawfish is listed as endangered pursuant to the ESA and state listed as endangered pursuant to the FETSA. NFMS has jurisdictional responsibility for the management and continued existence of this species. Juveniles utilize unvegetated mud and sand bottoms along red mangrove shorelines within estuaries, river mouths, and bays (NMFS 2009a). Adults are typically found in open water habitats, but females have been encountered near coral reefs and inshore during the spring. The historical range of the smalltooth sawfish included estuarine habitats of all coastal waters of Florida, including the Banana River. Patrick SFB does not occur within designated critical habitat for the smalltooth sawfish (NMFS 2009b) and no documented occurrences were found near Patrick SFB. However, suitable habitat is present in surface waters adjacent to Project R5 (USAF 2020a).

Reptiles

American Alligator

The American alligator (alligator) is listed under the ESA based on its similarity of appearance to the threatened American crocodile (*Crocodylus acutus*). USFWS has jurisdictional responsibility for the management and continued existence of this species. Patrick SFB does not fall within the range of the American crocodile. Alligators are highly mobile and can be found in most permanent bodies of freshwater in Florida. They have been observed along the Banana River shorelines of Patrick SFB. Proposed project areas that contain upland-cut surface waters (Projects C4, C7, and R4) may provide suitable habitat for this species; however, no alligators were observed during field reviews.

Atlantic Salt Marsh Snake

The Atlantic salt marsh snake is listed as threatened pursuant to the ESA and state listed as threatened pursuant to the FETSA. USFWS has jurisdictional responsibility for the management and continued existence of this species. The Atlantic salt marsh snake is a pale olive, slender water snake about two feet in total length, with a pattern of dark brown stripes that are variously broken into blotches. This snake inhabits coastal salt marshes and mangrove swamps along shallow tidal creeks and pools and is commonly associated with fiddler crab (*Uca* sp.) burrows. The Banana River shoreline along Patrick SFB does provide limited habitat (USAF 2020a); however, there have been no documented occurrences of this snake or fiddler crabs within or near Patrick SFB. Mangrove habitat that could support Atlantic salt marsh snakes occurs adjacent to Project R5.

Eastern Indigo Snake

The eastern indigo snake (indigo snake) is listed as endangered pursuant to the ESA and state listed as endangered pursuant to the FETSA. USFWS has jurisdictional responsibility for the management and continued existence of this species. The indigo snake is a non-venomous, bluish-black colored snake that inhabits pine flatwoods, hardwood forests, moist hammocks, and areas that surround cypress swamps. They often take refuge in gopher tortoise burrows and are more likely to inhabit areas that have a mixture of wetlands and tortoise-inhabited uplands. The indigo snake's diet consists of a variety of species, including small mammals, birds, toads, frogs, turtles and their eggs, lizards, and small alligators. Patrick SFB does contain gopher tortoise burrows; however, suitable habitat is limited, and no documented occurrences were found within or near Patrick SFB.

Gopher Tortoise

The gopher tortoise is state listed as threatened pursuant to the FETSA and is federally listed as a candidate species pursuant to the ESA due to habitat loss, degradation, and a declining number of individuals. FWC has jurisdictional responsibility for the management and continued existence of this species. The gopher tortoise is a moderate-sized, terrestrial turtle, averaging 9–11 inches in length when fully grown. Gopher tortoises are found in dry habitats such as longleaf pine sandhills,

xeric oak habitats, dry pine flatwoods, and coastal dunes; however, they also commonly occur in developed areas including urban green space, road rights-of-way, and vacant lots. Suitable gopher tortoise habitat consists of well-drained sandy soils for digging burrows and nesting and abundant herbaceous plants for foraging. Gopher tortoises are known to occur on Patrick SFB and suitable habitat is available within the proposed project areas. No burrows or individuals were observed during the field reviews. Critical habitat has not been designated for the gopher tortoise in Florida.

Sea Turtles

Sea turtles, including the loggerhead, green, leatherback, hawksbill, and Kemp's Ridley, are listed pursuant to the ESA and FETSA. Jurisdiction of these species is the responsibility of NFMS for turtles in the water and USFWS for nesting. Beaches at Patrick SFB provides sea turtle nesting habitat from March to November (official nesting season is May 1 to October 31). Sea turtle nesting activity on Patrick SFB has been documented for over twenty years with a range in total nest numbers annually from 600 to 2,000 of loggerhead, green, and leatherback sea turtles (USAF 2020a, Figure 3-7). Nesting patterns at Patrick SFB follow the same trends seen in Peninsular Florida nesting data. The threatened loggerhead and green sea turtles are the most common species found nesting on Patrick SFB beaches, but the endangered leatherback sea turtle has also been known to intermittently nest on this beach. The endangered hawksbill and Kemp's ridley sea turtles are not known to nest on the beach along Patrick SFB but in rare occurrences may utilize the waters of the Atlantic Ocean adjacent to Patrick SFB.

As a developed area on the beach of the Atlantic Ocean, Patrick SFB manages facility lights to reduce the indirect impacts to nesting/hatching sea turtles. Artificial lighting is known to cause disorientation (loss of bearings) for sea turtle hatchlings when it overwhelms the natural moonlight reflecting off the ocean's breaking waves. When sea turtles are disoriented, or energy is wastefully expended due to disorientation caused by artificial lighting, they become easy prey, dehydrated, or unable to make it back to the ocean, which reduces or prevents survival. SLD 45 currently has an active Biological Opinion (BO) for sea turtle protection through light management (USFWS Log #4191 0-2009-F-0087). Project R1 for 750 Ramp lighting replacement requires ESA Section 7 consultation with USFWS because of the number and angles necessary for the fixtures and height of the poles required for illumination, despite the use of amber LED.

Mammals

West Indian Manatee

The West Indian manatee (manatee) is listed as threatened pursuant to the ESA and state listed as threatened pursuant to the FETSA. USFWS has jurisdictional responsibility for the management and continued existence of this species. The manatee is known to occur within marine, brackish, and freshwater systems in coastal and riverine areas throughout their range. Manatees are herbivores that feed opportunistically on a wide variety of marine, estuarine, and freshwater plants, including submerged, floating, and emergent vegetation. USFWS has designated the Atlantic Ocean and Banana River adjacent to Patrick SFB as critical manatee habitat due to the presence of warm water refuges and seagrass beds for foraging. Additionally, FWC Manatee Protection Zones (Chapter 68C-22.006, FAC), that restrict the speed and operation of vessels to protect manatees, are located throughout the Banana River (Figure 3-7). Manatees have been observed adjacent to Patrick SFB in the Banana River, Survival Canal, and Patrick SFB Marina. No seagrass or other food sources have been documented within the Survival Canal or marina because they are dredged regularly. Manatees are documented from the marina channel adjacent to Project R5.

3.8.2.6.2 State-listed Species

Birds

Florida Burrowing Owl

The Florida burrowing owl (burrowing owl) is listed as threatened pursuant to the FETSA. FWC has jurisdictional responsibility and has developed *Species Conservation Measures and Permit Guidelines* (FWC 2019a) for this species. The burrowing owl is a pint-sized bird that lives in open, treeless areas. The burrowing owl spends most of its time on the ground, where its sandy brown plumage provides camouflage from potential predators. Due to degradation of native prairie habitat, owls may inhabit golf courses, airports, pastures, agricultural fields, and vacant lots. An active burrow with a pair of burrowing owls has been observed just south of the Patrick SFB indoor firing range. Suitable habitat is available within the proposed project areas.

Florida Sandhill Crane

The Florida sandhill crane (sandhill crane) is listed as threatened pursuant to the FETSA. FWC has jurisdictional responsibility and has developed *Species Conservation Measures and Permit Guidelines* (FWC 2016a) for the sandhill crane. This species resides in Florida year-round and is one of Florida's largest birds, reaching heights up to four feet with a wingspan of six feet. They are mostly gray with a red head and long neck, which can be seen stretched out in flight. Sandhill crane foraging habitat consists of shallow herbaceous wetlands, freshwater marshes, and improved pastures and croplands. Individuals may also forage within suburban neighborhoods, golf courses, and roadside ditches. Their typical diet includes seeds, grains, berries, insects, and frogs. Sandhill cranes are monogamous breeders and nesting locations will vary year to year. No sandhill crane nests have been documented at Patrick SFB, and proposed project areas do not provide suitable nesting habitat. However, sandhill cranes may forage within grassy areas proposed for development.

Southeastern American Kestrel

The southeastern American kestrel (kestrel) is state listed as threatened pursuant to the FETSA, and FWC has jurisdictional responsibility for this species. *Species Conservation Measures and Permitting Guidelines* (FWC 2020) have been developed for the continued protection of this species. Kestrels utilize open habitats for foraging and nests in tree cavities. Habitats such as pine scrub, dry prairies, mixed pine and hardwood forests, and pine flatwoods are preferable for kestrels. This species has been observed on Patrick SFB; however, limited suitable habitat is available. No individuals or nests were observed during the field reviews.

Shorebirds: American Oystercatcher, Black Skimmer, and Least Tern

The American oystercatcher, black skimmer, and least tern are all state listed as threatened pursuant to the FETSA, and FWC has jurisdictional responsibility for these species. American oystercatcher, black skimmer, and least tern inhabit beaches, sandbars, spoil islands, shell rakes, salt marsh, and oyster reefs. These shorebirds are found along the Atlantic Coast of the U.S. Black skimmers and least terns have been observed nesting on flat roofs within Patrick SFB (USAF 2020a, Figure 3-7).

Wading birds: Little Blue Heron, Reddish Egret, Tricolored Heron, and Roseate Spoonbill

The little blue heron, reddish egret, tricolored heron and roseate spoonbill are all state listed as threatened pursuant to FETSA. FWC has jurisdictional responsibility and has developed *Species Conservation Measures and Permit Guidelines* (FWC 2019c) for these species. These wading birds occur statewide where they forage in a variety of coastal and inland wetlands including swamps, marshes, and the edges of water bodies. Nesting occurs in a variety of forested or shrub wetlands.

Proposed project areas that contain upland-cut surface waters (i.e., Projects C4, C7, and R4) may provide limited suitable foraging habitat for these species.

Plants

No federally listed plants are documented from Patrick SFB; however, three state-listed plants have been observed on Patrick SFB: shell mound prickly-pear cactus, beach star, and inkberry. Shell mound prickly-pear cactus is large cactus that grows in coastal dunes, coastal grasslands, coastal hammocks and on shell mounds. Beach star and inkberry are small plants that grow in coastal dune habitats. These species were not observed during field reviews. The State of Florida affords no protection to plants except from commercial exploitation.

3.9 CULTURAL RESOURCES

3.9.1 Definition of the Resource/Regulatory Setting

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and any other physical evidence of human activity considered important to a culture or community for scientific, traditional, religious, or other reasons. They include archaeological resources (both prehistoric and historic), historic architectural resources, American Indian sacred sites, traditional cultural properties (TCPs), and historic properties (as defined in 36 CFR 32 CFR 60.4). Historic properties are significant archaeological, architectural, or traditional resources that are either eligible for listing or listed on the NRHP.

As defined under 36 CFR 800.16(d), "the Area of Potential Effects is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The area of potential effects (APE) is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking." The APE for cultural resources is the footprint of each proposed project and a 50-foot buffer zone surrounding each proposed activity. Given the auditory and visual environment of an active base, this buffer should capture all locations from which individual project construction or demolition activity may be visible or audible. Specific cultural resource laws and requirements related to Proposed Action are summarized in Table 3-10.

The Seminole Tribe of Florida and the Miccosukee Tribe of Indians of Florida have stated, during review of the SLD 45 ICRMP (USAF 2015a), that they do not wish to review or participate in any action unless it involves a prehistoric archaeological site or there is a Native American Graves Protection and Repatriation Act (NAGPRA, 25 USC 3001 et seq) issue. Patrick SFB has no recorded archaeological sites and no potential for NAGPRA issues.

Table 3-10. Summary of Cultural Resource Regulation Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
National Historic Preservation Act (Section 106; 36 CFR Part 800)	Section 106 compliance process consists of four primary stages: initiation of the Section 106 process with the Advisory Council on Historic Preservation (ACHP), SHPO, Tribal Historic Preservation Offices (THPO), and other appropriate consulting parties; identification of historic properties potentially affected by the Proposed Action; assessment of adverse effects, which determines whether the Proposed Action will affect historic properties and if effects to those resources might be adverse; and resolution of adverse effects between the affected and consulting parties, which includes developing and evaluating alternatives that could avoid, minimize, or mitigate impacts on historic resources.	Consider the effects of the Proposed Action on historic properties listed or eligible for listing on the NRHP.	ACHP/SHPO/ THPO
AFMAN 32-7003, *Environmental Conservation*	Manage cultural resources on the installation.	Protect cultural resources on USAF managed lands.	DoD
Archeological and Historic Preservation Act (AHPA, 16 USC 469) of 1974	Consultation with SHPO, any potentially impacted Native American groups, and the responsible Department of Interior Bureaus and offices.	Preserve historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of an alteration of the terrain caused as a result of any federal construction project or federally licensed activity or program.	National Park Service/SHPO/ THPO
American Indian Religious Freedom Act (AIRFA, 42 USC 1996) of 1978	Consultation with SHPO and any potentially impacted Native American groups.	Protect the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. Any effects that may occur, as a result of providing access to such sites may trigger Section 106 review under the NHPA.	SHPO/THPO

Affected Environment

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Native American Graves Protection and Repatriation Act (NAGPRA, 25 USC 3001 et seq)	Permits for the excavation and/or removal of "cultural items" protected by the Act require Tribal consultation, as do discoveries of "cultural items" made during activities on federal or tribal lands.	Provide a process for museums and federal agencies to return certain Native American cultural items – human remains, funerary objects, sacred objects, or objects of cultural patrimony – to lineal descendants, and culturally affiliated Indian tribes and Native Hawaiian organizations.	SHPO/THPO
AFI 90-2002, *Interactions with Federally Recognized Tribes*	Follow AFI procedure for interactions with tribes who have a documented interest in Department of the Air Force lands and activities.	Ensure policy compliance, assigns responsibilities, and outlines procedures to guide Department of the Air Force interactions with federally recognized tribes.	DoD

3.9.2 Affected Environment/Existing Conditions

Patrick SFB was established in 1940 as the BRNAS, and World War II-era and Cold War buildings are found on the installation. Patrick SFB contains five historic districts based on uniform themes (USAF 2015a):

- ***BRNAS Historic District*:** This district was the training center for seaplane pilots and was the primary purpose for the development of BRNAS.
- ***High Explosive Storage Facility Historic District*:** This district was the ammunition storage area for high explosives and bombs at BRNAS. It continues to serve as a storage facility for explosives.
- ***Patrick AFB Missile Instrumentation Station Historic District*:** This district was used to track early missile launches from both Cape Canaveral AFS and Patrick AFB, now SFS and SFB respectively, and still serves in that capacity. It is NRHP eligible due to its association with the Cold War.
- ***Bomarc-Semi-Automatic Ground Environment (SAGE) Tracking Facility Historic District*:** The Bomarc-SAGE program was an early Cold War defense tracking system developed by USAF. The warning and tracking system was tested at Patrick AFB, now SFB, and was linked to Bomarc missile testing at Cape Canaveral AFS, now SFS.
- ***Patrick AFB Facilities Landplane Historic District*:** This district is associated with both World War II and the Cold War. The facilities are linked primarily to the Cold War use of the airfield and includes the Lighter-than-Air Facility Archaeological Site (8BR2477).
- ***Patrick AFB Administrative Historic District*:** This district is associated with activities on Patrick AFB, now SFB, during both World War II and the Cold War. Buildings within this district were defined by their importance to both historic periods.

All structures 45 years old or older are potentially eligible for listing in the NRHP. In 2009, the SLD 45 Cultural Resource Manager entered into consultation with SHPO to update the previous inventory to obtain a current opinion of historic buildings at Patrick SFB. The updated report and proposed status of all buildings at Patrick SFB 45 years and older was accepted by SHPO in November 2011 (FDHR Project File No. 2011-3861) (USAF 2015a). Figure 3-8 depicts the historic districts and the NRHP-eligible historic buildings located on Patrick SFB. Projects C4, C5, R1, R2, and R4 would occur within historic districts. NRHP-eligible buildings 989 and 423 occur within Project C1.

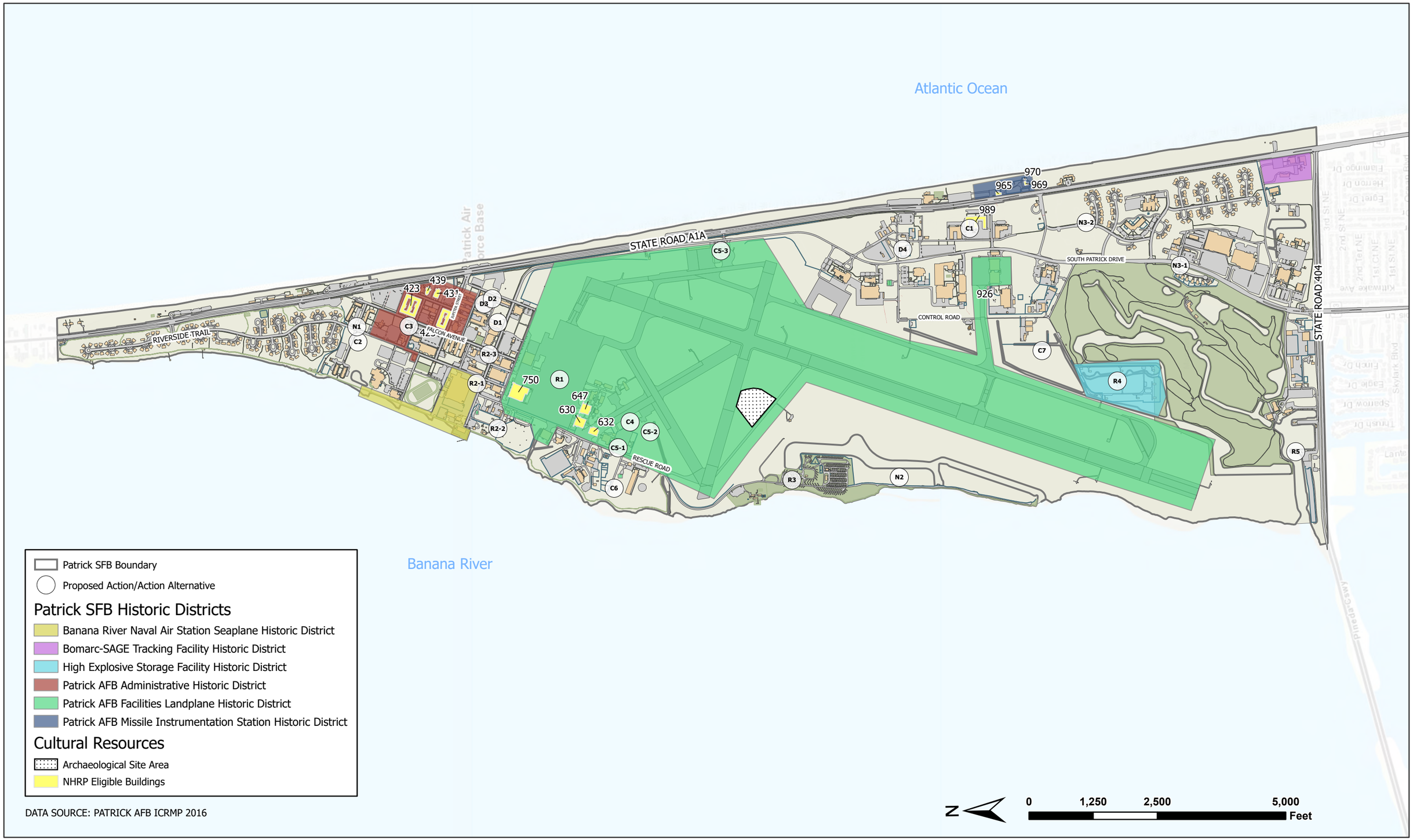

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FIGURE 3-8: CULTURAL AND HISTORICAL RESOURCES

3.10 LAND USE

3.10.1 Definition of the Resource

The term land use refers to 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. For the USSF, the term "land use" refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. USSF land use planning commonly uses the 12 general land use classifications listed in Table 3-11.

Table 3-11. Existing Land Use at Patrick SFB

Land Use Type	Typical Facilities
Administrative	Headquarters, security operations, office
Airfield Operations & Maintenance	Hangars, aircraft maintenance, squadron operations, tower, fire station
Airfield	Runways, taxiways, aprons, overruns, and safety zones
Community - Commercial	Club, dining facility
Community - Service	Commissary, exchange, gym, theater
Housing - Accompanied	Family housing
Housing - Unaccompanied	Service-member housing, visitor housing – visitor quarters, temporary lodging facilities
Industrial	Base engineering, maintenance shops, warehouses
Industrial – Fuels and Munitions	Fuel and munitions storage areas
Medical/Dental	Clinic, pharmacy
Outdoor Recreation	Outdoor courts, athletic fields, golf course, marina, camping, picnic
Open Space	Conservation area, buffer space

As a part of the Comprehensive Planning Process, installations are divided into identifiable Planning Districts based on geographical features, land use patterns, building types, and/or transportation networks. The ROI for land use includes Patrick SFB north of SR 404 and adjacent sections of the Atlantic Ocean and Banana River, with a focus on the locations of the 19 projects evaluated within this EA.

3.10.2 Affected Environment/Existing Conditions

The airfield dominates the land use at Patrick SFB. Administrative facilities, including SLD 45 command facilities, account for 75.9 acres and are concentrated in the cantonment area (i.e., main installation) (USAF 2017b). Smaller commercial, community services, unaccompanied housing, and industrial facilities are also concentrated in this area just north of the airfield. Another large administrative parcel is located on the southeastern quadrant of the installation. The Community Center, including the Commissary, Exchange, and Medical Clinic, is located on the southern edge of Patrick SFB. Outdoor recreation areas include the golf course and marina in the southwest, FAMCAMP and picnic areas along the Banana River, and four designated recreation areas on the Atlantic Ocean. Family housing is divided into three distinct neighborhoods: North, Central, and South Housing.

The proposed projects analyzed in this EA are located within all of the land use categories listed in Table 3-11 except Medical and Community Service. The current installation land use and the proposed project locations are depicted on Figure 3-9.

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FIGURE 3-9: EXISTING INSTALLATION LAND USE

3.11 SOCIOECONOMICS

3.11.1 Definition of the Resource/Regulatory Setting

Socioeconomic resources are defined as the basic attributes associated with the human environment and generally include factors associated with population, housing, education, and economic activity. Economic activity is typically described in terms of employment, personal income, and regional industries. Changes to these fundamental components can influence other community resources, such as housing availability, utility capabilities, and public services. The socioeconomic conditions of the ROI could be affected by changes in the rate of population growth, changes in the demographic characteristics of the ROI, or changes in employment within the ROI caused by the implementation of the Proposed Action.

Socioeconomic analyses involve economic and social elements such as population levels, workforce, and consumer activities. Factors that characterize the socioeconomic environment represent a composite of several interrelated and nonrelated attributes. Indicators of economic conditions for a geographic area can include demographics, median household income, employment, and housing data. Data on employment identify employment by industry or trade and unemployment trends. Data on personal income in a region are used to compare the before and after effects of any jobs created or lost as a result of the Proposed Action. Data on industrial, commercial, and other sectors of the economy provide baseline information about the economic health of a region. Changes in demographic and economic conditions are typically accompanied by changes in other community components, such as housing availability, education, and the provision of installation and public services, which are also discussed in this section.

3.11.2 Affected Environment/Existing Conditions

The ROI for socioeconomics is defined as the geographical area in which the principal direct and secondary socioeconomic effects of actions associated with the Proposed Action would likely occur and where most consequences for local jurisdictions would be expected. Patrick SFB is located south of the City of Cocoa Beach and north of South Patrick Shores and the City of Satellite Beach in Brevard County, Florida. The ROI for the analysis of socioeconomic impacts for the Proposed Action is the census tracts including and surrounding Patrick SFB, which are Census Tracts 669, 671, 681.01, and 694. This ROI illustrates socioeconomic characteristics for the area nearest to Patrick SFB and the geographic area where most impacts from the Proposed Action would be expected to occur. Census Tract 671 consists of just Patrick SFB, so it directly reflects the demographic data for the base. Additionally, data for Brevard County, Florida and the U.S. are provided for further information and areas of comparison. Information pertaining to the existing social and economic characteristics of the ROI was gathered from data published by the U.S. Census Bureau. Specifically, the most recent published data used were the American Community Survey (ACS) Five-Year Estimates (2019).

3.11.2.1 Population

Table 3-12 presents the census tracts, ROI, county, state, and U.S. population trends. Based on data from the U.S. Census Bureau, the estimated population of the ROI in 2019 was 17,704, which represents a 12.9% increase since 2010. The population of Brevard County increased by 7.2% since 2010. Census Tracts 669 and 671 experienced a more than double increase in population from 2010 to 2019 compared to Brevard County. Census Tract 694 saw a smaller increase of about 7.0% in comparison to Brevard County and Florida.

Table 3-12. Population Trends

Geographic Area	2010 Census	Total Population (2019 Est.)	Change (+/-)	% Change
Census Tract 669	6,084	7,361	1,277	17.3%
Census Tract 671	1,222	1,533	311	20.3%
Census Tract 681.01	2,000	2,235	235	10.5%
Census Tract 694	6,113	6,575	462	7.0%
ROI*	15,419	17,704	2,285	12.9%
Brevard County	543,376	585,507	42,131	7.2%
Florida	18,801,310	20,901,636	2,100,326	10.0%
U.S.	308,745,538	324,697,795	15,952,257	4.9%

Source: US Census Bureau. (2010). *Decennial Census*. Retrieved from https://www.census.gov/programs-surveys/decennial-census/data/tables.2010.html. US Census Bureau (2019). *ACS 5-Year Estimates*. Retrieved from https://data.census.gov/cedsci/
*Data for the ROI was found by combining and averaging the census tract data.

3.11.2.2 Race and Ethnicity

Based on data from the U.S. Census Bureau, Patrick SFB is more diverse than the surrounding census tracts, ROI, and Brevard County. Most of the population in the ROI, census tracts, county, and state identify as White. The 2019 race and ethnicity characteristics for the census tracts, ROI, county, state, and U.S. are summarized in Table 3-13.

Minority populations include American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino, and Native Hawaiian or Other Pacific Islander. The minority population of the census tracts range from 6.0% to 39.3%; Census Tract 671 has the highest minority population (39.3%), with 18.1% of the population identifying as Hispanic or Latino. The minority population is 17.0% in the ROI, 25.6% in Brevard County, 46.1% in Florida, and 39.3% in the U.S.

Table 3-13. Population by Race and Ethnicity

Geographic Area	American Indian and Alaska Native	Asian	Black or African American	Hispanic or Latino	Native Hawaiian and Other Pacific Islander	White	Other Race	Two or More Races
Census Tract 669	0.0%	0.2%	2.0%	3.5%	0.0%	91.6%	0.0%	2.7%
Census Tract 671	0.8%	5.9%	10.9%	18.1%	0.0%	60.7%	0.8%	2.8%
Census Tract 681.01	1.0%	3.9%	0.0%	9.4%	0.0%	85.6%	0.0%	0.0%
Census Tract 694	0.0%	1.5%	0.7%	3.3%	0.0%	94.0%	0.0%	0.6%
ROI*	0.5%	2.9%	3.4%	8.6%	0.0%	83.0%	0.2%	1.5%
Brevard County	0.3%	2.3%	9.3%	10.3%	0.1%	74.4%	0.3%	3.0%
Florida	0.2%	2.7%	15.3%	25.6%	0.0%	53.9%	0.4%	1.9%
U.S.	0.7%	5.5%	12.3%	18.0%	0.2%	60.7%	0.2%	2.4%

Source: U.S. Census Bureau (2019). *ACS 5-Year Estimates*. Retrieved from https://data.census.gov/cedsci/
*Data for the ROI was found by combining and averaging the census tract data.

3.11.2.3 Age and Gender

Age and gender data shown in Table 3-14 indicate that the median age for Census Tract 671 (27.5 years) is below the median age for the surrounding census tracts (48.4-51.6 years), ROI (44.4 years), Brevard County (47.3 years), Florida (42.0 years), and the U.S. (38.1 years). Census Tracts 669 and 694 have higher 65+ populations than Brevard County (23.4%), Florida (20.1%), and the U.S. (15.6%).

Elderly individuals are more likely to face specific challenges such as health care, social isolation, limited mobility, and fixed incomes. Due to their limitations, the elderly population is considered

more vulnerable. The ROI has a population of 19.7% over the age of 65. This is slightly below the population of 65 years and older for the county (23.4%) and the state (20.1%).

Table 3-14. Age and Gender

Geographic Area	Under 18 Years	18-64 Years	65+ Years	Median Age	Gender	
					Male	Female
Census Tract 669	14.8%	60.0%	25.2%	48.4	51.9%	48.1%
Census Tract 671	28.4%	62.5%	9.1%	27.5	58.2%	41.8%
Census Tract 681.01	7.4%	72.1%	20.5%	50.0	54.3%	45.7%
Census Tract 694	19.8%	56.1%	24.1%	51.6	53.4%	46.6%
ROI*	17.6%	62.7%	19.7%	44.4	54.5%	45.5%
Brevard County	18.4%	58.2%	23.4%	47.3	48.9%	51.1%
Florida	20.0%	59.9%	20.1%	42.0	48.9%	51.1%
U.S.	22.6%	61.8%	15.6%	38.1	49.2%	50.8%

Source: U.S. Census Bureau (2019). *ACS 5-Year Estimates*. Retrieved from https://data.census.gov/cedsci/
*Data for the ROI was found by combining and averaging the census tract data.

3.11.2.4 Economic Activity (Employment and Earnings)

Table 3-15 presents economic activity in the census tracts, ROI, county, state, and U.S. The total number of employed people in the civilian labor force in the ROI in 2019 was 8,691. The industry employing the highest percentage of the civilian labor force in the ROI, Census Tracts 671 and 694, Brevard County, and Florida was the education services/health care and social assistance industry. The per capita income in the ROI in 2019 was $42,404. The unemployment rate was 12.0% at Patrick SFB and 7.0% for the ROI, which are higher than that of the surrounding census tracts (5.0-5.8%), county (5.2%), and state (5.6%).

According to the *Economic Impact Analysis for the Patrick Space Force Base and Cape Canaveral Space Force Station*, the combined total economic impact for both Patrick SFB and Cape Canaveral Space Force Station during Fiscal Year 2020 was approximately $596 million.

Table 3-15. Economic Activity

Geographic Area	In Labor force	Employed (civilian labor force)	Unemployment Rate	Per Capita Income (dollars)
Census Tract 669	3,560	3,336	5.0%	$46,180
Census Tract 671	698	390	12.0%	$25,455
Census Tract 681.01	1,353	1,237	5.8%	$47,547
Census Tract 694	3,080	2,866	5.3%	$50,434
ROI*	8,691	7,829	7.0%	$42,404
Brevard County	267,746	252,483	5.2%	$32,176
Florida	10,116,026	9,495,353	5.6%	31,619
U.S.	164,629,492	154,842,185	5.3%	34,103

Source: U.S. Census Bureau (2019). *ACS 5-Year Estimates*. Retrieved from https://data.census.gov/cedsci/
*Data for the ROI was found by combining and averaging the census tract data.

3.11.2.5 Housing

Three housing options are available for Patrick SFB personnel, including privatized military family housing, unaccompanied housing, and community housing. According to the U.S. Census Bureau, there were 8,489 total households in the ROI in 2019. Owner-occupied housing accounted for 74.3% of the available housing in Brevard County. Only about half of the housing units in Census Tract 681.01 were owner-occupied, while Census Tract 671 reported no owner-occupied housing. Income and household characteristics for the census tracts, ROI, county, state, and U.S. are presented in Table 3-16.

The median household income for Census Tract 669 ($85,355) and 694 ($93,729) are higher than the median household income of the county ($56,775) and state ($55,660). The median house value for all census tracts and the ROI is well above the county ($196,400) and state ($215,300).

Table 3-16. Income and Household Characteristics

Geographic Area	Median Household Income	Median House Value	Owner-Occupied Housing	Total Households
Census Tract 669	$85,355	$301,700	81.4%	3,430
Census Tract 671	$56,591	-	0.0%	497
Census Tract 681.01	$50,688	$330,400	50.7%	1,763
Census Tract 694	$93,729	$383,900	92.7%	2,799
ROI*	$71,591	$338,667	56.2%	8,489
Brevard County	$56,775	$196,400	74.3%	278,173
Florida	$55,660	$215,300	65.4%	9,448,159
U.S.	$62,843	$217,500	64.0%	137,428,986

Source: U.S. Census Bureau (2019). *ACS 5-Year Estimates*. Retrieved from https://data.census.gov/cedsci/
*Data for the ROI was found by combining and averaging the census tract data.
Note: Census Tract 671 presents the demographic data for Patrick SFB; Median House Value not available.

3.11.2.6 Education

Patrick SFB is located in the Brevard County School District. There are five schools within close proximity to Patrick SFB. Roosevelt, Sea Park, and Holland Elementary Schools are kindergarten through 6th grade schools located in Cocoa Beach and Satellite Beach. DeLaura Middle School (7th-8th grade) and Satellite Beach High School (9th-12th grade) are located in Satellite Beach. School Liaison Officers are available at Patrick SFB that work closely with school district staff to network, educate, and work in partnership with local schools and establish support programs.

3.11.2.7 Installation and Public Services

Law enforcement services (police) at Patrick SFB are provided by the 45th Security Forces Squadron and fire protection and emergency services through the Patrick SFB Fire and Emergency Services. The 45th Medical Group operates as an outpatient medical facility with family practice, pediatrics, dental, flight medicine, and women's health clinics. Services provided at the clinics include radiology and a clinical laboratory. The group also offers a clinical pharmacy, nutritional medicine programs, and base support services such as public health, bioenvironmental engineering, and aerospace physiology.

Public services in the ROI consist of law enforcement, fire protection, emergency medical services, and medical services. The Brevard County Sheriff's Office provides law enforcement services for the County and has civil and patrol divisions. Other law enforcement agencies in the area include the Satellite Beach Police Department and the Cocoa Beach Police Department; both municipalities also have Fire Departments within five miles of Patrick SFB. A Brevard County Fire and Rescue Station is located just south of Patrick SFB. Brevard County Emergency Medical Services system is the sole

911 ambulance provider in Brevard County. The nearest major hospital to Patrick SFB is the Cape Canaveral Hospital which offers emergency room services and inpatient care.

3.12 ENVIRONMENTAL JUSTICE

3.12.1 Definition of the Resource/Regulatory Setting

USEPA defines Environmental Justice (EJ) as "the fair treatment and meaningful involvement of all people regardless of race, ethnicity, income, national origin, or education level, for development, implementation, and enforcement of environmental laws, regulations, and policies." EO 12898 requires federal agencies to consider disproportionately high adverse effects on the human or environmental health to minority and low-income populations resulting from implementation of federal actions. The Air Force Guide for Environmental Justice Analysis under the EIAP (USAF 2020c) also provides guidance on how to fulfill the requirement for environmental justice analysis.

Environmental Justice populations are communities of minority and/or low-income populations. Minority populations include Black or African American, Hispanic, Asian American, American Indian/Alaskan Native, Native Hawaiian or Pacific Islander. Low-income populations can be any race or ethnicity.

Title VI of the Civil Rights Act of 1964 prohibits discrimination based on race, color, or national origin in programs receiving federal assistance. EO 12898 requires each federal agency, to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, to achieve environmental justice as part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects, of its programs, policies, and activities on minority populations and low-income populations in the U.S.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (1997), states that each federal agency "(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

3.12.2 Affected Environment/Existing Conditions

The ROI for environmental justice is the same as that described for socioeconomics effects (Section 3.11).

3.12.2.1 Minority Populations

Minority population levels within the ROI are lower than Brevard County, Florida and the U.S. Within the ROI, the population in 2019 reporting to be a race other than white was 17.1% of the total, which is substantially lower than the 25.6% for Brevard County, 46.1% for Florida, and 39.3% for the U.S. The Hispanic or Latino population in the ROI (8.6%) is lower than the population in the county (10.3%), state (25.6%) and the U.S. (18.0%). Based on EPA environmental justice guidelines, Census Tract 671 is a potential community of concern, having a minority population more than 10% greater compared to the county. Table 3-17 identifies the percentage of minority populations for the four census tracts, ROI, county, state, and U.S.

3.12.2.2 Low-Income Populations

Per the U.S. Department of Health and Human Services guidelines, the low-income population was calculated by adding the population living below the poverty level and the population living between 100% and 149% of the poverty level. Table 3-17 indicates that 8.0% of the ROI population is living below the poverty line, which is lower than the county (11.8%) and state (14.0%).

Census Tract 681.01 is a potential community of concern because it has a greater percentage of individuals living below the poverty level than the county. This trend is also reflected in the median household income for Census Tract 681.01 relative to the surrounding census tracts, ROI, Brevard County, Florida, and the U.S. as a whole. The per capita income and median household income in the ROI are slightly higher than in Brevard County, Florida, and the U.S.

Table 3-17. Income Characteristics and Poverty Status

Geographic Area	Total Population	% Below Poverty Level	% Minority
Census Tract 669	7,361	3.8%	8.6%
Census Tract 671	1,352	11.4%	39.3%
Census Tract 681.01	2,232	14.5%	14.4%
Census Tract 694	6,490	2.3%	6%
ROI*	17,435	8.0%	17.1%
Brevard County	578.893	11.8%	25.6%
Florida	20,481,252	14.0%	46.1%
U.S.	316,715,051	13.4%	39.3%

Source: U.S. Census Bureau (2019). *ACS 5-Year Estimates*. Retrieved from https://data.census.gov/cedsci/
*Data for the ROI was found by combining and averaging the census tract data.
Note: Poverty data was measured by individuals.

3.13 HAZARDOUS MATERIAL/WASTE AND SOLID WASTE

3.13.1 Definition of the Resource/Regulatory Setting

Hazardous material, waste or substances are generally associated with industrial activities that produce contaminants. The technical meanings of these terms are defined below:

- ***Hazardous material****:* a substance or material that the Secretary of Transportation has determined can pose an unreasonable risk to health, safety, and property when transported in commerce, as defined in 49 CFR 171.8, CERCLA and RCRA.
- ***Hazardous waste***: any solid, liquid, contained gaseous, or semisolid waste or any combination of wastes that either exhibit one or more of the hazardous characteristics, such as ignitable, corrosive, reactive, or toxic or listed in 40 CFR Part 261. These are also known as "characteristic wastes." USEPA has deemed certain solid wastes hazardous. These substances may be referred to as "listed wastes" and are regulated by RCRA.
- ***Hazardous substance****:* includes hazardous waste, HAPs, hazardous substances as defined under the CWA and Toxic Substance Control Act (TSCA), and elements, compounds, mixtures, solutions, or substances listed in 40 CFR Part 302 that pose substantial harm to human health or environmental resources.

Specific hazardous material/waste laws and requirements related to the Proposed Action are summarized in Table 3-18.

Table 3-18 Summary of Hazardous Material/Waste Regulation Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Comprehensive Environmental Response, Compensation, and Liability Act (42 USC 9601 et seq)	Before and after demolition, all friable asbestos must be encapsulated or removed, and the asbestos waste disposed of in an approved landfill. Lead-based paint (LBP) and polychlorinated biphenyls (PCBs) must be managed at the installation in accordance with all applicable regulations.	Provides a federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment.	USEPA
Resource Conservation and Recovery Act (40 CFR 239-282)	Solid Waste Management Units (SWMUs) are listed on the Patrick AFB RCRA Corrective Action permit and activities follow the RCRA corrective process.	Control hazardous waste from generation to disposal. RCRA also sets forth a framework for the management of non-hazardous solid wastes.	FDEP/USEPA
Toxic Substance Control Act (40 CFR 302)	Report toxic substances such as asbestos, LBP, and PCBs.	Assess and regulate new commercial chemicals before they enter the market, chemicals already existing in 1976 that posed an "unreasonable risk to health or to the environment" (e.g., PCBs, lead, mercury and radon), and distribution and use of these chemicals.	USEPA
Pollution Prevention Act (42 USC 13101(b))	Develop pollution prevention initiatives and plans.	Prevent or reduce the amount of pollution through cost-effective change in production, operation, and raw material used by industry and governmental agencies.	USEPA
Residential Property Renovation State, Territorial and Tribal Program Authorization Application Guidance (40 CFR 745)	Lead-Based Paint Abatement Program regulations provide a framework for lead abatement, risk assessment and inspections.	Require those performing lead removal are to be trained and certified by USEPA or an authorized state. Training providers must be accredited and teach approved curricula.	USEPA
62- 257, FAC, *Asbestos Program*	FDEP administers the asbestos removal permitting program.	Sets standards and BMPs for removal and disposal of asbestos.	FDEP
62-204.800, FAC, *Federal Regulations Adopted by Reference*	State of Florid adopted asbestos NESHAP from USEPA	The State of Florida must maintain NESHAP set forth in the CAA.	FDEP
AFI 32-1001, *Civil Engineer Operation, Chapter 15*	Incorporate facility asbestos management principles and practices into all USAF programs	Manage asbestos-containing materials.	DoD
AFMAN 32-7002, *Environmental Compliance and Pollution Prevention, Chapter 7 Asbestos*	All construction contracts are required to comply with HazMat procedures and ensure that all recyclable material (e.g., concrete) is recycled and recycled quantities are reported by weight to SLD 45 Installation Management and 45 CES Environmental Office (CES/CEIE).	Establish procedures and standards that govern management of HazMat throughout the Department of the Air Force.	DoD

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
62-701, FAC, *Solid Waste Facilities*	Solid waste management facilities must be permitted through FDEP. Solid waste must be stored, processed, and disposed of in accordance with regulations.	Regulate sludge from a waste treatment works, water supply treatment plant, and air pollution control facility; garbage, rubbish, refuse, and special waste; and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from domestic, industrial, commercial, mining, agricultural, or governmental operations. This FAC also regulates the collection and transport, storage, separation, processing, recycling, and disposal of solid wastes.	FDEP
62-730, FAC, *Hazardous Waste*	All persons who own or operate a facility that treats, stores, or disposes of hazardous waste, must notify the FDEP using Form 62-730.900(1)(b), "8700-12FL – Florida Notification of Regulated Waste Activity," with exception of small quantity generators as defined in under 40 CFR 260.10.	Regulates generators of hazardous waste.	FDEP

3.13.1.1 Asbestos and Lead-Based Paint

Asbestos Containing Material (ACM) may be present in buildings proposed for demolition or renovation. Asbestos was designated as a hazardous air pollutant in 1971, under the NESHAPs of the CAA. In 1982, the USEPA delegated primary authority for the implementation and enforcement of the Asbestos NESHAP to the State of Florida. FDEP administers the asbestos removal program under Chapter 62- 257, FAC. The Asbestos NESHAP has been adopted by reference in Section 62-204.800, FAC. OSHA also provides for worker protection for employees who work around or remediate ACM. Friable ACM, which can be pre-existing or generated during a demolition activity, refers to any material containing more than one percent asbestos that can be crumbled, pulverized, or reduced to powder when dry, by using hand pressure or similar mechanical pressure. Asbestos material is removed and isolated in accordance with AFI 32-1001. All friable asbestos must be encapsulated or removed, the site must be approved by FDEP, and the asbestos waste disposed of in an approved off-site landfill.

According to the USEPA, many homes and facilities built before 1978 may contain lead-based paint (LBP) and these paints can chip or deteriorate creating dust that poses serious health risks to occupants and visitors. The lead abatement program in regulated under TSCA Sections 402 and 403 and 40 CFR Part 745, *Residential Property Renovation State, Territorial and Tribal Program Authorization Application Guidance*. In 1978, the Consumer Product Safety Commission banned the use of paint containing more than 0.06% lead by weight on interior and exterior residential surfaces, toys, and furniture. LBP must be encapsulated or removed by a USEPA-certified contractor and disposed of in an approved off-site landfill.

3.13.1.2 Solid Waste

Solid wastes are those substances defined in 40 CFR 261.2. Subtitle D of RCRA (40 CFR 239-282) and its amendments, sets national standards for the management of solid waste, including collection and storage and its subsequent burning, use as a fuel, or landfilling. AFMAN 32-7002

provides guidance for USSF installations to develop solid waste management plans that ensure regulatory compliance.

3.13.2 Affected Environment/Existing Conditions

The ROI for hazardous materials/wastes and solid wastes is defined as on- and off-installation areas where hazardous materials would be utilized and hazardous/solid wastes would be generated and disposed of (e.g., landfills).

3.13.2.1 Hazardous Materials/Waste

SLD 45 has developed a Hazardous Waste Management Plan (HWMP) (USAF 2020d) that provides a guide on the proper handling and storage of waste petroleum products and hazardous materials in accordance with 40 CFR 260 & 279 and 62-730, FAC.

3.13.2.2 Per- and Polyfluoroalkyl Substances

Per- and polyfluoroalkyl substances (PFAS) are a large group of chemicals that are widely used in industrial and consumer applications. Examples include perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), and perfluorobutane sulfonic acid (PFBS). These chemicals have attracted the interest of researchers, regulators, and the public due to their widespread occurrence and persistence in the environment. There is evidence that exposure to certain PFAS can lead to adverse effects in wildlife and humans. While some PFAS, such as PFOA and PFOS, have extensive amounts of human epidemiological, exposure, and toxicity data, there is little toxicity and exposure information for much of the other chemicals in the group that could be used to make informed decisions about their safety. PFAS represent several waste disposal challenges DoD-wide. Any impacted soil and groundwater must be treated onsite or properly tested/characterized for offsite disposal, which must be planned for during the project design and execution phases.

A PFAS Site Investigation (SI) confirming presence or absence of suspected PFAS release sites was completed at Patrick SFB in 2017. SI results identified several areas (seven USAF sites) across the central/central-south portion of the base that have elevated/high concentrations of PFAS in groundwater in excess of the Lifetime Health Advisory (drinking water standard) for PFOS/PFOA. These sites are not fully delineated; however, a full Remedial Investigation (RI) is anticipated within the next few years. The RI is a large, base-wide comprehensive effort and results will not be made available until after the investigation is complete. Additionally, the 45th Civil Engineer Squadron, Environmental Office (45 CES/CEIE) is planning a Patrick SFB Infiltration and Inflow study to identify areas of groundwater infiltration that could carry PFAS or other contaminants into the sewer system.

3.13.2.3 Installation Restoration Program Sites

The IRP is managed by the Air Force Civil Engineer Center (AFCEC) to identify, characterize, clean up, and restore sites contaminated with toxic and hazardous substances, low-level radioactive materials, petroleum products, or other pollutants and contaminants. The IRP has established a process to evaluate past disposal sites, control the migration of contaminants, identify potential hazards to human health and the environment, and remediate the sites.

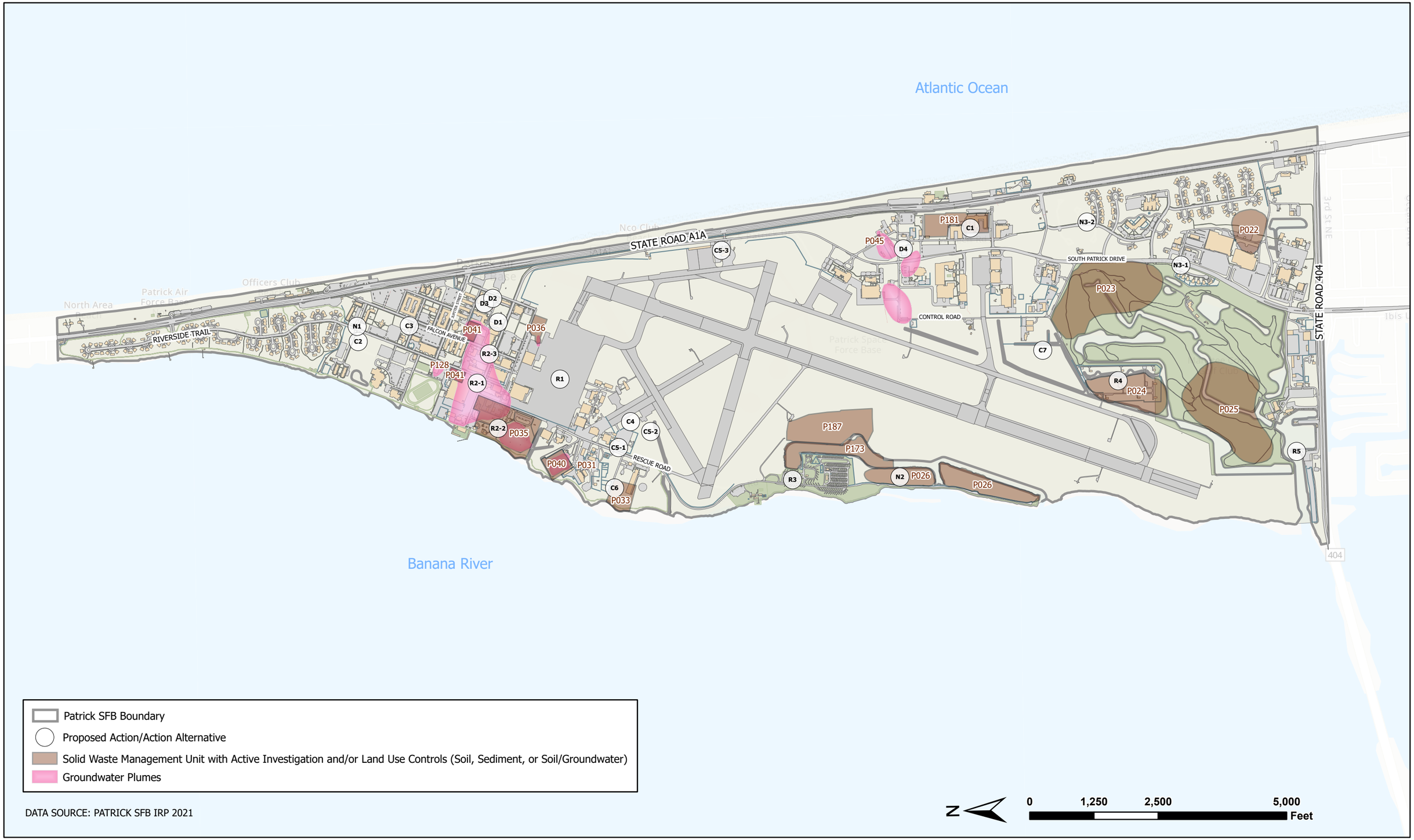
AFCEC manages 16 Solid Waste Management Units (SWMUs) as part of the IRP at Patrick SFB that have some Land Use Controls (LUCs) or are under investigation or cleanup. LUCs are established for sites where residual contamination is well-defined, remains in place, and may require special management practices should land disturbance be required. Cleanup has been completed at over 154 SWMUs, and they have been approved for "No Further Action" (NFA) under the regulatory review process through the IRP, FDEP, and USEPA. The SWMUs are listed on the Patrick AFB RCRA Corrective Action permit and activities follow the RCRA corrective process. Construction is not

prohibited on/near Patrick SFB SWMUs sites. AFCEC IRP has established specific guidance to minimize spread of known contamination, comply with regulatory requirements, and protect personnel from safety and health hazards. All active SWMU site locations are depicted on Figure 3-10. Table 3-19 summarizes the primary contaminants of concern in groundwater, sediment and soil for all active IRP sites and identifies the proposed projects that would occur within SWMUs.

Table 3-19. Active Solid Waste Management Unit (SWMU) Sites

SWMU Site ID	Groundwater Contaminants*	Surface Water Contaminants	Soil Contaminants*	Action Alternative in SWMU
P022	Pesticides, Metals	Metals, SVOCs	None	-
P023**	Pesticides Metals	Metals, SVOCs	None	N3-1
P024**	Pesticides Metals	Metals, SVOCs	None	R4
P025**	Pesticides Metals	Metals, SVOCs	None	N3-1
P026	Metals	Metals	None	N2
P031	None	None	PAHs	-
P033	Petroleum, Metals	None	Petroleum	C6
P035	Petroleum, Metals	None	Petroleum	R2-2
P036	Petroleum, Pb	None	Petroleum	-
P040	Petroleum, Metals	None	Petroleum	-
P041	Chlorinated solvents/VOCs	None	Metals	R2-1, R2-3, N3-1, N3-2
P045	Petroleum, VOCs, Metals, Pesticides	None	Pesticides, Metals	N3-1
P128	Chlorinated solvents/VOCs,	None	None	N3-1, N3-2
P173	None	None	SVOC, PAH, Metals***	-
P181	Pesticides, PAHs	None	PCBs, Metals, PAHs, Pesticides	C1
P187	None	None	Pb	-

Pb: Lead; SVOCs: Semi-Volatile Organic Compounds; VOCs: Volatile Organic Compounds; PCB: Polychlorinated biphenyl; PAH: Polynuclear Aromatic Hydrocarbon
*PFAS is not associated with specific regulatory units and a separate assessment is planned under CERCLA and discussed in detail in Section 3.13.2.2
**Sites are located on Manatee Cove Golf Course
***Contaminants found in the Sediments in Survival Canal



Patrick SFB Boundary

Proposed Action/Action Alternative

Solid Waste Management Unit with Active Investigation and/or Land Use Controls (Soil, Sediment, or Soil/Groundwater)

Groundwater Plumes

DATA SOURCE: PATRICK SFB IRP 2021

N

0 1,250 2,500 5,000 Feet

PATRICK SPACE FORCE BASE EA

FIGURE 3-10: SOLID WASTE MANAGEMENT UNITS

Further discussion of SWMUs collocated with proposed projects is provided below. An analysis of potential impacts to SWMUs and IRP sites is included in Section 4.13.1.3.

SWMUs P022-P025

SWMU P022 is a former landfill located in the Housing and Community Support Area and is located east of the Commissary (Building 1365). SWMUs P023–P025 are former landfills that were later developed as the Manatee Cove Golf Course in the South Recreation Area. Between the years 1940 and 1961, SWMUs P022–P025 were used for the disposal of general base refuse including office, cafeteria, and industrial materials. These sites exceed safe levels of pesticides and metals in the groundwater and safe levels for metals and semi-volatile organic compounds (SVOCs) in the surface water. Therefore, a Long-Term Monitoring (LTM) program was initiated and is currently active. The Statement of Basis (SB) documenting the LTM and LUC remedy for these landfills was completed in 2002. LUCs are required for construction and demolition activities to ensure the integrity of the landfills is are maintained.

SWMU P026

SWMU P026 is located between Rescue Road and the Survival Canal in the Central Recreation Area. This site was a former landfill used from 1962 and 1972 for the disposal of general refuse including office, cafeteria, and industrial materials. Metals were detected in the groundwater and surface water at concentrations that exceeded screening values. An LTM program was initiated and the termination of the LTM was approved in 1997 when all contaminants were consistently below screening values. However, groundwater and surface water are monitored on a voluntary basis every five years.

SWMU P033

SWMU P033 is located west of Building 693 in North Mission Support Area. This site was used as a fire fighter training area from 1963–1985 and contained a pit that was used to burn petroleum waste and waste products from industrial solvents/degreasing operations. Known contaminants at this location include petroleum and metals. After the completion of an RI in 1993, several remedial actions were completed including a shoreline stabilization project and bioventing from 1993 to 1998 to address petroleum, metals and SVOCs in soil and groundwater. LTM was subsequently initiated in 1999 and was later terminated in 2000 when it was determined that all residual contamination was less than FDEP Contaminant Cleanup Target Levels (CCTLs), which was documented in a Site Rehabilitation Completion Order (SRCO) issued by the State of Florida. Based on the discovery of petroleum soil and groundwater impacts during a construction project in 2018, an additional assessment and remedial activities are planned as part of the upcoming Optimized Remediation Contract (ORC). In addition, a 2017 SI documented PFAS in soil and groundwater at levels exceeding the regional screening levels for soil and the USEPA drinking water "lifetime health advisory;" however, the site is not employed as a drinking water source. Additional PFAS assessments are planned under CERCLA. This work is being prioritized at Patrick SFB and sites across the USAF/USSF inventory.

SWMU P035

SWMU P035 is the Fuel Farm located in the North Mission Support Area, adjacent to Banana River. Petroleum and metals were detected in the groundwater and low levels of petroleum were detected in the surface water. No contamination was detected in the adjacent surface waters; however, the sediments contained petroleum-related compounds. A Phase I Remedial Action has been completed to remediate soil and groundwater at the site; documentation is currently being prepared for regulatory coordination. A Phase II action to remediate the south end of the Fuel Farm is planned to begin in 2023. Between Phase I and Phase II, monitoring will be performed to ensure that remaining contamination has not mobilized. Following completion of the Phase II assessment, an

LTM/ Monitored Natural Attenuation (MNA) and LUC program will likely be required for the foreseeable future.

SWMU P041

SWMU P041 is located partially within the northwestern portion of North Mission Support Area and southwestern portion of North Administration Area. The groundwater contamination plume extends from Hangar 313 in the North Mission Support Area to Building 533 in the North Administration Area. Each facility represents a separate source of contamination, but since the plumes are co-mingled and the sources are reasonably close to one another, the investigation was expanded to include both areas. Groundwater contamination consists of industrial chlorinated solvents (i.e., VOCs), and metals were identified in the soils associated with this area. Groundwater monitoring will continue until all residual contaminant concentrations are below cleanup criteria. LUCs will be maintained on both soil and groundwater to ensure that contaminant residuals do not cause any adverse impacts to human health or the environment. Additionally, PFOS/PFOA assessments are planned under CERCLA for this site.

SWMU P045

SWMU P045 is located on the north end of the South Administration Area. This site contained Building 958, which was used for the pest management program and served as an engine maintenance shop. Pesticides, herbicides, and petroleum products and wastes were handled and stored at the site. In 1999, Building 958 was demolished and contaminated soils were removed. Groundwater monitoring was initiated due to the presence of petroleum, metals, and pesticides that were above FDEP screening levels.

In the mid to late 2000s, several downgradient facilities were sampled as part of an installation-wide assessment. Low levels of VOCs, including both solvent residuals and petroleum, as well as arsenic, were detected. Delineation was performed in each area, but no source or trend was apparent. The contamination was low-level and limited in extent; low-level volatiles had also been detected in original assessments with this area. These areas were incorporated in 2010 into the existing monitoring program.

Additional soil and groundwater investigations were performed in 2015, to further define the boundary of metals and pesticide contamination at the site. The soil investigation was very limited but concluded that additional pesticides were present within the smear zone at concentrations exceeding screening criteria. Additional assessments followed to identify the extent of the soil impacts. In 2020, concentrations exceeding residential and industrial Soil Cleanup Target Levels were identified in subsurface soil, but also in the surface soil outside the boundaries of the original excavation area.

Remediation is warranted to address newly-discovered soil impacts. “Direct exposure” impacts from surface soils are a concern, but potential leaching impacts from subsurface soil on groundwater also warrants evaluation and potential consideration. Additional assessment and removal activities are planned as part of the upcoming ORC. Monitoring and LUC management are currently on-going and will continue in parallel with other activities, unless/until remedy changes are approved that make them unnecessary or residual contamination attenuates to levels that are safe for unrestricted re-use.

SWMU P128

SWMU P128 is the former site of a base laundry facility and is located north of Building 331, in North Administration Area. It is not known whether the laundry activities included dry cleaning; however, it is likely that hazardous materials such as solvents were stored or utilized on-site either in support of assembly/repair activities or laundry operations. Groundwater contamination

includes dissolved-phase chlorinated solvents (i.e., VOCs) that are above FDEP Groundwater and Surface Water Cleanup Target Levels. A preliminary assessment was completed in 2008, and subsequent monitoring was conducted in 2009 and 2012. Assessment, cleanup measures, and monitoring have been conducted for the site. Monitoring will continue until all residual contaminant concentrations are below cleanup criteria. LUCs will be maintained on groundwater to ensure that contaminant residuals do not cause any adverse impacts to human health or the environment.

SWMU P181

SWMU P181 is located at Building 984 and 989 in the South Administration Area. In 2011, a Compliance Preliminary Assessment determined that the site once housed a paint booth, a one-ton crane, transformer storage area, a heavy electrical equipment repair shop, a machine shop, a circuit board lab, a geophysical data terminal, a motion picture lab, and a photographic lab. Site investigations were completed in 2019–2020 to determine if environmental impacts exist from the various potential release locations that were identified during preliminary assessments. The SI identified contamination in both soil (pesticides and PAHs) and groundwater (PAHs, pesticides, metals and SVOCs) in excess of screening criteria. These site investigations included significant sampling and delineation of soil and groundwater. Additional investigations of groundwater and soils is planned as a part of a future RI, which will identify appropriate remedies to address contamination. Upon completion of remedy implementation, the site would likely be approved for unrestricted reuse.

3.13.2.4 Asbestos and LBPs

Buildings and other facilities at Patrick SFB that may contain ACM are proposed for demolition or renovation. Additionally, many of the buildings were constructed prior to 1978, and therefore may contain LBPs. The removal and disposal of ACM and LBPs at Patrick SFB is conducted in accordance with federal, state, and local regulations. Table 3-20 lists the known facilities that have ACM and LBPs.

Table 3-20 ACM and LBP Status for Facilities Within the Proposed Action

Facility ID	Impact Type	Asbestos (Yes, No, Unknown)*	LBPs (Yes, No, Unknown)*
401	Demolition	Unknown	Yes
402	Renovation	Unknown	Yes
423	Renovation	Unknown	Yes
556	Demolition	Yes	Yes
560	Demolition	Unknown	Yes
561	Demolition	Unknown	Yes
562	Demolition	Unknown	Yes
605	Demolition	Unknown	Unknown
606	Demolition	Unknown	Unknown
650	Demolition	Unknown	Unknown
961	Demolition	Unknown	Yes
945	Demolition	Unknown	Unknown
984	Demolition	Unknown	Yes
989	Demolition	Unknown	Yes
1353	Renovation	Unknown	Unknown
1420	Demolition	Unknown	Unknown
1421	Demolition	Unknown	Unknown
1425	Demolition	Unknown	No
1427	Demolition	Unknown	Unknown
1432	Demolition	Unknown	No
1433	Demolition	Unknown	Unknown
1435	Demolition	Unknown	No
1440	Demolition	Unknown	No
Bulkhead at F Dock	Repair	Unknown	Unknown

*Yes/No: historic presence/absence as a result of a survey. Unknown: no survey available
Note: Data are historic and are not suitable for construction design or planning. The Clean Air Act Asbestos NESHAP requires a thorough inspection of a facility prior to demolition or renovation.

3.13.2.5 Solid Waste

Non-hazardous solid waste generated at Patrick SFB is managed in compliance with the Patrick SFB Integrated Solid Waste Management Plan (ISWMP) (USAF 2019). Non-hazardous solid waste is properly collected, handled, managed, transported, and disposed off-base by a contractor. 45 CES/CEIE has primary responsibility for the management of non-hazardous solid waste at Patrick SFB.

3.14 INFRASTRUCTURE/TRANSPORTATION

3.14.1 Definition of the Resource

For this EA, infrastructure includes utilities and transportation facilities. Patrick SFB utilities include drinking water, sanitary sewer, stormwater drainage, electric, natural gas, liquid fuel, and communications. Transportation facilities include installation roadways, gates, and adjacent public roadways. The ROI for infrastructure/transportation includes Patrick SFB north of SR 404 and adjacent sections of the Atlantic Ocean and Banana River, with a focus on the 19 project locations.

3.14.2 Affected Environment/Existing Conditions

The description of each utility on Patrick SFB is provided below and focuses on existing infrastructure, current use, and any predefined capacity or limitations as set forth in permits or regulations.

3.14.2.1 Utilities

3.14.2.1.1 Drinking Water System

Drinking water from the City of Cocoa is delivered through a 16-inch water main where it is further chlorinated and distributed throughout Patrick SFB through two 12-inch metered service mains that create a looped system. Average water usage at Patrick SFB is approximately 816,630 gal per day (gpd) (USAF 2017b). Peak usage at Patrick SFB was approximately 1,292,700 gpd in September 2020 based on PSFB water meter readings. In addition to the water supplied by the City of Cocoa, Patrick SFB is connected to two City of Melbourne water mains, which serve as a secondary supply in case of emergencies. The water distribution system at Patrick SFB has a total storage capacity of 400,000 gallons.

The water distribution system is composed of approximately 65 miles of underground potable mains and 87 miles of underground non-potable mains. One northern potable water pump station provides pressure for the water supply at Patrick SFB. The majority of the potable water mains were installed and upgraded at various times between 1952 and 1958; exceptions are new mains in the housing areas. Much of the newer piping is polyvinyl chloride (PVC), but some asbestos cement pipe and ductile-iron pipes remain. Although the water mains are in relatively good condition, the galvanized steel pipe, used as water service lines, is corroding. These pipes are undergoing phased repair and replacement. Regular flushing of the water distribution system is required to improve water quality, mainly due to low disinfectant residuals.

3.14.2.1.2 Sanitary Sewer System

Treatment and disposal of sanitary sewage is provided by the City of Cocoa Beach. The sanitary sewer system at Patrick SFB consists of approximately 227,000 LF of mains and is conveyed to the City of Cocoa Beach via the main lift station at Building 650.

Most of the sanitary sewer lines are gravity lines, although force mains exist in some areas. The vitrified clay and PVC gravity sewer lines are reported to be in "fair" condition. The force mains are a combination of steel and PVC and are reported to be in "good" condition. Service connections of cast iron material are showing degrees of deterioration from internal corrosion.

Wastewater generated on the installation includes domestic wastewater and small quantities of typically deposited industrial waste (e.g. solvent mixtures). By contract with the City of Cocoa Beach, the City has reserved a treatment capability of two million gpd for Patrick SFB. The contract is annually reviewed for reserved peak flow adjustment, as necessary. Average wastewater usage at Patrick SFB is approximately 439,742 gpd and peak usage is approximately 729,387 gpd (USAF 2017b).

3.14.2.1.3 Stormwater Drainage System

The stormwater drainage system at Patrick SFB, installed in 1949, is composed of an open and closed system of collection totaling approximately 128,900 LF (USAF 2017b). It is separate from the flow of wastewater in the sanitary sewer system. The open drainage system conveys stormwater runoff by overland flow (drainage ditches), gutters, channels, and swales, to a point of discharge or detention that provides treatment through percolation before discharge. Some of the original stormwater system discharges directly to either the Banana River or the Atlantic Ocean. Newer stormwater systems are developed with wet or dry detention/retention swales that allow runoff to collect and percolate into the sandy soils of Patrick SFB. On-site retention ponds surrounding the golf course are engineered to act as a regional stormwater system.

The Banana River is considered an "Outstanding Florida Water" by the State of Florida, resulting in very strict stormwater discharge requirements. The BMAP for the Banana River Lagoon (FDEP

2021) defines the TMDL targets for nutrients in the river with the intent of improving water quality and restoring seagrass habitats.

Patrick SFB has two NPDES permits relating to stormwater discharge. These include a Multi-Sector Generic Permit for stormwater discharge at industrial areas, including automobile and aircraft maintenance areas. The permit requires quarterly sampling and reporting to FDEP. In addition, Patrick SFB has an installation-wide Phase II MS4 Stormwater Discharge Permit, as required for municipal land use.

3.14.2.1.4 Electric System

Electrical service for Patrick SFB is supplied by Florida Power & Light (FPL) through transmission line connections to the Banana River Substation and the South Substation, both controlled by FPL. The substations convert the incoming electricity and then route the power to government-owned switchgears located adjacent to the substations. Electricity is then distributed throughout the installation via feeder lines from the substations. Approximately 98% of the distribution system is underground, with the remaining overhead system subject to weather, salt corrosion, and bird strikes (USAF 2017b). A centralized, electrical back-up generation system provides continuous power to all non-housing loads in the event all commercial power is lost.

3.14.2.1.5 Natural Gas System

The total natural gas distribution system at Patrick SFB consists of approximately 100,600 LF of gas mains (owned/operated by Florida City Gas), ranging in size from 1.25 to six inches. The system includes 36 main valves, nine metering stations, and an undetermined number of regulators.

3.14.2.1.6 Liquid Fuel System

The liquid fuel system includes all fuel delivery, storage, and distribution facilities. The Fuel Storage Area (FSA) at Patrick SFB is located west of the airfield on Rescue Road. Fuel storage tanks are inspected regularly, and corrosion-control is performed as needed.

3.14.2.1.7 Communications System

The communications system at Patrick SFB provides support for spacecraft processing, launch and tracking facilities, safety procedures, aircraft operations, and test data to a variety of customers to manage launch operations at Cape Canaveral Space Force Station. An extensive communications network consists of communication satellites, microwave links, high frequency, very high frequency, and ultra-high frequency radio systems, and various landline links. Communication networks are upgraded regularly, and new construction with communication inclusion also requires communication upgrades for efficient tie-ins/connections to existing systems.

3.14.2.2 Transportation

Patrick SFB vehicle access is provided by SR A1A to the east and SR 404 (Pineda Causeway) to the south via South Patrick Drive. These roads are also used by the public and are maintained by federal, state, and local government agencies/funds. Patrick SFB has three entry control points (gates) for vehicle and pedestrian access: the A1A East Gate on Jupiter Street at SR A1A, the South Gate on South Patrick Drive at SR 404, and the Commercial Vehicle Gate, which is located on SR A1A.

On entering the installation, the primary traffic route between the north and south installation is along South Patrick Drive. Several connector roads provide access to various parts of the installation, including Riverside Trail to the North Housing Area, Falcon and Atlas Avenues to the North Administration Area, and Rescue Road to the North Mission Support and Central Recreation Areas. Access to support functions in the south is constrained by the location and configuration of

Affected Environment

South Gate. Traffic congestion during peak hours creates long queues onto access roadways and into adjacent neighborhoods.

Multi-use paths and sidewalks are located throughout the installation. Multi-use paths adjacent to the Banana River in North Housing and the airfield near SR A1A are frequently used for MWR and alternative modes of transportation. There is currently not a path or sidewalk connecting the SR A1A East Gate and to the recreational areas near the South Gate.

4 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This Section presents an evaluation of the environmental impacts that could result from implementing the Proposed Action or the No Action Alternatives. Potential impacts are addressed in the context of the scope of the Proposed Action as described in Section 2 and in consideration of the potentially affected environment, as characterized in Section 3. The general approach for this section is to describe the criteria for determining a significant impact followed by a discussion of the impacts that would occur by implementing the Proposed Action for each resource area. As discussed in Section 2.3 of this EA, and consistent with 32 CFR 989.8(c), alternatives not fully achieving established selection standards were not retained for detailed analysis. Closely related or "connected actions" are also considered, consistent with 40 CFR 1501.9(e)(1).

Determination of the significance of the impact, as described in 40 CFR 1501.3(b), requires an analysis of the potentially affected environment and degree of the effects of the action. The potentially affected environment considers the affected area and its resources, including the natural, human, cultural, and physical environment. Significance can vary with the setting of the Proposed Action. The degree of effects considers the duration, type, quality, and intensity of the impact (summarized below) and whether effects would violate federal, state, tribal, or local laws protecting the environment.

Duration (short- or long-term): In general, short-term effects are those that would occur only with respect to an activity, for a finite period, or only during the time required for construction or demolition activities. Long-term effects are those that are more likely to be persistent and may be permanent.

Type (direct or indirect): A direct effect is caused by an action and occurs around the same time and place. An indirect effect is caused by an action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action.

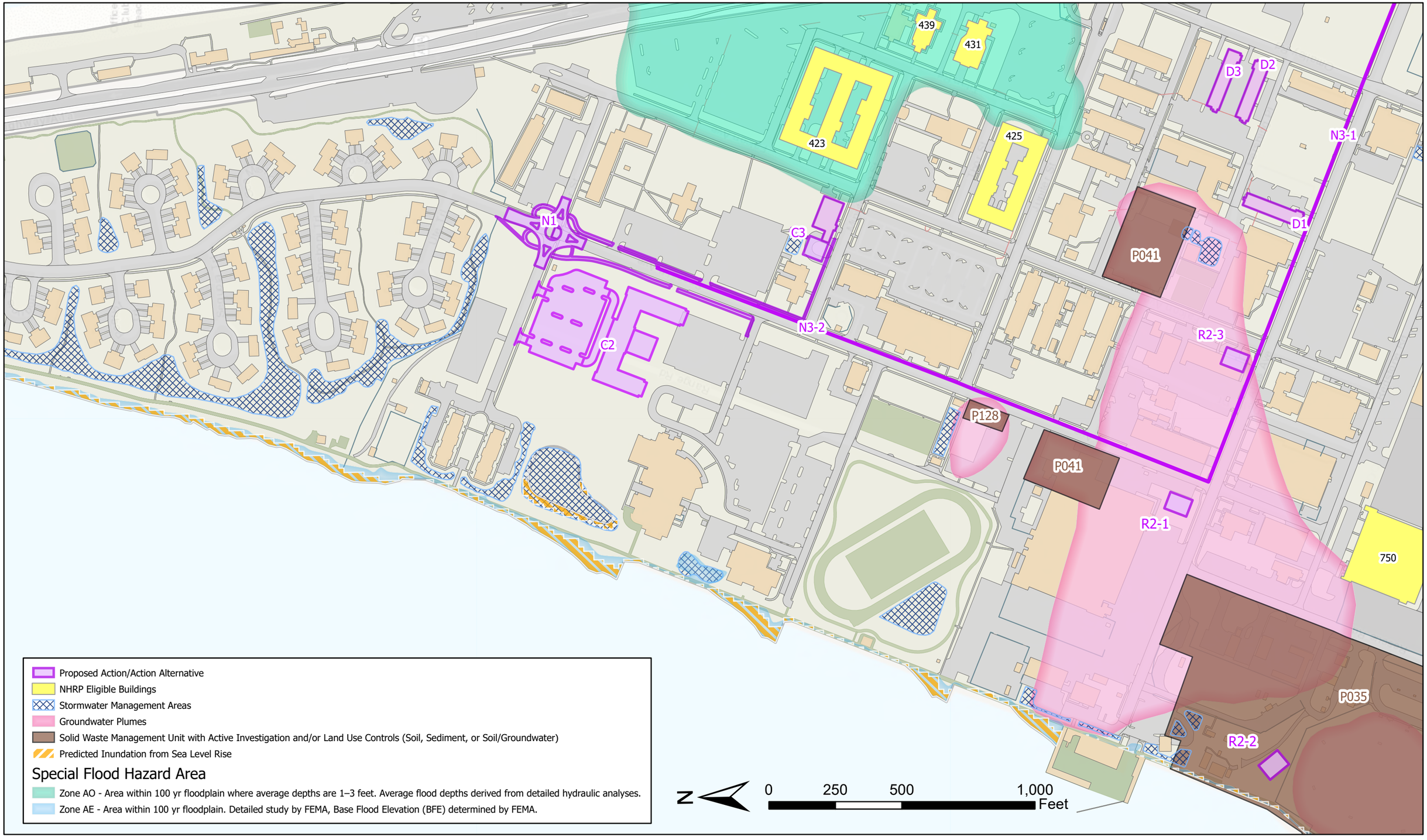
Quality (adverse or beneficial): An adverse impact is one having unfavorable or undesirable outcomes on the natural or man-made environment. Beneficial impacts provide desirable situations or outcomes.

Intensity (No impact, negligible, minor, moderate, or significant):

- No Impact: no change from existing conditions is expected to occur.
- Negligible: the impact is localized and not measurable or at the lowest level of detection.
- Minor: the impact is localized, slight but detectable, and has little to no effect on the environment.
- Moderate: the impact is readily apparent and appreciable. Moderate impacts may not meet the criteria to be classified as significant, but the degree of change is noticeable and has the potential to become significant if not effectively mitigated.
- Significant: the impact is severely adverse or highly noticeable. Significant impacts are those that have the potential to meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation or the preparation of an EIS to fulfill the policies set forth in NEPA.

Environmental Consequences

In the context of this EA, the Proposed Action includes the 19 projects, as described in Section 2.3, anticipated to be implemented within the next five years (2023-2028) at Patrick SFB. All projects include a No-Action Alternative and one or more action alternatives. In most cases the proposed projects and their alternatives are analyzed together, and any substantive differences are addressed through analysis. Figures 4-1 through 4-5 depict the potential effects proposed projects and their alternatives would have on resource categories. Potential effects and their significance, as well as the measures (e.g., BMPs or environmental commitments) for reducing adverse environmental impacts, are discussed for each resource. The analysis contained in this section, including necessary consultations, coordination, and public input will provide USSF with information for decision making and selection of the preferred alternatives for each project under the Proposed Action.


439
431
423
425
D3
D2
N3-1
D1
N1
C3
P041
N3-2
C2
R2-3
P128
P041
R2-1
750
P035
R2-2
Proposed Action/Action Alternative
NHRP Eligible Buildings
Stormwater Management Areas
Groundwater Plumes
Solid Waste Management Unit with Active Investigation and/or Land Use Controls (Soil, Sediment, or Soil/Groundwater)
Predicted Inundation from Sea Level Rise
Special Flood Hazard Area
Zone AO - Area within 100 yr floodplain where average depths are 1–3 feet. Average flood depths derived from detailed hydraulic analyses.
Zone AE - Area within 100 yr floodplain. Detailed study by FEMA, Base Flood Elevation (BFE) determined by FEMA.
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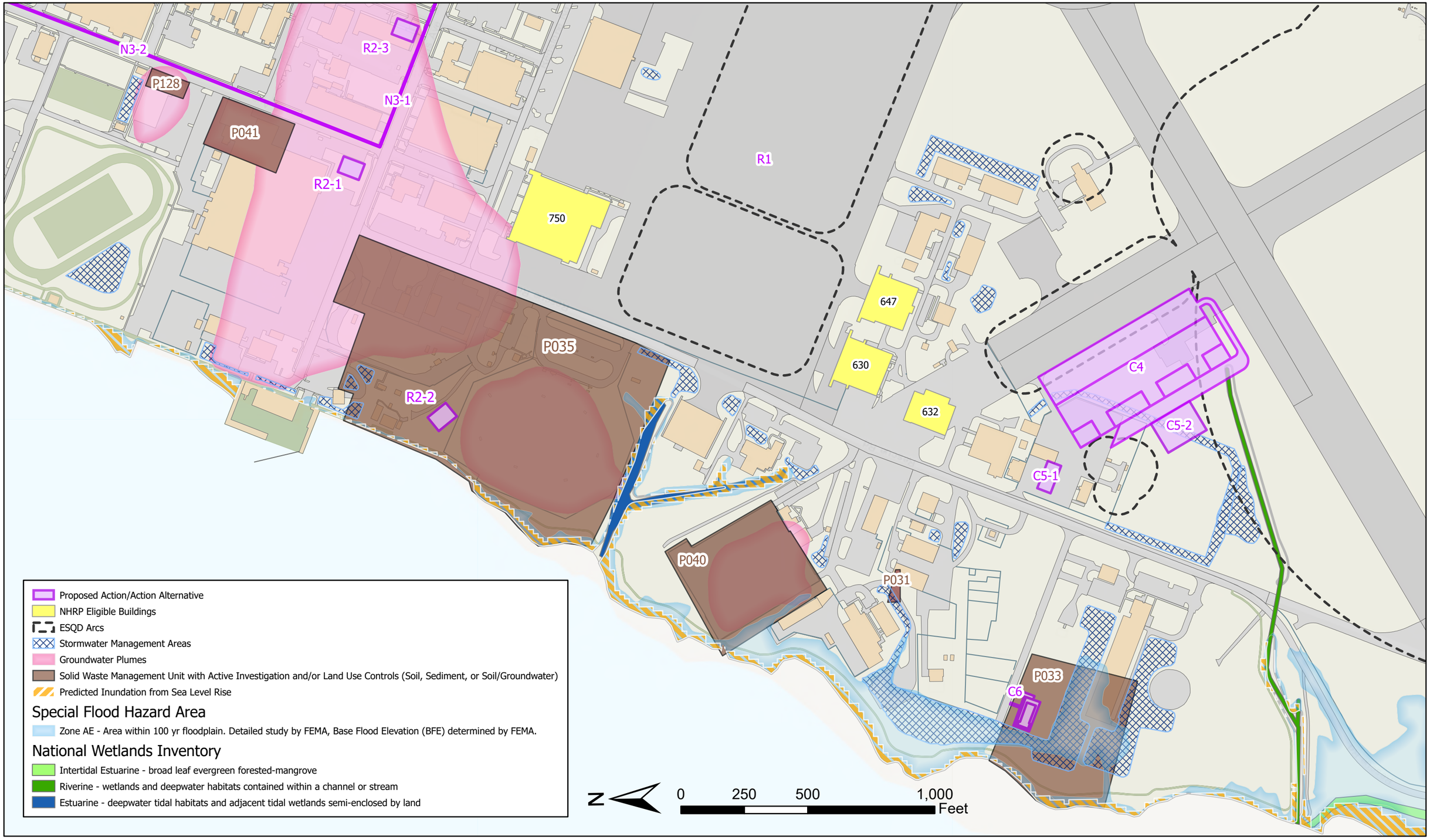
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P128
R2-3
N3-1
P041
R2-1
750
R1
647
630
632
C4
C5-2
C5-1
P035
R2-2
P040
P031
P033
C6
Proposed Action/Action Alternative
NHRP Eligible Buildings
ESQD Arcs
Stormwater Management Areas
Groundwater Plumes
Solid Waste Management Unit with Active Investigation and/or Land Use Controls (Soil, Sediment, or Soil/Groundwater)
Predicted Inundation from Sea Level Rise
Special Flood Hazard Area
Zone AE - Area within 100 yr floodplain. Detailed study by FEMA, Base Flood Elevation (BFE) determined by FEMA.
National Wetlands Inventory
Intertidal Estuarine - broad leaf evergreen forested-mangrove
Riverine - wetlands and deepwater habitats contained within a channel or stream
Estuarine - deepwater tidal habitats and adjacent tidal wetlands semi-enclosed by land
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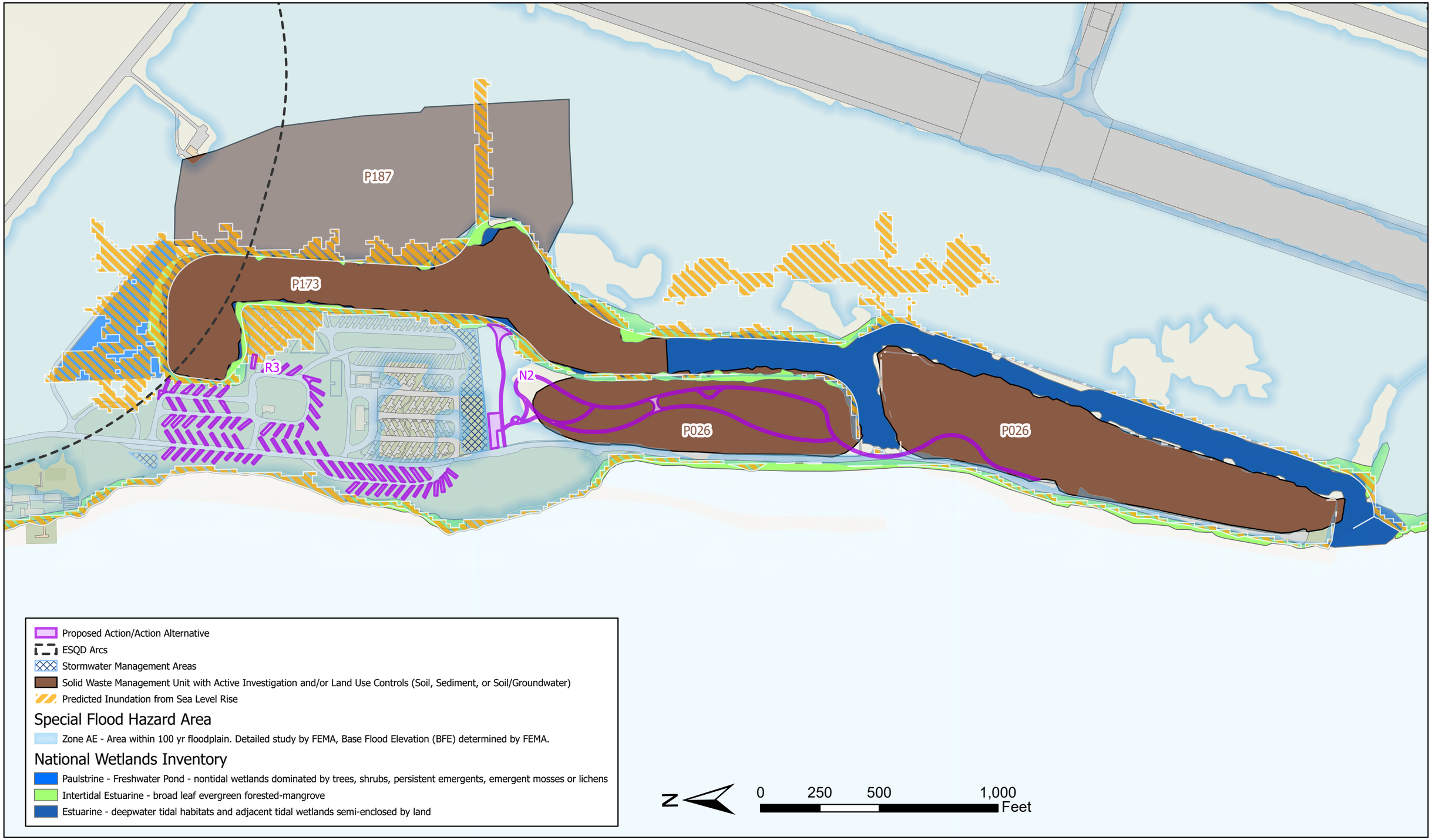
P187
P173
R3
N2
P026
P026
Proposed Action/Action Alternative
ESQD Arcs
Stormwater Management Areas
Solid Waste Management Unit with Active Investigation and/or Land Use Controls (Soil, Sediment, or Soil/Groundwater)
Predicted Inundation from Sea Level Rise
Special Flood Hazard Area
Zone AE - Area within 100 yr floodplain. Detailed study by FEMA, Base Flood Elevation (BFE) determined by FEMA.
National Wetlands Inventory
Paulstrine - Freshwater Pond - nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens
Intertidal Estuarine - broad leaf evergreen forested-mangrove
Estuarine - deepwater tidal habitats and adjacent tidal wetlands semi-enclosed by land
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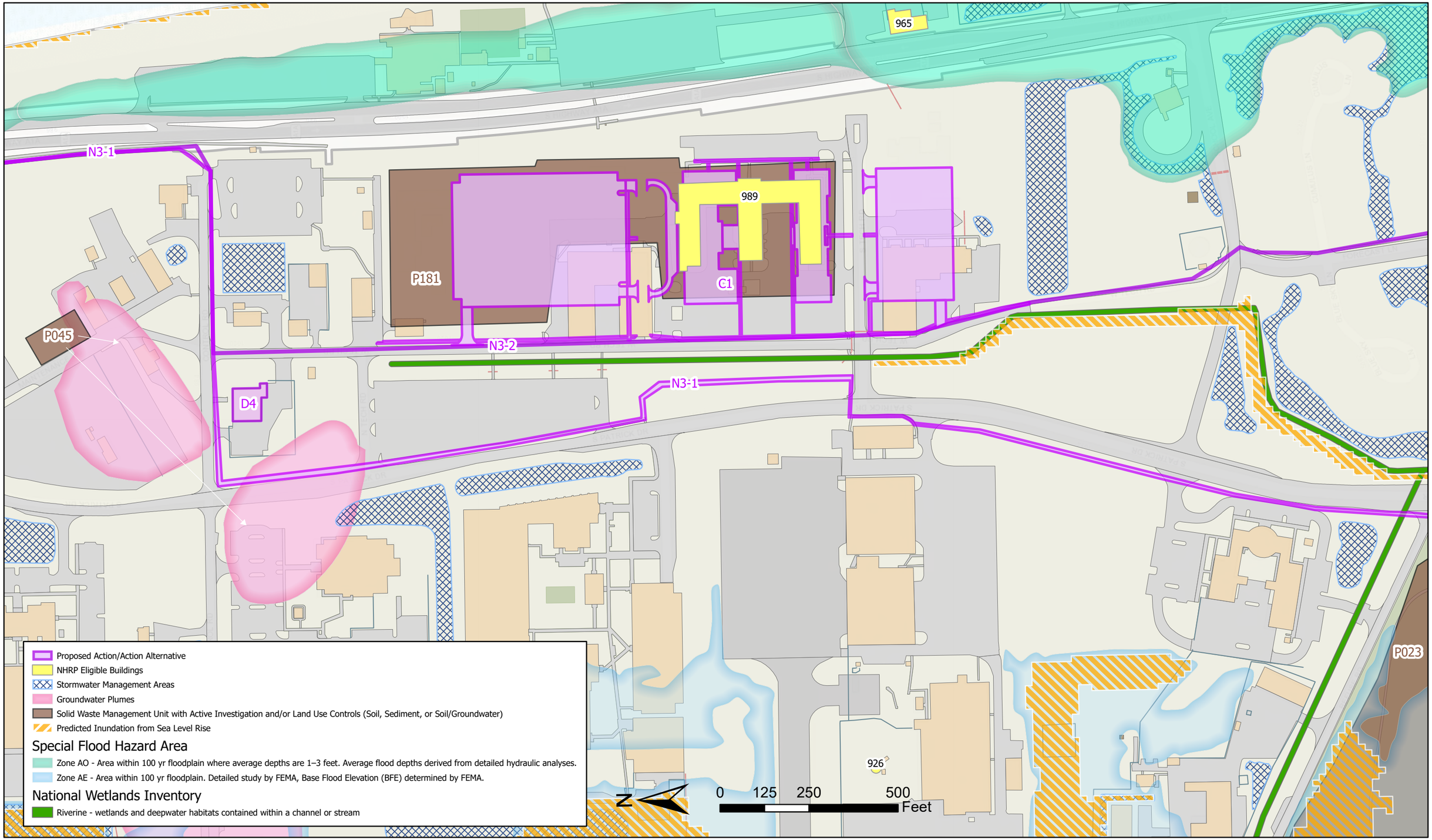
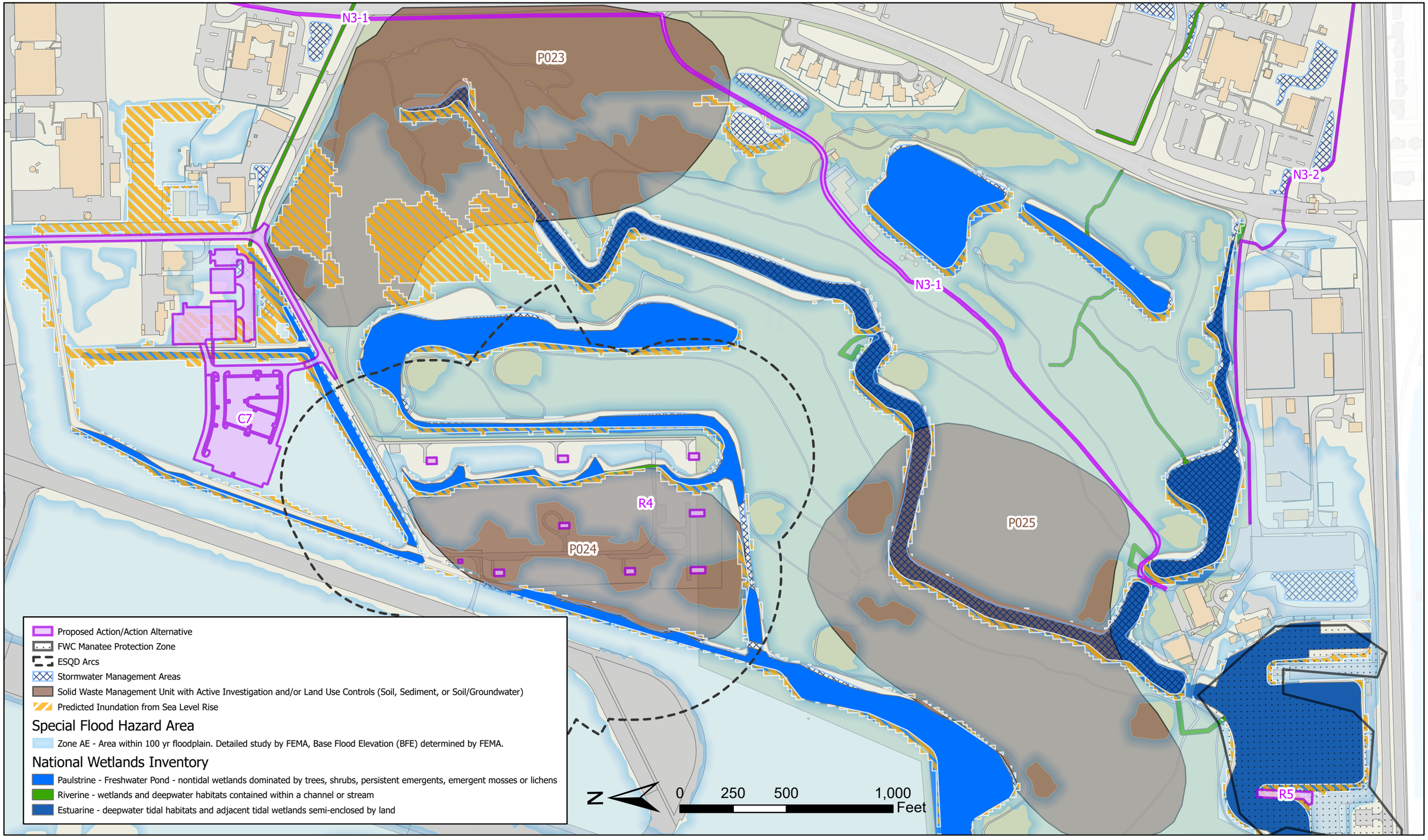


PATRICK SPACE FORCE BASE EA

FIGURE 4-4: POTENTIAL ENVIRONMENTAL IMPACTS - SOUTH ADMINISTRATION AREA


N3-1
P023
N3-2
N3-1
C7
R4
P024
P025
R5
Proposed Action/Action Alternative
FWC Manatee Protection Zone
ESQD Arcs
Stormwater Management Areas
Solid Waste Management Unit with Active Investigation and/or Land Use Controls (Soil, Sediment, or Soil/Groundwater)
Predicted Inundation from Sea Level Rise
Special Flood Hazard Area
Zone AE - Area within 100 yr floodplain. Detailed study by FEMA, Base Flood Elevation (BFE) determined by FEMA.
National Wetlands Inventory
Paulstrine - Freshwater Pond - nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens
Riverine - wetlands and deepwater habitats contained within a channel or stream
Estuarine - deepwater tidal habitats and adjacent tidal wetlands semi-enclosed by land
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4.2 AIRSPACE

The significance of potential impacts to airspace management depends on the degree to which the Proposed Action would affect the structure, use, or management of the airspace environment. Significant impacts could result if the Proposed Action would: 1) impose major restrictions on air commerce opportunities; 2) significantly limit airspace access to a large number of users; or 3) require modifications to air traffic control (ATC) systems.

4.2.1 Proposed Action

The Proposed Action would have no impact on regional airspace. None of the proposed projects involve changes to, or use of, airspace. No overall increase in the quantity of airspace operations is proposed, and no changes to existing air refueling tracks would occur. Existing scheduling coordination processes and procedures currently used to manage existing military airspace are well established by and in coordination with FAA and would not be modified as a result of the Proposed Action. None of the proposed projects impose any major restrictions on air commerce opportunities, significantly limit access, or require any modifications to ATC systems. Therefore, implementation of the Proposed Action would not significantly impact regional airspace.

Projects C3 and D1-D3 may provide an increased safety benefit to Patrick SFB airspace by removing structures from the airfield operation CZ, which has the greatest risk of aircraft mishaps if they were to occur.

4.2.1.1 Best Management Practices

Contractors would coordinate with Airfield Operations prior to conducting work within the APZ or CZs and follow existing coordination procedures to access or cross the airfield as needed.

4.2.2 No-Action Alternative

If the No-Action Alternative were selected, airspace management associated with ongoing operations at Patrick SFB would remain as described in Section 3.2, and no impact would be anticipated. However, continued maintenance of existing buildings in the CZ would not meet installation planning and AICUZ objectives.

4.3 NOISE

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from implementation of the 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 exposure to unacceptable noise levels). An increase in noise levels due to introduction of a new noise source can create an impact on the surrounding environment.

4.3.1 Proposed Action

The Proposed Action would result in short-term, negligible to minor, adverse impacts on the noise environment; however, no significant impacts are anticipated, as described in the following subsections.

4.3.1.1 Operational Activities

Based on a review of the individual projects, implementation of the Proposed Action would not result in any noise related impacts on sensitive noise receptors in the vicinity of Patrick SFB. Therefore, a quantitative analysis of operational noise is not included in this EA.

4.3.1.2 Demolition and Construction Activities

Construction and demolition activities associated with the Proposed Action would result in a short-term, negligible to minor, adverse impact on the noise environment at Patrick SFB. No long-term impacts are anticipated. Construction activities would include, but are not limited to: clearing, grading, and excavation; pavement construction, demolition, and removal; and building construction, demolition, and removal. These activities would involve the use of vehicles, heavy construction equipment, and machinery. Construction noise is anticipated to average between 70 and 90 dBA at construction sites, with maximums exceeding 100 dBA. Construction activities would temporarily increase noise levels in the immediate vicinity of the proposed project areas; however, because distance rapidly attenuates noise levels, the areas would experience only a minor increase in ambient noise conditions during construction hours. No impacts to the noise environment of surrounding communities (i.e., South Patrick Shores, Tortoise Island, Merritt Island, or other noise sensitive receptors) would occur. Within Patrick SFB, noise sensitive areas (e.g., lodging facilities, chapel, childcare center, and outdoor recreation areas) may experience some annoyance due to construction noise; however, this noise would be temporary in nature both in the daily operation of the sites and the length of the project. Therefore, implementation of the Proposed Action is not anticipated to significantly impact the noise environment.

4.3.1.3 Best Management Practices

The implementation of the proposed projects would occur over multiple years and be phased to minimize noise disturbance. Demolition and construction activities would be restricted to daytime hours (0700 to 1700) to the greatest extent possible.

4.3.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur, and existing conditions discussed in Section 3.3 would continue. Implementation of the No-Action Alternative would not result in any new or additional impacts on the noise environment.

4.4 HUMAN HEALTH AND SAFETY

An increased risk for bodily injury, illness, death, or property damage from the Proposed Action would be considered an adverse impact on safety. Impacts associated with health and safety would be considered significant if the Proposed Action were to:

- Substantially increase risks associated with the safety of installation personnel, contractors, or the local community.
- Hinder the ability to respond to an emergency.
- Introduce a new health or safety risk for which USSF is not prepared or does not have adequate management and response plans in place.

4.4.1 Proposed Action

The Proposed Action would result in an overall net benefit to human health and safety, despite short-term, minor, adverse impacts during construction, as described in the following subsections.

4.4.1.1 Construction and Demolition Safety

Short-term, minor, adverse impacts to contractor health and safety during construction and demolition activities could occur as a result of the Proposed Action. The short-term risk associated with work performed by demolition and construction contractors would slightly increase at Patrick SFB during the normal workday, as construction and demolition activity levels would increase. Changes to daily base activities and vehicular operations, including the addition of construction

personnel on base, additional vehicles entering and exiting the base for construction operations, and the addition of heavy machinery/construction equipment to the base would result in a short-term increase in potential safety risks.

During construction and demolition, all actions would be performed in accordance with AFOSH directives and OSHA regulations. Occupational health and safety hazards associated with construction of the proposed new facilities and demolition of the existing structures would include loud noise, heavy machinery, debris, electricity, and hazardous materials used or encountered during work. The Proposed Action would not pose new or unacceptable safety risks to installation personnel or activities at the installation but would instead enable SLD 45 to meet current and future mission objectives and conduct mission requirements in a safe operating environment. With the implementation of the BMPs listed in Section 4.4.1.4, no significant impacts to human health and safety during construction and demolition activities are anticipated.

4.4.1.2 Mission Safety

Three proposed projects (Projects C4, R1, and R4) would occur within ESQD arcs. These projects are mission-necessary and consistent with current land uses. With the implementation of the BMPs listed in Section 4.4.1.4, significant impacts to mission safety are not anticipated, as described in more detail below.

Project C4: Construct 3-Bay C-130J Hangar

Action Alternative: Construction of the proposed hangar would occur within combat aircraft parking and hot-cargo ESQD arcs associated with the airfield (Figure 4-2). These ESQD arcs are activated when ammunition, explosives, or weapons are present within designated areas of the airfield; therefore, risks to worker safety can be avoided by coordinating with Airfield Operations prior to project implementation. No impacts to mission safety are anticipated.

No-Action Alternative: No new construction or demolition would occur within ESQD arcs as a result of this alternative and no changes to mission safety would occur.

Project R1: Repair and Upgrade 750 Ramp Lighting

Action Alternative: Due the location of the existing ramp/apron lighting, work within the combat aircraft parking ESQD arc is unavoidable (Figure 4-2). As above, impacts to mission safety can be avoided through coordination with Airfield Operations prior to project implementation. The purpose of this project is to improve safety during nighttime and low-visibility operations; therefore, it is anticipated that Project R1 will have an overall beneficial impact on mission safety.

No-Action Alternative: Maintaining the existing lighting at the 750 Ramp would result in decreased mission safety and would not be in compliance with AFI 31-118. Additionally, maintenance of the lighting with the existing low-pressure sodium lighting is unsustainable as its manufacture is being phased out.

Project R4: Improve MSA Capacity

Action Alternative: This alternative occurs within the ESQD arc of the existing MSA. Since the project proposes to renovate the existing MSA, work within the ESQD arc is unavoidable (Figure 4-5). Impacts to workers would be minimized through coordination with the Patrick SFB Safety Office; therefore, no impacts to mission safety are anticipated.

No-Action Alternative: No new construction or demolition would occur within ESQD arcs as a result of this alternative and no changes to mission safety would occur. Long-term maintenance of the

MSA, without major renovation, may result in the eventual deterioration of the facilities and potential adverse impacts to mission safety.

4.4.1.3 Safety Improvement Projects

Projects C1, C3, D1-D4, R1 (described above), R2, and R5, would result in a long-term, beneficial impact on health and safety conditions at Patrick SFB. These projects are described in further detail below.

Projects C1, C3, and D1-D4: Proposed Demolition of Buildings 556, 560, 561, 562, 961, and 989

Action Alternative: Proposed demolition projects would improve human health and safety by removing outdated structures and potential sources of contamination and risk from hazardous materials (e.g., ACM and LBP) within the structures. Additionally, Projects C3 and D1-D3 would remove facilities from the airfield operation CZ.

No-Action Alternative: Under the No-Action Alternative, proposed demolition activities would not occur, and continued mission operations within outdated facilities could induce a long-term effect on personnel at Patrick SFB. In addition, maintaining facilities within the airfield operation CZ exposes personnel to a higher safety risk in the event of an aircraft mishap.

Project R2: Relocate Main Sewer Lift Station (Building 650)

Alternatives R2-1, R2-2, and R2-3: The relocation of the main sewer lift station would reduce the potential for loss of service and the risk of sewage discharge into the Banana River (Figure 4-1). Overflow protection measures and additional storage tank capacity would also minimize the risk of a sewage leak or spill into the Banana River.

No-Action Alternative: The No-Action Alternative could result in long-term, adverse impacts to human health in the event of an overflow or line breakage that affected the main sewer lift station.

Project R5: Repair Marina Bulkhead

Action Alternative: Repair of the existing bulkhead at F Dock would improve safety around the bulkhead and would provide protection for the marina during a storm event.

No-Action Alternative: If the No-Action Alternative is selected, the bulkhead at F Dock may fail during a storm event, which could adversely impact safety at the Patrick SFB marina.

4.4.1.4 Best Management Practices

To minimize occupational health and safety risks, the following BMPs would be implemented:

- Provide appropriate personal protective equipment (PPE) for workers and adhere to applicable OSHA standards and procedures.
- Clearly mark work areas with appropriate signage and secure against unauthorized entry.
- Conduct proposed construction and demolition activities in accordance with federal, state, and local regulations to minimize safety hazards and contact with hazardous materials, wastes, and substances.
- Clearly mark changes to traffic patterns using standard construction traffic control measures and communicate with installation personnel.
- Develop and implement a health and safety plan to further minimize potential impacts to health and safety of contractor employees.
- Coordinate siting and construction plans with the Patrick SFB Safety Office before beginning construction.

4.4.2 No-Action Alternative

Under the No-Action Alternative, construction and demolition activities would not occur and thus, there would be no changes to safety and occupational conditions at Patrick SFB. Although there would be no impacts on mission safety as a result of work within ESQD arcs under this alternative, maintaining the existing infrastructure (i.e., not replacing lighting at the 750 Ramp, relocating the main lift station, or replacing the marina bulkhead) could result in long-term, adverse impacts on mission safety.

4.5 AIR QUALITY

The purpose of this air quality analysis is to evaluate the potential impacts on ambient air quality from the Proposed Action. Pollutants considered in this EA are SO_2 and other compounds (i.e., oxides of sulfur or SO_x); VOCs; CO; PM_{10}; $PM_{2.5}$; and Pb. These criteria pollutants are generated by the types of activities (e.g., construction and mobile source operations) associated with the Proposed Action.

In determining the effects of the Proposed Action, the resulting potential emissions for all compounds, per year, were compared to significance levels. The Air Force Air Quality EIAP Guide – Fundamentals Volume 1 (USAF 2016a) and Volume II (Advance Assessments; USAF 2016b) were referenced in order to perform evaluations of threshold significance. Air quality impacts from the Proposed Action would be significant if emissions:

- Increase ambient air pollution concentrations above the NAAQS.
- Contribute to existing violations of the NAAQS.
- Interfere with, or delay timely attainment of, the NAAQS.
- Result in the potential for any new stationary source to be considered a major source of emissions as defined in 40 CFR 52.21 (total emissions of any pollutant subject to regulations under the CAA that is greater than 100 tons per year for attainment areas).
- Increase mobile source emissions in excess of 100 tons per year for any pollutant.

Because Brevard County is in attainment for all pollutants, General Conformity does not apply; therefore, the significance threshold for criteria pollutant emissions is 100 tons per year (tpy) (25 tpy Lead) from both mobile and stationary sources.

The USAF Air Conformity Applicability Model (ACAM) Version 5.0.17b was used to analyze the potential air quality impacts associated with the Proposed Action (includes 18 of the proposed projects), in accordance with AFMAN 32-7002, the EIAP (40 CFR 1500-1508), and the General Conformity Rule (40 CFR 93). GHGs (CO_{2e}) were also included in the analysis. Project R1 was not included in the ACAM analysis because it is anticipated that this project would not generate measurable emissions for ACAM to estimate. The action alternatives for the proposed projects do not substantially differ in terms of air emissions. The differences result from the location of ground disturbance and, therefore, were considered to be either zero or negligible.

4.5.1 Proposed Action

The Proposed Action would result in short- and long-term, negligible to minor, adverse impacts on air quality; however, no significant air quality impacts are anticipated, as described in the following subsections.

4.5.1.1 Operational Activities

No new operational activities (i.e., new missions) or increased operational levels (i.e., additional personnel) are proposed. Operational levels and resulting emissions from existing stationary and

mobile emissions sources at Patrick SFB are not expected to change considerably with the implementation of the Proposed Action. The ACAM steady state emissions estimates include heating systems and emergency generators in proposed facilities to evaluate potential operational impacts on air quality (See Section 4.5.1.3 for emissions results).

4.5.1.2 Demolition and Construction Activities

The majority of air emissions associated with the Proposed Action would be short-term in nature (limited to the duration of demolition and construction activities) and would be caused by construction equipment and vehicle operation, asphalt paving, and dust generated from demolition and disturbance of unpaved areas. These activities could result in the following air quality impacts:

- Fugitive dust generated by demolition and construction operations.
- Emissions of criteria pollutants (VOC and NOX [as precursors of O_3], CO, PM_{10}, and $PM_{2.5}$ [including its precursor SO_2], and GHG emissions) from demolition and construction activities such as:
    - Use of diesel-powered and gas-powered demolition and construction equipment,
    - Evaporation of architectural coatings and paving asphalt, and
    - Construction workers' commutes and haul truck trips.

Contractors may be required to obtain appropriate permits and comply with all permit provisions for certain types of equipment and temporary facilities (e.g., portable crushers and batch plants).

4.5.1.3 Emissions Results

Operational and construction emissions resulting from the Proposed Action were calculated using ACAM. Since emissions from the Proposed Action can vary from year-to-year depending on activity, the greatest annual net change in emissions for each pollutant forms the basis of the analysis. The annual emissions during 2024, which was the worst-case year for emissions during the construction phase of the Proposed Action, are presented in Table 4.1. Steady State emissions (i.e., once the action is fully implemented and operational with no further net change in emissions) are presented in Table 4-2. See Appendix C for the ACAM Record of Air Analysis for the Proposed Action. Full ACAM calculations are available upon request.

Table 4-1. Proposed Action ACAM Assessment Summary: 2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
VOC	6.54	100	No
NOx	28.4	100	No
CO	37.6	100	No
SO_2	0.09	100	No
PM_{10}	35.7	100	No
$PM_{2.5}$	1.1	100	No
Pb	0.000	25	No
NH_3	0.02	100	No
CO_{2e}	8757.4		

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SO_2: sulfur dioxide; PM_{10} and $PM_{2.5}$: particulate matter with a diameter of less than or equal to 10 microns and 2.5 microns, respectively; Pb: lead; NH_3: Ammonia; CO_{2e}: carbon dioxide equivalent.

Table 4-2. Proposed Action ACAM Assessment Summary: Steady State

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
VOC	0.261	100	No
NOx	3.945	100	No
CO	3.274	100	No
SO_2	0.070	100	No
PM_{10}	0.333	100	No
$PM_{2.5}$	0.333	100	No
Pb	0.000	25	No
NH_3	0.000	100	No
CO_{2e}	4496.2		

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SO_2: sulfur dioxide; PM_{10} and $PM_{2.5}$: particulate matter with a diameter of less than or equal to 10 microns and 2.5 microns, respectively; Pb: lead; NH_3: Ammonia; CO_{2e}: carbon dioxide equivalent.

4.5.1.4 Clean Air Act General Conformity Rule Applicability

The General Conformity Rule does not apply to the Proposed Actions because Patrick SFB is located within an area designated in attainment for all criteria pollutants.

4.5.1.5 Attainment Criteria Pollutant Emissions

Unlike nonattainment or maintenance criteria pollutants, General Conformity *de minimis* levels have not been established for attainment criteria pollutant emissions. However, as outlined in the EIAP Guide (USAF 2016a), the General Conformity *de minimis* thresholds are used as NEPA significance indicators for air quality in attainment areas. General Conformity *de minimis* threshold values are the maximum net change an action can acceptably emit in nonattainment and maintenance areas. These threshold values would also be a conservative indicator that an action's emissions within an attainment area would also be acceptable. For the Proposed Action, all attainment criteria pollutants are below the significance indicators, as presented in Tables 4-1 and 4-2 and Appendix C. Therefore, the potential air quality impact from all criteria pollutants is not significant.

4.5.1.6 Greenhouse Gases

The estimated increase of GHG emissions associated with construction activities would produce about 8,758 metric tons of CO_{2e} in the peak year of construction (2024). For the steady-state (or operational phase) of the Proposed Action, the newly installed heating equipment and generators are expected to yield an annual net increase of approximately 4,500 tons of CO_{2e} per year. This is a limited amount of emissions that would not contribute significantly to climate change, but any emission of GHGs represents an incremental increase in global GHG concentrations. The Department of the Air Force supports climate change initiatives globally, while preserving military operations, sustainability, and readiness, by working to reduce GHG emissions. Therefore, with the implementation of the BMPs listed below, no significant impacts to GHGs are anticipated.

4.5.1.7 Best Management Practices

During construction and demolition activities, the contractor would be required to reduce fugitive dust from ground-disturbing and demolition activities with the application of Best Available Control Technologies (BACT), such as application of water sprays, dust suppressants, use of coverings or enclosures, paving, enshrouding, and planting. Exhaust emissions from diesel-fueled construction equipment and vehicle engines would be controlled by minimizing idling and complying with USEPA mobile and non-road regulations.

4.5.2 No-Action Alternative

The No-Action Alternative would not change air quality beyond the scope of normal conditions and influences within the ROI.

4.6 EARTH RESOURCES

The potential for soil erosion and site suitability were the primary factors considered when evaluating potential impacts to soils and geology. Impacts to soils can result from disturbances, such as grading during construction activities that expose soil to wind or water erosion.

4.6.1 Proposed Action

Site preparation and construction activities associated with the Proposed Action would result in short-term, minor, adverse impacts to earth resources. Construction activities associated with the Proposed Action would directly disturb up to approximately 22 acres of native and non-native soils and potentially expose soils to wind, rain, and stormwater runoff. No prime or unique farmland soils would be disturbed or removed from project areas.

Table 3-6 and Figure 3-2 present the soil types that would be disturbed under the Proposed Action. As shown, most of the proposed projects would occur on Urban land or an Urban land complex, which are at least 85% covered with buildings and pavement. The other five disturbed soil types (Canaveral-Anclote complex, Immokalee sand, Welaka sand, Basinger sand, and Palm Beach sand) typically occur on flat areas above marine terraces and are considered to be poorly to excessively drained and not prone to flooding. Impacts to earth resources would be avoided or minimized by incorporating proper construction techniques, erosion-control measures, and structural engineering designs into project development (see BMPs listed below); therefore, no significant impacts to earth resources are anticipated.

4.6.1.1 Best Management Practices

Any soil disturbance that would expose the soils to wind, rain, and stormwater runoff must be stabilized by some means. An NPDES permit would be obtained by the contractor prior to construction for projects that involve ground-disturbing activities that exceed one acre. The construction contractor would be required to develop a Stormwater Pollution Prevention Plan (SWPPP) specific to each site that would provide detailed erosion prevention and control measures to be implemented during site preparation and construction activities. Projects with under an acre of ground-disturbing activities would follow the Patrick SFB Stormwater Management Plan (SWMP) (USAF 2015c).

4.6.2 No-Action Alternative

Under the No-Action Alternative, no construction or ground disturbing activities would occur; therefore, this alternative would have no impact on earth resources.

4.7 WATER RESOURCES

The criteria for evaluating impacts to water resources include loss of or adverse impact to a particular resource and/or its functions and adherence to applicable regulations. An impact to water resources would be significant if it would:

- Cause the permanent loss of wetland or floodplains.
- Threaten or damage hydrologic characteristics.
- Adversely affect water quality or endanger public health by contributing pollutants to surface water or groundwater.

- Violate established laws or regulations that have been adopted to protect or manage water resources of the area.

4.7.1 Proposed Action

The Proposed Action would result in short-term, negligible to minor, adverse impacts on water resources; however, those impacts would not result in a permanent loss of function, threaten hydrologic characteristics, endanger public health, or violate laws. Impacts to water resources would be avoided or minimized through proper construction techniques, mitigation and BMPs (Section 4.7.1.7), erosion-control measures, and engineering designs. Therefore, no significant impacts to water resources are anticipated as a result of the Proposed Action, as described in the following subsections.

4.7.1.1 Surface Waters

The Proposed Action would impact surface waters. Fifteen of the proposed projects would not directly impact surface waters; however, all of the proposed projects could impact water quality within adjacent surface waters (e.g., increase sedimentation, turbidity, and pollution), as discussed in Section 4.7.1.5. Four proposed projects may result in a up to 0.5 acre of permanent impacts to surface waters due to dredging or filling activities. These projects are described below.

Project C4: Construct 3-Bay C-130J Hangar

Action Alternative: It is anticipated that construction of the hangar would result in direct impacts (fill) to approximately 1,100 SF (0.03 acres) of an existing upland-cut drainage canal (Figure 4-2). Surface water limits would be delineated during project design and would be shown on construction plans to minimize work within 25 feet of these areas. Given the small area of impacts and the implementation of the BMPs listed in Section 4.7.1.7, no significant impacts to surface waters are anticipated.

No-Action Alternative: No impacts to surface waters are anticipated as a result of this alternative.

Project C7: Construct 45 CES Administration, Operations, and Storage Complex

Action Alternative: Construction of two 12-foot bridges would temporarily impact approximately 2,100 SF (0.05 acres) of two upland-cut drainage canals (Figure 4-5). Permanent impacts to surface waters are not anticipated. Surface water limits would be delineated during project design and would be shown on construction plans to minimize work within 25 feet of these areas. Given the small area of impacts and the implementation of the BMPs listed in Section 4.7.1.7, no significant impacts to surface waters are anticipated.

No-Action Alternative: No impacts to surface waters are anticipated as a result of this alternative.

Project R4: Improve MSA Capacity

Action Alternative: Approximately 50,000 SF (1.15 acres) of upland-cut canals occur within the project area of Project R4 (Figure 4-5). It is anticipated that impacts to these canals would be avoided by limiting construction to upland areas. Surface water limits would be delineated during project design and would be shown on construction plans to avoid work within 25 feet of these areas. Therefore, with the implementation of the BMPs in Section 4.7.1.7, no impacts to surface waters are anticipated.

No-Action Alternative: No impacts to surface waters are anticipated as a result of this alternative.

Project R5: Repair Marina Bulkhead

Action Alternative: Repair of the existing bulkhead at F Dock may result in approximately 6,300 SF (0.15 acres) of temporary and/or permanent impacts to the channel adjacent to the bulkhead (Figure 4-5). Impacts would depend on the final project design and would be minimized to the greatest extent practicable. Given the small area of impacts and the implementation of the BMPs listed in Section 4.7.1.7, no significant impacts to surface waters are anticipated.

No-Action Alternative: This alternative would not directly impact surface waters. However, if the bulkhead were not repaired and failed during a storm event, areas of the Banana River in the vicinity may be impacted by damage to the marina (e.g., increased debris and water pollution).

4.7.1.2 Wetlands

The Proposed Action may impact wetlands. Eighteen of the proposed projects would not directly impact wetlands; however, all of the proposed projects could impact the water quality of adjacent wetlands (e.g., sedimentation, turbidity, and pollution), as discussed in Section 4.7.1.5. Project R5 may directly impact wetlands and is discussed in more detail below.

Project R5: Repair Marina Bulkhead

Action Alternative: Repair of the existing bulkhead at F Dock may result in up to 0.5 acre of permanent fill impacts to the estuarine wetlands immediately adjacent to the marina bulkhead (Figure 4-5).

Impacts to wetlands, should they occur, would be minimized to the greatest extent practicable. This project would implement BMPs (Section 4.7.1.7) and erosion controls during construction to limit the extent of wetland impacts. Detailed wetland impacts would be quantified during the federal and state permitting process when the engineering designs have been finalized. Prior to construction, and consistent with the ERP obtained for the project, any required mitigation would be provided to ensure no net loss of wetlands within the ROI. Currently, two mitigation banks service this watershed: NeoVerde and Green Wing. NeoVerde has federal and state freshwater (herbaceous and forested) credits available and Green Wing has estuarine credits available. With an approved mitigation plan and the implementation of the BMPs listed in Section 4.7.1.7, no significant impacts to wetlands are anticipated.

No-Action Alternative: The No-Action Alternative would not impact wetlands; however, if the marina bulkhead at F Dock were not repaired and failed during a storm event, the adjacent mangrove wetlands may be damaged.

4.7.1.3 Floodplains and Sea Level Rise

The Proposed Action would result in temporary construction activity and the construction of new facilities within the 100-year floodplain and predicted inundation areas based on SLR scenarios. Thirteen of the proposed projects would be located outside of floodplains or the predicted SLR inundation areas. Table 4-3 lists the six projects that would occur within the 100-year floodplain with their estimated area of impact; projects that are also within the predicted inundation area, given a two-foot SLR, are indicated with an asterisk.

Table 4-3. Proposed Projects Within the 100-year Floodplain

Project ID	Project Name	Action Alternative	Planning Area	Area within the Floodplain (SF)
C7	Construct 45 CES Administration, Operations, and Storage Complex	C7*	SAMSA	200,000
N2	Construct Low-impact Recreation Area	N2*	CRA	12,600
N3	Construct Multi-use Path from A1A East Gate to South Gate	N3-1	Multi	37,897
		N3-2		13,068
R3	Improve RV Sites at FAMCAMP	R3*	CRA	40,000
R4	Improve MSA Capacity	R4	SAMSA	1,700
R5	Repair Marina Bulkhead	R5	SRA	7,500

Source: FEMA, 2021.
*Project alternatives also occur within the predicted inundation area associated with a two-foot SLR (https://drsl.serdp-estcp.org/sealevelrise/1273).
CRA: Central Recreation Area; SAMSA: South Administration and Mission Support Area; SRA: South Recreation Area; Multi: Multiple Planning Districts

Projects C7 (Figure 4-4), N2, R3 (Figure 4-3), N3, R4, and R5 (Figure 4-5) would result in up to 300,000 SF (approximately seven acres) of development within the 100-year floodplain. These projects could result in an increased flood risk both within the project areas and to surrounding areas. All potential impacts, if any, would remain on Patrick SFB property.

Long-term, adverse impacts to floodplains would be minimized by implementing guidelines provided in EO 11988 and the BMPs listed in Section 4.7.1.7. In general, facilities would be elevated above the Base Flood Elevation (BFE) and building footprints would be reduced as much as possible to minimize encroachments into the floodplain. The floodplain impacts would be compensated by excavating material within or adjacent to the same floodplain, in a manner that does not disturb or impact wetlands, sensitive species, hazardous material, or cultural sites. All proposed projects would include stormwater drainage system improvements, as appropriate, that would convey and store stormwater and not impede floodwater flows during major storm events. The design measures discussed above (e.g., raised finished floor and floodplain compensation) would also reduce the risk of inundation and minimize the projects' impact on predicted SLR. Given these measures, combined with the BMPs listed in Section 4.7.1.7, the Proposed Action is not anticipated to significantly impact floodplains and or result in significant impacts to/from SLR.

4.7.1.4 Groundwater

The Proposed Action would result in negligible impacts on groundwater. Groundwater within the surficial aquifer may be encountered during certain types of construction activities such as excavation within the footprint of new facilities. Required dewatering could limit the timing and rate of construction; therefore, activities would be coordinated with 45 CES/CEIE to avoid impacts to groundwater quality or flow. Hazardous materials used and hazardous waste generated during construction would be managed in accordance with all applicable environmental compliance regulations and Patrick SFB environmental management plans. The increase in impervious areas as a result of the Proposed Action would have negligible impacts on the rate of recharge of the surficial aquifer underlying Patrick SFB. With implementation of the BMPs listed in Section 4.7.1.7, the Proposed Action is not anticipated to significantly impact groundwater.

4.7.1.5 Water Quality

4.7.1.5.1 Operational Activities

The Proposed Action would increase impervious surfaces at Patrick SFB by approximately 770,000 SF (approximately 17.7 acres), which could increase surface water runoff and result in long-term, adverse impacts to water quality. New construction would utilize existing impervious areas to the maximum extent that is reasonable and feasible. Table 4-4 summarizes the approximate anticipated change in impervious surface for each project alternative, which accounts for areas of proposed new construction and demolition of existing impervious surfaces. Four repair projects (R1, R3, R4, and R5) would not result in an increase in impervious area compared to the No-Action Alternative.

Long-term, adverse impacts to water quality would be avoided by incorporating runoff treatment measures that are consistent with Patrick SFB TMDL commitments for the Banana River Lagoon watershed. The potential for stormwater non-point source pollution at Patrick SFB is typically minimized by storage and treatment of runoff in retention ponds and swales and BMPs (Section 4.7.1.7) to reduce runoff of potential contaminants, such as petroleum products from asphalt surfaces and other hazardous materials from work areas, that may discharge to surface waters during severe rainfall events (USAF 2012).

Projects C3, D1-D3, and R2 would provide a long-term benefit to water quality. Proposed demolition projects within the airfield operation CZ (Projects C3 and D1-D3) would result in a decrease of approximately 36,000 SF (0.8 acres) of impervious surface. These sites may be graded to provide additional stormwater management for surrounding impervious areas as part of the Patrick SFB TMDL compliance plan. The relocation of the main sewer lift station (Project R2) would reduce the risk of sewage discharge into the Banana River. Overflow protection measures and additional storage tank capacity would also minimize the risk of a sewage leak or spill into the Banana River. Given these proposed water quality improvements and the implementation of the BMPs listed in Section 4.7.1.7, no significant impacts to water quality during the operational phase of the Proposed Action are anticipated.

Table 4-4. Change in Impervious Area by Project Alternative

Project ID	Project Name	Action Alternative	Planning Area	Total Project Area (SF)	Change in Impervious Surface Area (SF)
C1	Construct SLD 45 Headquarters	C1	SAMSA	300,000	145,000
C2	Construct Lodging Facility	C2	NAA	115,000	115,000
C3	Construct SLD 45/JA Facility	C3-1	NAA	15,000	-9,000
C4	Construct 3-Bay C-130J Hangar	C4	AOA	210,000	210,000
C5	Construct 920 RQW Equipment Storage Facility	C5-1	AOA	6,300	0
		C5-2		24,300	18,000
		C5-3		11,300	0
C6	Construct 920 RQW Aquatic Training Center	C6	NMSA	8,000	8,000
C7	Construct 45 CES Administration, Operations, and Storage Complex	C7	SAMSA	220,000	220,000
N1	Improve Space Lift Avenue	N1-1	NAA	30,000	11,800
		N1-2		15,000	11,800
N2	Construct Low-impact Recreation Area	N2	CRA	37,000	37,000
N3	Construct Multi-use Path from A1A East Gate to South Gate	N3-1	Multi	121,600	43,700
		N3-2		88,000	10,000
R1	Repair and Upgrade 750 Ramp Lighting	R1	AOA	0	0
R2	Relocate Main Sewer Lift Station (Building 650)	R2-1	NAA	4,500	4,500
		R2-2	NMSA	4,500	4,500
		R2-3	NAA	4,500	4,500
R3	Improve RV Sites at FAMCAMP	R3	CRA	42,000	0
R4	Improve MSA Capacity	R4	SAMSA	9,900	0
R5	Repair Marina Bulkhead	R5	SRA	7,600	0
D1	Demolish Building 556	D1	NAA	8,861	-8,861
D2	Demolish Building 560	D2		9,107	-9,107
D3	Demolish Building 561	D3		8,996	-8,996
D4	Demolish Building 961	D4	SAMSA	6,235	-6,235

NAA: North Administration Area; AOA: Airfield Operations Area; NMSA: North Mission Support Area; CRA: Central Recreation Area; SAMSA: South Administration and Mission Support Area; SRA: South Recreation Area; Multi: Multiple Planning Districts

4.7.1.5.2 Demolition and Construction Activities

The Proposed Action may have short-term, negligible impacts on water quality as a result of increases in erosion and sedimentation during periods of construction or demolition. Disturbed soils and hazardous substances could directly impact water quality during a major rain event; however, through the use of BMPs, as outlined in Section 4.7.1.7, no significant impacts are anticipated.

4.7.1.6 Coastal Zone Consistency

USSF will submit an analysis of the CZMA Consistency Determination (Appendix B) and request concurrence with these determinations from FDEP's Florida State Clearinghouse for the proposed construction actions as part of the public availability of the Draft EA. It is anticipated that the Proposed Action would be consistent with the CZMA and FCMP. Agency correspondence and coastal zone consistency will be included as an attachment to the Final EA.

4.7.1.7 Mitigation/Best Management Practices

A jurisdictional determination of the surface waters and wetlands within project areas would be conducted during the state and federal permitting process. During design and permitting, efforts would be made to minimize impacts to water resources to the greatest extent practicable.

Pursuant to Chapter 62-330, FAC, any construction within surface waters or wetlands or alteration of a stormwater management system requires an ERP from SJRWMD to ensure that activities would not be harmful to the water resources or inconsistent with the public interest. A CWA Section 404 permit and a Section 401 water quality certification would be required prior to any dredge and/or fill actions within federally jurisdictional wetlands. Permit conditions would specify BMPs and mitigation measures required to prevent fugitive soil, sediment, and other potential contaminants from entering water bodies and wetlands. Such conditions could include minimization of earth-moving activities during wet weather/conditions, covering soil stockpiles, installation of silt fencing and sediment traps, and revegetation of disturbed areas with native plants as soon as possible to contain and prevent any off-site migration of sediment or eroded soils from the project areas. If necessary, USACE, SLD 45, and SJRWMD would identify mitigation required to offset impacts to jurisdictional wetlands and surface waters. Floodplain impacts would be further evaluated during the design and permitting process for each project, and impact and compensation approval would be processed through the ERP program with the SJRWMD.

Any increase in surface water runoff as a result of proposed construction would be attenuated through the use of temporary and/or permanent drainage management features in accordance with UFC 3-210-10, *Low Impact Development* and the Energy Independence and Security Act (42 USC 17001 et seq). The integration of low-impact development design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area. Site planning design, construction, and maintenance strategies would be implemented to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of any property where the project exceeds 5,000 SF.

Additionally, Patrick SFB is a stakeholder in the Banana River BMAP (FDEP 2021). During design, projects may qualify for TMDL credits by incorporating non-structural practices (e.g., such as public education, litter cleanup, monitoring and data collection, and fertilizer reduction) and structural projects (e.g., ponds, wetland filters, shoreline stabilization projects, and stormwater retrofit applications). Water quality treatment requirements and TMDL credits would be calculated and documented within the ERP of each applicable project prior to construction.

4.7.2 No-Action Alternative

Under the No-Action Alternative, none of the proposed construction or demolition activities would occur; therefore, there would be no change to floodplains and groundwater. Since no new facilities would be constructed, only the existing facilities would be subject to future sea level rise predictions. Maintaining existing infrastructure (i.e., not relocating the main lift station or replacing the marina bulkhead) could result in long-term, adverse impacts to wetlands, surface waters, and water quality.

4.8 BIOLOGICAL RESOURCES

Impacts to biological resources were analyzed based on physical impacts, habitat alteration/loss (including land clearing), and short-term disturbance to plant and animal resources. The analysis considered potential impacts to vegetation and habitat, EFH, wildlife, critical habitat and sensitive species. The potentially affected plant and animal resources are identified based on habitat type and previously documented occurrences within and near the proposed project areas. The anticipated conditions of each project were compared with baseline conditions as described in Section 3.8 and within the context of regional habitat availability and species populations, and a determination was made as to whether impacts would be adverse. An adverse impact would degrade habitat quality or diminish species population health. A significant adverse impact would be one that is likely to jeopardize the continued existence of a species or result in an overall decrease in population diversity, abundance, or fitness.

4.8.1 Proposed Action

Based on analysis presented below, short-term, negligible to minor, adverse impacts to biological resources have been identified due to minor habitat loss and alteration. However, none of the projects within the Proposed Action are likely to jeopardize the continued existence of a species or result in an overall decrease in population diversity, abundance, or fitness. Therefore, the Proposed Action is not anticipated to result in significant impacts on biological resources, as described in the following subsections.

4.8.1.1 Vegetation and Habitat

The Proposed Action would occur in developed, improved, or maintained areas of Patrick SFB, and long-term, adverse impacts to vegetation and habitat would be minor. Examples of affected areas include existing facilities and associated parking lots, landscaped or mowed parcels, closed landfill sites, recreational areas, and roadside shoulders. Although a small number of wildlife species may occur in such areas (generally those tolerant of human presence and activity), the limited habitat value substantially decreases the biological importance of these areas, and significant impacts to vegetation and habitat are not anticipated.

4.8.1.2 Essential Fish Habitat

The Proposed Action may result in short-term, negligible to minor, adverse impacts to EFH. Eighteen of the proposed projects do not contain EFH and, therefore, would have no impact on EFH. Project R5, may impact EFH and is further discussed below.

Project R5: Repair Marina Bulkhead

Action Alternative: Repair of the existing bulkhead at F Dock may result in impacts to less than 0.5 acres of mangroves, which provide EFH. During design and permitting, the impacts (if any) would be defined and coordinated with USACE and NMFS, as needed. The project design and construction would employ impact avoidance and minimization measures, including designs that minimize the construction footprint, erosion control measures, and BMPs for construction (Section 4.8.1.6).

Mangrove impacts would be calculated as an impact to EFH and wetlands during the design and permitting of this project and mitigation would be provided for each category prior to construction. No significant impacts to EFH are anticipated.

No-Action Alternative: No direct impacts to EFH are anticipated as a result of this alternative; however, if the bulkhead were not repaired and failed during a storm event, mangrove vegetation, which provides EFH, could be damaged.

4.8.1.3 Wildlife

The Proposed Action could result in short-term, minor, adverse impacts to wildlife. Locally and regionally common wildlife species are expected to occur within and adjacent to the proposed project areas. Because Patrick SFB is largely developed, the Proposed Action would result in only minor vegetation removal. Wildlife may be impacted by removing foraging and/or nesting habitat, causing disturbance behavior, or directly injuring or taking individuals; however, these impacts are not anticipated to diminish species population health or jeopardize the continued existence of a species. Wildlife could also be temporarily disturbed or displaced due to increased noise and human activity associated with construction or demolition. It is expected that these effects would be short-term and would affect only animals in the immediate project areas. 45 CES/CEIE would conduct species surveys prior to project construction/demolition to avoid potential impacts to active wildlife. Therefore, with the implementation of the BMPs in Section 4.8.1.6, no significant impacts to wildlife are anticipated.

4.8.1.4 Critical Habitat

The Proposed Action could result in short-term, negligible impacts to critical habitat. Eighteen of the proposed projects do not contain critical habitat and would not impact critical habitat. Project R5, may result in short-term, negligible impacts to West Indian manatee critical habitat (Figure 4-5) and is further discussed below.

Project R5: Repair Marina Bulkhead

Action Alternative: Project R5 occurs adjacent to the Banana River, which is federally designated as critical habitat for the West Indian manatee (Figure 4-5). Project design and construction would implement impact avoidance and minimization measures, including designs that minimize the construction footprint, erosion control measures, BMPs for construction (Section 4.8.1.6), and *Standard Manatee Conditions for In-Water Construction* (FWC 2011). It is anticipated that impacts to the manatee critical habitat would only be temporary in nature since the intent of the project is to repair the existing bulkhead and associated facilities at F Dock. No significant impacts are anticipated.

No-Action Alternative: No direct impacts to critical habitat are anticipated as a result of this alternative; however, if the bulkhead were not repaired and failed during a storm event, areas of the Banana River in the vicinity may be impacted by damage to the marina (e.g., increased debris and water pollution).

4.8.1.5 Sensitive Species

The project areas provide minimal habitat to support sensitive species. Due to the lack of suitable habitat and no documented occurrences from wildlife surveys in the vicinity of the project areas, it is anticipated the Proposed Action would have *no effect* on the federally protected Florida scrub-jay, red knot, piping plover, eastern black rail, giant manta ray, oceanic whitetip shark, North Atlantic right whale, southeastern beach mouse, Carter's mustard, Lewton's polygala, short-leaved rosemary, sand-dune spurge, bald eagle, and migratory birds. *No effect* to the American alligator is

anticipated because Patrick SFB is not within the range of the American crocodile and due to the high mobility of this species. Similarly, the Proposed Action would have *no effect* on the state-listed American oystercatcher and state-listed plants based on no documented occurrences during wildlife surveys and lack of suitable habitat within the project areas.

Sensitive species that would potentially be impacted by the Proposed Action include: wood stork, Atlantic sturgeon, smalltooth sawfish, West Indian manatee, Atlantic saltmarsh snake, eastern indigo snake, sea turtles, gopher tortoise, Florida burrowing owl, black skimmer, least tern, little blue heron, reddish egret, tricolored heron, roseate spoonbill, and several species of bats. Project areas contain suitable habitat and/or documented occurrences for these species. Further detail and anticipated effects determinations for these species are provided below. Informal ESA consultation would be required to provide concurrence with these effect determinations. Agency correspondence will be included upon receipt in the Final EA. With the implementation of the BMPs listed in Section 4.8.1.6, the Proposed Action is not anticipated to have a significant impact on sensitive species.

4.8.1.5.1 Federally Listed Species

Wood Stork

There are no wood stork colonies documented within the proposed project areas. Three proposed projects contain suitable foraging habitat for wood stork (Table 4-5; Figures 4-2 and 4-5) and are within core foraging areas of three wood stork colonies.

Table 4-5. Proposed Projects Within Wood Stork Foraging Habitat

Project ID	Project Name	Action Alternative	Planning Area	Wood Stork Habitat Impacts (SF)
C4	Construct 3-Bay C-130J Hangar	C4	AOA	1,100
C7	Construct 45 CES Administration, Operations, and Storage Complex	C7*	SAMSA	2,100
R4	Improve MSA Capacity	R4	SAMSA	No permanent impacts anticipated. BMPs would be implemented during construction to minimize temporary impacts.
AOA: Airfield Operations Area; SAMSA: South Administration and Mission Support Area				

Collectively these projects would impact less than 0.5 acre of suitable wood stork foraging habitat. When following the *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida* (USFWS 2010), it is anticipated the Proposed Action would result in a *may affect, but not likely to adversely affect* determination.

No-Action Alternative: No impacts to wood stork populations are anticipated as a result of this alternative.

Atlantic Sturgeon/Smalltooth Sawfish/West Indian Manatee/Atlantic Salt Marsh Snake

Project R5: Repair Marina Bulkhead

Action Alternative: Replacement of the bulkhead at F Dock may result in short-term impacts to Atlantic sturgeon, smalltooth sawfish, manatees, and Atlantic salt marsh snakes within the vicinity of the project; however, the proposed project is not anticipated to adversely affect these species.

The proposed project does not occur within designated critical habitat for the Atlantic sturgeon or smalltooth sawfish (NOAA Fisheries 2009), and there are no documented occurrences from the project area. In-water work on Project R5 would implement the *Sea Turtle and Smalltooth Sawfish*

Construction Conditions (NMFS 2006) during construction to reduce potential impacts to both species. Additionally, sheet-pile walls would be driven with a vibratory hammer using a soft start and pile driving would cease if sensitive species were observed in the area to minimize adverse impacts due to sound vibrations. Therefore, a *may affect, but not likely to adversely affect determination* is anticipated for these species.

This project would also implement the *Standard Manatee Conditions for In-Water Work* (FWC 2011) during construction and the conservation measures in the *Effect Determination Key for the Manatee in Florida* (USACE 2013). With these commitments, it is anticipated that the Proposed Action would result in a *may affect, but not likely to adversely affect* determination for the manatee.

This project includes impacts to mangroves, which is a preferred habitat of the Atlantic salt marsh snake. Due to the small impact area, minimal suitable habitat, and lack of documented occurrences, it is anticipated that the Proposed Action would result in a *may affect, but not likely to adversely affect* determination for the Atlantic salt marsh snake.

No-Action Alternative: No impacts to Atlantic sturgeon, smalltooth sawfish, West Indian manatee, and Atlantic salt marsh snake populations are anticipated as a result of this alternative.

Eastern Indigo Snake

The eastern indigo snake has not been documented in the vicinity of the proposed project areas. However, due to the potential presence of gopher tortoise burrows, the proposed projects would implement the *Standard Protection Measures for the Eastern Indigo Snake* (USFWS 2013a) during construction. Therefore, following the *Eastern Indigo Snake Programmatic Effect Determination Key* (USFWS 2013b), it is anticipated that the Proposed Action would result in a *may affect, but not likely to adversely affect* determination.

Gopher Tortoise

All project alternatives that contain open, grassy areas could impact gopher tortoises as this species utilizes open habitat (e.g., lawns/green space, open lots, airfields, and road rights-of-way), is tolerant of human activity, and has been observed at Patrick SFB. Species-specific surveys would be conducted within suitable habitat during the design and permitting phase of each project in accordance with the SLD 45 INRMP (USAF 2020a) and FWC species guidelines (FWC 2008, revised 2020). Should a gopher tortoise burrow(s) be identified within the project impact area, gopher tortoises would be relocated as outlined in the SLD 45 INRMP. In addition, 45 CES/CEIE would monitor for gopher tortoise activity throughout the project's construction. Based on these measures, combined with the BMPs listed in Section 4.8.1.6, it is anticipated that the proposed project would result in a *may affect, but not likely to adversely affect* determination for the gopher tortoise. If the ESA listing status changes for the gopher tortoise, ESA consultation would be conducted prior to the start of construction.

Sea Turtles

The Proposed Action would not impact beach or dune habitat and, therefore, no direct impacts to sea turtle nesting activities are anticipated. However, impacts to nesting/hatching and swimming sea turtles are possible as a result of two projects, which are described in further detail below.

Project R1: Repair and Upgrade 750 Ramp Lighting

Action Alternative: Upgrading the lighting at the 750 ramp has the potential to impact sea turtle nesting and disorient hatchlings (Figure 4-2). Changes to exterior lighting at Patrick SFB require consultation to ensure adherence to the active BO for sea turtle protection through light management (FWS Log #4190-2009-F-0087). A lighting management plan to minimize impacts to

sea turtles has been developed for Project R1 and consultation under Section 7 of the ESA is ongoing and would continue as part of this project. Through this consultation and with the BMPs listed in Section 4.8.1.6, it is anticipated that the proposed project would result in a *may affect, but not likely to adversely affect* determination for marine turtles.

No-Action Alternative: No impacts to sea turtle populations are anticipated as a result of this alternative.

Project R5: Repair Marina Bulkhead

Action Alternative: This project may impact potential foraging habitat for sea turtles within the marina channel (Figure 4-5). The *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS 2006) would be implemented during construction to reduce potential impacts. Based on these measures, combined with the BMPs listed in Section 4.8.1.6, it is anticipated that the proposed project would result in a *may affect, but not likely to adversely affect* determination for swimming marine turtles.

No-Action Alternative: No impacts to sea turtle populations are anticipated as a result of this alternative.

4.8.1.5.2 State-listed Species

Florida Burrowing Owl

All project alternatives that contain open, grassy areas could impact Florida burrowing owls as this species utilizes open habitat (e.g., lawns/green space, open lots, airfields, and road rights-of-way), is tolerant of human activity, and has been observed at Patrick SFB. Species-specific surveys would be conducted within suitable habitat during the design and permitting phase of each project in accordance with the SLD 45 INRMP (USAF 2020a) and FWC species guidelines (FWC 2019a). If burrowing owls were observed, construction would be prohibited during the breeding/nesting season (February-July). In addition, 45 CES/CEIE would monitor for burrowing owl activity throughout the project's construction. Given these measures and the BMPs listed in Section 4.8.1.6, *no adverse effect* is anticipated on Florida burrowing owls from the Proposed Action.

Florida Sandhill Crane

The Florida sandhill crane may forage within green space areas on Patrick SFB, and proposed construction may temporarily impact this species. No nesting habitat or observed nests are documented from the proposed project areas, and no impacts are proposed to shallow wetlands that would provide habitat for breeding, roosting/nesting, and sheltering. If sandhill cranes were observed during project design and permitting, conservation measures would be coordinated with FWC in accordance with the most current species guidelines (FWC 2016a). In addition, 45 CES/CEIE would monitor for sandhill crane activity throughout the project's construction. Given these measures and the BMPs listed in Section 4.8.1.6, *no adverse effect* is anticipated on Florida sandhill cranes from the Proposed Action.

Southeastern American Kestrel

The southeastern American kestrel has been observed on Patrick SFB, and proposed construction within open, grassy habitat may impact this species. If kestrels were observed during project design and permitting, conservation measures would be coordinated with FWC in accordance with the most current species guidelines (FWC 2020). In addition, 45 CES/CEIE would monitor for kestrel activity throughout the project's construction. Given these measures and the BMPs listed in Section 4.8.1.6, *no adverse effect* is anticipated on southeastern American kestrels from the Proposed Action.

Least Tern and Black Skimmer

Least terns and black skimmers could be impacted by projects with proposed exterior renovations, including roofing and painting projects (e.g., Project C3) and demolition of any flat roof facilities (e.g., Projects C1, C3, C7, and D1-D4). Roofing and painting on or near gravel flat roof facilities and demolition of flat roof facilities would avoid active nesting roofs with eggs or chicks. Regulations prohibit harming or destroying eggs/chicks or harassing nesting adults. These type projects would be avoided during nesting season, April-August. For flat top roof facilities near the airfield, BASH personnel can deter initial nesting under the USFWS migratory bird depredation permit. Terns and skimmers generally switch to another flat gravel roof or leave the area entirely when BASH is implemented. Given these measures and the BMPs listed in Section 4.8.1.6, *no adverse effect* is anticipated on least terns and black skimmers from the Proposed Action.

Little Blue Heron, Reddish Egret, Tricolored Heron, and Roseate Spoonbill

No wading bird rookeries are documented within the proposed project areas; however, as stated above for wood stork, three proposed projects contain suitable foraging habitat for wading birds (Table 4-5; Figures 4-2 and 4-5). Collectively these projects would impact less than 0.5 acre of suitable wading bird foraging habitat. Given the implementation of the BMPs listed in Section 4.8.1.6, *no adverse effect* is anticipated on state-listed wading birds from the Proposed Action.

Bats

Five species of bats have been found at Patrick SFB with varying population levels. Bats use palm trees and facilities at Patrick SFB for roosting/breeding. Bats could be impacted by projects with proposed building demolition (e.g., Projects C1, C3, C7, and D1-D4) and exterior renovations, such as roofing and painting (e.g. Project C3). Project C1 includes the demolition of Building 989, which had documented bat colonies and exclusion requirements prior to previous demolition activities. Projects involving tree removal and palm tree trimming as well as facility demolition would not occur from April to August during bat maternity season. Any exclusion required prior to facility demolition would be conducted in accordance with Florida laws. Given the implementation of these measures and the BMPs listed in Section 4.8.1.6, *no adverse effect* is anticipated on state-protected bat species from the Proposed Action.

4.8.1.6 Mitigation/Best Management Practices

The Proposed Action is not anticipated to result in significant impacts on biological resources. However, the project footprint, design, and all potential staging areas would be surveyed and evaluated for potential impacts to protected species and habitat prior to construction and demolition. If required, species-specific surveys would be conducted at the appropriate time of the year prior to construction and demolition and would follow established survey protocols approved by USFWS and FWC. Designs would be reviewed to determine potential impacts to listed species, especially exterior lighting, facility orientation, interior lighting being visible to the exterior (tinting/glazing), and the use of occupancy sensors to reduce impacts to listed sea turtles that nest/hatch on Patrick SFB beaches.

In addition to conducting an evaluation of each project site, Patrick SFB is committed to implementing species and habitat conservation measures outlined in the SLD 45 INRMP (USAF 2020a) and following project and species-specific construction conditions to prevent or reduce future conflicts with sensitive species. Examples of conservation measures and construction conditions that would apply to projects within the Proposed Action include:

- Utilize the *Effect Determination Key for the Manatee in Florida* (USACE 2013) and adhere to the *Standard Manatee Conditions for In-Water Work* (FWC 2011) and the *Sea Turtle and*

Smalltooth Sawfish Construction Conditions (NMFS 2006) for all in-water construction activities, including dredging and docks/pilings repair and replacement.

- Protect mangroves as much as practical or provide mitigation for unavoidable impacts per the MSFCMA.
- Incorporate silt fencing into project design to reduce the amount of soil disturbance into wetlands, canals, or other bodies of water adjacent to project areas.
- Minimize to the greatest feasible extent impacts to potential foraging habitat of wood storks and other avian species foraging in tidal habitats or low-lying areas.
- Implement 45 SWI 32-7001, *Exterior Lighting Management* for all new construction, demolition, and projects requiring new exterior lighting or lighting for night work during sea turtle season.
- Consult with USFWS to ensure changes to exterior lighting at Patrick SFB comply with the active BO for sea turtle protection through light management (FWS Log #4190-2009-F-0087).
- Add perch deflectors, if feasible, to new lighting fixtures near the airfield to reduce BASH impacts to federal trust species.
- Implement BMPs in accordance with MBTA and BGEA to the most practical extent possible for all new building construction.
- Limit construction and demolition activities to daylight hours during sea turtle nesting/hatching season, May 1 to October 31, to reduce the potential indirect impacts to nesting/hatching sea turtles.
- Before construction/demolition begins, conduct general wildlife and site-specific surveys for gopher tortoise burrows, eastern indigo snake potential refugia, roosting (bats), and nesting activity in suitable habitat and facilities with potential wildlife use. If wildlife, burrows, and/or nests were found in the project locations, implement protection measures as directed by SLD 45 CES/CEIE and methodologies outlined in the SLD 45 INRMP (USAF 2020a).
- Conduct Florida burrowing owl surveys within suitable habitat well in advance of project construction, and, if the species was present, avoid construction during the breeding/nesting season (February–July).
- Adhere to *Standard Protection Measures for the Eastern Indigo Snake* (USFWS 2013a) and SLD 45 Eastern Indigo Snake Protection/Education Plan when conducting land disturbing activities.
- Conduct project activities outside of shorebird nesting season, when practicable; clear project sites only when ready to build to avoid creating a potential nesting site if left unattended for an extended period; and, if necessary, monitor project locations during the nesting season prior to clearing, demolition, or construction activities to ensure no active nests are present. If nesting and/or chicks were observed within or close to an active work site, including facility flat gravel roof tops, suspend work until active nesting is complete and coordinate with FWC and/or USFWS as required to determine nest buffers and other avoidance and minimization measures.

4.8.2 No-Action Alternative

Under the No-Action Alternative, biological resources, including existing habitats and wildlife species distribution, would be maintained in their current states. Therefore, the No-Action Alternative would have no direct impacts either beneficial or adverse on biological resources. However, maintaining existing infrastructure (i.e., not replacing the marina bulkhead) could indirectly impact species habitat adjacent to the marina.

4.9 CULTURAL RESOURCES

This section documents potential impacts to cultural resources, including traditional, historic, and prehistoric resources, located within and adjacent to the proposed project areas. The analysis of potential cultural resource impacts focused on historic structures that may be impacted by the Proposed Action, including activities such as ground clearing, road/infrastructure construction, and facility demolition/renovation/construction.

Potential impacts to cultural resources can occur by physically altering, damaging, or destroying a resource or by altering characteristics of the surrounding environment that contribute to the resource's significance. Resources can also be impacted by neglecting the resource to the extent that it deteriorates or is destroyed. Adverse effects may occur when these activities intersect with identified NRHP-listed or eligible resources.

4.9.1 Proposed Action

The Proposed Action could impact cultural resources; however, any adverse effects would be mitigated prior to project implementation, and no significant impacts are anticipated. All projects will be evaluated through NHPA consultation with SHPO to determine potential project impacts. Thirteen of the proposed projects do not contain archaeological sites, historic structures, historic districts, cemeteries, sacred sites, TCPs, or other resources identified as eligible for listing on the NRHP and are not anticipated to impact known cultural resources. Six projects have the potential to impact cultural resources identified in the SLD 45 ICRMP (USAF 2015a), as described in more detail below.

Project C1: Construct SLD 45 Headquarters

Action Alternative: This alternative would result in permanent impacts to Buildings 423 and 989, which are both eligible for listing on the NRHP (Figures 4-1 and 4-4). The interior of Building 423 would be renovated; however, the exterior of the building would not be altered. Building 989 would be demolished. Prior to the demolition of Building 989, any adverse effects would be resolved with SHPO, and any required actions would be integrated into the Mitigation Monitoring Plan for the Proposed Action. Through this coordination and the implementation of the BMPs listed in Section 4.9.1.1, this alternative is not anticipated to significantly impact cultural resources.

No-Action Alternative: Maintaining Buildings 423 and 989 in their current state without major renovation may result in the eventual deterioration of the resources.

Projects C4 (Construct 3-Bay C-130J Hangar), C5 (Construct 920 RQW Equipment Storage Facility), and R1 (Repair and Upgrade 750 Ramp Lighting)

Action Alternative: These projects occur within the Patrick AFB Facilities Landplane Historic District. The proposed construction and improvement projects would not significantly impact the characteristics of the historic district.

No-Action Alternative: No impacts to cultural resources would occur as a result of this alternative.

Project R2: Relocate Main Sewer Lift Station (Building 650)

Alternatives R2-1: This alternative occurs within the BRNAS Historic District. Construction of the lift station would not significantly impact the characteristics of the historic district.

Alternatives R2-2 and R2-3: No impacts to cultural resources would occur as a result of this alternative.

No-Action Alternative: No impacts to cultural resources would occur as a result of this alternative.

Project R4: Improve MSA Capacity

Action Alternative: This alternative occurs within the High Explosive Storage Facility Historic District. This is a renovation project that would maintain the function of the MSA and would not significantly impact the characteristics of the historic district.

No-Action Alternative: No impacts to cultural resources would occur as a result of this alternative.

4.9.1.1 Mitigation/Best Management Practices

In compliance with Section 106 of the NHPA and as forth in the SLD 45 ICRMP (USAF 2015a), coordination/consultation with SHPO is ongoing to determine if the projects within the Proposed Action would impact cultural resources and historic properties. All adverse effects would be fully resolved prior to any demolition, construction, or renovation.

Should prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement be encountered, subsurface disturbance in the vicinity of the discovery would cease. The Patrick SFB Cultural Resource Manager would be notified, and activities would not resume without verbal and written authorization from SHPO.

4.9.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur and, therefore, no impacts to cultural resources would occur and the existing historic structures would continue to be maintained in their current state. Long-term, the maintenance of outdated facilities, without major renovation, may result in the eventual deterioration of the resources.

4.10 LAND USE

The land use impact assessment methodology determines the degree to which land use would be affected the Proposed Action. Significance of potential land use impacts is based on the level of land use sensitivity in affected areas. Land use impacts would be significant if they:

- Were inconsistent or noncompliant with applicable land use plans or policies.
- Precluded the viability of existing land use.
- Precluded continued use or occupation of an area.
- Were incompatible with adjacent or land uses in the vicinity to the extent that public health or safety is threatened.
- Conflicted with airfield planning criteria established to ensure the safety and protection of human life and property.

4.10.1 Proposed Action

Construction and operation of the Proposed Action would have no impact on land use. Each project is consistent with current and future land uses as determined by Patrick SFB and documented in installation planning documents and supports the installation's long-range facility development plan. The existing land use, future land use, and compatibility for each proposed project are provided in Table 4-6.

Table 4-6. Land Use Compatibility Summary

Project ID	Project Name	Action Alternative	Planning Area	Existing Land Use	Future Land Use	Compatibility
C1	Construct SLD 45 Headquarters	C1	SAMSA	Admin	Admin	Compatible
C2	Construct Lodging Facility	C2	NAA	Open Space	Lodging	Compatible - lodging would be adjacent to training and community support facilities
C3	Construct SLD 45/ JA Facility	C3-1	NAA	Community Commercial	Admin	Compatible
C4	Construct 3-Bay C-130J Hangar	C4	AOA	Airfield Operations/ Industrial	Airfield Operations	Compatible
C5	Construct 920 RQW Equipment Storage Facility	C5-1, C5-2, C5-3	AOA	Airfield Operations/ Industrial	Airfield Operations	Compatible
C6	Construct 920 RQW Aquatic Training Center	C6	NMSA	Open Space	Industrial	Compatible – facility would support 920 RQW
C7	Construct 45 CES Administration, Operations, and Storage Complex	C7	SAMSA	Open Space/ Industrial	Open Space/ Industrial	Compatible
N1	Improve Space Lift Avenue	N1-1, N1-2	NAA	Housing/ Open Space	Admin/ Lodging	Compatible - lodging facilities would be demolished for proposed A1A East Gate
N2	Construct Low-impact Recreation Area	N2	CRA	Open Space	Outdoor Recreation	Compatible – See Section 4.13.1.3, Table 4.7 for more detail
N3	Construct Multi-use Path from A1A East Gate to South Gate	N3-1, N3-2	Multi	Various	Various	Compatible
R1	Repair and Upgrade 750 Ramp Lighting	R1	AOA	Airfield Operations	Airfield Operations	Compatible
R2	Relocate Main Sewer Lift Station (Building 650)	R2-1	NAA	Industrial	Airfield Operations	Compatible
		R2-2	NMSA	Industrial	Industrial	Compatible
		R2-3	NAA	Industrial	Industrial	Compatible
R3	Improve RV Sites at FAMCAMP	R3	CRA	Outdoor Recreation	Outdoor Recreation	Compatible
R4	Improve MSA Capacity	R4	SAMSA	Industrial - Fuels and Munitions	Industrial - Fuels and Munitions	Compatible
R5	Repair Marina Bulkhead	R5	SRA	Outdoor Recreation	Outdoor Recreation	Compatible

Project ID	Project Name	Action Alternative	Planning Area	Existing Land Use	Future Land Use	Compatibility
D1–D3	Demolish Buildings 556, 560, and 561	D1–D3	NAA	Admin	Airfield Operations	Compatible - demolition projects are within airfield operation CZ
D4	Demolish Building 961	D4	SAMSA	Industrial	Industrial	Compatible

Admin: Administrative; NAA: North Administration Area; AOA: Airfield Operations Area; NMSA: North Mission Support Area; CRA: Central Recreation Area; SAMSA: South Administration and Mission Support Area; SRA: South Recreation Area; Multi: Multiple Planning Districts

The Proposed Action would implement future development planning strategies outlined in UFC 2-100-01. These strategies support and are consistent with the DoD-wide installation planning philosophy to develop a sustainable platform to support the effective execution of assigned missions as efficiently as possible, thus adopting the future planning recommendations as established in the DDP. The construction and implementation of the Proposed Action is consistent and compatible with future land uses as determined by SLD 45. Although the Proposed Action would occur within the base, it would also be compatible with adjacent land use. Furthermore, USSF would continue to coordinate with stakeholders as the Proposed Action advances. Therefore, the Proposed Action would have no significant impacts on land use.

4.10.1.1 Best Management Practices

The projects within the Proposed Action would be reevaluated every five years to ensure their implementation would be compatible with all applicable planning districts and future planning areas as defined in the DDP.

4.10.2 No-Action Alternative

Under the No-Action Alternative, there would be no additional land use impacts beyond the scope of normal conditions and influences within the land use ROI. None of the proposed facility and infrastructure construction projects, renovation/repair projects, or facility demolition projects would be implemented, and the existing land use designations at Patrick SFB would remain unchanged. Implementation of the No-Action Alternative does not follow the future planning recommendations as established by SLD 45; therefore, long-term impacts on operational efficiency would occur.

4.11 SOCIOECONOMICS

Socioeconomic impacts are assessed in terms of impacts on the local economy and related impacts on other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary greatly, depending on the location of the Proposed Action. The Proposed Action could have a significant impact with respect to the socioeconomic conditions if it were to result in at least one of the following:

- Substantial change in the local or regional economy, employment, or business volume.
- Substantial change in the local or regional population and in housing, education, installation services, or public services from the increased or decreased demands of the population change.
- Substantial change in the local housing market and vacancy rates.
- A need for new social services and support facilities.

4.11.1 Proposed Action

The Proposed Action would result in both short- and long-term, minor, beneficial impacts to the local economy and local communities within the ROI. Proposed construction, demolition, and renovation projects would stimulate the local economy through the employment of construction workers and the purchase of construction-related materials and other goods and services, as well as secondary purchases of goods and services. Due to the short-term nature of construction, the economic benefits would be temporary. Long-term benefits include improved QOL and morale by providing recreational facilities on base, improved safety at the marina and throughout the Patrick SFB community, and enhanced community cohesion and accessibility through construction of a multi-use path.

In 2019, Brevard County had a civilian employed population of 252,483 people of which 16,908 (6.7%) were employed in the construction industry (U.S. Census Bureau 2019). It is expected that the local labor force would be sufficient to meet the demand for new jobs in construction and other industries without a migration of workers into the area. In the event that construction workers contracted for the Proposed Action were obtained outside of the local or regional area, the temporary increase in the workforce during the construction phase would result in a temporary increase in local housing and lodging needs for construction workers contracted at Patrick SFB. As discussed in Section 3.11.3, the most recently published U.S. Census estimates (2019) show that Brevard County has a housing vacancy rate of 17.2%. Given current housing vacancy rates and the ongoing development of new housing units and temporary lodging, it is unlikely that temporary or permanent relocation of construction workers to Brevard County during the construction of the Proposed Action would exceed or cause significant impacts to the local housing supply.

There would be no anticipated change to the number of personnel employed or stationed at Patrick SFB as a result of the Proposed Action; therefore, no significant short- or long-term impacts on demographics or social services and conditions would be expected, including demand for housing, education, law enforcement, fire protection, emergency medical services, and medical services.

4.11.1.1 Best Management Practices

Socioeconomic factors would continually be evaluated during early project planning activities to avoid adverse impacts on the local economy and the community. Minimization efforts would include coordinating with local governments and regional planning offices that may be affected by proposed construction activities.

4.11.2 No-Action Alternative

The No-Action Alternative would not result in any additional socioeconomic impacts. The proposed construction, demolition, and renovation projects would not occur, and there would be no associated expenditures that would provide short-term construction employment or generate additional indirect and induced income beyond the scope of normal conditions and influences within the ROI or Brevard County.

4.12 ENVIRONMENTAL JUSTICE

To determine the potential for project impacts to disproportionately affect environmental justice populations, a community-level analysis of impacts was conducted. A significant impact to environmental justice would occur if any of the following were to result from the Proposed Action:

- A significant adverse impact to the natural or physical environment or to health that affected a minority or low-income population or children.

- A significant adverse environmental impact on minority or low-income populations or children that appreciably exceeded those on the general population or other comparison group.
- The risk or rate of environmental hazard exposure to a minority or low-income population was significant and exceeded those by the general population or other comparison group.
- A health or environmental effect occurred in a minority or low-income population affected by cumulative or multiple adverse exposures from environmental hazard.

4.12.1 Proposed Action

The Proposed Action would not disproportionately impact minority or low-income populations. Implementation of the Proposed Action would occur entirely on Patrick SFB. The area would not be accessible to the public and standard construction site safety precautions would reduce potential risks to minimal levels. Possible adverse effects from construction activities could include increased traffic and noise levels and decreased air quality and infrastructure capacity. These effects would be short-term, intermittent, and minor, and are not anticipated to impact off-installation populations. The possible adverse effects would impact the entire base.

The Proposed Action is anticipated to improve community cohesion and the quantity or quality of human interaction. Patrick SFB, including the environmental justice populations, would benefit from the Proposed Action through:

- Employment opportunities from construction;
- Positive economic gains in the form of increased wages and spending;
- Improved mobility through the base;
- Improved safety for pedestrians; and
- Enhanced access and connectivity throughout the base.

Based on the assessment of existing conditions and analysis of the Proposed Action, the conclusion is that none of the proposed projects would result in disproportionately high and adverse effects on any minority or low-income populations.

Implementation of the Proposed Action would have no impact on children or result in increased exposure of children to environmental health risks or safety. Activity on base would not differ substantially from that currently supported. Standard construction site safety precautions (e.g., fencing and other security measures) would reduce potential risks to minimal levels and any potential impacts to children would be negligible and short-term.

4.12.1.1 Best Management Practices

Environmental justice principles apply to planning and programming activities, and early planning activities are a critical means to avoid disproportionately high and adverse effects in programs, policies, and activities. Minimization efforts would include coordinating with emergency service providers, schools, and other community resources that may be affected by construction activities to minimize construction impacts and scheduling construction operations for off-peak hours when reasonable and feasible.

4.12.2 No-Action Alternative

The No-Action Alternative would not result in any additional environmental justice impacts. The proposed construction, demolition, and renovation projects would not occur, and there would be no impacts to environmental justice populations beyond the scope of normal conditions and influences within the ROI or Brevard County.

4.13 HAZARDOUS MATERIAL/WASTE AND SOLID WASTE

The potential impacts associated with hazardous materials/waste and solid waste depend on the toxicity, storage, use, transportation, and disposal of these substances, as well as how the Proposed Action would impact sites managed by the IRP. The threshold level of significance for hazardous materials, toxic substances, and hazardous/solid wastes is surpassed only if the storage, use, handling, or disposal of these substances substantially increases the risk to human health due to direct exposure, substantially increases the risk of environmental contamination, or violates applicable federal, state, DoD, and/or local regulations. For this analysis, a significant impact would occur if the Proposed Action:

- Resulted in the use of hazardous materials that are highly toxic or have a potential to cause severe environmental damage.
- Generated hazardous/solid waste types or quantities that could not be accommodated by the current management system.
- Disturbed an existing IRP site and resulted in the potential release of hazardous constituents or would pose an elevated safety risk to workers due to exposure to these constituents.

4.13.1 Proposed Action

The Proposed Action could have short-term, minor to moderate, adverse impacts associated with hazardous materials/waste and solid waste. However, based on the analysis presented below as compared to the criteria presented above, the Proposed Action would have no significant impacts associated with hazardous materials and waste.

4.13.1.1 Hazardous Materials Management

The Proposed Action would require hazardous materials management during the construction/renovation and operational phases. Petroleum products and other hazardous materials (e.g., paints and solvents) would be used during construction activities, and new facilities would require additional chemical storage. For all HazMat brought on base, construction contractors would submit a Transient Contractor Worksheet, which would be submitted quarterly to the installation HazMat point-of-contact as required by USAF regulations. These materials would be stored in proper containers, which employ secondary containment BMPs necessary to prevent and limit accidental spills. All spills and accidental discharges of petroleum products, hazardous materials, or hazardous wastes would be reported and mitigated. Emergency generators with integrated fuel storage tanks may be required for proposed new facilities. Design and management of new equipment would be completed in accordance with the applicable UFC and AFMAN/AFI. Operations would be completed in accordance with the Patrick SFB *Spill Prevention, Control, and Countermeasure Plan* (for petroleum, oil, and lubricant release) (USAF 2018), the Patrick SFB SWPPP (USAF 2020e), the SLD 45 HWMP (USAF 2020d), and the BMPs listed in Section 4.13.1.6. Given these measures, no significant impacts are anticipated to or from hazardous materials.

4.13.1.2 Hazardous Waste Management

Hazardous and petroleum wastes would be generated in small quantities during construction and would include empty containers, spent solvents, waste paint and solvents, used oil, spill cleanup materials, and lead-acid batteries from construction equipment. These wastes would be stored in appropriate containers and with secondary containment BMPs in accordance the SLD 45 HWMP (USAF 2020d) and applicable federal and state regulations. To further protect the adjacent areas

and waterways during construction, the construction contractor would be required to obtain a NPDES Construction Generic Permit and implement a SWPPP during construction.

Wastes that cannot be recycled would be disposed of by the contractor at licensed facilities in a manner approved by the USEPA and FDEP. No changes to existing permits, hazardous waste generator status, or management are anticipated. With the implementation of the BMPs listed in Section 4.13.1.6, no significant impacts are anticipated to or from hazardous waste.

4.13.1.3 Installation Restoration Program Sites and Per- and Polyfluoroalkyl Substances

The Proposed Action has the potential to result in short-term, minor to moderate, adverse impacts to ongoing remediation activities at IRP sites or result in worker exposure to contaminants during project implementation. Thirteen of the proposed projects would not be located within or adjacent to IRP sites; therefore, these projects would not impact, or be impacted by, contaminants within these sites. Six proposed projects (C1, C6, N2, N3, R2, and R4) are collocated with active SWMUs. An appraisal of likely potential impacts was conducted based on the existing LUCs, spatial analysis using GIS, as well as the planned activities associated with the proposed project. The results of this analysis are presented in Table 4-7. Figures 4-1 to 4-5 depict the locations of the proposed projects that occur within or adjacent to SWMUs.

Table 4-7: Impact Appraisal of Proposed Projects Within or Adjacent to SWMUs

Project ID	Project Name	Action Alternative	Planning Area	SWMU Site ID	Existing Land Use Controls	Impact Assessment
C1	Construct SLD 45 Headquarters	C1	SAMSA	P181	Soil and groundwater contamination has been confirmed at the site. Soil and groundwater sampling and assessment is ongoing. Upon remediation and closure, the site should be acceptable for unrestricted use.	Proposed construction and demolition activities would occur within most of SWMU P181 (Figure 4-4), and planned activities would require earthwork and ground disturbance to compete. The Proposed Action would result in short-term, moderate, adverse impacts to SWMU P181. Work would be coordinated with IRP. Contaminated soils would be tested and transported to an offsite disposal facility. Contact with soil (disturbance and disposal) and groundwater (i.e. geotechnical sampling, dewatering, etc.) at SWMU P181 would require additional coordination and planning with IRP/FDEP/45 CES/CEIE.

Environmental Consequences

Project ID	Project Name	Action Alternative	Planning Area	SWMU Site ID	Existing Land Use Controls	Impact Assessment
C6	Construct 920 RQW Aquatic Training Center	C6	NMSA	P033*	Limit contact with soil and groundwater.	Construction of the aquatic training center would require earthwork and ground disturbance within SWMU P033 (Figure 4-2). This area was previously disturbed as a construction staging area. Contact with groundwater would be minimized; however, the Proposed Action may result in short-term, moderate, adverse impacts to SWMU P033. Contact with soil (disturbance and disposal) and groundwater (i.e. geotechnical sampling, dewatering, etc.) at SWMU P033 would require additional coordination and planning with IRP/FDEP/45 CES/CEIE.
N2	Construct Low-impact Recreation Area	N2	CRA	P026	Limit contact with soil and groundwater and ensure that the integrity of the landfill is maintained.	The proposed project would be constructed and maintained in a manner that would protect the integrity of the former landfill and limit contact with soil and groundwater (Figure 4-3). Although adverse impacts to SWMU P026 associated with the Proposed Action would be minor, a HAZWOPER-certified person would be required onsite during work within the former landfill area. All work would be coordinated with IRP and FDEP. Contact with soil (disturbance and disposal) and groundwater (i.e. geotechnical sampling, dewatering, etc.) at SWMU P026 would require additional coordination and planning with IRP/FDEP/45 CES/CEIE.
N3	Construct Multi-use Path from A1A East Gate to South Gate	N3-1	Multi	P023, P025, P041 groundwater plume*, P045 groundwater plume, P128	Limit contact with surface water and groundwater, and soils, restrict fish consumption, and ensure that the integrity of the landfill is maintained.	Construction of the proposed trail would partially occur on unpaved areas requiring earthwork and ground disturbance (Figures 4-1, 4-4, and 4-5); however, most construction would occur on existing paved area. There is the potential for contact with surface water or ground water and earthwork within the former landfill sites; therefore, the Proposed Action would result in short-term, minor, adverse impacts on collocated SWMUs. Similar to P026, a HAZWOPER-certified person would be required on-site for all
		N3-2		P041 groundwater plume*, P128		

Environmental Consequences

Project ID	Project Name	Action Alternative	Planning Area	SWMU Site ID	Existing Land Use Controls	Impact Assessment
						work within the former landfill and all work would be coordinated with IRP and FDEP. Contact with surface water (disturbance and disposal) and groundwater (i.e. geotechnical sampling, dewatering, etc.) within SWMUs would require additional coordination and planning with IRP/FDEP/45 CES/CEIE.
R2	Relocate Main Sewer Lift Station (Building 650)	R2-1	NAA	P041 groundwater plume*	Limit contact with groundwater, and soils.	Construction of the lift station would require earthwork and ground disturbance of approximately 5,000 SF within SWMU P035 or the groundwater plume of P041 (Figures 4-1 and 4-2). Accordingly, the Proposed Action would result in short-term, minor to moderate, adverse impacts to one of these SWMUs, depending on the selected alternative. Contact with soil (disturbance and disposal) and groundwater (i.e. geotechnical sampling, dewatering, etc.) within SWMUs would require additional coordination and planning with IRP/FDEP/45 CES/CEIE.
		R2-2	NMSA	P035**		
		R2-3	NAA	P041 groundwater plume *		
R4	Improve MSA Capacity	R4	SAMSA	P024	Limit contact with surface water and groundwater, restrict fish consumption, and ensure that the integrity of the landfill is maintained.	This project involves demolition and replacement of magazines within SWMU P024 (Figure 4-5). Contact with surface waters would be avoided; however, groundwater may be encountered during demolition and construction. Therefore, the Proposed Action may result in short-term, minor, adverse impacts to SWMU P024. As with SWMU P026, a HAZWOPER-certified person would be required onsite during work within the former landfill area. All work would be coordinated with IRP and FDEP. Contact with soil (disturbance and disposal) and groundwater (i.e. geotechnical sampling, dewatering, etc.) at SWMU P024 would require additional coordination and planning with IRP/FDEP/45 CES/CEIE.

*Confirmed PFAS contamination
**Suspected PFAS contamination
NAA: North Administration Area; NMSA: North Mission Support Area; CRA: Central Recreation Area; SAMSA: South Administration and Mission Support Area; Multi: Multiple Planning Districts

Environmental Consequences

As summarized in Table 4-7, implementation of the Proposed Action could result in short-term, minor to moderate, adverse impacts to/from active SWMUs. A formal construction waiver is not currently required for construction in these sites; however, AFCEC does require that reviews of excavation and/or construction siting and compatibility with environmental cleanup sites be conducted and documented in accordance with current EIAP processes as specified in AFI 32-1015. If an IRP site is the only feasible location for an excavation or construction project, LUCs would be evaluated and addressed through coordination and consultation with IRP during the entire project design and construction process to ensure appropriate mitigation of any impacts and continued protection of human health and the environment. If the site would be modified in such a way that a land use control no longer exists or is no longer protective, then the remedy in the IRP site's decision document would need to be revisited.

Contractors working within active IRP sites would be made aware of the presence and nature of known contaminants and LUCs specific to IRP sites as part of the SLD 45 construction design review and implementation process. Pursuant to FDEP guidance, any contractor working in or near IRP sites should communicate any questions that arise before and during field activities to AFCEC IRP. Management of soil and groundwater encountered during construction, including testing, handling, and disposal procedures would be required in coordination with IRP, FDEP, and 45 CES/CEIE and in accordance with Patrick SFB protocols and applicable environmental regulations.

Worker safety during construction would be required to be in compliance with OSHA safety requirements pertaining to worker exposure and with all applicable worker safety regulations. The construction contractor would be responsible to fulfill its obligation under 29 CFR 1910.120, *Occupational Safety and Health Administration Standards, Hazardous Waste Operations and Emergency Response*, to address worker exposure to hazardous substances and proper management of soil and groundwater encountered during construction, including testing, handling, and disposal procedures.

Pursuant to 62-532.500(5), FAC, and SJRWMD requirements, the contractor should be aware of all monitoring wells, injection wells, extraction wells, sparge wells, and similar treatment facilities within each work area. If any of these wells were found within the construction and demolition area, they would need to be properly abandoned and reinstalled, as appropriate, as part of the project cost. The contractor shall submit an USAF Work Clearance Form and obtain permits from SJRWMD for any well abandonment/installation activities.

Due to groundwater contamination at Patrick SFB, activities that require dewatering with surface water discharge may require testing/characterization and installing and maintaining groundwater treatment systems for contaminants of concern during dewatering operations. If groundwater produced is contaminated and does not meet surface water standards without treatment, dewatering cannot be authorized under the Generic Permit for Stormwater Discharge from Large and Small Construction Activities or the Generic Permit for Discharge of Groundwater from Dewatering Operations. These two permits are only appropriate when surface water criteria will be met without treatment. If such activities were required by the Proposed Action, the contractor and USSF would consult with FDEP for other permitting requirements pursuant to rules for dewatering near contamination, including 62-302, FAC, *Surface Water Quality Standards*, 62-777, FAC, *Contaminant Cleanup Target Levels*, and 62-780, FAC, *Contaminated Site Cleanup Criteria*.

Given the measures described above and by following the BMPs in Section 4.13.1.6, no significant impacts to or from IRP sites are anticipated.

4.13.1.4 Asbestos-Containing Material and Lead-based Paint

Due to the age of existing facilities, demolition and renovation activities would require coordination with 45 CES/CEIE. ACM and LBP surveys would be required as part of the thorough inspection requirement for NESHAP prior to demolition. In coordination with SLD 45, the contractor would notify FDEP at least 10 working days prior to removal actions as required in 62-257 FAC. Proper disposal of ACM and lead-containing wastes would be conducted in accordance with federal regulations, including the NESHAP, TSCA, and OSHA. Transport and disposal documentation records of ACM and LBP, including signed manifests, would also be required. Implementation of these waste management requirements would minimize any potential adverse impacts resulting from ACM or LBP, and neither of these materials would be employed in new construction. Demolition of outdated facilities containing ACM and LBP would have a beneficial impact by removing contaminants from the installation. Given these measures and implementation of the BMPs listed in Section 4.13.1.6, no significant impacts are anticipated to or from ACM and LBP.

4.13.1.5 Solid Waste

The Proposed Action would result in short-term, minor, adverse impacts to solid waste through the generation of construction and demolition (C&D) debris, including concrete and asphalt rubble and scrap materials, such as wood, drywall, plastic, and masonry. Using conventional construction methods, approximately 4.34 pounds of C&D debris would be generated per SF of proposed building construction and renovation, 0.434 pounds would be generated per SF of new pavement, and approximately 158 pounds per SF would be generated from demolitions (USEPA 2003).

It is estimated that the Proposed Action would generate up to approximately 22,000 tons of C&D debris. Table 4-8 summarizes the quantities and types of demolition debris expected to be generated from each proposed project action alternative.

Table 4-8: Anticipated C&D Debris by Proposed Project Alternative

Project ID	Project Name	Action Alternative	Planning Area	BLD (SF)	REN (SF)	PAV (SF)	DEMO (SF)	Total Tons*
C1	Construct SLD 45 Headquarters	C1	SAMSA	500,000	170,000	34,000	180,000	15,681
C2	Construct Lodging Facility	C2	NAA	138,000		79,000		317
C3	Construct SLD 45/JA Facility	C3	NAA	4,500	8,500	1,500	9,000	740
C4	Construct 3-Bay C-130J Hangar	C4	AOA	140,000		70,000	6,300	817
C5	Construct 920 RQW Equipment Storage Facility	C5-1	AOA	5,000			6,300	509
		C5-2		5,000		13,000	6,300	511
		C5-3		5,000			6,300	509
C6	Construct 920 RQW Aquatic Training Center	C6	NMSA	8,000				17
C7	Construct 45 CES Administration, Operations, and Storage Complex	C7	SAMSA	70,000		120,000		178
N1	Improve Space Lift Avenue	N1-1	NAA			30,000	-	7
		N1-2				15,000	-	3
N2	Construct Low-impact Recreation Area	N2	CRA			40,000	-	9
N3	Construct Multi-use Path from A1A East Gate to South Gate	N3-1	Multi			122,000		26
		N3-2				88,000		19
R1	Repair and Upgrade 750 Ramp Lighting	R1	AOA					0
R2	Relocate Main Sewer Lift Station (Building 650)	R2-1	NAA	4,500			2,000	168
		R2-2	NMSA	4,500			2,000	168
		R2-3	NAA	4,500			2,000	168
R3	Improve RV Sites at FAMCAMP	R3	CRA			42,000	-	9
R4	Improve MSA Capacity	R4	SAMSA		10,000	-	-	22
R5	Repair Marina Bulkhead	R5	SRA		7,500			16
D1	Demolish Building 556	D1	NAA		-	-	9,000	711
D2	Demolish Building 560	D2	NAA		-	-	9,000	711
D3	Demolish Building 561	D3	NAA		-	-	9,000	711
D4	Demolish Building 961	D4	SAMSA		-	-	6,300	498

*Solid Waste Factor: 4.34 pounds/SF for building construction and renovation; 0.434 pounds/SF for pavement; and 158 pounds/SF for demolition (USEPA 2003)
BLD: building, DEMO: demolition, PAV: pavements, REN: renovation, SF: square feet; NAA: North Administration Area; AOA: Airfield Operations Area; NMSA: North Mission Support Area; CRA: Central Recreation Area; SAMSA: South Administration and Mission Support Area; SRA: South Recreation Area; Multi: Multiple Planning Districts

C&D debris would also be generated during reconstruction of paved surfaces (e.g., roads, building slabs, and sidewalks). Building materials, such as asphalt and concrete, would not be expected to generate significant waste, since they are produced in the needed quantities and can be recycled in the event that the material or its placement does not meet specifications. In the case of paved surfaces, C&D debris would most likely consist of wooden forms that could be recycled.

Uncontaminated soils excavated during construction activities would be stockpiled for construction and other uses. Construction site operations would generate other nonhazardous waste (e.g., food waste, office waste, and packaging materials). The quantity of this type of waste would be minor when compared to the C&D debris generated. The Proposed Action would not change the number of personnel or other activities that would change the quantity of municipal solid waste compared to current levels.

C&D debris would likely be disposed of at the Brevard County Sarno Landfill and Transfer Station in accordance with local, state, and federal regulations. Sufficient landfill capacity exists to accommodate the existing operational activities as well as the additional solid waste generated from construction and demolition activities. Construction activities would occur over multiple years, further limiting the quantity of debris generated at any one time. Therefore, with the implementation of the BMPs listed in Section 4.13.1.6, the Proposed Action is not anticipated to significantly impact solid waste.

4.13.1.6 Best Management Practices

The SLD 45 HWMP (USAF 2020d) includes procedures for the handling, storage, and disposal of hazardous materials. These programs and procedures are designed to prevent adverse impacts to the environment resulting from the use of hazardous materials and handling of hazardous waste. Examples of these procedures include safety and environmental awareness training for proper HazMat handling techniques and a comprehensive spill plan that establishes procedures to address spills and minimize spill impacts to the environment.

ACM and LBP surveys of affected structures would be conducted prior to demolition and renovation activities. Any ACM or LBP found would be remediated and disposed of in accordance with the SLD 45 HWMP (USAF 2020d) and in compliance with all applicable regulations.

For all projects within SWMUs, contractors would utilize PPE and limit exposure to soil or groundwater at these sites. Prior to disturbance of any potentially affected soils, contractors and AFCEC IRP would coordinate with FDEP regarding the project and potential impacts. In addition, before any work could commence, the potential presence of hazardous constituents would be communicated to workers. Work safety briefings would be implemented to protect worker health that include the distribution of material safety data sheets, safety data sheets, and discussion of safe work practices, such as the use of PPE. Should soils need to be removed, transported, treated, and/or disposed, RCRA regulations would apply to the characterization, transportation, and disposal of this material. The construction contractor would be responsible for addressing the health and safety of its employees during construction and demolition activities in accordance with OSHA safety requirements pertaining to worker exposure (29 CFR 1910.120). This includes addressing worker exposure to hazardous substances and proper management of soil and groundwater encountered during construction, including testing, handling, and disposal procedures. Management of soil and groundwater during construction would be required under all applicable environmental regulations and in coordination with AFCEC IRP, FDEP, and 45 CES/CEIE. All construction contracts would be required to comply with the SLD 45 ISWMP (USAF 2019) and AFMAN 32-7002. All recyclable material (e.g., concrete, asphalt, wood, and metals, etc.) would be

recycled and recycled quantities be reported by weight to SLD 45 Installation Management and 45 CES/CEIE.

4.13.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be implemented. Baseline conditions for hazardous materials, hazardous wastes, asbestos and LBP, SWMUs, and solid wastes, as described in Section 3.8 would remain unchanged. Therefore, no impacts would occur under this alternative. However, maintaining the existing lift station could result in long-term, adverse impacts to the remediation of SWMU Site P035 in the event of an overflow or line breakage.

4.14 INFRASTRUCTURE

The infrastructure impact analysis included the evaluation of potential impacts to the existing and future utility and transportation facilities as a result of the Proposed Action. The analysis of potential utility impacts focused on assessing the existing utility capacity to accommodate increases or decreases in usage, identifying potential problems related to connecting to existing utilities, and identifying and coordinating procedural requirements associated with establishing new utility infrastructure. Adverse impacts to utilities would include those that would result in a loss of utility service or result in harm to persons, property, or the environment.

Potential impacts to transportation were assessed with respect to the potential for disruption or change in the existing level of service and safety. Impacts may arise from physical facility changes or from construction activities. Transportation effects may arise from changes in traffic circulation, delays due to construction activity, maintenance of traffic, or changes in traffic volumes. Adverse impacts on roadway capacities would be significant if roads with no history of capacity exceedance had to operate at or above their full design capacity as a result of an action.

4.14.1 Proposed Action

Based on the analysis presented below, the Proposed Action would have an overall long-term, beneficial impact on the infrastructure at Patrick SFB, including utility and transportation facilities, as described in the following subsections.

4.14.1.1 Utilities

It is anticipated that the Proposed Action would improve the current utility infrastructure. In particular, Project R2 would improve the existing sanitary sewer infrastructure at Patrick SFB by repairing the lift station, providing additional resiliency, and reducing potential impacts to the Banana River.

New facility construction projects would connect to existing tie-in points wherever possible and maintain the existing utility infrastructure (i.e., Projects C1-C7, R2, and R5). Increases in utility usage as a result of the Proposed Action is expected to be negligible and would not add excessive demand on the existing systems or exceed permitted water or wastewater capacity ceilings. Utility-saving measures would be incorporated into the design for new construction projects and facility repair/renovations, including high-efficiency lighting upgrades, HVAC efficiency improvements, building automation and controls, water-efficient and low-flow fixtures, weather sealing, and replacement of windows and doors. Therefore, with the implementation of the BMPs below, no significant impacts to the Patrick SFB utility systems are anticipated.

4.14.1.2 Stormwater Drainage System

The Proposed Action may modify the existing stormwater drainage systems; however, no long-term impacts to system function are anticipated. Proposed increases in impervious areas are not

expected to significantly contribute to flooding. Should individual projects require new stormwater facilities or the modification of permitted stormwater facilities, an ERP would be obtained from the SJRWMD prior to construction. Two projects (i.e., C4 and C5) may directly impact an existing stormwater conveyance swale near the airfield (Figure 4-2) and are discussed in more detail below.

Project C4: Construct 3-Bay C-130J Hangar

Action Alternative: Construction of the hangar would impact approximately 6,300 SF of an existing stormwater conveyance swale and would require design measures to account for any loss of function. Modifications of this swale are anticipated to be minor and would be addressed during project design and permitting. As such, no significant impacts to the stormwater drainage system are anticipated as a result of this project.

No-Action Alternative: No new construction would occur; therefore, no impacts to the existing stormwater drainage system are anticipated to occur as a result of this alternative.

Project C5: Construct 920 RQW Equipment Storage Facility

Alternative C5-2: Construction of the storage facility in this location would impact approximately 3,000 SF of an existing stormwater conveyance swale and would require design measures to account for any loss of function. Modifications of this swale are anticipated to be minor and would be addressed during project design and permitting. As such, no significant impacts to the stormwater drainage system are anticipated as a result of this project.

Alternatives C5-1 and C5-3: No direct impacts to the existing stormwater drainage system would occur at these alternative locations.

No-Action Alternative: No new construction would occur; therefore, no impacts to the existing stormwater drainage system are anticipated to occur as a result of this alternative.

4.14.1.3 Transportation System

The Proposed Action would result in an overall improvement of the transportation infrastructure at Patrick SFB; however, short-term, minor impacts may occur during construction activities. The intent of Projects N1 and N3 is to improve transportation facilities at Patrick SFB. These projects would improve the existing sidewalk and roadway facilities by connecting pedestrian facilities, reducing potential pedestrian and vehicle conflicts, and reducing vehicle congestion.

The short-term, minor, adverse impacts associated with the Proposed Action would include increased truck traffic, traffic detours, and changes in traffic patterns. Construction would require the delivery of materials and removal of debris from demolition, renovation, and new construction projects. Trucks associated with these activities, along with construction crews, would likely use public roadways, including SR A1A and/or SR 404, to access the installation via the Commercial Vehicle Gate. Impacts related to construction activities would be temporary in nature, ending once projects are completed, and construction-related traffic would make up only a small portion of the total existing traffic volume in the area and at the installation; therefore, with the implementation of the BMPs below, no significant impacts to the Patrick SFB transportation systems are anticipated.

4.14.1.4 Best Management Practices

To avoid and minimize temporary impacts to infrastructure during construction activities, the following BMPs would be implemented:

- Submit a USAF Work Clearance Form along with a Utility Locate/Excavation Permit prior to initiation of any site work/excavation.

- Implement the Patrick SFB SWMP (USAF 2015c) for land disturbance activities of less than one acre or a site-specific construction permit for land disturbance activities of one acre of more.
- Use federally required design standards to maintain or restore predevelopment site hydrology.
- Schedule truck deliveries outside of the peak inbound traffic time and use the Commercial Vehicle Gate.
- Stage heavy construction vehicles on the installation for the duration of the construction activities, when possible.
- Coordinate changes to the installation access points, traffic patterns, or signals along SR A1A or SR 404 with Florida Department of Transportation (FDOT) and Brevard County.

4.14.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur and, therefore, no infrastructure improvements would occur, and the existing utility and transportation facilities would be maintained in their current state. Failure to improve sub-standard utilities and transportation networks could result in impacts to environmental resources, increased traffic congestion, and vehicle-pedestrian conflicts.

4.15 CUMULATIVE EFFECTS

This EA also considers the effects of past, present, and reasonably foreseeable environmental actions that may result in cumulative environmental effects when combined with the Proposed Action, in accordance with CEQ requirements. Cumulative effects can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with 40 CFR 1508.1(g), this section focuses on the effects of the Proposed Action combined with actions that are reasonably foreseeable and have a close causal relationship with the Proposed Action.

For the scenarios under consideration to have a cumulatively significant impact on an environmental resource, two conditions must be met. First, the combined impacts of all identified past, present, and reasonably foreseeable actions, including the Proposed Action, must be significant. Significance of an impact is determined based on the potentially affected environment and degree of the effects (duration and quality) of the action as defined by 40 CFR 1501.3(b) and described in Section 4.1. Second, the Proposed Action must make a substantial contribution to that significant cumulative impact.

4.15.1 Past, Present, and Reasonably Foreseeable Future Actions

The assessment of cumulative effects begins with defining the scope of other project actions and the potential interrelationship with the Proposed Action (40 CFR 1508.25). The scope of the analysis must consider other projects that coincide with the location and timetable of implementation of the proposed projects at Patrick SFB. The ROI for cumulative impacts is generally limited to Patrick SFB including adjacent sections of the Banana River and Atlantic Ocean and nearby municipalities including Brevard County, Cocoa Beach, and Satellite Beach. Physical impacts related to the Proposed Action would be largely confined to Patrick SFB.

The Patrick SFB District Development Plan (publication pending) was reviewed for present or planned actions that could result in cumulative resource impacts when combined with Proposed Action. Additionally, a review of available transportation and capital improvement plans in Brevard

County was conducted to assess the current and proposed transportation and development projects within the ROI. Documents evaluated include:

- Developments of Regional Impact (DRI) in the State of Florida (University of Florida GeoPlan Center [2021]);
- 2045 Long Range Transportation Plan (LRTP) for Space Coast Transportation Planning Organization (2020);
- Space Coast Transportation Planning Organization Transportation Improvement Program (TIP) Fiscal Years 2022-2026 (2021, as amended);
    - Brevard County Budget Office Capital Improvement Plan (CIP) from 2020-2025 (2020);
    - City of Cocoa Beach Adopted Annual Budget for Fiscal Year 2022 (2021); and
    - City of Satellite Beach Adopted Annual Budget for Fiscal Year 2022 (2021).
- FDOT District Five 5-year Work Program (2021)

According to the DRI data, there are no current or new developments proposed in the vicinity of Patrick SFB. The review of the LRTP, TIP, and Brevard County CIP revealed that there are no current or future transportation projects in the vicinity of Patrick SFB. The Cities of Cocoa Beach and Satellite Beach Adopted Annual Budgets indicate proposed projects similar to projects proposed in this EA (e.g. roadway resurfacing, water main replacement, etc.). Standard repair and maintenance projects that occur regularly throughout the ROI are not anticipated to result in cumulative effects on resources. USSF engaged with state and local agencies/municipalities throughout the preparation of this EA through the interagency coordination process as described in Section 1.7.1.

Based on the review of the development plans described above, a list of projects that could result in cumulative resource impacts when combined with Proposed Action are listed in Table 4-9.

Table 4-9. Future Development Projects Identified within the ROI

Action	Location	Project Description	Implementation Year
Patrick SFB Actions			
Construct DEOMI Building Expansion	NAA	Construct expansion on the north side of the existing DEOMI building to handle future curriculum and additional throughput.	6–10 Years
Airfield Repaving	AOA	Implement all airfield repaving planned projects.	0–5 Years
Demolish Facilities within the Airfield Operation CZ	AOA	Implement efforts to demolish facilities 533 and 556 within the CZ by 2030.	6–10 Years
Construct New General C-130J Hangar	AOA	Construct new C-130J hangar.	0–5 Years
Construct New AGE Shop	AOA	Construct new AGE shop enclosure for equipment that is currently exposed to the elements.	6–10 Years
Construct New 920 RQW Training Facility	NMSA	Construct new 920 RQW Training facility.	0–5 Years
Construct Boresight Tower and Equipment	CRA	Construct the Radar Open System Architecture (ROSA) radar/telemetry test bed boresight tower and building replacement.	0–5 Years
Construct New Primitive Cottages at FAMCAMP	CRA	Construct primitive recreational cottages along the Banana River near FAMCAMP.	6-10 Years
Construct Department of State Campus	SAMSA	Consolidate DoS campus at Patrick SFB to include hangars, administrative and storage facilities, and parking; possible site location west of South Patrick Drive.	6-10 Years
Construct New Vehicle Maintenance Facility	SAMSA	Construct vehicle maintenance facility.	6–10 Years
Relocate STARCOM Delta 10	SAMSA	Relocate STARCOM Delta 10 (approximately 150 additional personnel) to Patrick SFB, possible site location within the proposed SLD 45 headquarters complex site on West Tech Road.	0–5 Years
Relocate STARCOM HQ	SAMSA	Relocate STARCOM HQ to Patrick SFB, possible site location within the proposed SLD 45 headquarters complex site on West Tech Road.	6–10 Years
Construct New Beach Cottages	Oceanfront	Construct three duplex beach cottages.	6–10 Years
State and Local Actions			
Resurface SR A1A	SR A1A adjacent to Patrick SFB	Resurface SR A1A from SR 404 to the northern boundary of Patrick SFB (FDOT 2021).	0–5 Years
Renourish Brevard County Beaches	Patrick SFB beaches/ Brevard County beaches	Hydraulic beach fill from an offshore sand source in Brevard County from Cape Canaveral to Sebastian Inlet State Park. Sand fencing and native dune planting also contribute to the shoreline stabilization. Partnership between the USSF, USACE, Brevard County and local municipalities.	Ongoing
NAA: North Administration Area; AOA: Airfield Operations Area; NMSA: North Mission Support Area; CRA: Central Recreation Area; SAMSA: South Administration and Mission Support Area;			

4.15.2 Cumulative Impact Analysis on Resource Areas

The planned actions listed in Table 4-9 are considered in conjunction with the Proposed Action and form the basis for the cumulative impact analysis. It is anticipated that the reasonably foreseeable actions would proceed whether or not the Proposed Action was implemented. Under the No-Action Alternative, the Proposed Action would not occur and there would be no contribution to cumulative impacts within the ROI.

4.15.2.1 Airspace

There would be no significant impacts to airspace expected from the implementation of the Proposed Action. None of the proposed projects impose any major restrictions on air commerce opportunities, significantly limit access, or require any modifications to ATC systems. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts on the regional airspace.

4.15.2.2 Noise

Construction activities related to the Proposed Action and planned actions would result in short-term and minor adverse impacts to the noise environment. None of the projects evaluated would have an impact on operations-related noise activities. When combined, project-related noise levels are not expected to substantially change the noise contours currently experienced within the region of Patrick SFB. Therefore, the Proposed Action, when combined with past, present, and reasonably foreseeable projects would not result in significant cumulative impacts on the noise environment.

4.15.2.3 Health and Human Safety

Short-term, minor, adverse impacts on health and safety (e.g., slips, falls, heat exposure, exposure to mechanical, electrical, vision, and chemical hazards) could occur from construction, demolition, maintenance, and repair activities associated with the Proposed Action and other planned actions in the ROI. Construction workers could also encounter soil or groundwater contamination as a result of an IRP site or previously unknown soil or groundwater contamination. However, implementation of appropriate safety methods and following OSHA and AFOSH safety standards during these activities would minimize the potential for such impacts. With these protocols in place, health and safety risks from all planned projects would be reduced to acceptable levels. The removal of ACM and LBP, and other planned actions that improve safety, would result in a long-term, beneficial impact on safety and occupational health for personnel and residents at Patrick SFB. Therefore, no significant cumulative impacts to safety and occupational health are anticipated.

4.15.2.4 Air Quality

The Proposed Action would result in short-term, minor, adverse impacts to air quality, largely constrained to the proposed construction period (2023-2028). The multi-year time frame anticipated for construction activities would correspond with other regional construction and development projects occurring in the ROI. However, construction-related annual emissions associated with the Proposed Action are well beneath the applicable CAA *de minimis* thresholds for all pollutants. Operational emissions would be well below applicable thresholds on an ongoing basis. Overall, based on these emissions levels, significant cumulative impacts to air quality resulting from the Proposed Action are not anticipated.

4.15.2.5 Earth Resources

The Proposed Action may result in short-term, minor, adverse impacts on earth resources during construction through increased erosion. None of the soils affected are considered as prime or unique farmland soils and all are locally or regionally common. Other construction activities in the

region proposed by the county, city, or state governments, as well as commercial and private developers would also remove soils from biological productivity. All projects discussed (present and future) would be required to comply with USACE, FDEP, and SJRWMD permitting requirements. Under these permits, Patrick SFB would be required to implement BMPs as part of the Erosion, Sedimentation & Pollution Control Plan. Implementation of these BMPs would minimize the potential for incremental impacts associated with soil erosion. Since the proposed projects involving construction, road building, and grading activities are small to moderate in size and localized, any potential impacts would be short term. Additionally, current and future development and transportation improvement projects outside of Patrick SFB are required to follow local, state, and federal regulations and implement BMPs to minimize erosion from construction of these activities. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable projects would result in a minor contribution to adverse cumulative impacts on the regional soils.

The USACE, local municipalities, Brevard County, and SLD 45 have ongoing beach renourishment projects along the Atlantic coast within the ROI. These projects have existing state and federal permits that minimize impacts to resources. The Proposed Action would not result adverse impacts to coastal resources, violate existing renourishment permit conditions, or be collocated with renourishment projects; therefore, impacts to these resources are not anticipated.

4.15.2.6 Water Resources

The Proposed Action would result in long-term, minor, adverse impacts water resources; however, those impacts would not result in a permanent loss of function, threaten hydrologic characteristics, endanger public health or violate laws. The Proposed Action would impact up to 0.5 acre of both wetlands and surface waters (one acre total) and up to seven acres in the 100-year floodplain. During design and permitting, efforts would be made to minimize impacts to wetlands, other surface waters, and floodplains to the greatest extent practicable, in compliance with EO 11990, EO 11988, and Section 404 of the CWA. In addition, USSF environmental management regulations and policy would require use of BMPs to prevent soil erosion and sedimentation into adjacent surface waters (i.e., Banana River and Atlantic Ocean) and wetlands and use of spill prevention measures to prevent contamination in surface waters, aquifers, or wetlands from hazardous material spills. Proposed projects are anticipated to be consistent with the FCMP. No long-term impacts on groundwater were identified.

Reasonably foreseeable actions on Patrick SFB would develop areas outside of the floodplain, which would limit alternatives for future development to avoid the 100-year floodplain. It is anticipated that future sea level rise scenarios would further restrict development alternatives outside of the floodplain (USAF 2012). SLD 45 would continue to define alternative locations for construction outside of the 100-year floodplain unless no other practicable alternatives exist, in which case, measures to minimize harm to or within the floodplain would be implemented. Given the amount of development ongoing in Brevard County, other impacts to water resources are likely as well, although these impacts will be minimized through state and local building floodplain ordinances.

Increased construction on Patrick SFB and within the surrounding communities will result in an increase in impervious surfaces that will require improved retention and stormwater treatment for the increased runoff. The Proposed Action would result in an increase of up to 17.7 acres in impervious surface on Patrick SFB over the next five years. As a stakeholder in the Banana River

BMAP (FDEP 2021), USSF is committed to meeting TMDL reduction allocations and improving water quality regionally. Projects implemented on Patrick SFB to meet BMAP commitments include:

- No Discharge Basins 6B and 6C (Prior to 2013)
- Golf Course Pond Stormwater Reuse (2013)
- Fuel Farm Baffle Box (2016)
- Stormwater Pond Improvements (2016/2017)
- Golf Course Managed Aquatic Plant Systems (2017)
- Manatee Cove Marina Entrance Dredging Project (2017)
- Banana River Shoreline Stabilization (2018)
- TMDL Monitoring and Data Collection (Ongoing)
- Street Sweeping (Ongoing)

In combination with regional runoff in the Banana River watershed, the Patrick SFB runoff discharges aren't anticipated to significantly contribute to cumulative water quality impacts. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable actions would result in minor contributions to adverse cumulative impacts on water resources, primarily upland-cut surface waters, wetlands, and floodplains.

4.15.2.7 Biological Resources

The Proposed Action could result in short-term, minor, adverse impacts on biological resources. Wildlife utilization and habitats are limited within the proposed project areas as most of the installation is developed. Construction of the Proposed Action would avoid and minimize impacts to sensitive species by following the methodologies described in the most recent SLD 45 INRMP (USAF 2020a), such as sensitive species surveys, invasive species removal, wetland restoration, and bank stabilization. Additional future habitat removal and wildlife disturbance on the installation and in the region is likely, but there are currently no known projects in the region that would result in effects that would jeopardize the continued existence of a species or result in an overall significant decrease in population diversity, abundance, or fitness for any species. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable projects would result in minor contributions to adverse cumulative impacts on biological resources.

4.15.2.8 Land Use

No impacts to land use are anticipated from the Proposed Action. Implementation of the proposed installation development projects will accomplish future development expectations for long-range planning and land use as described in installation planning documents. The future land use plan for Patrick SFB considers land use compatibility, facility consolidation, mission sustainability, QOL, safety, and security. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable projects, would not contribute to adverse cumulative impacts on land use.

4.15.2.9 Cultural Resources

The Proposed Action may impact cultural resources; however, any adverse effects would be resolved with SHPO in accordance with the Section 106 process in the NHPA and the Patrick SFB ICRMP (USAF 2015a). Similarly, for resources outside of Patrick SFB compliance with the Section 106 process in the NHPA would also be required. Therefore, it is not anticipated that the Proposed Action would result in significant cumulative effects to cultural resources.

4.15.2.10 Socioeconomics

The Proposed Action and other actions that would occur over the next five years would have short-term, minor to moderate, beneficial effects in the ROI through the increased demand for construction workers and the procurement of goods and services. Construction-related expenditures would not be expected to generate long-term socioeconomic benefits. In the event that construction workers contracted for the Proposed Action were obtained outside of the local or regional area, the temporary increase in the workforce during the construction phase would result in a temporary increase in local housing and lodging needs. Because the Proposed Action would not result in a long-term increase in the installation or regional population, it would not contribute to cumulative demographic impacts in the region.

4.15.2.11 Environmental Justice

Possible adverse effects from construction activities could include increased traffic and noise levels and decreased air quality and infrastructure capacity. These effects would be short-term, intermittent, and minor, and are not anticipated to impact off-installation populations. The possible adverse effects would impact the entire base and would not result in disproportionately high and adverse impacts on environmental justice populations. Therefore, the Proposed Action would not contribute to cumulative environmental justice impacts in the region.

4.15.2.12 Hazardous Materials/Waste and Solid Waste

Demolition and construction activities would increase the use and storage of hazardous materials (e.g., solvents, paints, adhesives, etc.) at Patrick SFB for the short-term. Some temporary increases would be realized in terms of the quantity of fuel used during construction activities for these actions. Demolition would increase the amount of hazardous wastes generated, but these activities would last for less than 10 years and all wastes would be disposed of properly. No increases or substantial changes in current quantities and types of hazardous materials or wastes would be expected upon completion of the projects. Operations-related hazardous waste generation (e.g., used oil, used filters, and oily rags) would continue to be managed in accordance with the most recent SLD 45 HWMP (USAF 2020d) and all applicable federal, state, and local regulations. Given the amount of development projects ongoing in Brevard County, other hazardous waste and construction debris will be generated for the foreseeable future. It is expected that these wastes will also be disposed of in accordance with applicable regulations.

Several SWMUs are collocated with the proposed project sites, and planned construction activities have potential to cause short-term, minor to moderate, adverse impacts to ongoing remediation activities at these sites. As summarized on Table 4-7, implementation of the Proposed Action could affect or be affected by SWMUs. Construction or excavation work within SWMUs must be coordinated with AFCEC IRP, FDEP, and 45 CES/CEIE, and any applicable LUCs would be evaluated to ensure continued protection of human health and the environment. Additionally, contractors are required to comply with all federal and state regulations regarding removal, handling, and disposal of ACM, LBP, and other hazardous waste.

The Proposed Action would involve demolition of existing structures, construction of new buildings and pavements, and potential remediation of contaminated sites, resulting in the generation of construction and demolition debris and removal of soils and other contaminated debris. However, the estimated quantity of generated debris, when compared to regional landfill capacity, would not represent a significant impact to the life expectancy of the landfills. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable projects would result in minor contributions to adverse cumulative impacts on hazardous materials/waste and solid waste.

4.15.2.13 Infrastructure

The Proposed Action would improve the existing utility infrastructure and capacity for Patrick SFB. Minor, short-term, adverse transportation impacts would occur during construction, but the improvements to Space Lift Avenue and construction of a multi-use path would improve the existing transportation infrastructure. The additional personnel associated with the DoS campus or STARCOM relocation may result in increases in utility usage and traffic on the installation. These increases would be evaluated, and deficiencies would be resolved prior to project implementation. Other planned infrastructure projects occurring within the ROI during the same timeframe may also contribute to minor, short-term, adverse transportation impacts during construction but would improve transportation and utility infrastructure in the long-term. Overall, no significant adverse cumulative impacts on infrastructure would be anticipated.

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6 TRIBES AND AGENCIES CONTACTED

Table 7-1. Tribal Contacts

Tribe	Address	City	State	Zip Code
Miccosukee Tribe of Indians of Florida	Tamiami Station, PO Box 440021	Miami	FL	33144
Seminole Nation of Oklahoma	P.O. Box 1498	Wewoka	OK	74884
Seminole Tribe of Florida	30290 Josie Billie Highway, PMB 1004	Clewiston	FL	33440

Table 7-2. Agency Contacts

Agency	Address	City	State	Zip Code
Brevard County	Viera Government Center 2725 Judge Fran Jamieson Way Building A	Viera	FL	32940
City of Cocoa Beach	2 S. Orlando Ave	Cocoa Beach	FL	32932
City of Satellite Beach	565 Cassia Blvd	Satellite Beach	FL	32937
City of Melbourne	900 E. Strawbridge Ave	Melbourne	FL	32901
USEPA Region 4	Sam Nunn Atlanta Federal Center	Atlanta	GA	30303-8960
Federal Aviation Administration	800 Independence Avenue SW Suite 325	Washington	DC	20591
FDEP	3319 Maguire Boulevard	Orlando	FL	32803
FDEP Florida State Clearinghouse	2600 Blair Stone Road, MS 47	Tallahassee	FL	32399
Florida Department of Transportation	605 Suwannee Street	Tallahassee	FL	32399-0450
Florida Division of Historical Resources	Bureau of Historic Preservation 500 South Bronough Street	Tallahassee	FL	32399
Metropolitan Planning Organization	2725 Judge Fran Jamieson Way; Building B; Room 105 MS #82	Melbourne	FL	32940
Regional Planning Council	455 N. Garland Ave., Fourth Floor	Orlando	FL	32801
SJRWMD	525 Community College Parkway, SE	Palm Bay	FL	32909
USACE	Cocoa Permits Section, 400 High Point Drive Suite 600	Cocoa	FL	32926
USFWS	North Florida Ecological Services, 7915 Bay Meadows Way, Suite 200	Jacksonville	FL	32256-7517

7 REFERENCES

15 Code of Federal Regulations (CFR) Part 930 – Federal Consistency with Approved Coastal Management Programs.

29 CFR Part 1910 – Occupational Safety and Health Standards.

29 CFR Part 1926 – Safety and Health Regulations for Construction.

32 CFR Part 989 – Environmental Impact Analysis Process (EIAP).

33 CFR Parts 320-330 – Discharges of Dredge and Fill Materials into Waters of the U.S.

33 CFR Part 332 – Compensatory Mitigation for Losses of Aquatic Resources.

36 CFR. Part 60 et seq – National Register of Historic Places.

36 CFR Part 800 – Protection of Historic and Cultural Properties.

40 CFR Part 93, Subpart B – Determining Conformity of General Federal Actions to State or Federal Implementation Plans.

40 CFR Part 260 et seq – Hazardous Waste Management System: General.

40 CFR Part 261 – Identification and Listing of Hazardous Waste.

40 CFR Part 273 – Standards for Universal Wastes.

40 CFR Part 279 – Standards for the Management of Used Oil.

40 CFR Part 355 – Emergency Planning and Notification.

40 CFR Parts 1500-1508 – Council on Environmental Quality.

40 CFR Part 50 – National Primary and Secondary Ambient Air Quality Standards.

40 CFR Part 51 – Requirements for Preparation, Adoption, and Submittal of Implementation Plans.

40 CFR Part 52, Subpart K – Approval and Promulgation of Implementation Plans, Florida.

40 CFR Part 61 – National Emission Standards for Hazardous Air Pollutants.

40 CFR Part 63 – National Emission Standards for Hazardous Air Pollutants for Source Categories.

40 CFR Part 70 – State Operating Permit Programs.

40 CFR 81.310 – Florida – Section 107 Attainment Status Designations.

40 CFR Part 93, Subpart B – Determining Conformity of General Federal Actions to State or Federal Implementation Plans.

40 CFR Part 261 – Identification and Listing of Hazardous Waste.

40 CFR Part 302 – Designation, Reportable Quantities, and Notification.

40 CFR Part 745 – Residential Property Renovation State, Territorial and Tribal Program Authorization Application Guidance.

44 CFR Part 9 – Floodplain Management and Protection of Wetlands.

49 CFR Part 171.8 – Definitions and Abbreviations.

50 CFR Part 402 – Interagency Cooperation – Endangered Species Act of 1973, as amended.

References

16 U.S. Code (USC) 469 – Archeological and Historic Preservation Act of 1974.

16 USC 661-667 – Fish and Wildlife Coordination Act.

16 USC 668-668c – Bald and Golden Eagle Protection Act.

16 USC 670 et seq – Sikes Act.

16 USC 703-712 – Migratory Bird Treaty Act.

16 USC 1361 et seq – Marine Mammal Protection Act.

16 USC 1451 et seq – Coastal Zone Management Act.

16 USC 1531 et seq – Endangered Species Act of 1973, as amended.

16 USC 1801 et seq – Magnuson-Stevens Fisher Conservation and Management Act.

16 USC 1802 – Definitions.

16 USC 3371-3378 – Lacey Act.

25 USC 3001 et seq – Native American Graves Protection and Repatriation Act.

29 USC 651 et seq – Occupational Safety and Health Act, as amended.

33 USC 403 – Rivers and Harbors Act of 1899, Section 10.

33 USC 1251-1387 – Clean Water Act.

33 USC 1341-1342 – Clean Water Act (Sections 401 and 402).

33 USC 1344 et seq – Clean Water Act (Section 404).

40 USC 1500-1508 – CEQ Regulations for Implementing the Procedural Provisions of NEPA.

42 USC 1996 – American Indian Religious Freedom Act of 1978.

42 USC 4331 – National Environmental Policy Act of 1969, as amended.

42 USC 4901 – Noise Control Act of 1972.

42 USC 6901 et seq – Resource Conservation and Recovery Act, as amended.

42 USC 7401 et seq – Clean Air Act, as amended.

42 USC 7412 – Hazardous Air Pollutants.

42 USC 9601 et seq – Comprehensive Environmental Response, Compensation, and Liability Act.

42 USC 13101(b) – Pollution Prevention Act of 1990.

42 USC 17001 et seq – Energy Independence and Security Act.

42 USC 17094 et seq – Stormwater Runoff Requirements for Federal Development Projects.

49 USC Part A – Air Commerce and Safety.

54 USC 300101 et seq – National Historic Preservation Act, as amended.

45th Force Support Squadron Life, 2022. Available at: https://www.gopatrickfl.com/.

45th Space Wing, 2021. Economic Impact Analysis – Patrick Space Force Base & Cape Canaveral Space Force Station. Available at: https://www.patrick.spaceforce.mil/Portals/14/FY20%20Economic%20Impact.pdf.

References

45th Space Wing Instruction (SWI), 2012. SWI 32-7001, Exterior Lighting Management. November 2012.

AFI 31-118, 2020. U.S. Air Force, U.S. AFI 32-118, Security Forces Standards and Procedures. August 2020.

AFI 32-1001, Civil Engineer Operations. October 2019.

AFI 32-1015, Integrated Installation Planning July 2019, corrected January 2021.

AFI 32-7040, Air Quality Compliance and Resource Management. December 2017.

AFI 32-7086, Hazardous Materials Management. October 2019.

AFI 90-2002, Interactions with Federally Recognized Tribes. August 2020.

AFI 91-202, The U.S. Air Force Mishap Prevention Program. April 2021.

AFI 91-212, Bird/wildlife Aircraft Strike Hazard (BASH) Management Program. June 2021.

AFI 91-225, Safety Programs. September 2019.

AFMAN 32-7002, Environmental Compliance and Pollution Prevention. February 2020.

AFMAN 32-7003, Environmental Conservation. April 2020.

AFMAN 34-135, Air Force Lodging Program. July 2019.

AFMAN 91-203, Air Force Occupational Safety, Fire and Health Standards. September 2020.

Atlantic Sturgeon Status Review Team. 2007. Status Review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). Report to National Marine Fisheries Service, Northeast Regional Office. February 23, 2007. 174 pp.

Audubon Florida Eaglewatch Database, Website Accessed March 2022: https://cbop.audubon.org/conservation/about-eaglewatch-program.

Brevard County, 2021. Brevard County Annual Capital Improvement Plan (CIP) 2020-2025. Available at: https://www.brevardfl.gov/docs/default-source/budget/adopted-2021/2021-capital-improvement-program/cip-summarypage.pdf?sfvrsn=de36af32_6.

Brevard County Fire Rescue Emergency Medical Services, 2022. Available at: http://www.brevardfl.gov/FireRescue/EmergencyMedicalServices/Home.

Brevard Public Schools, 2022. Available at: https://www.brevardschools.org/.

City of Cocoa Beach, 2021. City of Cocoa Beach Adopted Annual Budget for Fiscal Year 2022. Available at: Cocoa Beach Annual Budget 2021-2022 (cityofcocoabeach.com).

City of Satellite Beach, 2021. City of Satellite Beach Adopted Annual Budget for Fiscal Year 2022.

Defense Explosives Safety Regulation (DESR) 6055.09_AFMAN 91-201, Explosives Safety Standards. March 2022.

Executive Order (EO) 11988. 1977. Floodplain Management.

EO 11990. 1977. Protection of Wetlands.

EO 12372. 1982. Intergovernmental Review of Federal Programs.

EO 12898. 1994. Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

References

EO 13045. 1997. Protection of Children from Environmental Health Risks and Safety Risks.

EO 13112. 1999. Invasive Species.

EO 13186. 2001. Responsibilities of Federal Agencies to Protect Migratory Birds.

EO 13990. 2021. Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis.

EO 140008. 2021. Tackling the Climate Crisis at Home and Abroad.

Federal Aviation Administration (FAA). 2020. FAA Code 7400.2, Procedures for Handling Airspace Matters.

Federal Emergency Management Agency (FEMA), 2021. FEMA Flood Map Service Center. Available at: https://msc.fema.gov/portal/home.

Florida Administrative Code (FAC). Chapter 5B-40, FAC Preservation of Native Flora of Florida.

FAC. Chapter 62-204 et seq, Air Pollution Control.

FAC. Chapter 62-210 et seq, Stationary Sources.

FAC. Chapter 62-257, Asbestos Program.

FAC. Chapter 62-302, Surface Water Quality Standards.

FAC. Chapter 62-330, Environmental Resource Permitting.

FAC. Chapter 62-3340, Delineation Of The Landward Extent Of Wetlands And Surface Waters.

FAC. Chapter 62-535.500, Water Well Construction Standards.

FAC. Chapter 62-701, Solid Waste Management Facilities.

FAC. Chapter 62-730, Hazardous Waste.

FAC. Chapter 62-777, Contaminant Cleanup Target Levels.

FAC. Chapter 62-780, Contaminated Site Cleanup Criteria.

FAC. Chapter 62B-55, Model Lighting Ordinance for Marine Turtle Protection Rule.

FAC. Chapter 68A-16.002, Bald Eagle (Haliaeetus leucocephalus).

FAC. Chapter 68A-27, Rules Relating to Endangered or Threatened Species.

FAC. Chapter 68C-22.006, Manatee Sanctuary Act.

Federal Interagency Committee on Aviation Noise (FICAN): 1997 Annual Report.

Florida Department of Environmental Protection (FDEP), 2021a. Banana River Lagoon Basin Management Action Plan (BMAP). February 2021.

FDEP, 2021. Air Quality Monitoring. Available at: https://fldep.dep.state.fl.us/air/flaqs/selectreport.asp?

Florida Department of Transportation (FDOT), 1999. Florida Land Use, Cover and Forms Classification System (FLUCFCS). Third Edition. FDOT Surveying and Mapping Office, Geographic Mapping Section. January 1999.

FDOT, 2021. FDOT District Five 5-Year Work Program. Florida Department of Transportation, District 5. 719 South Woodland Boulevard, DeLand, FL 32720

References

Florida Natural Areas Inventory (FNAI), 2014. Field Guide to the Rare Plants and Animals of Florida. Available at: https://www.fnai.org/species-communities/species-guides/field-guides-main [Accessed July 27, 2021].

FNAI, 2019a. Cooperative Land Cover, Version 3.4, accessed: https://myfwc.com/research/gis/regional-projects/cooperative-land-cover/.

FNAI, 2019b. Florida Natural Areas Inventory 2019 Searchable Tracking List. Available at: https://www.fnai.org/species-communities/tracking-main [Accessed July 27, 2021].

FNAI, FNAI Biodiversity Matrix, Website accessed October 2021: https://www.fnai.org/BiodiversityMatrix/index.html

Florida Statutes (F.S.), Part IV, Chapter 373. Management and Storage of Surface Waters.

F.S., 379.2291. Florida Endangered and Threatened Species Act of 1977.

F.S., 379.2431. Marine Animal Regulation, Florida Marine Turtle Protection Act

F.S., Chapter 380 Part II. Coastal Planning and Management.

F.S., 403.067. Establishment and implementation of total maximum daily loads.

F.S., 403.121. Enforcement; procedure; remedies.

F.S., 403.141. Civil liability; joint and several liability.

F.S., 403.161. Prohibitions, violation, penalty, intent.

F.S., 403.9323. Mangrove Trimming and Preservation Act, Legislative intent.

Florida Fish and Wildlife Conservation Commission (FWC), 2008, Revised 2020. FWC Gopher Tortoise Permitting Guidelines. Tallahassee, Florida. Available at: https://myfwc.com/license/wildlife/gopher-tortoise-permits/permitting-guidelines/.

FWC, 2011. Standard Manatee Conditions for In-Water Work. Available at: https://myfwc.com/media/7246/manatee_stdcondin_waterwork.pdf.

FWC, 2012. Gopher Tortoise Management Plan, *Gopherus polyphemus*. September 2012. Tallahassee, FL. Available at: https://myfwc.com/media/1819/gt-management-plan.pdf.

FWC, 2016a. Florida Sandhill Crane Species Conservation Measures and Permitting Guidelines. Tallahassee, Florida.

FWC, 2016b. FWC Marine Turtle Conservation Handbook. Available at: https://myfwc.com/media/3133/fwc-mtconservationhandbook.pdf.

FWC, 2019a. Florida Burrowing Owl Species Conservation Measures and Permitting Guidelines. Tallahassee, Florida.

FWC, 2019b. Florida's Wildlife Legacy Initiative: Florida's State Wildlife Action Plan. Tallahassee, FL. Available at: https://myfwc.com/conservation/special-initiatives/fwli/action-plan/.

FWC, 2019c. Threatened wading birds Species Conservation Measures and Permitting Guidelines. Tallahassee, Florida.

FWC, 2020. Southeastern American Kestrel Conservation Measures and Permitting Guidelines. Tallahassee, Florida.

FWC, 2021a. Species Profiles. Available at: http://myfwc.com/wildlifehabitats/profiles/.

References

FWC, 2021b. Florida's Official Endangered and Threatened Species List. Updated June 2021. Available at: https://myfwc.com/media/1945/threatened-endangered-species.pdf.

FWC, 2021c. Florida Index Nesting Beach Survey Totals (1989-2020). Available at: http://myfwc.com/research/wildlife/sea-turtles/nesting/beach-survey-totals/.

Hall, J. A., Gill, S., Obeysekera, J., Sweet, W., Knuuti, K., & Marburger, J. 2016. Regional sea level scenarios for coastal risk management: Managing the uncertainty of future sea level change and extreme water levels for Department of Defense coastal sites worldwide. U.S. Department of Defense, Strategic Environmental Research and Development Program.

Hensley. 1997. Threatened and Endangered Species Survey for Patrick Air Force Base, Florida, NASA Technical Memorandum 112880. 95 pp.

Huckle, H. F., H. D. Dollar, and R. F. Pendleton. 1974. Soil survey of Brevard County, Florida. U.S. Dep. of Agriculture, Soil Conservation Service, Washington, D. C.

Indian River Lagoon National Estuary Program. 1994. Physical Features of the Indian River Lagoon.

Mitsch, W., & Gosselink, J. 2000. Wetlands (third edition). New York: John Wiley and Sons.

National Marine Fisheries Service (NMFS), 2005. Recovery Plan for the North Atlantic Right Whale (Eubalaena glacialis). May 2005. Available at: https://www.fisheries.noaa.gov/resource/document/recovery-plan-north-atlantic-right-whale-eubalaena-glacialis.

NMFS, 2006. Sea Turtle and Smalltooth Sawfish Construction Conditions. March 2206. Available at: https://www.saj.usace.army.mil/Portals/44/docs/Planning/EnvironmentalBranch/EnviroCompliance/SeaTurtleAndSawfishConstructionConditions23mar2006.pdf.

NMFS, 2009a. Recovery plan for smalltooth sawfish (*Pristis pectinata*). Prepared by the Smalltooth Sawfish Recovery Team for the National Marine Fisheries Service, Silver Spring, MD.

NMFS, 2009b. Endangered and threatened species; critical habitat for the endangered distinct population segment of smalltooth sawfish. *Federal Register* 74:45353–45378.

National Oceanic and Atmospheric Association (NOAA), 2021. 2021 Update to data originally published in: NOAA, 2009. Sea level variations of the United States 1854–2006. NOAA Technical Report NOS CO-OPS 053. Available at: www.tidesandcurrents.noaa.gov/publications/Tech_rpt_53.pdf.

NRHP, 2020. NPGallery Digital Asset Search. Available at: https://npgallery.nps.gov/nrhp.

Natural Resources Conservation Service (NRCS), 2018. Soil Survey Geographic (SSURGO) data. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_053631.

NRCS, 2021. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx [Accessed July 27, 2021].

Oddy, D.M., E.D. Stolen, P.A. Schmalzer, V.L. Larson, P. Hall, and M.A. Hensley. 1997. Threatened and Endangered Species Survey for Patrick Air Force Base, Florida.

Patrick AFB Housing, 2022. Available at: https://www.housing.af.mil/Home/Units/Patrick/.

Patrick Hunt Military Community, 2022. Available at: https://www.patrick-family-housing.com/.

Patrick SFB Installation Facilities Standards (IFS). March 2018. Available at: Patrick_Air_Force_Base_IFS.pdf (wbdg.org).

References

Patrick SFB Website, 2022. Available at: https://www.patrick.spaceforce.mil/.

Southeast Regional Climate Center, 2021. U.S. Climate Normals, Melbourne, FL. Period of Record 1991 to 2020. https://www.ncei.noaa.gov/access/us-climate-normals/#dataset=normals-monthly&timeframe=30&station=US1FLBV0063, accessed September 2021.

Space Coast Transportation Planning Organization (SCTPO), 2020. 2045 Long Range Transportation Plan (LRTP). September 2020. Available at: https://www.spacecoasttpo.com/what-we-do/planning/core-work-products/long-range-transportation-plan.

SCTPO, 2021. Transportation Improvement Plan (TIP), Fiscal Years 2022-2026. July 2021. Available at: https://www.spacecoasttpo.com/what-we-do/planning/core-work-products/transportation-improvement-program.

St. Johns River Water Management District (SJRWMD), 2014. Land Cover Land Use Classification.

University of Florida GeoPlan Center, 2021. Development of Regional Impact (DRI) in the State of Florida – 2021 Quarter 2 GIS Data.

U.S. Air Force (USAF), 2001. Air Installation Compatible Use Zone for Patrick Air Force Base, 45th Space Wing, FL.

USAF, 2005. Environmental Assessment for the 920th Rescue Wing Beddown, Patrick AFB, FL.

USAF, 2007a. A Historic Properties Survey of Inert Storage Facilities, Patrick AFB, Brevard County, FL. U.S. Air Force, 45th Space Wing, Patrick Air Force Base, FL.

USAF, 2007b. A Historic Properties Survey of the High Explosive Storage Magazines, Patrick AFB, Brevard County, FL. U.S. Air Force, 45th Space Wing, Patrick Air Force Base, FL.

USAF, 2011a. General Plan, Patrick Air Force Base

USAF, 2011b. 2011 Aircraft Noise Study, Patrick AFB, FL. AFCEE/TDBS Noise Contour Update. November 2011.

USAF, 2012. Final Environmental Assessment of the General Plan and Maintenance, 45th Space Wing, Patrick AFB, FL

USAF, 2015a, updated May 23, 2016. Integrated Cultural Resource Management Plan 2007-2012, Volumes I and II (includes CCAFS, PAFB, MTA, JDMTA). 45th Space Wing, FL

USAF, 2015b. Noise Screening Analysis for 301st Rescue Squadron Training Increase at Patrick Air Force Base, Florida. 21 January.

USAF, 2015c. Patrick SFB Stormwater Management Plan (SWMP).

USAF, 2016a. Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide – Fundamentals Volume 1. Air Force Civil Engineer Center, Compliance Technical Support Branch.

USAF, 2016b. Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide – Volume II (Advance Assessments). Air Force Civil Engineer Center, Compliance Technical Support Branch.

USAF, 2016c. Categorical Exclusion to Construct Guardian Angel Facility, Patrick AFB, FL.

USAF, 2016d. Final Environmental Assessment for 920th Rescue Wing Training Operations, 45th Space Wing, Patrick AFB, FL

References

USAF, 2017a. Environmental Assessment for Shoreline Stabilization and Airfield Protection. 45th Space Wing, Patrick AFB, FL

USAF, 2017b. Cape Canaveral Air Force Station and Patrick Air Force Base Installation Development Plan (IDP).

USAF, 2017c. Air Force Handbook 32-707084, AICUZ Program Manager's Guide. November 2017.

USAF, 2018. Spill Prevention, Control, and Countermeasure Plan. 45th Space Wing, FL. Updated May 2018.

USAF, 2019. Integrated Solid Waste Management Plan (ISWMP). 45th Space Wind, FL.

USAF, 2020a. 45th Space Wing Integrated Natural Resources Management Plan (includes CCAFS, PAFB, MTA, JDMTA). 45th Space Wing, FL. Update 21 July 2020.

USAF, 2020b. Final Environmental Assessment for Outdoor Recreation Beach Cottages on Patrick Space Force Base, FL. January 2020.

USAF, 2020c. Guide for Environmental Justice (EJ) Analysis Under the Environmental Impact Analysis Process (EIAP). Air Force Civil Engineer Center. September 2020.

USAF, 2020d. Hazardous Waste Management Plan. 45th Space Wing. 2 March 2020.

USAF, 2020e. Storm Water Pollution Prevention Plan (SWPPP). 45th Space Wing, FL. January 2020.

U.S. Army Corps of Engineers (USACE), 2006. PAFB Jurisdictional Wetland Delineation conducted by USACE in 2006.

USACE, 2013. The Corps of Engineers, Jacksonville District, and the State of Florida Effect Determination Key for the Manatee in Florida.

U.S. Census Bureau, 2010. Decennial Census. Available at: https://www.census.gov/programs-surveys/decennial-census/data/tables.2010.html.

U.S. Census Bureau, 2019. American Community Survey (ACS). Available at: https://data.census.gov/cedsci/.

U.S. Department of Defense (DoD), 2018. Department of Defense Instruction 4710.02, DoD Interactions with Federally Recognized Tribes. September 2018.

U.S. DoD, 2020a. United Facilities Criteria (UFC) 2-100-01, Installation Master Planning. September 2020.

U.S. DoD, 2020b. UFC 3-210-10, Low-Impact Development, With Change 3. March 2020.

U.S. DoD, 2020c. UFC 3-260-01, Airfield and Heliport Planning and Design, with Change 1. May 2020.

U.S. DoD, 2021a. Climate Risk Analysis. Available at https://media.defense.gov/2021/Oct/21/2002877353/-1/-1/0/DOD-CLIMATE-RISK-ANALYSIS-FINAL.PDF

U.S. DoD, 2021b. DoD Climate Change Adaptation Plan. Available at https://www.sustainability.gov/pdfs/dod-2021-cap.pdf.

U.S. DoD, 2021c. DoD Regional Sea Level Database. Patrick AFB. Available at: https://drsl.serdp-estcp.org/sealevelrise/1273.

References

U.S. Environmental Protection Agency (USEPA), 1974. Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety. U.S. Environmental Protection Agency, Office of Noise Abatement and Control.

USEPA, 1981. Noise Effects Handbook.

USEPA, 2003. Estimating 2003 Building -Related Construction and Demolition Materials Amounts. Available at: https://www.epa.gov/sites/default/files/201709/documents/estimating2003buildingrelatedcanddmaterialsamounts.pdf.

USEPA, 2016. What Climate Change Means for Florida. EPA 430-F-16-011. Available at: https://www.epa.gov/sites/default/files/2016-08/documents/climate-change-fl.pdf

USEPA, 2017. 2017 National Emissions Inventory Data. Available at: https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data#dataq.

USEPA, 2020. How's My Waterway. U.S. Environmental Protection Agency, Washington, D.C. Website accessed July 2021: https://mywaterway.epa.gov/.

USEPA, 2021a. Nonattainment Areas for Criteria Pollutants (Green Book). Available at: https://www.epa.gov/green-book.

USEPA, 2021b. Facility Level Information on Greenhouse gases Tool (FLIGHT). Greenhouse Gas Reporting Program. Website accessed, October 2021: https://www.epa.gov/ghgreporting

USEPA, 2021c. NAAQS Table. Website accessed, September 2021: https://www.epa.gov/criteria-air pollutants/naaqs-table.

USEPA, 2022. EJSCREEN: Environmental Justice Screening and Mapping Tool. Available at: https://www.epa.gov/ejscreen.

U.S. Fish and Wildlife Service (USFWS). 1997. Revised recovery plan for the U.S. breeding population of the wood stork. U.S. Fish and Wildlife Service. Atlanta, Georgia.

USFWS, 2007. National Bald Eagle Management Guidelines. Available at: https://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

USFWS, 2010. Florida Effect Determination Key for the Wood Stork in Central and North Peninsular Florida. Available at: https://www.saj.usace.army.mil/Portals/44/docs/regulatory/sourcebook/endangered_species/wood_stork/20100518_letter_ServicetoCorps_FLProgrammaticStorkrevised.pdf.

USFWS, 2013a. Standard Protection Measures for the Eastern Indigo Snake. Available at: https://www.fws.gov/northflorida/indigosnakes/20130812_eastern_indigo_snake_standard_protection_measures.htm.

USFWS, 2013b. Eastern Indigo Snake Programmatic Effect Determination Key. Available at: https://www.saj.usace.army.mil/Portals/44/docs/regulatory/sourcebook/endangered_species/Indigo/20130813_ltr_Update%20addendum_2010%20COE%20Programmatic%20EIS%20Key.pdf?ver=2013-08-20-095421-223.

USFWS, 2018. National Wetlands Inventory. U.S. Fish & Wildlife Service. https://data.nal.usda.gov/dataset/national-wetlands-inventory. Accessed 2021-09-19.

References

USFWS, 2019. Florida Wood Stork Nesting Colonies Dataset. Available online at https://data-floridaswater.opendata.arcgis.com/datasets/9102941cf2294283971411d8cda4578a_473/explore?location=29.686522%2C-81.357772%2C8.34.

USFWS, 2021a. Information for Planning and Consultation (IPaC). Website accessed July 2021: https://ecos.fws.gov/ipac/.

APPENDIX A
AGENCY COORDINATION AND PUBLIC INVOLVEMENT

Appendix A

A.1 Public Notification

Notice of Intent

Adoptable
PET OF THE WEEK

TIFFANY
7 year old Male
Mixed Breed

Tiffany is a ball of energy and loves to be outside. Going for walks or chasing toys are her favorite pass time. She is highly food motivated and would be so much fun to teach new tricks. Tiffany would prefer to be an only pet, but she has enough personality to keep you entertained! She is the perfect take home size at just over 30 lbs. She is fully vaccinated, microchipped and spayed.

PET OF THE WEEK PROUDLY SPONSORED BY
BONIFACE HIERS

Adopt, Don't Shop
WWW.BREVARDSHERIFF.COM

COME VISIT ME AT:
BREVARD COUNTY SHERIFF'S OFFICE
ANIMAL CARE CENTER
5100 W. Eau Gallie Blvd.
Melbourne, FL 32934

Interfaith community extends good will

By Cynthia Hall
For Hometown News

BREVARD COUNTY — Thanksgiving is before us in all its golden glory, and many of you are knee-deep in chores, shopping, and prep work for the largest meal of the year. Combined with the usual hectic holiday schedule, it's easy to overlook the reason for the season.

Despite the fast pace - or because of it - Thanksgiving is a yearly reminder to pause. This holiday is a focused example of how to be kind, grateful, generous, and compassionate.

Weary from pandemic acclimation and new norms, we're still in search of comfort, respect, and courtesy. But they say if you want to see change, be the change. Essentially, to give that which you need to receive: goodwill. What a serendipitous turn of events considering that's what Thanksgiving is all about.

A great place to start the journey of bestowing goodwill is by attending United in Thanksgiving, sponsored by Interfaith United

See INTERFAITH, page 10

NEED HELP
with a Federal Government Agency

Congressman Bill Posey and His Staff are Here to Serve You!

If you have a problem with a federal government agency or department, such as the Department of Veteran Affairs, Social Security, Medicare, IRS or the Passport Agency, etc., please feel free to contact my office.

Titusville Satellite Office
Limited Hours of Operation
Brevard County
Government Center
(321) 383-6090

District Office
2715 Judge Fran Jamieson Way
Building C
Melbourne, FL 32940
Phone (321) 632-1776
Fax (321) 639-8595

To contact Rep Posey by email, please visit:
http://posey.house.gov

Paid for by official funds authorized by the House of Representatives

PUBLIC NOTICE

FOR THE POTENTIAL IMPACT FLOODPLAIN / WETLANDS AT PATRICK SPACE FORCE BASE, FLORIDA

The United States Space Force (USSF) has initiated an Environmental Assessment (EA) under the National Environmental Policy Act to analyze the potential impacts from the proposed implementation of 19 projects (Proposed Action) identified as development priorities at Patrick Space Force Base (SFB) in Brevard County, Florida. These projects are needed to improve the physical infrastructure and functionality of Patrick SFB and to meet Space Launch Delta 45 and tenant unit mission requirements.

At this early stage of EA preparation, the Proposed Action includes facility construction and demolition, road and trail improvements, facility repair and renovation, and utility upgrades. Several of the proposed projects have the potential to occur within the 100-year floodplain, including construction of an aquatic training center and administrative and workshop complex, improvements to recreational facilities, and repairs to the munition storage area and marina bulkhead.

Pursuant to Executive Orders 11990 and 11988 and Air Force Instruction 32-7064, USSF requests advance public comment to determine if there are any public concerns regarding the projects' potential to impact floodplains and wetlands. The proposed projects will be analyzed in the forthcoming EA, which the public will also have the opportunity to review and provide comment when the draft is released.

Comments may be submitted to Ms. Taylor Janise, 45 CES/CEIE, 1224 Jupiter Street, Mail Stop 9125, Patrick Space Force Base, Florida 32925 or email at taylor.janise.1@spaceforce.mil.

Comments will be accepted for 30 days from the publication of this notice.

Appendix A

2A | FRIDAY, NOVEMBER 19, 2021 | FLORIDA TODAY

IN BRIEF

Judge: Girl, 14, competent for adult trial in armed standoff

Ex-teacher called 'monster' gets 2 years for sexual battery

Florida man gets 6 month sentence for COVID relief fraud

DAILY DIGEST

CELEBRITY BIRTHDAYS

Florida Lottery

FLORIDA LOTTO

DOUBLE PLAY

POWERBALL

MEGA MILLIONS

JACKPOT TRIPLE PLAY

FANTASY 5

PICK 2, 3, 4, 5

CASH4LIFE

florida today

LOCAL STOCKS

PUBLIC NOTICE

FOR THE POTIENTAL IMPACT FLOODPLAIN / WETLANDS AT PATRICK SPACE FORCE BASE, FLORIDA

The United States Space Force (USSF) has initiated an Environmental Assessment (EA) under the National Environmental Policy Act to analyze the potential impacts from the proposed implementation of 19 projects (Proposed Action) identified as development priorities at Patrick Space Force Base (SFB) in Brevard County, Florida. These projects are needed to improve the physical infrastructure and functionality of Patrick SFB and to meet Space Launch Delta 45 and tenant unit mission requirements.

At this early stage of EA preparation, the Proposed Action includes facility construction and demolition, road and trail improvements, facility repair and renovation, and utility upgrades. Several of the proposed projects have the potential to occur within the 100-year floodplain, including construction of an aquatic training center and administrative and workshop complex, improvements to recreational facilities, and repairs to the munition storage area and marina bulkhead.

Pursuant to Executive Orders 11990 and 11988 and Air Force Instruction 32-7064, USSF requests advance public comment to determine if there are any public concerns regarding the projects' potential to impact floodplains and wetlands. The proposed projects will be analyzed in the forthcoming EA, which the public will also have the opportunity to review and provide comment when the draft is released. Comments may be submitted to Ms. Taylor Janise, 45 CES/CEIE, 1224 Jupiter Street, Mail Stop 9125, Patrick Space Force Base, Florida 32925 or email at taylor.janise.1@spaceforce.mil. Comments will be accepted for 30 days from the publication of this notice.

Appendix A

A.2 Early Agency Notification

Appendix A

Example scoping letter sent to agencies listed in Section 6 of this EA.

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 45

August 25, 2021

Mr. Michael Blaylock
Chief, Environmental Conservation, Patrick Space Force Base
United States Space Force, Space Launch Delta 45
1224 Jupiter Street, Mail Stop 9125
Patrick Space Force Base FL 32925

Ms. Amanda Elmore
Assistant Director
Planning and Development, Brevard County
Viera Government Center
2725 Judge Fran Jamieson Way, Building A
Viera FL 32940

Dear Ms. Elmore

The United States Space Force (USSF) is preparing an Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed 22 installation development projects at Patrick Space Force Base (SFB), Florida. A location map (Figure 1) is attached for your reference. The EA identifies installation development projects that would be implemented over the next five years (2022-2027) to support missions of Space Launch Delta 45 (SLD 45) and its tenant units.

The purpose of this EA is to facilitate the installation development process by evaluating priority projects identified for implementation at Patrick SFB in one integrated document. SLD 45 is considering 22 projects (Proposed Action) that include facility repair and construction, infrastructure (e.g., roadways, sidewalks, trails, and utilities) construction and improvement, and facility demolition on Patrick SFB. The projects are listed and described in Table 1, attached. These projects are needed to improve the physical infrastructure and functionality of Patrick SFB, to meet SLD 45 and tenant unit mission requirements, and to support increased launch operations at Cape Canaveral Space Force Station.

The EA will assess the potential environmental impacts that would result from the Proposed Action. The EA will also analyze the No Action Alternative, which reflects the status quo, as a baseline for comparison of potential effects from the Proposed Action. The effects of the Proposd Action will be examined with projects that are reasonably foreseeable and have a reasonably close causal relationship to the Proposed Action or alternatives.

The EA will be prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (USC), the Council on Environmental Quality regulations

implementing the NEPA Regulations, 40 Code of Federal Regulations (CFR), and the United States Air Force (USAF) NEPA regulations Environmental Impact Analysis Process (EIAP) 32 CFR 989.

As part of the USAF EIAP, we request your input on the Proposed Action and assistance in identifying any potential areas of environmental impact to be assessed in this analysis. If you have any specific items of interest about this proposal, please contact Ms. Taylor Janise at taylor.janise.1@spaceforce.mil, (321) 853-6638, or via mail at Taylor Janise, 45 CES/CEIE, 1224 Jupiter Street, Mail Stop 9125, Patrick Space Force Base, Florida 32925 within 30 days of receipt of this letter. Thank you in advance for your assistance in this effort.

Sincerely

BLAYLOCK.MICHAEL.A.1061700630 Digitally signed by BLAYLOCK.MICHAEL.A.1061700630 Date: 2021.08.25 16:03:25 -04'00'

MICHAEL BLAYLOCK, GS-13
Chief, Environmental Conservation

Attachments:
Figure 1. Location Map
Table 1. Projects to be evaluated in the Patrick SFB EA

Appendix A

PATRICK SPACE FORCE BASE EA
FIGURE 1. PATRICK SPACE FORCE BASE LOCATION MAP

DRMP KZF DESIGN

Appendix A

Table 1. Projects to be evaluated in the Patrick SFB EA

Project ID*	Project Name	Description of Project	Approximate Implementation Year
C1	Construct SLD 45 Headquarters	Construct a headquarters facility with administrative and operations areas for SLD 45 Operations staff	2027
C2	Construct Lodging Facility	Construct a Visiting Quarters (VQ) lodging facility to replace the current VQ facilities that would be demolished for the construction of the proposed A1A East Gate	2024
C3	Construct SLD 45/Judge Advocate (JA) Facility	Construct a facility to support the SLD 45/JA mission that would include a courtroom, office space, and administrative support functions	2023
N1	Improve Space Lift Avenue	Construct an intersection at the proposed A1A East Gate (Matador Street) and Space Lift Avenue, resurface Space Lift Avenue, and improve sidewalks in the project area	2022
D1-D3	Demolish Buildings 556, 560, and 561	Demolish obsolete buildings within the airfield operation clear zone (CZ)	2022-2027
C4	Construct 3-Bay C-130J Hangar	Construct a 3-bay C-130J hangar and associated facilities, including corrosion control and washing stations	2023
C5	Construct 920th Rescue Wing Equipment Storage Facility	Construct a high-bay, industrial, climate-controlled Aerospace Ground Equipment (AGE) storage facility	2023
R1	Repair and Upgrade 750 Ramp Lighting	Repair and upgrade the lighting at the 750 Ramp for nighttime and low-visibility operations	2023
C6	Construct 920th Rescue Wing Training Pool	Construct an outdoor, deep-water rescue training pool	2023
R2	Relocate Main Sewer Lift Station (Building 650)	Relocate main sewer lift station away from the Banana River	2022
N2	Construct Family Campground (FAMCAMP) Recreational Facilities	Construct recreational facilities (trails, picnic areas, waterless toilets, educational pavilion, fitness stations, disc golf facility, and parking) near FAMCAMP for use by visitors and base personnel	2026
R3	Improve Recreational Vehicle (RV) Sites at FAMCAMP	Pave the existing gravel RV sites at FAMCAMP	2023
C7	Construct 45 Civil Engineer Squadron (CES) Administration, Operations, and Storage Complex	Construct an administrative building, maintenance shop, storage facility, and supporting infrastructure to consolidate 45 CES operations	2024
C8	Provide Emergency Vehicle Egress Route	Provide emergency egress to State Road (SR) A1A for Patrick SFB Fire and Emergency Services vehicles	2023
R4	Improve Munition Storage Area (MSA) Capacity	Demolish and replace existing munitions storage bunkers	2024
D4	Demolish Building 961	Demolish vacant building that is beyond practical repair	2023
N3	Construct Emergency Wastewater Conveyance	Construct a redundant, emergency wastewater conveyance system	2023
R5	Repair Marina Bulkhead	Repair F Dock by replacing the bulkhead, existing wet slips, and mooring pilings	2024
R6	Replace Lightning Protection System (LPS) at Beach Radar (Building 969)	Repair and update the LPS at Building 969	2023
N4	Construct Multi-use Path from A1A East Gate to South Gate	Construct a multi-use path for pedestrians and cyclists that connects the proposed A1A East Gate to recreational facilities near the South Gate	2025

* Project ID notation: facility construction (C), infrastructure improvement (N), renovation/repair (R), and facility demolition (D)

Appendix A

Agency Responses

City of Cocoa Beach
P.O. Box 322430, 2 South Orlando Avenue
Cocoa Beach, Florida 32932-2430
www.cityofcocoabeach.com

September 28, 2021

Mr. Michael Blaylock
Chief, Environmental Conservation
Patrick Space Force Base
United States Space Force
Space Launch Delta 45
1224 Jupiter Street, Mail Stop 9125
Patrick Space Force Base, FL 32925

Dear Mr. Blaylock:

The City of Cocoa Beach is in receipt of your proposal for 22 installation development projects at Patrick Space Force Base. City staff has evaluated the list of projects to be considered under the environmental assessment (EA). We offer the following comments:

1. Project ID R2: Relocate Main Sewer Lift Station (Building 650)
   a. Building 650 is the main pumping station that discharges into the City's conveyance system. Relocating this station away from the Banana River is 1) very beneficial environmentally and 2) very beneficial to the City's conveyance system and operational functionality at the Treatment Plant. The way the pumping station is set up right now drastically effects the influent flow to our facility. Depending on the full scope of the project this would be a great opportunity for City Staff to work with the engineers on the functionality of building 650 to help the City improve our operations.
   b. I am in full support of this project and would like to be involved with the project and discuss our data with the engineers.

2. Project ID N3: Construct Emergency Wastewater Conveyance
   a. This project description is very vague at the moment. I have been speaking on occasion with a Space Force representative about a potential project that may affect Lift Station #17 on Shearwater Drive. If this is the same project being referenced then we would be in full support of working with engineers to help out and possibly improve our piping network for Pelican Coast and former Patrick Family Housing area.
   b. If this is not the project I am thinking of, then we would need further information on the scope of this project to provide additional comments.

Of concern to the city is that there is not any project reference that specifically addresses PFAS in the groundwater that is impacting levels from the influent coming into our conveyance system, and ultimately, the treatment plant.

Are there planned gravity sewer rehabilitation projects and infiltration studies? Through relocation of Building 650, would they be able to install some type of pre-treatment or carbon filtration systems to aid in the reduction of PFAS levels? This is a serious concern of the City of Cocoa Beach.

Thank you for the opportunity to provide input and please contact my office to discuss any of the items included in this response.

Sincerely,

James P. McKnight
City Manager

cc: City Commission
Brad Kalsow, Water Reclamation Director

Appendix A

City of Melbourne
City Manager's Office
900 E. Strawbridge Avenue • Melbourne, FL 32901 • (321) 608-7200 • Fax (321) 608-7219

September 13, 2021

Mr. Michael Blaylock
Chief, Environmental Conservation, Patrick Space Force Base
United States Space Force, Space Launch Delta 45
Patrick Space Force Base FL 32825

Re: USSF Environmental Assessment Response – Patrick SFB

Dear Mr. Blaylock

Thank you for the opportunity to provide input into the United States Space Force Environmental Assessment process for projects under consideration at Patrick Space Force Base (SFB). Although the proposed construction will take place within the limits of Patrick SFB, as part of your analysis, the City of Melbourne requests consideration of the following:

- Project C4, "Construct 3-Bay C-130J Hangar," includes construction of corrosion control and washing stations. How will runoff be contained so that it does not leach into the soil or impact groundwater and the Indian River Lagoon? What is the back-up safety mechanism to be put into place in the event of a leak?
- Project C6, "Construct 920th Rescue Wing Training Pool," includes construction of a deep-water rescue training pool. How deep is the pool anticipated to be and how will associated chemicals be contained and stored? What safety mechanism will be put into place in the event of a chemical leak?
- Project R2, "Relocate Main Sewer Lift Station (Building 650)," proposes to relocate the main sewer lift station. How and where will the lift station be relocated?
- The list of projects under evaluation includes several demolition projects. How will solid wastes be properly disposed of as they may contain Asbestos, lead-based paint, etc.?
- How will construction-related dewatering take place? Will the extracted water be analyzed for PFAS?

Appendix A

- Patrick SFB is currently conducting an assessment for PFAS. The City requests information related to whether or not these substances have migrated beyond Patrick SFB boundaries and if any have been detected in and/or close to city-owned utility lines.

Thank you for your consideration of the enclosed items. Should you have any questions, please feel free to contact me.

Regards,

Shannon M. Lewis
City Manager

c: Mayor and City Council Members
Alison Dawley, City Attorney
Jenni Lamb, Deputy City Manager
Ralph Reigelsperger, Public Works & Utilities Director
David Wilkison, City Engineer

Appendix A

From: JANISE, TAYLOR M CIV USSF HQSF 45 CES/CEIE-C <taylor.janise.1@spaceforce.mil>
Sent: Wednesday, October 13, 2021 10:46 AM
To: White, Douglas
Cc: Kajumba, Ntale; BLAYLOCK, MICHAEL A GS-13 USSF HQSF 45 CES/CEIE; FISHER, LAURIE B GS-13 USSF HQSF 45 CES/CEIE
Subject: RE: EPA Environmental Assessment Coordination Letter for Patrick Space Force Base

Good morning,

Thank you for your inputs. Your comments will be considered as we move forward with the EA. I will send the Draft EA when it becomes available.

Thank you,

v/r

Taylor Janise
Biological Scientist
45 CES/CEIE
CP: 979-429-1221
DSN: 467-6638
COMM: 321-853-6638

From: White, Douglas <White.Douglas@epa.gov>
Sent: Friday, October 8, 2021 10:55 AM
To: JANISE, TAYLOR M CIV USSF HQSF 45 CES/CEIE-C <taylor.janise.1@spaceforce.mil>
Cc: Kajumba, Ntale <Kajumba.Ntale@epa.gov>
Subject: [Non-DoD Source] EPA Environmental Assessment Coordination Letter for Patrick Space Force Base
Importance: High

Re: EPA Comments on the Notice of Intent to Prepare an Environmental Assessment for Installation Development at Patrick Space Force Base, Brevard County, Florida

Dear Ms. Janise:

The U. S. Environmental Protection Agency (EPA) received the referenced document and has reviewed the subject proposal in accordance with Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The EPA understands that the United States Space Force (USSF) is conducting an Environmental Assessment (EA) for the proposed construction and operation of facilities and infrastructure in support of the missions of

Appendix A

Space Launch Delta 45 (SLD 45) and its tenant units at Patrick Space Force Base (SFB) in Brevard County, Florida.

Under the Proposed Action Alternative, USSF would proceed with the implementation of a priority list that identifies twenty-two potential projects consisting of facility repair and construction, infrastructure including roadways, sidewalks, trails, and utilities, construction and improvement, and facility demolition on Patrick SFB. New construction projects would include a headquarters building for SLD 45, replacement lodging building, judicial building, vehicle entrance facility with associated roads and sidewalks, 3-bay C-130 hangar, Aerospace Ground Equipment (AGE) building, replacement munitions storage bunkers, rescue training pool, main sewer lift station, recreational campground facilities and roads, emergency base access road, emergency wastewater conveyance infrastructure, base bicycle and foot path, and an operational complex to house the 45 Civil Engineering Squadron (CES) including administrative, maintenance, and storage buildings. Repair projects would include airfield lighting, marina piers and bulkhead, and radar lightning protection system. Demolition activities include Buildings 556, 560, and 561 in the airfield clear zone, lodging facility, munitions storage bunkers, and Building 961. The purpose of this EA is for USSF to evaluate the impacts of this Proposed Action.

Upon review of the scoping documents, the EPA notes that the Proposed Action is reasonably compatible with current land use at Patrick SFB. It appears that this project will not have a significant impact on human health and the environment. The EPA has the following comments:

Air Quality and Climate Change: The Proposed Action is located in Brevard County, FL which is in Attainment with the National Ambient Air Quality Standards. The EPA recommends using tools such as the Air Conformity Applicability Model to verify that the Proposed Action will not produce emissions above de minimis levels or contribute toward exceeding Patrick SFB's air emissions permit. Facility construction and operational activities such as storage tanks, fueling operations, and consumption of maintenance materials containing volatile organic compounds should be accounted for by the appropriate air emissions model. The EPA recommends controlling fugitive dust emissions and implementing measures to reduce diesel emissions, such as switching to cleaner fuels, retrofitting current equipment with emission reduction technologies, repowering older equipment with modern engines, replacing older vehicles, and reducing idling through operator training and contracting policies. The EPA also recommends quantification of greenhouse gas emissions resulting from construction and operation of proposed projects, and analysis of resulting social impacts due to climate change, be conducted by the EA.

Wetlands and Streams: Patrick SFB is located on developed land between the Banana River and Atlantic Ocean with onsite wetlands, ditches, and a creek that flow to the Banana river. The EPA recommends that design proposals and construction avoid impacting Waters of the United States (WOTUS) to the maximum extent practicable by locating permanent infrastructure and temporary construction measures away from WOTUS and respective buffers. WOTUS should be delineated and coordination with the US Army Corps of Engineers should be made where proposed activities might enter or affect WOTUS. Mitigation may be required where impacts to WOTUS cannot be avoided. Flood zone and flood inundation maps should be used to help

ensure proposed activities do not take place in floodplains except where alternatives are not practicable.

Water Quality: The Proposed Action would disturb considerable areas of soil during construction and construction stormwater permits will be required before construction projects can begin. Best management practices should be implemented and maintained to mitigate potential impacts. If 45 CES training requirements necessitate regular use of earth moving equipment, permanent sedimentation ponds should be constructed and maintained to prevent introducing sediments to WOTUS. Construction of rainwater runoff control structures designed to leave existing stormwater runoff profiles of respective areas unchanged may be required to mitigate the impacts of land development and construction of impervious surfaces, in accordance with Section 438 of the Energy Independence and Security Act of 2007.

Hazardous Materials and Containment: For the protection of WOTUS, critical habitats, and as required by the Clean Water Act, the EPA recommends the use of secondary containment where storage and handling of Petroleum, Oils, and Lubricants (POL) will take place, such as hangars, aircraft aprons, maintenance bays, and storage sites of single wall POL tanks including those integral to AGE equipment. Where secondary containment is not directly practicable, spill ponds and oil water separators should be constructed downstream of POL related activities. Construction and operation in support of the Proposed Action should ensure that Resource Conservation and Recovery Act (RCRA)-regulated solid wastes generated are disposed of in accordance with federal regulations. The EA should include details of buildings to be demolished including historical activities that may have produced RCRA-regulated solid waste. Department of Defense Installation Restoration Program and state IRP databases should be consulted prior to construction and details of relevant contaminated and land-use-restricted sites included in the EA.

Biological Resources: Critical habitat for Loggerhead Sea Turtles and West Indian Manatees exists in the waters on both sides of Patrick SFB. The EPA principally defers to the National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (FWS) regarding compliance with the Marine Mammal Protection Act and Endangered Species Act and recommends early coordination with NMFS and FWS. The EPA recommends that conservation measures identified by NMFS and FWS be included in the EA.

Environmental Justice: Data from the EPA's EJSCREEN (https://www.epa.gov/ejscreen) mapping tool primarily shows consistency between the demographics of resident populations and the much larger Census Block Groups and local municipalities. As a result, it does not appear that statistically significant minority populations, low-income populations, or children under age 5 are present. Of note are the slightly elevated percentages of residents over 64 years of age. Consistent with Executive Order 12898, Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations, (https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice) please ensure protected populations are not disproportionately or adversely impacted by the proposed projects.

Energy Efficiency and Recycling: The EPA recommends the use of sustainable building practices that maximize energy and water conservation, and the use of renewable energy including solar power for supplemental electricity and lighting for infrastructure, airfields, and buildings that may be constructed. Implementation of renewable energy sources and operational efficiency measures should be included in climate change analysis. Please consult appropriate federal agencies (https://www.energy.gov/eere/femp/sustainable-federal-buildings) for energy conservation requirements. Efforts should be made to reuse and divert recyclable materials such as concrete, steel, and asphalt away from landfills.

Thank you for the opportunity to provide comments on the United States Space Force's proposed Installation Development Project. For effective coordination, please provide this office with an electronic version of the draft EA for further review and keep the local community informed and involved throughout the project process. If you have any questions, feel free to contact me at the information provided in my email.

V/R
Douglas White
U.S. Environmental Protection Agency
Region 4 Strategic Programs Office, NEPA Section
61 Forsyth Street, SW
Atlanta, GA 30303-8960
Office: 404-562-8586
white.douglas@epa.gov

Appendix A

From:	JANISE, TAYLOR M CIV USSF HQSF 45 CES/CEIE-C
To:	Thomas Evans
Cc:	Perry J Jennings; John Juilianna; FISHER, LAURIE B GS-13 USSF HQSF 45 CES/CEIE; BLAYLOCK, MICHAEL A GS-13 USSF HQSF 45 CES/CEIE; BAKER, STEVEN M GS-12 USSF SSC 45 CES/CEIE; LONG, EVA M CIV USSF SSC 45 CES/CEIE; GOSLIN, HEATHER R GS-12 USSF USSPACECOM 45 CES/CEIE; MANDEL, RACHEL N GS-11 USSF SSC 45 CES/CEIE
Subject:	RE: Environmental Assessment Coordination Letter for Patrick Space Force Base
Date:	Tuesday, September 14, 2021 2:35:00 PM
Attachments:	image001.png

Good afternoon Mr. Evans,

I can certainly send over the full DOPAA for you. I will send the document via DOD safe, you will receive an email with a link. You will need to open the link to download the document. I will be sending it over shortly. If you would please provide a list of your comments, it would be greatly appreciated. After reviewing the DOPAA, we would be more than happy to schedule a meeting, just let us know.

Thank you,

v/r

Taylor Janise
Biological Scientist
45 CES/CEIE
CP: 979-429-1221
DSN: 467-6638
COMM: 321-853-6638

From: Thomas Evans <TEvans@sjrwmd.com>
Sent: Thursday, September 9, 2021 10:12 AM
To: JANISE, TAYLOR M CIV USSF HQSF 45 CES/CEIE-C <taylor.janise.1@spaceforce.mil>
Cc: Perry J Jennings <pjenning@sjrwmd.com>; John Juilianna <jjuilianna@sjrwmd.com>
Subject: [Non-DoD Source] Environmental Assessment Coordination Letter for Patrick Space Force Base

Hello Ms. Janise,

I was forwarded a letter from John Juliana regarding comments on an EA for 22 proposed construction projects. I would be happy to schedule a meeting or provide a list of comments on the proposed projects, but would need the full description of projects in order to do so. The comments will likely be very general given the tentative nature of the projects and limited staff time available.

Thank you, Tommy

Appendix A

Tommy Evans
Regulatory Scientist III
Bureau of Environmental Resource Regulation
St. Johns River Water Management District
525 Community College Pkwy • Palm Bay, FL 32909
Office: 321-473-1337
Email: tevans@sjrwmd.com
Website: www.sjrwmd.com
Connect with us: Newsletter, Facebook, Twitter, Instagram, YouTube, Pinterest

www.sjrwmd.com/ePermit

We value your opinion. Please take a few minutes to share your comments on the service you received from the District by clicking this link

Notices
• Emails to and from the St. Johns River Water Management District are archived and, unless exempt or confidential by law, are subject to being made available to the public upon request. Users should not have an expectation of confidentiality or privacy.
• Individuals lobbying the District must be registered as lobbyists (§112.3261, Florida Statutes). Details, applicability and the registration form are available at http://www.sjrwmd.com/lobbyist/

Appendix A

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Florida Ecological Services Field Office

FWS Log No. 04EF1000-2021-I-1605

October 25, 2021

Mr. Michael Blaylock
Chief, Environmental Conservation, Patrick Space Force Base
United States Space Force, Space Launch Delta 45
1224 Jupiter Street, Mail Stop 6125
Patrick Space Force Base FL, 32925

Re: Review of Installation Draft Environmental Assessment (IDEA): Installation Development, Patrick Space Force Base (Patrick SFB), Brevard County, Florida

Dear Mr. Blaylock:

Our office has reviewed your letter, dated August 25, 2021. The document provides an analysis of installation development projects proposed to occur over the next five fiscal years (2022-2027). The general categories of actions include facility repair and construction, infrastructure construction and improvement, and facility demolition at Patrick SFB. The projects are needed to improve the physical infrastructure and functionality or Patrick SFB, to meet Space Launch Delta 45 and tenant unit mission requirements, and to support increased launch operations at Cape Canaveral Space Force Station.

Correspondence

An email correspondence on September 27, 2021 with the Patrick SFB Biological Scientist, Taylor Janise, provided the Service with a full Description of Proposed Action and Alternatives (DOPAA). The document was provided through the Department of Defense (DoD) Secure Access File Exchange (SAFE) system.

An email correspondence with Taylor Janise on October 1, 2021 provided further information about federal trust species, confirmation that the 45 Space Wing Instruction (SWI) 32-7001 was current as of April 23, 2018, and the 45 SWI 32-7002 for the installation's Environmental Impact Analysis Process (EIAP).

National Environmental Policy Act

The IDEA proposes to minimize or avoid impacts to natural resources and wildlife such as migratory birds, state-listed species and species of special concern, as part of the planning and implementation of projects identified in the IDEA. We support this approach to the five-year

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JACKSONVILLE, FL 32256
904-731-3336

1601 BALBOA AVENUE
PANAMA CITY, FL 32405
850-769-0552

1339 20TH STREET
VERO BEACH, FL 32960
772-562-3909

development horizon for actions intended to ensure that the installation can sustain its current and future national security operations, and mission-readiness status. It is our view that by doing so and maintaining close coordination with Federal and state natural resource agencies during this period, we would expect no significant direct, indirect, or cumulative impacts to natural resources resulting from the proposed actions.

Species identified with the potential to be within the terrestrial and aquatic boundaries of Patrick SFB include the threatened eastern black rail (*Laterallus jamaicensis ssp. jamaicensis*), West Indian (Florida) manatee (*Trichechus manatus latirostris*), piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), wood stork (*Mycteria americana*), eastern indigo snake (*Drymarchon corais couperi*), loggerhead sea turtle (*Caretta caretta*), northern crested caracara (*Caracara cheriway*), and the endangered green sea turtle (*Chelonia mydas*), hawksbill sea turtle (*Eretmochelys imbricata*), Kemp's Ridley sea turtle (*Lepidochelys kempii*), and leatherback sea turtle (*Dermochelys coriacea*).

Based on a review of the provided Patrick SFB IDEA DOPAA, we provide the following comments in order of project number regarding conservation recommendations for federal trust species and their habitats. All projects are assumed to have the integration and implementation of any surveys or additional actions as stated in the installation's 2021 Integrated Natural Resources Management Plan (INRMP).

C1 Construct SLD 45 Headquarters:

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Implementation to the most practical extent possible of best management practices regarding new building construction in accordance with the Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 *et seq.*) and the Bald and Golden Eagle Act (BGEA; 16 U.S.C. 668 *et seq.*).

C2 Construct Lodging Facility:

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Implementation to the most practical extent possible of best management practices regarding new building construction in accordance with the Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 *et seq.*) and the Bald and Golden Eagle Act (BGEA; 16 U.S.C. 668 *et seq.*).

C3 Construct SLD 45 / JA Facility:

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Implementation to the most practical extent possible of best management practices regarding new building construction in accordance with the Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 *et seq.*) and the Bald and Golden Eagle Act (BGEA; 16 U.S.C. 668 *et seq.*).

C4 Construct 3-bay C-130 J Hangar

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Implementation to the most practical extent possible of best management practices regarding new building construction in accordance with the Migratory Bird Treaty Act

(MBTA; 16 U.S.C. 703 *et seq.*) and the Bald and Golden Eagle Act (BGEA; 16 U.S.C. 668 *et seq.*).
- Incorporation of silt fencing to the most practical extent possible to reduce the amount of soil disturbance into wetlands, canals, or other bodies of water adjacent to the project.
- A pedestrian survey for eastern indigo snake potential refugia prior to the start of land disturbance projects within potential habitat.

C5 Construct 920 RW Equipment Storage Facility
- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Implementation to the most practical extent possible of best management practices regarding new building construction in accordance with the Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 *et seq.*) and the Bald and Golden Eagle Act (BGEA; 16 U.S.C. 668 *et seq.*).

C6 Construct 920 RW Training Pool
- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Implementation to the most practical extent possible of best management practices regarding new building construction in accordance with the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Act (BGEA).
- Incorporation of silt fencing to the most practical extent possible to reduce the amount of soil disturbance into wetlands, canals, or other bodies of water adjacent to the project.

C7 Construct 45 CES Administration, Operations, Storage Complex
- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Implementation to the most practical extent possible of best management practices regarding new building construction in accordance with the Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 *et seq.*) and the Bald and Golden Eagle Act (BGEA; 16 U.S.C. 668 *et seq.*).

C8 Provide Emergency Vehicle Egress Route
- Implementation of 45 SWI 32-7001 Exterior Lighting Management

R1 Repair and Upgrade 750 Ramp Lighting
- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Investigate the installation of perch deflectors on new lighting fixtures due to an increased possibility of Bird Aircraft Strike Hazards (BASH) impacts to federal trust species resulting from perched avian species on fixtures.

R2 Relocate Main Sewer Lift Station
- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Incorporation of silt fencing to the most practical extent possible to reduce the amount of soil disturbance into wetlands, canals, or other bodies of water adjacent to the project.
- The further this project is implemented from the Banana River, the greater the reduction of risk for potential sewage spills into this or connected waterways.

R3 Improve RV Sites at FAMCAMP

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Incorporation of silt fencing to the most practical extent possible to reduce the amount of soil disturbance into wetlands, canals, or other bodies of water adjacent to the project.

R4 Improve MSA Capacity

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Incorporation of silt fencing to the most practical extent possible to reduce the amount of soil disturbance into wetlands, canals, or other bodies of water adjacent to the project.
- Minimize impacts to potential foraging habitat of wood storks and other avian species foraging in tidal habitats or low-lying areas.
- Any in-water work associated with project should utilize the manatee determination key and stand conditions for in-water work; if manatee's have been observed / have access to the water body.

R5 Repair Marin Bulkhead

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Any in-water work associated with project should utilize the manatee determination key and stand conditions for in-water work; if manatee's have been observed / have access to the water body.

R6 Replace LPS at B969

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Work within the beach area would need to be consulted upon prior to implementation for potential impacts to sea turtle nesting during nesting season.

N1 Improve Space Lift Avenue

- Implementation of 45 SWI 32-7001 Exterior Lighting Management

N2 Construct FAMCAMP Recreational Facilities

- Implementation of 45 SWI 32-7001 Exterior Lighting Management
- Incorporation of silt fencing to the most practical extent possible to reduce the amount of soil disturbance into wetlands, canals, or other bodies of water adjacent to the project.
- Any in-water work associated with project should utilize the manatee determination key and stand conditions for in-water work; if manatee's have been observed / have access to the water body.
- Minimize impacts to potential foraging habitat of wood storks and other avian species foraging in tidal habitats or low-lying areas.

N3 Construct Emergency Wastewater Conveyance

- Implementation of 45 SWI 32-7001 Exterior Lighting Management

N4 Construct Multi-Use Path from A1A East Gate to South Gate

- Implementation of 45 SWI 32-7001 Exterior Lighting Management

For further information on compliance with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) under the Act, please contact Ms. Kelly Shotts, Interagency Cooperation Branch by email at Kelly.shotts@noaa.gov, or 727-824-5301.

Although the Service does not consult on candidate species such as the gopher tortoise (*Gopherus polyphemus*), we further recommend consideration be given to protecting the gopher tortoise on installation to the maximum possible extent consistent with the installation's military mission and Integrated Natural Resources Management Plan (INRMP).

We appreciate the opportunity to review and comment on the IDEA. If you have any questions regarding this response, please contact Mr. Brendan Myers by email at brendan_myers@fws.gov or calling (350) 348-6560.

Christopher Putnam
CHRISTOPHER R PUTNAM
Digitally signed by CHRISTOPHER PUTNAM
Date: 2021.11.04 13:42:10 -04'00'
Environmental Review Supervisor

5

Appendix A

Example of Early Notice sent to Tribal contacts listed in Section 6 of this EA.

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 45

August 25, 2021

Mr. Michael Blaylock
Chief, Environmental Conservation, Patrick Space Force Base
United States Space Force, Space Launch Delta 45
1224 Jupiter Street, Mail Stop 9125
Patrick Space Force Base FL 32925

Mr. Kevin Donaldson
Environmental Specialist
Miccosukee Tribe of Indians of Florida
Tamiami Station
P.O. Box 440021
Miami FL 33144

Dear Mr. Donaldson

The United States Space Force (USSF) is preparing an Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed 22 installation development projects at Patrick Space Force Base (SFB), Florida. A location map (Figure 1) is attached for your reference. The EA identifies installation development projects that would be implemented over the next five years (2022-2027) to support missions of Space Launch Delta 45 (SLD 45) and its tenant units.

The purpose of this EA is to facilitate the installation development process by evaluating priority projects identified for implementation at Patrick SFB in one integrated document. SLD 45 is considering 22 projects (Proposed Action) that include facility repair and construction, infrastructure (e.g., roadways, sidewalks, trails, and utilities) construction and improvement, and facility demolition on Patrick SFB. The projects are listed and described in Table 1, attached. These projects are needed to improve the physical infrastructure and functionality of Patrick SFB, to meet SLD 45 and tenant unit mission requirements, and to support increased launch operations at Cape Canaveral Space Force Station.

The EA will assess the potential environmental impacts that would result from the Proposed Action. The EA will also analyze the No Action Alternative, which reflects the status quo, as a baseline for comparison of potential effects from the Proposed Action. The effects of the Proposed Action will be examined with projects that are reasonably foreseeable and have a reasonably close causal relationship to the Proposed Action or alternatives.

Per Section 306108 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 Code of Federal Regulations (CFR) Part 800, the USSF is engaging

early with tribal governments. In accordance with NHPA, USSF would like to initiate government-to-government consultation regarding the Patrick SFB installation development projects.

USSF requests your input on the Proposed Action and assistance in identifying any potential areas of environmental impact to be assessed in this analysis. Additionally, please advise if this undertaking might adversely affect any historic properties of religious and cultural significance to the Miccosukee Tribe of Florida. If you have any specific items of interest about this proposal, please contact Ms. Taylor Janise at taylor.janise.1@spaceforce.mil, (321) 853-6638, or via mail at Taylor Janise, 45 CES/CEIE, 1224 Jupiter Street, Mail Stop 9125, Patrick Space Force Base, Florida 32925 within 30 days of receipt of this letter. Thank you in advance for your assistance in this effort.

Sincerely

BLAYLOCK.MICHAEL.A.1061700630 Digitally signed by BLAYLOCK.MICHAEL.A.1061700630 Date: 2021.06.25 16:11:42 -04'00'

MICHAEL BLAYLOCK, GS-13
Chief, Environmental Conservation

Attachments:
Figure 1. Location Map
Table 1. Projects to be evaluated in the Patrick SFB EA

Appendix A

PATRICK SPACE FORCE BASE EA
FIGURE 1. PATRICK SPACE FORCE BASE LOCATION MAP

DRMP KZF DESIGN

Appendix A

Table 1. Projects to be evaluated in the Patrick SFB EA

Project ID*	Project Name	Description of Project	Approximate Implementation Year
C1	Construct SLD 45 Headquarters	Construct a headquarters facility with administrative and operations areas for SLD 45 Operations staff	2027
C2	Construct Lodging Facility	Construct a Visiting Quarters (VQ) lodging facility to replace the current VQ facilities that would be demolished for the construction of the proposed A1A East Gate	2024
C3	Construct SLD 45/Judge Advocate (JA) Facility	Construct a facility to support the SLD 45/JA mission that would include a courtroom, office space, and administrative support functions	2023
N1	Improve Space Lift Avenue	Construct an intersection at the proposed A1A East Gate (Matador Street) and Space Lift Avenue, resurface Space Lift Avenue, and improve sidewalks in the project area	2022
D1-D3	Demolish Buildings 556, 560, and 561	Demolish obsolete buildings within the airfield operation clear zone (CZ)	2022-2027
C4	Construct 3-Bay C-130J Hangar	Construct a 3-bay C-130J hangar and associated facilities, including corrosion control and washing stations	2023
C5	Construct 920th Rescue Wing Equipment Storage Facility	Construct a high-bay, industrial, climate-controlled Aerospace Ground Equipment (AGE) storage facility	2023
R1	Repair and Upgrade 750 Ramp Lighting	Repair and upgrade the lighting at the 750 Ramp for nighttime and low-visibility operations	2023
C6	Construct 920th Rescue Wing Training Pool	Construct an outdoor, deep-water rescue training pool	2023
R2	Relocate Main Sewer Lift Station (Building 650)	Relocate main sewer lift station away from the Banana River	2022
N2	Construct Family Campground (FAMCAMP) Recreational Facilities	Construct recreational facilities (trails, picnic areas, waterless toilets, educational pavilion, fitness stations, disc golf facility, and parking) near FAMCAMP for use by visitors and base personnel	2026
R3	Improve Recreational Vehicle (RV) Sites at FAMCAMP	Pave the existing gravel RV sites at FAMCAMP	2023
C7	Construct 45 Civil Engineer Squadron (CES) Administration, Operations, and Storage Complex	Construct an administrative building, maintenance shop, storage facility, and supporting infrastructure to consolidate 45 CES operations	2024
C8	Provide Emergency Vehicle Egress Route	Provide emergency egress to State Road (SR) A1A for Patrick SFB Fire and Emergency Services vehicles	2023
R4	Improve Munition Storage Area (MSA) Capacity	Demolish and replace existing munitions storage bunkers	2024
D4	Demolish Building 961	Demolish vacant building that is beyond practical repair	2023
N3	Construct Emergency Wastewater Conveyance	Construct a redundant, emergency wastewater conveyance system	2023
R5	Repair Marina Bulkhead	Repair F Dock by replacing the bulkhead, existing wet slips, and mooring pilings	2024
R6	Replace Lightning Protection System (LPS) at Beach Radar (Building 969)	Repair and update the LPS at Building 969	2023
N4	Construct Multi-use Path from A1A East Gate to South Gate	Construct a multi-use path for pedestrians and cyclists that connects the proposed A1A East Gate to recreational facilities near the South Gate	2025

* Project ID notation: facility construction (C), infrastructure improvement (N), renovation/repair (R), and facility demolition (D)

APPENDIX B
COASTAL ZONE MANAGEMENT CONSISTENCY DETERMINATION

COASTAL ZONE MANAGEMENT CONSISTENCY DETERMINATION

According to Section 307 of the Coastal Zone Management Act (CZMA), federal projects that affect land uses, water uses, or coastal resources in a state's coastal zone must be consistent, to the maximum extent practicable, with the enforceable policies of that state's federally approved coastal zone management plan. The Florida Coastal Management Program (FCMP) is based on a network of state agencies implementing 24 enforceable policies (statutory authorities) that protect and enhance Florida's natural, cultural, and economic coastal resources. The Florida Department of Environmental Protection (FDEP) implements the FCMP and makes the state's final consistency determination, which will either agree or disagree with the applicant's own consistency determination.

It is anticipated that the Proposed Action would be consistent with the CZMA and FCMP. Table C-1 provides a summary of the 24 enforceable policies and the Proposed Action's consistency with each policy.

Table C-1. Coastal Zone Management Consistency Determination
EA for Installation Development at Patrick SFB

Florida Statute	Legal Scope	Consistency Evaluation
Chapter 161 *Beach and Shore Preservation*	Authorizes the Bureau of Beaches and Coastal Systems within FDEP jurisdiction to regulate construction on or seaward of the state's beaches.	The Proposed Action would not adversely affect beach and shore management, specifically as it pertains to the Coastal Construction Permit Program, the Coastal Construction Control Line (CCCL) Program, and the Coastal Zone Protection Program. The Proposed Action would occur entirely within Patrick Space Force Base (SFB) and would not occur seaward of the CCCL.
Chapter 163, Part II *Growth Policy; County and Municipal Planning; Land Development Regulation*	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.	The Proposed Action would occur entirely within Patrick SFB and, therefore, would not affect municipal or county government comprehensive plans.
Chapter 186 *State and Regional Planning*	Details state level planning requirements. Requires the development of special statewide plans governing water use, land development, and transportation	As part of the National Environmental Policy Act (NEPA) process, the Proposed Action has been coordinated with Federal, state and local governments and agencies, including the FDEP State Clearinghouse, for compatibility with state and regional planning.
Chapter 252 *Emergency Management*	Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and man-made disasters.	The Proposed Action would occur entirely within Patrick SFB and would not have an effect on the ability of the state to respond to or recover from natural or manmade disasters.
Chapter 253 *State Lands*	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.	The Proposed Action would occur entirely within Patrick SFB. No state lands would be disturbed during the construction, renovation, infrastructure construction, or demolition and, therefore, would not be affected.
Chapter 258 *State Parks and Preserves*	Addresses administration and management of state parks and preserves.	The Proposed Action would not directly impact state parks, recreational areas or preserves. Secondary or indirect impacts to environmental or social resources related to the Proposed Action are not anticipated. Opportunity for recreation on state lands would not be affected.
Chapter 259 *Land Acquisition for Conservation or Recreation*	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.	The Proposed Action would occur entirely within Patrick SFB and would not have an effect on the acquisition of environmentally endangered or outdoor recreation lands.

Chapter 260 *Recreational Trails System*	Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system.	The Proposed Action would occur entirely within Patrick SFB and would impact the acquisition of land to create a recreational trails system.
Chapter 267 *Historical Resources*	Addresses management and preservation of the state's archaeological and historical resources.	The Proposed Action is not anticipated to adversely affect historical or cultural resources of the State of Florida. Section 106 of the National Historic Preservation Act (NHPA) consultation with the Florida SHPO is ongoing. Any mitigation measures identified during the consultation will be included in the Final Environmental Assessment (EA).
Chapter 288 *Commercial Development and Capital Improvements*	Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy.	The Proposed Action would occur entirely on an active military installation with limited access to the public and limited or no implications for or effect on general business, trade, and tourism components of the state economy.
Chapter 334 *Transportation Administration*	Addresses the state's policy concerning transportation administration.	The Proposed Action would not have an impact on the state's transportation administration policies.
Chapter 339 *Transportation Finance and Planning*	Addresses the finance and planning needs of the state's transportation system.	The Proposed Action would not have an effect on the finance and planning needs of the state's transportation system.
Chapter 373 *Water Resources*	Addresses the state's policy concerning water resources.	The Proposed Action could have negligible to minor impacts on surface waters and groundwater. Short-term, indirect, negligible impacts from soil disturbance could create non-point source water pollution; however, best management practices (BMPs) would be utilized to reduce the chance of impacts on surface water resources. The Proposed Action could impact up to seven acres of floodplains and could decrease the beneficial values that floodplains provide; however, all impacts occur entirely within Patrick SFB and would result in negligible to minor impacts on floodplains. During the design and permitting phase of the project, measures would be implemented to avoid/minimize floodplain impacts, and mitigation would be provided for unavoidable floodplain impacts. The Proposed Action could impact up to 0.5 acres of wetlands and up to 0.5 acres of other surface waters. During the design and permitting phase of the project measures would be implemented to avoid/minimize impacts to wetlands and other surface waters and, through coordination with the United States Army Corps of Engineers (USACE) and the St. Johns River Water Management District (SJRWMD), appropriate mitigation will be identified to offset unavoidable impacts. Overall, there would be no significant impacts on water resources as a result of the Proposed Action.
Chapter 375 *Outdoor Recreation and Conservation Lands*	Develops comprehensive multipurpose outdoor recreation plans to document recreational supply and demand describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs.	The Proposed Action occurs entirely within Patrick SFB and would not impact the state's development or evaluation of multipurpose outdoor recreation plans.

Chapter 376 *Pollutant Discharge Prevention and Removal*	Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.	Patrick SFB currently maintains a stormwater discharge permit from FDEP. The Proposed Action would implement project-specific BMPs in accordance with this existing or modified permit conditions. In addition, the contractor for each project would be required to prepare a *Spill Prevention, Control, and Countermeasure Plan* documenting measures to prevent accidental release of petroleum, oil, and lubricants to the environment and, should they occur, the corrective action to minimize environmental impacts. The Proposed Action would not alter the types of hazardous and other regulated materials used at Patrick SFB (e.g., cleaning solvents, lubricants). No involvement with or impact to hazardous materials or wastes is anticipated. The Proposed Action would not involve the transfer of pollutants between vessels; between onshore facilities and vessels; between offshore facilities and vessels; or between terminal facilities within jurisdiction of the state and state waters.
Chapter 377 *Energy Resources*	Addresses regulation, planning, and development of energy resources of the state.	Implementation of the Proposed Action would not cause unsupportable demands on available natural resources or energy supplies, and the construction and operation of the Proposed Action would not require nonrenewable resources.
Chapter 379 *Fish and Wildlife Conservation*	Addresses management and protection of fish and wildlife in the state.	The Proposed Action would have minimal impacts on vegetation potentially utilized by wildlife. The majority of Patrick SFB is developed; however, undeveloped uplands and wetlands/other surface waters potentially provide habitat to wildlife species. However, the small number of individuals that may be impacted from the implementation of the Proposed Action would not appreciably reduce the overall population of wildlife species found known to occur within the region. It is anticipated that the Proposed Action will have "no effect" or "may affect, but not likely to adversely affect" protected species. Coordination with the 45th Civil Engineer Squadron Environmental Office (45 CES/CEIE) would be required during the design and permitting phase of each project within the Proposed Action to ensure compliance with the *Installation Natural Resources Management Plan* (INRMP) and federal and state agency guidelines. Lighting systems would be designed to avoid or reduce illumination effects on sea turtles in accordance with USFWS guidelines and coordination with 45 CES/CEIE would be required prior to any ground disturbing activities. If any gopher tortoise burrows cannot be avoided by 25 feet, the tortoises would be relocated in accordance with the current INRMP. If gopher tortoises are in close proximity to the construction site, silt fencing or some other type of barrier would be erected to keep tortoises from moving into the construction area after surveys have been completed.
Chapter 380 *Land and Water Management*	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.	The Proposed Action would be consistent with local land and water management plans. The projects within the Proposed Action are subject to federal and state permit, stormwater, and environmental regulations and will

		require coordination with and authorization from the USACE, FDEP and SJRWMD.
Chapter 381 *Public Health, General Provision*	Establishes public policy concerning the state's public health system.	The Proposed Action does not involve the construction of an onsite sewage treatment and disposal system. Construction activities associated with the Proposed Action is governed by regulations established by the Air Force Occupational Safety and Health (AFOSH) Program and the Occupational Safety and Health Administration (OSHA). No appreciable change in the type, quantity, or disposal of solid wastes is expected. The Proposed Action would not impact public policy or management in regard to sanitation, communicable diseases, or public health.
Chapter 388 *Mosquito Control*	Addresses mosquito control efforts in the state.	The Proposed Action would not affect local mosquito control efforts or contribute to increased propagation of mosquitos.
Chapter 403 *Environmental Control*	Establishes public policy concerning environmental control in the state.	The Proposed Action would include project-specific BMPs and pollution prevention measures for the construction and operation of each project. The Proposed Action is not expected to exceed applicable state water quality standards or have substantial and long-term water quality impacts. Air pollutant emissions associated with the construction of the Proposed Action would not exceed federal or state significance thresholds or cause exceedances of air quality standards. Changes to the long-term air emissions resulting from the Proposed Action are expected to be negligible. Construction and operational wastes would be collected, transported, recycled, and disposed of in compliance with applicable federal, state and local regulations. USSF would obtain and comply with all applicable permits as required by law.
Chapter 553 *Building Construction Standard*	Provides a mechanism for the uniform adoption, updating, amendment, interpretation, and enforcement of a single, unified state building code, to be called the Florida Building Code. Obtain a permit from the appropriate enforcing agency.	The Proposed Action would not affect the Building Construction Standards of the State of Florida. USSF would obtain and comply with all applicable permits as required by law.
Chapter 582 *Soil and Water Conservation*	Provides for the control and prevention of soil erosion.	Prior to construction of each project within the Proposed Action, a project-specific Stormwater pollution prevention plan (SWPPP) would be developed and followed, and project-specific BMPs addressing erosion and sediment controls would be implemented to minimize impact to soils and water quality. The Proposed Action would be consistent with the current characteristic features of the area and landscape and would not result in any changes to land use. The Proposed Action would not affect soils or farmland within a Soil and Water Conservation District and would not convert prime farmland.
Chapter 597 *Aquaculture*	Establishes public policy concerning the cultivation of aquatic organisms.	The Proposed Action has no activities related to the cultivation of marine species in the Study Area. The Proposed Action activities would not affect aquaculture.
Source: Florida Statutes, as identified in table.		

APPENDIX C
AIR QUALITY

Air Quality

This appendix presents an overview of the CAA and FDEP Air Permitting and Compliance and Enforcement sections and their requirements, as well as calculations, including the assumptions used for the air quality analyses presented in the IDEA.

C-1 Air Quality Program Overview

The U.S. Environmental Protection Agency (USEPA) sets National Ambient Air Quality Standards (NAAQS) in order to protect the public health and environmental welfare under CAA of 1990. The USEPA has identified the following six criteria air pollutants for which NAAQS are applicable: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and sulfur dioxide (SO_2). USEPA calls these "criteria" air pollutants because it sets standards for information regarding their effects of health or welfare. As part of these criteria, it established two standards: Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The CAA gives the states the authority or establish air quality rules and regulations that must be equivalent to, or more stringent than, the federal program. In 2020, the State of Florida repealed sections of the Florida Administrative Code (FAC) Chapter 62-204, *Air Pollution Control*, which outlines the general provisions for air pollution control in the state. However, FAC Chapter 62-204.800 was modified and the State of Florida adopted all federal regulations, and FDEP is still responsible for administering the air quality program in the state. In addition, the FDEP was required by USEPA to update Florida State Implementation Plan. In July 2021, the USEPA approved FDEP's State Implementation Plan (SIP) for attaining and maintaining compliance with NAAQS under 40 CFR Part 52, Subpart K-Florida. The State of Florida has adopted the federal NAAQS as shown in Table C -1. Based on measured ambient air pollutant concentrations, the USEPA designates areas of the United States as having air quality better than the NAAQS (attainment), worse than the NAAQS (nonattainment), and unclassifiable. The areas that cannot be classified (on the basis of available information) as meeting or not meeting the NAAQS for a particular pollutant are "unclassifiable" and are treated as attainment areas until proven otherwise. Attainment areas can be further classified as "maintenance" areas, which are areas previously classified as nonattainment areas but where air pollutant concentrations have been successfully reduced to below the standard. Maintenance areas are subject to special maintenance plans and must operate under some of the nonattainment area plans to ensure compliance with the NAAQS. Brevard County is in attainment for all criteria pollutants.

The CAA requires that each state develop a SIP that sets forth the provision that will be imposed within the jurisdictional boundary of the state. The SIP provides the means for implementation, maintenance, and enforcement measures needed to attain and maintain the NAAQS within each state, and it also includes control measures, emissions limitations, and other provisions required to attain and maintain the NAAQS. The purpose of the SIP is to provide a control strategy that result in attainment and maintenance of the NAAQS and demonstrate that progress is being made in attaining the standards in each nonattainment areas.

A general conformity analysis is required to be conducted for areas designated as nonattainment or maintenance of the NAAQS if the action's direct and indirect emissions have a potential to emit one or more of the six criteria pollutants at or above concentrations standards shown in Table C-1 or the *de minimis* emission rate thresholds in Table C-2.

Table C-1: Federal Air Quality Standards

Pollutant		Primary/Secondary Standards	Averaging Time	Level
Carbon Monoxide (CO)		Primary	1 Hour	35 ppm
			8 Hours	9 ppm
Lead (Pb)		Primary/Secondary	Rolling 3 Month Average	0.15 µg/m3
Nitrogen Dioxide (NO_2)		Primary	1 Hour	100 ppb
		Secondary	1 Year	53 ppb
Ozone (O_3)		Primary/Secondary	8 Hours	0.070 ppm
Particle Pollution (PM)	$PM_{2.5}$	Primary	1 Year	12.0 µg/m^3
		Secondary	1 Year	15.0 µg/m^3
		Primary/Secondary	24 Hours	35 µg/m^3
	PM_{10}	Primary/Secondary	24 Hours	150 µg/m^3
Sulfur Dioxide (SO2)		Primary	1 Hour	75 ppb
		Secondary	3 Hours	0.5 ppb

Source: https://www.epa.gov/criteria-air-pollutants/naaqs-table
Notes: ppb: parts per billion by volume
ppm: parts per million by volume
µg/m3: micrograms per cubic meter

Table C-2: Federal *De Minimis* Emission Rates in Non-Attainment and Attainment/Maintenance Areas

Pollutant	Area or Zone	Tons Per Year
Non-Attainment Areas (NAAs)		
Ozone (VOCs or NOx)	Serious NAAs	50
	Severe NAAs	25
	Extreme NAAs	10
	Other Zone NAAs Outside an Ozone Transport Region	100
VOC	Marginal and Moderate NAAs Inside an Ozone Transport Region	50
NOx	Marginal and Moderate NAAs Inside an Ozone Transport Region	100
CO	All NAAs	100
SO_2 or NO_2	All NAAs	100
PM_{10}	Moderate NAAs	100
	Serious NAAs	70

Pollutant	Area or Zone	Tons Per Year
$PM_{2.5}$ (Direct Emissions, SO_2, NOx, VOC, and Ammonia)	Moderate NAAs	100
	Serious NAAs	70
Pb	All NAAs	25
Attainment/Maintenance Areas		
Ozone (NOx, SO_2 or NO_2)	All maintenance areas	100
	Maintenance Area Inside an Ozone Transport Region	50
	Maintenance Area Outside an Ozone Transport Region	100
CO	All Maintenance Areas	100
PM_{10}	All Maintenance Area	100
$PM_{2.5}$	Direct Emissions, SO_2, NOx, VOC, and Ammonia	100
	All Maintenance Areas	100
Pb	All Maintenance Areas	25

Source: https://www.epa.gov/general-conformity/de-minimis-tables
VOC: Volatile Organic Compounds
NOx: Generic terms for nitrogen oxides

In attainment areas, major new or modified stationary sources of air emissions on and in the area are subject to Prevention of Significant Deterioration (PSD) review to ensure that these sources are constructed without causing significant adverse deterioration of the clean air within an area. A major new source is defined as one that has the potential to emit any pollutant regulated under the CAA in amounts equal to or exceeding specific major source thresholds, that is, 100 tons/year based on the source's industrial category. A major modification is a physical change or change in the method of operation at an existing major source that causes a significant "net emissions increase" at that source of any regulated pollutant.

C-2 Regulatory Comparison

The CAA Section 176(c), General Conformity, requires federal agencies to demonstrate that their proposed activities would conform to the applicable SIP for attainment of the NAAQS. General conformity applies only to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual *de minimis* thresholds identified in the rule, a formal conformity determination is required of that action. The thresholds are more restrictive as the severity of the nonattainment status of the region increases. The ROI for the air quality analysis, Brevard County, is in attainment for all criteria pollutants. (40 CFR 81.310 – Florida).

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (General Conformity Rule, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: PATRICK AFB
State: Florida
County(s): Brevard
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Environmental Assessment for Installation Development at Patrick Space Force Base

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2023

e. Action Description:

This EA evaluates the potential environmental impacts that may arise from the Proposed Action, which includes 19 projects identified in the DDP that are anticipated to be implemented within the next 5 years (2023–2028) at Patrick SFB. This document treats each project as a discrete Proposed Action and evaluates each project and its alternatives separately.

f. Point of Contact:

Name: Charles Smith
Title: Multimodal Environmental Manager
Organization: DRMP, Inc.
Email: crsmith@drmp.com
Phone Number: 407-362-1307

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions.

"Air Quality Indicators" were used to provide an indication of the significance of potential impacts to air quality. These air quality indicators are EPA General Conformity Rule (GCR) thresholds (de minimis levels) that are applied out of context to their intended use. Therefore, these indicators do not trigger a regulatory requirement; however, they provide a warning that the action is potentially significant. It is important to note that these indicators only provide a clue to the potential impacts to air quality.

Given the GCR de minimis threshold values are the maximum net change an action can acceptably emit in non-attainment and maintenance areas, these threshold values would also conservatively indicate an action's emissions within an attainment would also be acceptable. An air quality indicator value of 100 tons/yr is used based on the
GCR de minimis threshold for the least severe non-attainment classification for all criteria pollutants (see 40 CFR
93.153). Therefore, the worst-case year emissions were compared against the GCR Indicator and are summarized
below.

Analysis Summary:

2023

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.588	100	No
NOx	9.134	100	No
CO	11.591	100	No
SOx	0.025	100	No
PM 10	1.836	100	No
PM 2.5	0.394	100	No
Pb	0.000	25	No
NH3	0.007	100	No
CO2e	2404.2		

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	6.540	100	No
NOx	28.403	100	No
CO	37.622	100	No
SOx	0.090	100	No
PM 10	35.702	100	No
PM 2.5	1.149	100	No
Pb	0.000	25	No
NH3	0.021	100	No
CO2e	8757.4		

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	4.707	100	No
NOx	13.870	100	No
CO	19.092	100	No
SOx	0.044	100	No
PM 10	32.726	100	No
PM 2.5	0.550	100	No
Pb	0.000	25	No
NH3	0.011	100	No
CO2e	4251.9		

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.683	100	No
NOx	3.503	100	No
CO	5.215	100	No
SOx	0.013	100	No
PM 10	1.902	100	No
PM 2.5	0.137	100	No
Pb	0.000	25	No
NH3	0.003	100	No
CO2e	1213.6		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.974	100	No
NOx	4.931	100	No
CO	7.681	100	No
SOx	0.016	100	No
PM 10	2.818	100	No
PM 2.5	0.209	100	No
Pb	0.000	25	No
NH3	0.004	100	No
CO2e	1587.2		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.480	100	No
NOx	5.899	100	No
CO	8.917	100	No
SOx	0.020	100	No
PM 10	27.946	100	No
PM 2.5	0.230	100	No
Pb	0.000	25	No
NH3	0.006	100	No
CO2e	1952.6		

2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.261	100	No
NOx	3.945	100	No
CO	3.274	100	No
SOx	0.070	100	No
PM 10	0.333	100	No
PM 2.5	0.333	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	4496.2		

2030 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.261	100	No
NOx	3.945	100	No
CO	3.274	100	No
SOx	0.070	100	No
PM 10	0.333	100	No
PM 2.5	0.333	100	No
Pb	0.000	25	No
NH3	0.000	100	No
CO2e	4496.2		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

_____ 03/23/2022

Charles Smith, Multimodal Environmental Manager — DATE