DEPARTMENT OF THE ARMY
HEADQUARTERS, FORT STEWART
DIRECTORATE OF PUBLIC WORKS

IN CONJUNCTION WITH
LIBERTY COUNTY DEVELOPMENT AUTHORITY

FINAL PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

FOR

WRIGHT ARMY AIRFIELD / MIDCOAST REGIONAL AIRPORT IMPROVEMENTS PROJECTS

FORT STEWART, GEORGIA

March 2024

IN COMPLIANCE WITH THE NATIONAL COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL POLICY ACT of 1969

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

FOR

IMPLEMENTATION of AIRFIELD IMPROVEMENT PROJECTS AT WRIGHT ARMY AIRFIELD/MIDCOAST REGIONAL AIRFIELD ON

FORT STEWART, GEORGIA

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Date: MAR 0 8 2024

DEPARTMENT OF DEFENSE
UNITED STATES ARMY
FINAL FINDING OF NO SIGNIFICANT IMPACT
IMPLEMENTATION OF AIRFIELD IMPROVEMENT PROJECTS AT
WRIGHT ARMY AIRFIELD / MIDCOAST REIONAL AIRFIELD,
FORT STEWART, GEORGIA

1.0 Introduction

Fort Stewart, Georgia (FSGA), is a U.S. Army Installation Management Command Installation located in southeastern Georgia. Consisting of 280,000 acres, it is located adjacent to the city of Hinesville and within portions of five separate counties (Bryan, Evans, Liberty, Long, and Tattnall). The installation is home to the 3rd Infantry Division, a combined arms and infantry division and a direct subordinate unit of the XVIII Airborne Corps, collectively serving as a major power project platform providing a full spectrum of individual and collective training for combat, combat service, and combat service support personnel.

Wright Army Airfield (WAAF)/MidCoast Regional Airfield (MCRA) is a joint-use military and Civilian airfield on FSGA operated and maintained by the U.S. Army at FSGA and the Liberty County Development Authority (LCDA). The LCDA maintains improvements on its exclusive use area (EUA) via an easement with the Army; the Army maintains improvements on the military side of the airfield and has oversight of the overall airfield, as the owner of its underlying land. The Army and LCDA have proposed the implementation of a series of airfield improvement projects to ensure the support of critical Civilian and military mission execution, improve usability of the overall airfield, and allow the joint-use airfield to adapt to future demand as it develops into an important economic and strategic hub for the region.

In accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality, and 32 Code of Federal Regulations Part 651 (Environmental Effects of Army Actions), a Programmatic Environmental Assessment (PEA) was prepared to analyze the potential impacts of implementing these projects, resulting in a Finding of No Significant Impact (FONSI). As some work will occur within wetlands and floodplains, a Finding of No Practicable Alternative (FONPA) was also prepared.

2.0 Proposed Action

The proposed action is to implement required improvements at WAAF/MCRA, to include the expansion of the current exclusive use area (EUA).

3.0 Description of the Alternatives

3.1 Alternative I: No Action Alternative

Under this alternative, the proposed action will not be implemented. This alternative does not meet the purpose and need of the proposed action but is included to meet the Council on Environmental Quality regulations that implement NEPA, which requires a

clear basis for choice among options by the decision maker and the public (40 Code of Federal Regulations 1502.14[d]).

3.2 Alternative II: Proposed Action (Preferred)

Under this alternative, the Army, in conjunction with the LCDA, will construct all elements of their near-term strategic plan, as identified in Table 1 of the PEA. This includes Land Acquisition, Perimeter Security Fencing, and Construct Access Road. All activities will be planned to minimize negative effects to existing environmentally sensitive areas, such as wetlands and threatened and endangered species habitat. Stormwater control, wetland mitigation, and permitting in accordance with the Clean Water Act (CWA) are essential components of this alternative. This alternative meets the purpose and need of the proposed action.

3.3 Alternatives Considered but Eliminated

Alternative III: Land Acquisition, Fence Construction, No Road Construction

Under this alternative, the Army and LCDA will construct perimeter security fencing and implement land acquisition to support expansion of the EUA but would not construct the access road. This results in an increased traffic congestion and security burden on FSGA to maintain security for all traffic, Civilian and military, related to WAAF/MCRA. This alternative does not meet the purpose and need of the proposed action and was eliminated from further evaluation.

Alternative IV: Land Acquisition, Access Road Construction, No Fence Construction

Under this alternative, the Army and LCDA will construct the new access road and implement land acquisition to support expansion of the EUA but would not construct perimeter security fencing. This would alleviate some security concerns and traffic congestion (as discussed under Alternative III), however, this would not address security threats and wildlife encroachment in the runway areas. Accordingly, this alternative does meet the purpose and need and was eliminated from further evaluation.

Alternative V: Land Acquisition, No Fence Construction, No Road Construction

Under this alternative, the Army and LCDA will implement the expansion of the EUA, but the construction of the access road and security fence will not occur. This will result in the airfield still facing the current challenges related to security. Accordingly, this alternative does meet the purpose and need and was eliminated from further evaluation.

4.0 Environmental Analysis

Under the Preferred Alternative (Alternative II), construction is anticipated to result in short-term indirect and direct negligible adverse impacts to drought and long-term minor indirect adverse impacts to riverine and coastal flooding in the Study Area. Portions of the access road will be constructed through wetlands and floodplains; however, the installation will use its design process to minimize the amount of disturbance and will

adhere to all federal, state, and local laws and regulations. Construction is also anticipated to result in short-term direct minor adverse impacts to noise, air quality, and hazardous materials and wastes, and the installation will employ standard Best Management Practices (BMPs) to minimize potential impacts. Long-term, direct, minor adverse impacts are anticipated to wildlife, primarily due to loss of habitat from construction. No impacts are anticipated to protected species, migratory birds, cultural resources, earth resources, land use, utilities, environmental justice, and socioeconomics. None to negligible impacts are anticipated from ongoing operation, repair, and maintenance following construction, as installation protocols and BMPs will be followed.

The No Action Alternative (Alternative I) is anticipated to result in none to negligible adverse impacts to installation resources, as routine and ongoing operations are implemented by persons familiar with installation protocols and BMPs and adhere to federal, state, and local laws and regulations to ensure impacts are minimized.

5.0 Mitigation and Monitoring Measures

Implementation of the Preferred Alternative (Alternative II) will entail enacting mitigation and monitoring measures for potential impacts to wetlands, as summarized below. No mitigation is required for any other resources, beyond standard, routine minimization measures and BMPs, to include adherence to federal, state, local, and installation laws, regulations, policies, and procedures, as applicable (for a full discussion of these minimization measures and BMPs, see the full text of the PEA).

Wetlands surveys and jurisdictional delineation indicate that 1.703 acres of jurisdictional wetlands will be impacted by the construction of the proposed access road within the study area. jurisdictional wetlands, as well as interconnected floodplains at this location; however, the project footprint has been extensively adjusted by installation Point of Contacts to minimize impacts to the greatest extent possible, and a jurisdictional determination is complete. Impacts will be offset through LCDA's purchase of 1.60 wetlands mitigation credits from a commercial mitigation bank whose primary service area is located within the FSGA region. Construction of security fencing on the eastern side of WAAF/MCRA may also impact wetlands and floodplains; however, this project is currently in the concept phase only and exact impacts are undetermined; the installation will work diligently to avoid impacts to the greatest extent possible as this project develops.

6.0 Public Review and Comments

In accordance with 32 Code of Federal Regulation Part 651, the Notice of Availability (NOA) of the Draft PEA/Draft FONSI/Draft FONPA for this action was published in the *Coastal Courier*, which covers the Hinesville/FSGA geographic area for a 30-day public review period (December 8, 2023-Janurary 6, 2024). Notification of the document's availability was mailed to the members of the regulatory community and joint land use partners with whom the installation consults and who have jurisdiction that could be affected by the Proposed Action.

One comment was received during the public review period. The GA Environmental Protection Division (EPD)-Land Protection Branch (LPB) requested that the PEA more clearly identify a remediation site proximate to a project discussed in the PEA and that a list of acronyms be added to the PEA. Accordingly, new text, one new figure, and a list of acronyms were added to the PEA. No other comments were received, and no further action is required; accordingly, the PEA, FONSI, and FONPA were finalized. A copy of the NOA and all letters mailed to/received from the regulatory/local community are in Appendix J of the Final PEA.

7.0 Conclusions

Based on a careful review of the information and analysis presented in the PEA, which is incorporated by reference, I have determined that no significant direct, indirect, and cumulative impacts to the human and/or natural environment will occur as a result of implementation of the proposed action, *Implementation of Airfield Improvement Projects at WAAF / MCRA on FSGA.* The Army concludes that the Proposed Action is not a major Federal action that would significantly affect the quality of the environment per Section 102(2)(c) of NEPA and an environmental impact statement is not required and will not be prepared. This decision meets the requirements of NEPA and its implementing regulations and has been made after accounting for all submitted information and considering a full range of reasonable alternatives and all environmental impacts.

MAR 0 8 2024

MARC J. AUSTIN
Colonel, IN
Commanding

Date

DEPARTMENT OF DEFENSE

UNITED STATES ARMY

PROGRAMMATIC FINDING OF NO PRACTICABLE ALTERNATIVE

TO IMPLEMENT AIRFIELD IMPROVEMENT PROJECTS AT

WRIGHT ARMY AIRFIELD/MIDCOAST REGIONAL AIRFIELD ON

FORT STEWART, GEORGIA

1.0 INTRODUCTION

Fort Stewart, Georgia (FSGA), is a U.S. Army Installation Management Command installation in southeastern Georgia (GA) (Figure 1). Located adjacent to the city of Hinesville, it is home to the 3rd Infantry Division, a combined arms and infantry division. Wright Army Airfield/MidCoast Regional Airfield (WAAF/MCRA) is a 2,498-acre joint use military and civilian airfield on FSGA, operated and maintained by FSGA and the Liberty County Development Authority (LCDA). The LCDA maintains all improvements on the civilian portion of the airfield within their exclusive use area (EUA), and FSGA maintains all improvements on the military side of the airfield and maintains overall oversight of the airfield as the owner of the underlying land.

Wright Army Airfield/MCRA contains 220 acres of floodplains and 180 acres of wetlands, often interconnected and overlapping. These and other siting restrictions, such as avoiding existing construction and aircraft safety zones (Figure 2), can make siting future projects difficult, and installation subject matters experts (SMEs) have therefore become adept at ensuring proper design, impact minimization measures, and best management practices (BMPs) are incorporated into all actions implemented on the airfield. These SMEs work diligently to shift projects our of wetlands and floodplains where possible and minimize impacts where they cannot be avoided. Fort Stewart and the LCDA drew upon their experience when siting projects in the WAAF Area Development Plan (ADP) and the LCDA Airport Layout Plan (ALP), the analysis of which was the subject of a Programmatic Environmental Assessment (PEA), Finding of No Significant Impact (FONSI), and Programmatic Finding of No Practicable Alternative (PFONPA).

This PFONPA and its associated PEA and FONSI were available for a 30-day public review (December 8, 2023-Janurary 6, 2024) on the installation webpage and a notice of its availability was published in the Coastal Courier and the FSGA Marne Message. A copy of the draft PEA, draft FONSI, and draft FONPA were also mailed to the regulatory community and joint land use partners with whom the installation consults. No comments were received on the PFONPA. This finding incorporates the analysis in the PEA, which was written in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations that implement NEPA, and 32 Code of Federal Regulations Part 651, Environmental Analysis of Army Actions.

2.0 PROPOSED ACTION

The U.S. Army at FSGA proposes to implement a PFONPA to meet current and future mission, security, and infrastructure needs on WAAF/MCRA. These actions are needed to implement critical actions that support critical civilian and military mission execution, improve usability of the overall airfield, and allow the joint-use airfield to adapt to future demand as it develops into an important economic and strategic hub for the region. A programmatic document is the appropriate means to accomplish the proposed action due to the high likelihood of individual ADP/ALP projects impacting wetlands and/or floodplains.

All but three of the projects identified for implementation in the ADP/ALP for WAAF/MCRA were sufficiently analyzed in prior NEPA analysis and are not discussed in this PFONPA. They are addressed in Records of Environmental Consideration (REC) for the Replacement of Airfield Signage and Lighting and Replacement of an Instrument Landing System; and the REC Checklist validating the tiering from the PEA for Real Property Master Planning on Installation Management Command Installations for the Overlay Existing Apron, Repair Runway 15L/33R, Rehabilitation of Runway 6L/24R, Remove Interior Runways, Construct New 12-Unit Hangars, Construct Two Storage Hangars, Demolish WWII Era Buildings, and Renovate Building 7733. Copies of the RECs and REC Checklist are an appendix to the WAAF/MCRA PEA. This PFONPA specifically addresses the following (Figure 3):

a. Expansion of the EUA. The LCDA will add 84.11 acres to the 34.56 acres they currently operate and maintain at the WAAF/MCRA, resulting in a total EUA of 118.67 acres. The only actions anticipated to result in impacts to wetlands and floodplains within the expanded EUA are the construction of the civilian terminal access road and the installation of security fencing, as discussed below (b and c).

b. Installation of Security Fencing. New fencing (1,043 linear feet) is proposed along the eastern boundary of the airfield to enhance security along the civilian portion of the airfield and ensure compliance with all airfield safety regulations.

c. Construction of Civilian Access Road. A new road is proposed to provide dedicated civilian access to the civilian portion of the airfield that does not require users to traverse military land. Currently, all travelers to the airport (military and civilian) must use a single access road across FSGA land. The proposed new road will allow civilian use of the airfield to continue should national security requirements necessitate a closure of all civilian traffic through the military portion of the installation.

3.0 IMPACTS AND MITIGATION MEASURES

3.1 Floodplain

Executive Order (EO) 11988, and EO 13690, Establishing a Federal Flood risk Management Standard, state that if the only practicable alternative requires siting in a floodplain, the agency shall, prior to taking action, design or modify its action to minimize potential harm to or within the floodplain. It is the Department of Defense

policy and goal to minimize construction within areas designated as wetlands and floodplain. The installation follows all local, state, and federal laws, as well as any permitting requirements, and will incorporate BMPs to reduce erosion, runofff, encroachment, and maintain water quality.

Impacts to floodplains are anticipated during construction of the new civilian access road within the EUA (Figure 3). Floodplains, Wetlands, and other PMs worked with LCDA PMs to shift the footprint of the civilian access road out of the floodplains to the greatest extent possible, utilizing their knowledge of the installation and GIS mapping software. Construction will impact 5.6 acres of floodplain, of which 3.15 acres have already been impacted by an existing forestry road at this location that will be incorporated into the access road design. The current path curves to avoid crossing large areas of floodplains, whereas an initial, more direct, straight-line path ran through 3,660 linear feet of designated floodplains. This shift reduced floodplains impacts to 2,173 linear feet, a 41% reduction overall. A topographic study will be used in the final design to ensure natural hydrologic connections on both sides of the road are maintained, and floodplain-specific erosion and sedimentation BMPs will be utilized in its design and construction.

Impacts to floodplains are also anticipated during construction of the new security fence to the east of the airfield within the civilian and military lands. This project has not entered the design phase; however, initial GIS mapping indicates 5.94 acres of floodplain will be impacted. Complete avoidance of the floodplain is not possible due to its extent on this portion of the installation, but the fence will be set on existing grade and will be chain link, ensuring the flow of surface floodwater will not be impeded and minimizing impacts to floodways and the floodplain. Additional minimization measures may be identified as the security fence enters the design phase. At this time, no other actions within the expansion of the EUA are anticipated to impact floodplains. The FSGA/HAAF Wetlands and Floodplains PMs will review all project submittals to monitor potential new impacts to floodplains. Taken together, these measures would avoid and/or minimize the loss of and impacts to floodplains at WAAF/MCRA, and these measures represent all practicable measures to minimize harm to floodplains.

3.2 Wetlands

EO 11990, Protection of Wetlands, requires that each federal agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds: (1) there is no practicable alternative to such construction and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. The Wetlands PM reviews all proposed actions, and where possible, installation PMs shift proposed actions out of wetlands in the project planning phase (via mitigation by design), or otherwise minimize potential harm. The installation follows all local, state, and federal laws, as well as any permitting requirements, and will incorporate BMPs to reduce erosion, runofff, encroachment, and maintain water quality.

Construction of the access road will impact 1.703 acres of jurisdictional wetlands, and its route has been extensively worked by installation and LCDA SMEs to minimize impacts to the greatest extent possible. An approved jurisdictional determination is

complete, and the LCDA will purchase 1.60 wetlands credits after the issuance of the Clean Water Act (CWA) Section 404 Permit, calculated utilizing the 2018 SOP for wetland mitigation credits. The CWA Section 404 Permit will be completed using the 60% design drawings at which time wetland mitigation credits will be re-verified. Wetland impacts are also anticipated during construction of security fencing on the eastern side of WAAF; however, as discussed previously, exact impacts will be determined once it enters the design phase. Non-jurisdictional wetlands will not be impacted by either of these actions, and permitting for each action will be handled separately. Taken together, these mitigation measures would avoid and/or minimize the loss of and impacts on floodplains and/or wetlands at WAAF/MCRA and represent all practicable measures to minimize harm to wetlands.

At this time, no other actions within the expansion of the EUA are anticipated to impact floodplains or wetlands. The FSGA/HAAF Wetlands and Floodplains PMs will review all project submittals. If changes occur to any project sufficient to result in impacts to floodplains or wetlands, the applicable permitting actions will be initiated, as well as any supplementary NEPA documentation that might be required, in accordance 32 CFR Part 651 (Appendix B) and Eos 11988, 13690, and 11990.

4.0 FINDING OF NO PRACTICABLE ALTERNATIVE

During development of the PEA for WAAF/MCRA, the Army at FSGA and the LCDA worked proactively to ensure the purpose and need of the Proposed Action was met while also avoiding as many potential impacts to floodplains and wetlands as practicable. Due to operational requirements, it was determined that complete avoidance of floodplains and/or wetlands was not practicable. Accordingly, I find there is no practicable alternative to siting the projects proposed entirely outside of the floodplains and/or wetlands.

01 AUG 2024

Date

Christopher O. Mohan
Lieutenant General, U.S. Army
Deputy Commanding General
and Acting Commander, AMC

Attachments:
Figure 1. WAAF/MCRA Location Map.
Figure 2. WAAF/MCRA Developable Areas.
Figure 3. Floodplains and Wetlands associated with EUA, Access Road, Fence

References:
EO 11988
EO 11990
EO 13690

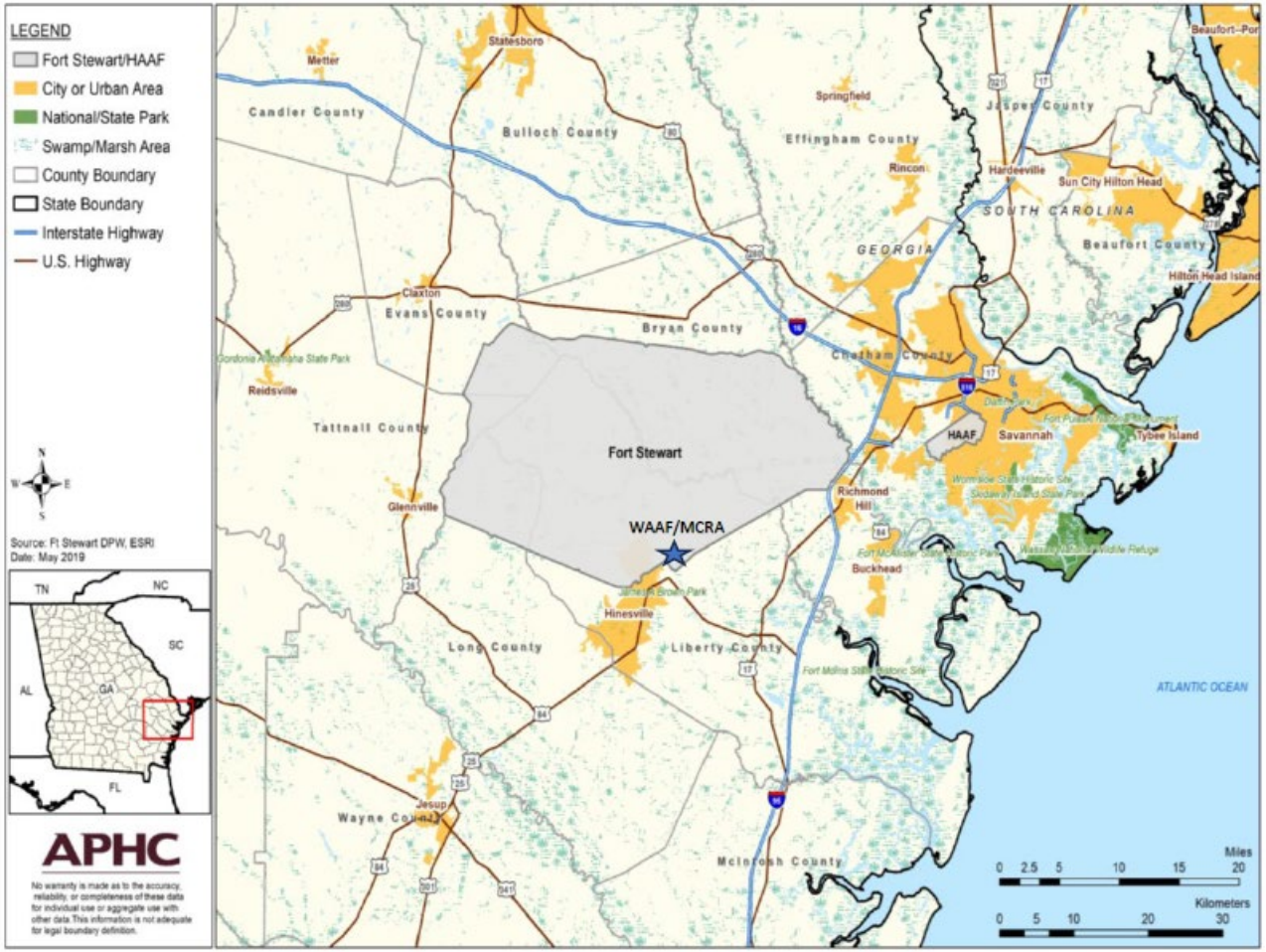


Figure 1: WAAF/MCRA Location Map.

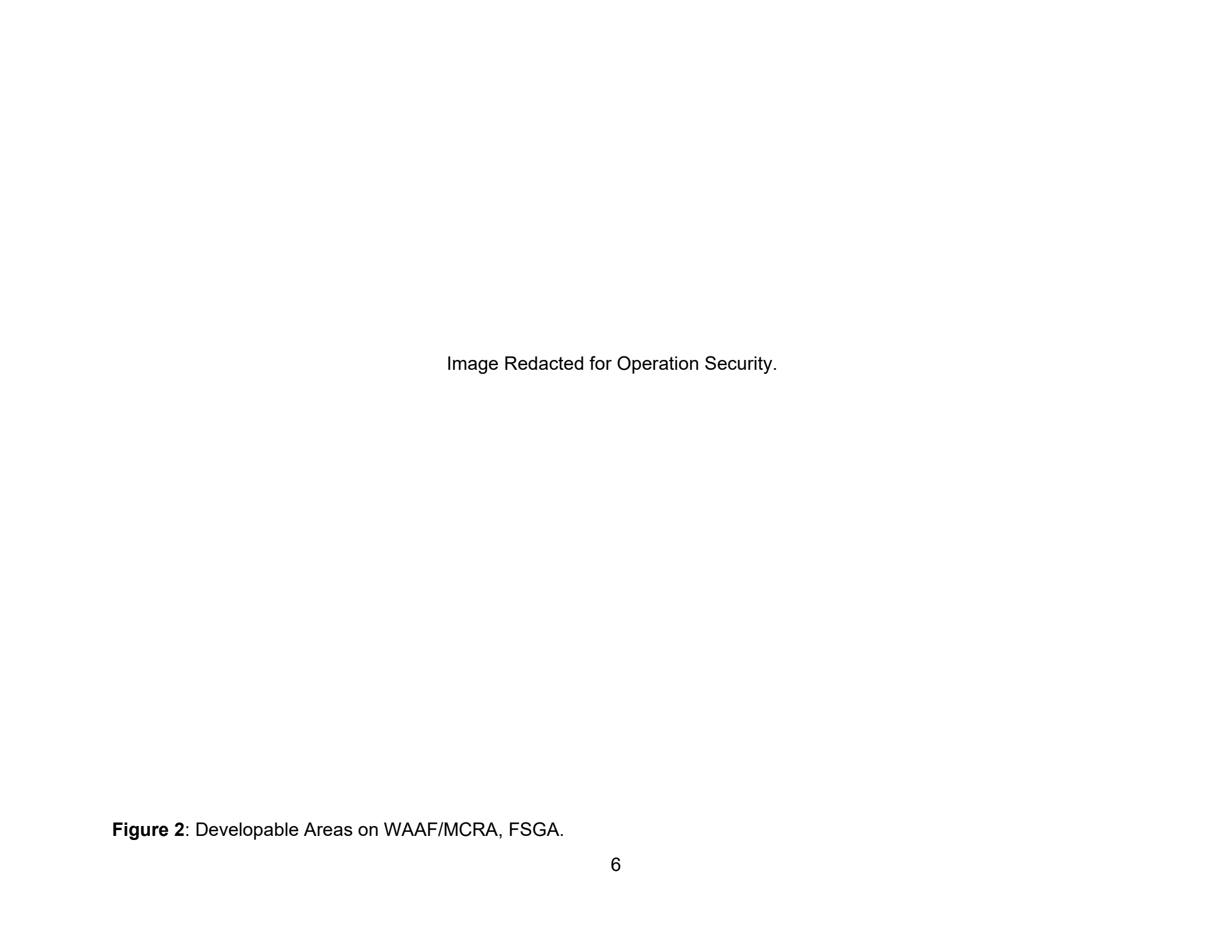


Figure 2: Developable Areas on WAAF/MCRA, FSGA.

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Figure 3: Floodplains and Wetlands associated with EUA, Access Road, Fence on WAAF/MCRA, FSGA

EXECUTIVE SUMMARY

Located in southeastern Georgia, adjacent to the city of Hinesville, Fort Stewart, Georgia (FSGA), is home to the 3rd Infantry Division, a combined arms and infantry division, and direct subordinate unit of the XVII Airborne Corps, as well as various tenant units, including (but not limited to) the 188th Infantry Brigade, 385th Military Police Battalion, 92nd Engineer Battalion, 63rd Expeditionary Signal Battalion, and the Army Field Support Battalion. The installation serves as a major power project platform and provides a full spectrum of individual and collective training for combat, combat service, and combat service support personnel.

Wright Army Airfield/MidCoast Regional Airfield (WAAF/MCRA) is a joint-use facility located in the southwestern portion of FSGA. The Liberty County Development Authority (LCDA) maintains the Civilian portion of this airfield via an easement with the Army, and the Army maintains the military side of this airfield; the Army also maintains oversight of all actions proposed on the airfield as the owner of the underlying land. The Army and LCDA propose the implementation of a series of airfield improvement projects to ensure the support of critical Civilian and military mission execution, improve usability of the overall airfield, and allow the joint-use airfield to adapt to future demand as it develops into an important economic and strategic hub for the region.

This Programmatic Environmental Assessment (PEA) is prepared to analyze the potential impacts of implementing Civilian and military airfield improvement projects on WAAF/MCRA on the natural, cultural, and socioeconomic environment and was completed in accordance with the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the United States Code Section 4321), the Council on Environmental Quality NEPA regulations (Title 40 of the Code of Federal Regulations [CFR] Parts 1500–1508), and the Army's NEPA implementing regulation (32 CFR Part 651), Environmental Analysis of Army Actions.

Two alternatives are analyzed in this PEA, including the No Action Alternative (Alternative I), under which the installation would not implement airfield improvement projects, and the Preferred Alternative (Alternative II), under which the installation will implement these actions. No potential significant impacts are anticipated under either of the alternatives. This programmatic document serves as the basis for future site-specific analyses as each project is funded and designed and will assist the Army and LCDA decision-makers in making informed decisions for this valued asset on the installation.

FINAL PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

Wright Army Airfield / MidCoast Regional Airport Improvement Projects

FORT STEWART, GEORGIA

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1.0 INTRODUCTION

1.1 Project Background

In February 2003, the Army released a National Environmental Policy Act (NEPA) Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) which evaluated potential environmental impacts associated with a proposal for the Liberty County Development Authority (LCDA) to jointly use Wright Army Airfield (WAAF) as a Civilian airport located on Fort Stewart, Georgia (FSGA). A site vicinity street map showing the location of the airfield can be seen in Figure 1. The Army subsequently issued a Ground Lease to the LCDA providing them access to Level II airport facilities. In 2006, WAAF became a fully operational joint military and Civilian-use airfield. Soon thereafter, a Civilian airport terminal and related facility upgrades were constructed by the LCDA and is known as MidCoast Regional Airport (MCRA).

A series of Supplemental EAs were prepared in the years following the Army decision to jointly use WAAF with the LCDA. Those documents evaluated potential environmental impacts related to the proposed 1,500-foot extension of Runway 6L, including the construction of additional stormwater conveyance infrastructure, a Civilian airport access road, a connecting taxiway, new approach lighting systems, and an expansion of the Runway Protection Zone (RPZ). These features were constructed and implemented starting in 2016 and currently serve the interests of both WAAF and the MCRA. These added features also allowed Liberty County access to Level II airport facilities associated with the Georgia Statewide Aviation Systems Plan.

The U.S. Army is responsible for managing millions of acres of land and billions of dollars in facilities and infrastructure worldwide. Installations achieve effective long-term management of these resources through a comprehensive and collaborative planning process that results in a Real Property Master Plan (RPMP). The RPMP supports sustainable installation development that meets mission and environmental requirements and establishes planning philosophies and strategies applicable across the U.S. Army. The RPMP is a flexible road map that permits installation expansion, reduction, and operational change, while ensuring that assets meet long-term mission requirements.

The *Fort Stewart Real Property Vision Plan* (November 2014) divided the installation into identifiable and connected planning districts based on geographical features, land use patterns, building types, and transportation networks. As part of the Long-Range Component, installations prepare Area Development Plans (ADPs) for each planning district. In October 2019, the U.S. Army completed the ADP for the Fort Stewart WAAF District. The WAAF District ADP included an analysis of real property vision, goals, and objectives, an analysis of existing conditions, an analysis of planning standards, development and evaluation of alternatives, a fully developed preferred alternative, preparation of regulating plan/form-based code, an illustrative plan, and an implementation plan.

Due to the enhanced utility from these previous upgrades in making the airfield more useful for both military and civilian users, and the continued need for a more relevant and upgraded facility, construction of additional features was planned to prepare for expected demand in the coming years. Potential environmental impacts associated with these proposed activities are evaluated in this Programmatic Environmental Assessment (PEA). A complete description of planned activities studied as a part of this EA may be found in Section 2.0. Figure 2 shows an aerial photograph map of the airfield vicinity and Figure 3 shows a topographic map of the airfield vicinity.

1.2 FAA Requirements

The FAA 5050.4B directive was followed when preparing this EA. Since this is a joint-use airfield with both military and Civilian uses, FAA regulations were followed at a minimum when they met Army regulations for designing and planning projects related to the airfield. This EA was completed in accordance with 32 CFR Part 651.

1.3 Purpose and Need

The proposed action is to implement required improvements at WAAF / MCRA and expand the current exclusive use area (EUA). The purpose of the proposed action is to ensure critical actions are implemented that support critical Civilian and military mission execution, improve usability of the overall airfield, and allow the joint-use airfield to adapt to future demand as it develops into an important economic and strategic hub for the region.

The proposed action is needed to ensure operations at the airfield support the Army mission through development of critical partnerships and technologies that are of grave national interests and improve the usability of the airfield for the benefit of military and Civilian users allowing stakeholders to respond to new strategic initiatives and market trends more effectively. This document is written in accordance with 32 CFR Part 651.

This PEA serves to inform the decision makers and the public of the potential environmental consequences of the Proposed Action and its Alternatives. NEPA regulations allow for PEAs that cover an entire program or policy for activities which are similar in nature and/or have similar impacts, allowing for an efficient and cohesive review and analysis of future decisions that may tier from a single programmatic NEPA document (32 CFR 651.27). Accordingly, due to the programmatic nature of this analysis, as projects discussed in this PEA are funded, they will undergo supplementary NEPA review. If it is determined that the existing analysis is sufficient, the installation will prepare a Record of Environmental Consideration (REC) reflecting that determination' if additional analysis is required, the installation will prepare a Supplemental EA (also citing the PEA as the initial analysis) to ensure all requirements are fully met.

This PEA was prepared in accordance with NEPA (Title 42 of the United States Code [U.S.C.] Section [§] 4321), the Council on Environmental Quality (CEQ) NEPA regulations (Title 40 of the Code of Federal Regulations [C.F.R.] Parts 1500–1508), and the Army's NEPA implementing regulation (32 C.F.R. Part 651), Environmental Analysis of Army Actions. This PEA, its FONSI, and Finding of No Practicable Alternative (FONPA) were available for a 30-day public review period (December 8, 2023-Janurary 6, 2024), during

which one comment was received (Appendix J). The Georgia Environmental Protection Division (EPD)-Land Protection Branch (LPB) requested that the PEA identify more clearly a remediation site that located in proximity to one of the long-term projects discussed in the PEA. Accordingly, new text and one new figure was inserted into the Final PEA to ensure this comment was appropriately addressed. The GA EPD -LPB also recommended that a list of acronyms be added, which is now Section 7.0 of the final PEA. No further action is required.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The projects which comprise the proposed action are summarized below:

Land Acquisition A new land acquisition lease is proposed for expansion of the Liberty County EUA to allow for the future Civilian terminal apron expansion, the future Civilian terminal t-hangar expansion, future aviation and/or military defense contractor development, and future Civilian terminal access road. The existing EUA is limited to 34.56 acres and the new lease proposal would expand this area by 84.11 acres, primarily to the south of the existing Civilian terminal as shown in Figure 5.

***Airfield Resurfacing*.** Four (4) projects were proposed to address the poor condition of the current surfacing of the airfield and upgrade the usefulness of underutilized areas. These projects are shown in the WAAF ADP and MCRA Airport Layout Plan (ALP) found in Appendix B.

Mill/Overlay Existing Apron. As part of this project, 27,800 square yards of existing apron would be milled and repaved. The existing apron area is identified to be nearing the end of its usable life and is beginning to severely crack and create potholes. By milling the degraded asphalt out and replacing with a new lift of fresh asphalt paving, the apron will be restored to complete functionality and create safer operating conditions for aircraft and support vehicles. Resurfacing of existing apron is not expected to impact the surrounding environment since it will be completely performed entirely within the currently paved apron area of the airfield.

Repair Runway 15L/33R. As a part of this project, repair, and reconstruction of the south end of Runway 15L/33R, including 13,889 square yards of renovated runway pavement will be performed to remove cracked and damaged asphalt pavement from the runway and replacement with a fresh lift of asphalt paving in order to improve the safety for aircraft and support vehicles. Runway repairs and resurfacing will be conducted in the same location as the existing runway and overall conditions to the surrounding environment is not anticipated to be adversely affected.

Runway 6L/24R Rehab. As a part of this project, repair, and reconstruction of Runway 6L/24R including 72,277square yards of renovated runway pavement will be performed to remove cracked and damaged asphalt pavement from the runway and replacement with a fresh lift of asphalt paving in order to improve the safety for aircraft and support vehicles. Runway repairs and resurfacing will be conducted in the same location as the existing runway and overall conditions to the surrounding environment is not anticipated to be adversely affected.

Remove Interior Runways (6R/24L & 15R/33L). As a part of this project, interior Runways 6R/24L and 15R/33L will be removed from the airfield to make room for new taxiways and access areas for airfield users. Both runways are currently outdated and are not in use by airfield users for military or Civilian operations. There could be potential benefits to stormwater

management from the additional infiltration area that would result from removal of the outdated and relatively impermeable surfacing.

Structure Modifications. Four (4) projects related to vertical construction were proposed to add new storage areas and remove underutilized structures to make room for future expected growth. These projects are shown in the WAAF ADP found in Appendix B.

Construct 12-unit T-Hangar. As a part of this project, a new 12-unit T-Hangar is planned for construction on the existing paved apron at the Civilian terminal. The purpose of the 12-unit T-Hangar is to expand enclosed storage space for aircraft available for lease to Civilian users of the Civilian terminal. Due to the 12-unit T-Hangar being planned for construction on the existing paved apron, no adverse impacts to the surrounding natural environment are anticipated. These general areas are already largely developed and surrounded by large areas of pavement associated with the existing apron.

Construct Storage Hangars. As a part of this project, two (2) additional storage hangars would be constructed in the Civilian terminal. The proposed storage hangars include one 50 ft x 50 ft (2,500 sq ft) hangar and one 60 ft x 60 ft (3,600 sq ft) hangar. The storage hangars will amplify the amount of covered storage available to airfield users and operators. The storage hangars are planned for construction within the developed Civilian terminal area and no adverse impacts to the surrounding environment is anticipated. The general area is already developed and surrounded by large areas of pavement.

Demolish WWII-Era Buildings. As a part of this project, the proposed demolition of six World War II (WWII)-era wood-framed buildings south of the airfield will allow for the construction of the future Brigade Headquarters. The buildings include Buildings 7706, 7707, 7708, 7709, 7711, 7711A, and 7712.

Renovate Building 7733. As a part of this project, a 9,655 sq. ft. steel rotary aircraft hangar would be renovated to bring the current structure up to modern day standards and operational status. The renovation is not anticipated to adversely affect the surrounding environment. Old materials will be properly disposed of, and new construction will reduce any outdated and sensitive materials from being released into the environment over time.

Signage and Lighting Upgrades. Two (2) projects are proposed to upgrade existing signage and lighting around the airfield and to enhance the current landing systems. These projects are shown in the existing REC for the signage and lighting upgrade action found in Appendix B and within the 2015 Supplemental EA.

Replacement of Airfield Signage and Lighting. As a part of this project, the existing airfield signage and lighting would be updated to meet current regulations in accordance with United Facilities Criteria (UFC) 3-535-01 and would include the addition of High Intensity Runway Lights (HIRL).

Install Instrument Landing System (ILS). As a part of this project, the installation of an ILS would be completed to allow for airfield use during low-visibility periods. The ILS includes

two radio transmitters located near the approach end of a runway, a localizer and a glidepath transmitter.

Fencing Installation. Install New Perimeter Security Fencing. As a part of this project, installation of 11,500 linear feet of new security fencing around the approach end of Runway 6L is proposed by the U.S. Army. This will enhance the security of airfield operations and satisfy current airfield safety regulations. An additional 1,043 linear feet of perimeter fencing is proposed to be installed around the Civilian area. This will add to the secure area of the growing Civilian terminal and airfield. The proposed fence line is shown in Figure 6.

Construct Civilian Terminal Access Road. A new access road will be constructed to provide unrestricted Civilian access to the Civilian portion of the airport without requiring travel on/access to military land. Currently, the only access to the airport (military or Civilian) is via a single access road on FSGA land. If constructed, the new road will ensure operations in the Civilian portion of the airfield may continue should national security requirements necessitate a closure of all Civilian traffic through the military portion of the installation, including its transportation network. The new road will be constructed south of the Civilian terminal, starting on Liberty County land, and will connect to the existing Old Hines Road at the MCRA (Figure 8). The proposed access road will be 1.05 miles long, two-lanes, with standard 12-foot travel lanes, and two-foot paved shoulders (total width of 28 ft with a 60-foot right of way).

2.2 Prior NEPA Evaluation

Some of the Actions identified have been analyzed in existing NEPA documentation as discussed in the sections below.

2.2.1 FSGA Records of Environmental Consideration (RECs)

Demolition of WWII-Era Buildings. The proposal to demolish the six (6) WWII-era buildings was evaluated in the *Building and Facility Demolition on Fort Stewart/Hunter Army Airfield, GA (FSGA/HAAF)* REC completed in August 2019. Based on prior analysis, the proposed action is categorically excluded under the provisions of Categorical Exclusions, Appendix B, of the 32 CFR Part 651, “Environmental Analysis of Army Actions, Final Rule”, dated March 29, 2002, and meets all the screening criteria as defined in Part 651.29. The REC is included in Appendix C. The proposal for demolition of WWII-Era buildings will therefore not be evaluated further in this PEA.

Replacement of Airfield Signage and Lighting. The proposal for replacement of airfield signage and lighting was previously evaluated in the *Airfield Lighting and Signage Upgrades at Wright Army Airfield (WAAF), Fort Stewart, GA (FSGA) IJO# 2U 00005-3J (Tab1)* REC completed in September 2018. Based on prior analysis, the proposed action is categorically excluded under provisions of Categorical Exclusions, Appendix B, of the 32 CFR Part 651, “Environmental Analysis of Army Actions, Final Rule”, dated March 29, 2002, and meets all the screening criteria as defined in Part 651.29. The REC is included in Appendix C. The proposal for replacement of airfield signage and lighting will therefore not be evaluated further in this PEA.

Instrument Landing System. The ILS was evaluated in the previous Supplemental EA completed in 2015. Based on prior analysis, there were minor adverse effects for the proposed ILS with minor wetland fill for the ILS installation. The wetland fill impact was permitted in 2016 and fill activities have been completed for the installation of the ILS. No changes to the proposed action have occurred since its evaluation in 2015. The proposal for installation of an ILS will therefore not be evaluated further in this PEA.

2.2.2 2019 RPMP PEA by Army Environmental Command (AEC)

In December 2019, the AEC completed the EA and FONSI for RPMPs on Army IMCOM Garrisons, the purpose of which was to provide IMCOM garrisons with a starting point for complying with NEPA requirements when developing, adopting, implementing, and updating RPMPs and their component documents, to include ADPs. Prior to its completion, IMCOM garrisons were completing individual NEPA analyses for these documents, resulting in numerous, often duplicative analyses. This was deemed an inefficient use of installation time and resources, as separate EAs, as well as RECs, were often needed for each component of the RPMP, of which larger garrisons like Fort Stewart had many (Appendix D, Executive Summary for RPMP PEA).

The RPMP EA provides an Environmental Checklist to help garrisons determine what type of additional site-specific NEPA documentation, if any, is required, as well as identifying potential requirements under other federal and state environmental laws, ordinances, and regulations also must be met, as applicable. Those requirements may include resource-specific consultations with other federal, state, and Tribal governments and agencies, such as consulting with the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA). Fort Stewart utilized this checklist as a template for the analysis of the potential impacts associated with implementation of the ADP for WAAF. Potential Impacts were determined to be less than significant, consistent with impacts as presented in the RPMP EA for RPMPs on IMCOM Garrisons, and a site-specific EA was not required; however, the WAAF ADP and its proposed projects are being incorporated into the current PEA to ensure all potential environmental impacts within the Study Area are comprehensively considered. Following site-specific review of each project, supplemental NEPA documentation will be completed as required as the project design develops. Results of the checklist for the WAAF ADP and Fort Stewart-specific information utilized to confirm validation of the checklist is provided in Appendix E.

Some of these projects were accordingly determined to be sufficiently analyzed in the RPMP EA and will therefore not be discussed in depth in the body of this PEA, including Mill/Overlay Existing Apron, Repair Runway 33R/15L (PCN), Runway 6R/24L Rehab, Remove Interior Runways (6R & 33L), Construct 12-unit T-Hangar, Construction of Storage Hangars, Renovate Building 7733. As these projects are funded and designed, supplementary NEPA analysis will be implemented and NEPA documentation (likely RECs) will tier from the RPMP EA for these projects. A complete project description of these projects is defined in Section 2.1 of this PEA.

TABLE 1 – SUMMARY OF PROPOSED ACTION

Proposed Project	Stakeholder	Covered Under AEC RPMP EA and/or other EA(s)?
Land Acquisition		
Land Acquisition for new EUA	CIV	No
Airfield Resurfacing		
Mill/Overlay existing Apron	MIL/CIV	Yes
Repair Runway 15L/33R (PCN)	MIL/CIV	Yes
Runway 6L/24R Rehab	MIL/CIV	Yes
Remove Interior Runways (6R/24L & 15R/33L)	MIL/CIV	Yes
Structure Modifications		
Construct new 12-unit T-Hangar and Taxilane	CIV	Yes
Construction of 2 Storage Hangars	CIV	Yes
Demolish WWII-Era Buildings 7706-7709, 7711, 7711A, 7712	MIL	Yes
Renovate Building 7733	MIL	Yes
Signage and Lighting Upgrades		
Replacement of Airfield Signage and Lighting	MIL/CIV	Yes
Install Instrument Lighting System (ILS)	MIL/CIV	Yes
Fencing		
Install Perimeter Fencing (12,544 linear feet)	MIL/CIV	No
Road Construction		
Construct Civilian Terminal Access Road	MIL/CIV	No

2.4 Evaluated Actions

The remaining activities listed below will be evaluated further in this PEA due to their potential to specifically impact sensitive resources as discussed further in Chapter 3.0.

Land Acquisition for Expansion of the EUA. New land acquisition of 84.11 acres is proposed to allow for future development opportunities within the EUA. This feature is central to this PEA and will be evaluated throughout the remainder of this document.

Installation of Perimeter Security Fencing. Proposed installation of new security fencing will occur at the periphery of the airfield area and may adversely affect the wooded areas in the vicinity of fence construction. Trees will be cleared and grubbed outside of the proposed fence within 10 feet of the fence line. Trees will be completely cleared and grubbed inside of the new fence line to create a continuous sightline to the secure perimeter of the airfield.

Grubbing will occur for the fence installation through wetland areas, which will require a Section 404 Individual Permit (IP) through the U.S. Army Corps of Engineers (USACE) before work begins.

Construction of Civilian Terminal Access Road. The proposal to construct a new Civilian terminal access road will result in minor adverse effects to the mostly undeveloped land to the south of the airfield. All efforts were made to minimize effects to sensitive environments during planning of the final road alignment.

2.5 Screening Criteria

A comparison of potential proposed action alternatives was conducted through an operational and environmental framework intended to determine the feasibility of a given alternative. The feasibility of a given alternative is based on its likelihood in meeting the purpose and need of the proposed action. To do this, the Army established the minimum criteria necessary to satisfy the purpose and need of the proposed action. Therefore, if the alternative does not adequately meet the established screening criteria, except for the No Action / Status Quo alternative, then it is not evaluated in this EA. If the alternative does meet the established screening criteria, then it is carried forward for environmental impact analysis in this PEA.

Facilitate Upgrades for Military and Civilian Users on the Airfield. A reassessment of outdated military support infrastructure is needed to update the airfield facilities to meet the current and future needs of the U.S. Army. Removal of outdated structures in the airfield district will allow for additional areas to develop new military programs where current space is extremely limited. New hangars and storage areas in addition to resurfacing of runways, taxiways, and aprons would help to accommodate expected growth and increased utility of the Civilian terminal.

Increase Area Available for Operations to Military Centric Defense Contractors. Continued interest from defense contractors requiring direct airfield access for the development of strategic partnerships with the Army has increased the demand for additional Civilian areas where companies will be able to set up their operations. Expanded Civilian areas will enhance the growth potential of the Civilian terminal and help the airfield keep up with regional demand for a modern airport facility.

Enhanced Security Operations. Current access to the Civilian terminal is a shared entrance road with the Fort Stewart installation. Unrestricted access to the Civilian terminal area would greatly enhance the utility for Civilian users and expected future commercial partners as well as alleviate any future traffic congestion expected with the increase in Civilian users. Additionally, based on conflicts occurring across the world, the Civilian access terminal would allow Civilian access to the airfield to maintain routine airfield operations even if a security threat arises causing Fort Stewart to close all military gate access into the installation. Securing the perimeter of the airfield also remains a priority for military and Civilian stakeholders and will help the airfield meet current security regulations.

Minimal Environmental Impacts. Proposed alternatives must be the least environmentally damaging practicable alternative (LEDPA) while still achieving stated goals.

2.6 Alternatives

2.6.1 Alternative I: No Action Alternative

Under this alternative, the proposed action will not be implemented. Although this alternative does not meet the purpose and need of the proposed action, the CEQ regulations that implement NEPA require a clear basis for choice among options by the decision maker and the public, and a no action alternative must be included and analyzed (40 CFR 1502.14[d]).

2.6.2 Alternative II: Proposed Action (Preferred)

The U.S. Army, in conjunction with the LCDA, will construct all elements of their near-term strategic plan that include the three evaluated actions from Section 2.4. This includes the Land Acquisition, Fencing installation, and Access Road Construction. All activities will be planned so as to minimize negative effects to existing environmentally sensitive areas, such as wetlands and threatened and endangered species habitat. Stormwater control, wetland mitigation, and permitting in accordance with the Clean Water Act (CWA) are an essential component of the Proposed Action Alternative. This alternative meets the purpose and need of the proposed action and is carried forward in this PEA for detailed analysis.

2.7 Eliminated Alternatives Considered

2.7.1 Alternative III: Land Acquisition, Fence Construction, No Road Construction

A proposal to construct perimeter security fencing, but not to construct the new access road to the south was considered. Land acquisition to support expansion of the EUA would remain as an important component of the proposed action. This proposal would position the airfield to better serve regional users and increase collaboration between the U.S. Army and industry partners. However, when compared to the preferred alternative (Alternative II), the expected growth of the joint-use airfield user base will increase the burden on Fort Stewart to maintain security for all traffic related to the Civilian terminal, in addition to expected increases in traffic on existing on-base access roads. Based on the on-going worldwide conflicts, should the installation need to enter a closure to all Civilian personnel, no Civilian access to the MCRA terminal would be available for stakeholders and end users. Based on the reduced access security and additional traffic congestion when compared to Alternative II, the Army does not consider this a viable option. Additionally, the alternative does not meet the project's need and purpose. Therefore, this alternative is eliminated from further evaluation.

2.7.2 Alternative IV: Land Acquisition, Access Road Construction, No Fence Construction

A proposal to construct only the new access road to the south and not to construct additional perimeter security fencing was considered. Land acquisition to support expansion of the EUA would remain as an important component of the proposed action. This proposal would alleviate some security concerns and expected traffic congestion related to the current

shared access for both military and Civilians to the joint-use airfield. However, the decision to forego construction of additional perimeter security fencing would leave the joint-use airfield vulnerable to security threats and wildlife encroachment in the runway areas. The construction of additional fencing would also help the airfield satisfy current FAA regulations for airfield safety and security. The Army does not consider this a viable option due to the reduced safety and security for all airfield users when compared to Alternative II. Additionally, the alternative does not meet the project's need and purpose. Therefore, this alternative is eliminated from further evaluation.

2.7.3 Alternative V: Land Acquisition, No Fence Construction, No Road Construction

A proposal to only acquire land for the expansion of the EUA of the joint-use airfield was considered where all other proposed improvements would not be constructed. Although the LCDA would acquire the land needed to expand the EUA, the airfield would still be faced with significant challenges related to security of the airfield without a secure perimeter fence and access limitations for expected increases of Civilian opportunities and potential installation closures without construction of a new access road to the south of the airfield. This would not bring the expected economic and strategic benefits when compared to Alternative II. Additionally, the alternative does not meet the project's need and purpose. Therefore, this alternative is eliminated from further evaluation.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This chapter focuses on the affected environment within the proposed action's region of influence. Potential direct and indirect impacts to the affected environment are discussed as they relate to the proposed action and no action (status quo) alternative, as well as cumulative environmental impacts from ongoing and planned activities at WAAF/MCRA. This analysis enables decision-makers to compare the magnitude of environmental impacts with the baseline conditions (status quo).

The information presented in this chapter is derived from local environmental resource subject matter experts and from previously completed NEPA documentation and ongoing NEPA analyses of current and reasonably foreseeable future actions at WAAF/MCRA. Reasonably foreseeable actions are identified as mid-term and long-term activities included within the attached ADP and ALP documents found in Appendix B.

3.2 Measuring Environmental Impacts

The primary purpose of preparing a PEA is to provide evidence and analysis for determining if significant or potential significant direct, indirect or cumulative environmental impact(s) are anticipated from a proposed action and a threshold level of significance (TLS) is surpassed for each resource. Direct impacts are those caused specifically by the proposed action and that occur at the same time and place. Indirect impacts are also caused by the proposed action but later in time and farther in distance. Cumulative impacts "result from the incremental impact of the action" when added to "other past, present, and reasonably foreseeable future actions" (Canter et. al, 2007).

An analysis of each alternative is conducted to measure and compare the intensity of the anticipated impacts to the environment, which allows the decision-maker to weigh each alternative prior to reaching a decision. The levels of intensity of potential impacts are described as follows:

- *Negligible*. This term indicates the environmental impact is barely perceptible or measurable; remains confined to a single location; and will not result in a sustained recovery time for the resource impacts (days to months).

- *Minor*. This term indicates the environmental impact is readily perceptible and measurable; however, the impact will be temporary, and the resource should recover in a relatively short period of time (days to months).

- *Moderate*. The term indicates the environmental impact is perceptible, measurable, and may not remain localized, thus also impacting areas adjacent to the proposed action. Under the impact, recovery of the resource may require several years or decades.

- *Significant*. This term indicates the threshold of intensity associated with an environmental impact has been met (i.e., TLS). This threshold is defined by a potentially substantial and permanent adverse change in or loss of resources within the context of the project. In the absence of mitigation or avoidance, a significant impact will trigger the dismissal of the alternative or preparation of an Environmental Impact Statement (EIS).

The affected environment for the Proposed Action is WAAF and the extension of the airfield district to the south of WAAF, located on Fort Stewart, Georgia and is shown in Figure 4. WAAF currently consists of two perpendicular runways utilized by the Army and the LCDA through a joint-use agreement. Control towers and airport facilities are located within the WAAF property, to the south. Gray Eagle unmanned aerial vehicle facilities are located on the northern side of WAAF. The area to the south of the joint-use airfield is forested with an established mixed-pine forest and some lower areas of bottomland hardwood wetlands.

3.3 Resources Analyzed

The following resource areas have been evaluated in the completion of this PEA:

1. Air Quality
2. Climate Change and Extreme Weather
3. Biological Resources
4. Hazardous Materials and Waste
5. Human Health and Safety
6. Land Use
7. Noise
8. Socioeconomics and Environmental Justice
9. Transportation and Traffic
10. Water Resources

Both proposed action alternatives have the potential to affect air quality, biological resources, hazardous materials and waste, human health and safety, land use, noise, socioeconomics, transportation and traffic, and water resources which are discussed in detail in the remainder of this chapter. There are no adverse impacts predicted to cultural resources, geological and soil resources, or utilities; accordingly, these resources are not discussed in detail in the main body of the PEA, but are instead briefly summarized in Appendix A.

3.3.1 Air Quality

3.3.1.1 Affected Environment

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and number of pollutants emitted into the atmosphere, the size and topography of the air basin in which it is located, and its prevailing meteorological conditions. The significance of the pollutant concentration is determined by comparing it to those of the Federal and State ambient air quality standards. FSGA is located within the Savannah Beaufort Air Quality

Control Region (SB AQCR), as defined in Section 302(f) of the Clean Air Act (CAA), consisting of Bryan, Chandler, Chatham, Effingham, Evans, Liberty, and Tattnall counties in GA, and Beaufort, Coleton, Hampton, and Jasper counties in South Carolina, and this AQCR is in attainment. *Note: Climate Change and Extreme Weather, although connected to Air Quality, are not solely associated with this resource area alone and are accordingly discussed separately in Section 3.3.2.*

CAA Permitting. FSGA operates in accordance with a CAA Title V Permit. In an attainment area, a facility is considered a major source for criteria pollutants if its emissions of criteria pollutants exceed 100 tons per year (tpy). A facility can also be a major source of hazardous air pollutants (HAPs) if potential emissions of any individual regulated HAP exceed 10 tpy or potential emissions of all HAPs combined exceed 25 tpy. FSGA meets this criterion and is classified as a major source for criteria pollutants and for HAPs.

Stationary emission sources consist primarily of heating units, stationary combustion engines, fueling operations, spray painting booths, and storage tanks. The installation maintains compliance with its Title V permit via periodic inspections, monthly monitoring, and semiannual and annual reporting procedures for its significant sources of emissions. Mobile source emissions on Post include aircraft operations, military vehicle engines, and weapons fired during military training exercises. Stationary emission sources on the installation consist primarily of boilers for comfort heating, organic liquid storage tanks, vehicle fueling stations, solvent usage, surface coating operations, stack releases from the Central Energy Plant (CEP), wastewater treatment, and other miscellaneous general process operations. The GA EPD does not regulate the mobile sources on FSGA, because these emissions are regulated at the manufacturers level (for example, the car manufacturer meets the emission limits) and they are not factored into the inventories maintained on the installation. The FSGA Prescribed Burn Program emissions are also not factored into these inventories, as prescribed burning is an exempt activity under the GA Rule for Air Quality Control (391-3-1-.03(10)(g)). Emissions from training events on the installation are categorized as fugitive emissions and are also not factored into the installation's permitting processes, per guidance from the GA EPD.

The installation tracks potential emissions associated with construction on the installation via the Minor Source Pre-Construction Permitting process, including Notice of Construction, Approval to Operate, Permit to Operate, etc. This covers a series of exempted sources, such as temporary sources that will be on-site less than 90 days (construction equipment), small boilers or furnaces (residential vs commercial size), and ventilation systems. These actions are tracked by the installation Air Quality Program Manager via the NEPA project review process.

Prevention of Significant Deterioration (PSD). The CAA includes the PSD program, which imposes permitting requirements for the construction of new major stationary source facilities and "major modifications" at existing facilities in attainment areas. A new source is classified as a major stationary source if it has the potential to emit any regulated pollutant in amounts equal to or exceeding specified major source thresholds, which are predicated on the source's industrial category. A major modification is a physical change or change in the method of operation at an existing major stationary source that causes a significant "net emissions increase" at the source of any regulated pollutant. The purpose of the program is

to prevent the degradation of ambient air quality in attainment areas and to address ambient air quality concerns associated with other non-criteria pollutants, while still allowing for industrial and commercial growth.

As part of the PSD program, mandatory Class I status was assigned by Congress to all national parks, national wilderness areas, memorial parks greater than 5,000 acres, and national parks greater than 6,000 acres. In Class I areas, visibility impairment is defined as a reduction in visual range and atmospheric discoloration. Stationary sources, such as industrial complexes, are typically an issue for visibility within a Class I PSD area. For new sources that may impair visibility or degrade air quality, applicants may be required to analyze potential impacts to Class I areas within 100 kilometers (62 miles) of the source. There is only one PSD Class 1 area/protected vista within a 100-kilometer (standard review distance) radius of FSGA, and that is Wolf Island Wilderness, Georgia (38 miles away from FSGA). FSGA has not been required to conduct PSD permitting by operational limits to stay under the permitting thresholds.

National Ambient Air Quality Standards (NAAQS). The CAA and its subsequent amendments (CAAA) established the NAAQS for six "criteria" pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead (Pb). These standards represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, within a reasonable margin of safety. Short-term standards (1-, 8-, and 24-hour periods) are established for pollutants contributing to acute health effects, while long-term standards (quarterly and annual averages) are established for pollutants contributing to chronic health effects. The NAAQS are used to determine if an area is in attainment. The CAA requires each state to develop a State Implementation Plan (SIP) that serves as its primary mechanism for ensuring that the NAAQS are achieved and maintained within that state. According to plans outlined in the SIP, designated state and local agencies implement regulations to control sources of criteria pollutants. The CAA provides that federal actions in non-attainment and maintenance areas do not hinder future attainment with the NAAQS and conform to the applicable SIP.

The GA EPD adopted the NAAQS as the standards for the state of Georgia, and FSGA's AQCR has proven consistently better than the NAAQS. Georgia has established a network of monitoring stations to consolidate ambient concentrations of criteria pollutants and the EPA uses this monitoring data to determine each area's attainment status on a pollutant-by-pollutant basis. As part of its permitting process, FSGA compiles an annual Air Emissions Inventory (AEI) that summarizes its criteria pollutant emissions (particulate matter, carbon monoxide, nitrogen oxides, and sulfur dioxide), hazardous air pollutants (HAP) emissions, and Greenhouse Gas (GHGs) emissions on the installation. Operations within the WAAF Airfield District have not been shown to historically result in criteria pollutant emissions, other than negligible amounts of PM associated with construction activities and CO associated with routine airfield activities.

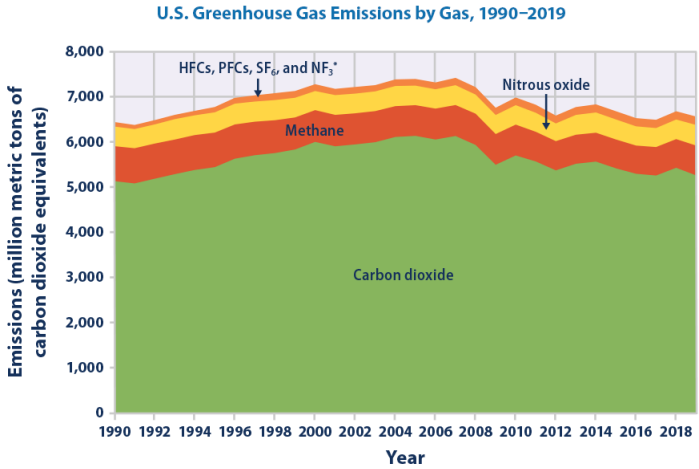
Greenhouse Gas Emissions (GHGs). Both natural and human activities result in emissions of GHGs. As GHG emissions from human activities increase, they build up in the atmosphere and, as many of the major GHGs stay in the atmosphere for tens to hundreds of years after being released, their warming effects on the climate may persist over time

(see Section 3.3.2, Climate Change/Extreme Weather, for additional discussion). To combat these potential impacts to air quality and address climate change, federal agencies are working to reduce their GHG emissions, as set forth in Executive Order (EO) 13845, *Efficient Federal Operations* (2018). The Environmental Protection Agency (EPA) GHG Reporting Program collects GHG data from large emission sources and suppliers of products that could emit GHGs. Reports generated in this program include a total of 41 source categories, accounting for 85-90% of U.S. GHG emissions (EPA, 2022). Their annual "Inventory of U.S. GHG Emissions and Sinks" tracks total national emissions of GHGs since 1990.

FSGA quantifies its emissions of GHGs as an addendum to the AEI (Seva, 2022). The 2021 GHG emissions are calculated as metric tons (MT) of carbon dioxide equivalent (CO2e). Mobile sources are not included in the estimate, as discussed under CAA Permitting, nor are indirect sources of GHG emissions such as offsite energy production. The principal GHGs and their sources are listed below and shown at Graph 1:

- Carbon Dioxide (CO_2): CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). However, CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of biological carbon sequestration.
- Methane (CH_4): Methane is emitted during the production, transport, and combustion of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide (N_2O): Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- Fluorinated Gases: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone (O_3)-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as High Global Warming Potential gases.

Graph 1: Greenhouse Gas Emissions.



* HFCs are hydrofluorocarbons, PFCs are perfluorocarbons, SF_6 is sulfur hexafluoride, and NF_3 is nitrogen trifluoride.

Data source: U.S. EPA (U.S. Environmental Protection Agency). 2021. Inventory of U.S. greenhouse gas emissions and sinks: 1990–2019. EPA 430-R-21-005. www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climate-indicators.

CO_2 is emitted during forest fires and FSGA has an active prescribed burn program; however, the forests on the installation serve as a natural reservoir, or carbon sink, for GHGs and more CO_2 is absorbed during forest fires than is emitted due to carbon sequestration. Carbon sinks may be biological,

geological, or technological. Geological carbon sequestration is the process of storing carbon dioxide in underground geologic formations, or rocks. Scientists are also exploring utilizing machinery to directly capture CO2 from the air (direct capture) (U.C. Davis, 2022). FSGA does not utilize either of these practices and they are not discussed further in this document. During biological carbon sequestration, CO_2 is stored in aboveground and belowground vegetation, woody debris, and soil, as well as the ocean (GFC, 2022) and not released into the atmosphere. Studies indicate approximately 25 percent of global carbon emissions are captured by plant-rich landscapes in this manner (U.C. Davis, 2022).

3.3.1.2 Environmental Consequences

3.3.1.2.1 Alternative No. I: No Action Alternative

Under this alternative, the proposed action would not be implemented and WAAF/MCRA would continue to operate under the status quo environment. The routine on-going activities on the installation and WAAF/MRCA will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation's existing resource management plans.

Prevention of Significant Deterioration. No impacts associated with PSD are anticipated under the No Action Alternative, as no construction of new major stationary sources and no major modifications to existing sources within the WAAF Airfield District is proposed. Routine, day-to-day actions that support the installation's mission will occur, none of which are anticipated to result in emissions capable of impacting Air Quality at nearby Class I Sites such as Wolf Island National Refuge.

CAA Permitting. No impacts are anticipated under the No Action Alternative. Routine, day-to-day actions that support the installation will continue, some of which result in air emissions on the installation; however, all occur in compliance with the installation's existing CAA Title V Permits and none are anticipated to require modification to the existing Title V Permit. Sources of emissions associated with these actions are short-term and direct, associated with fixed and defined activities and/or facilities, and are managed by installation personnel familiar with established practices and protocols. The installation is located within an attainment area and ensures all data associated with its actions and activities is tracked, managed, and reported to the installation Air Quality Program Manager for permit management and reporting requirements.

NAAQs and GHGs. Long-term, direct, negligible, adverse impacts to Air Quality are anticipated under the No Action Alternative, under which routine, day-to-day actions that support the installation's mission will continue, including training activities on installation range and training lands. FSGA permitted emissions sources include boilers, emergency generators, pumps, and landfills (Table 2). Other sources of GHG emissions such as purchased electricity usage, emissions from mobile sources/vehicles, and process/fugitive sources are not included, as they are not reported under the United States Environmental Protection Agency (USEPA), Mandatory Reporting Rule (MRR). The highest level/source of emissions are due to the combustion of wood at the CEP, followed by emissions from the landfills, emergency diesel generators and fuel oil boilers.

Table 2: FSGA 2021 GHG Emissions Estimate Summary

Source Category	Type of Fuel	Fuel Used for CY 2021	GHG Emissions CO_2e (MT)
External Combustion Units	Wood	0 short tons	0.00
	Natural Gas	718,456,547 cubic feet	39,152.85
	No.2 Fuel Oil	3,099 gallons	31.73
	LPG	57,811 gallons	329.56
Landfills	N/A	N/A	33,141.58
Internal Combustion Engines (emergency)	Diesel	42,298 gallons	433.20
Total CO_2e (minus exempt Emergency Diesel Generators)			72,655.73
Total CO_2e (including exempt Emergency Diesel Generators)			73,088.92

GHG emissions are associated with the current operations occurring at WAAF/MCRA through mobile sources including aircraft and support vehicles. However, these mobile sources are not accounted for in the installation's AEI or GHG accounting process, as previously discussed. Routine actions on the installation all undergo individual project-level review (from concept through each iteration of design) and the installation Air Program Manager determines which specific requirements apply to each action, to include required data tracking and associated air permitting, as/if applicable.

GHGs are biologically sequestered by the installation's forest and soils and do not persist in the environment (see calculations below). Approximately 240,000 acres on FSGA are forested, providing a valuable biological sink for CO_2 emissions on the installation. This acreage is actively managed and maintained, as discussed further in Section 3.3.3, Flora. FSGA has not conducted a site-specific analysis for the rate of carbon sequestration associated with its forest; however, using the EPA GHG Equivalencies Calculator (2022) it is estimated that 0.84 Metric Ton CO2e is sequestered annually by one acre of an average forest.

Accordingly, for the approximately 240,000 forested acres of FSGA (240,000 acres x 0.84 Metric ton CO_2e/acre/year), approximately 201,600 MT CO_2e is sequestered per year. Subtracting the GHG emissions from 2021 from this amount indicates that FSGA is sequestering more carbon than it is releasing into the atmosphere, as calculated below.

201,600 - 73,088.92= 128,511.08 MT CO_2e sequestered per year at FSGA.

Airfield operations within the WAAF Airfield District can also result in the deposition of PM, but these impacts have been found to be localized, the PM settles out of the air rapidly, and

does not leave the installation boundary. Overall, under this alternative, there are long-term, direct, negligible, adverse impacts to Air Quality in the Study Area, as criteria pollutants and PM are released into the environment during installation activities. However, these impacts are no more than negligible, as the forested lands on Post provide a carbon sink that absorbs more GHGs than are emitted and PM remains localized to the installation.

3.3.1.2.2 Alternative No. II: Proposed Action (Preferred)

Under this alternative, the proposed action would occur which includes the expansion of the Liberty County EUA, construction of the MCRA direct access road off Old Hines Road, and the construction of the airfield perimeter security fence. Ongoing, routine activities on WAAF/MCRA within the WAAF Airfield District will also continue, to include routine operations, repair, maintenance, and training activities.

Prevention of Significant Deterioration: No impacts associated with PSD are anticipated under the proposed action, as no construction of new major stationary sources and no major modifications to existing sources within the WAAF Airfield District is proposed. Routine, day-to-day actions that support the installation's mission will occur, none of which are anticipated to result in emissions capable of impacting Air Quality at nearby Class I Sites such as Wolf Island National Refuge.

CAA Permitting. The proposed action will not require the installation to modify its Title V Permit. Routine activities on the installation will continue, some of which result in air emissions on the installation; however, all occur in compliance with the installation's existing CAA Title V Permits and none are anticipated to require modification to the existing Title V Permit. Sources of emissions associated with these actions are short-term and direct, associated with fixed and defined activities and/or facilities, and are managed by installation personnel familiar with established practices and protocols. The installation is located within an attainment area and ensures all data associated with its actions and activities is tracked, managed, and reported to the installation Air Quality Program Manager for permit management and reporting requirements. There are no air permits associated with WAAF/MCRA on the installation and no impacts to Air Quality are anticipated at those locations.

NAAQS and GHGs. Short-term, direct, minor, adverse impacts are anticipated to Air Quality due to GHGs, as discussed under Alternative I; however, there would be 21.19 acres less vegetation due to clearing for the proposed access road and perimeter security fence. Even subtracting the 21.19 acres from the forested lands, FSGA is still sequestering more CO_{2e} than it is releasing into the atmosphere under this alternative (239,978.81 acres x 0.84 Metric ton CO_2e/acre/year = 201,582.2 MT CO_2e).

201,582.2 - 73,088.92 (2021 CO2e emissions) = 128,493.28 MT CO2e sequestered per year at FSGA.

As under Alternative I, the prescribed fire program on post, can result in the deposition of PM, but these impacts remain localized. Prescribed burning is currently not allowed within the WAAF Airfield District due to safety concerns for airfield users and the proposed action under this alternative would not allow prescribed burning to occur within the WAAF Airfield

District. Under this alternative, there are long-term, direct, minor, adverse impacts to Air Quality in the Study Area as criteria pollutants are released into the environment by installation activities, airfield activities, and construction activities associated with the clearing and construction of the proposed access road and perimeter security fence. However, as with Alternative I, these impacts are minimized to a level no more than minor because the forested lands on post provide a carbon sink that absorbs more GHGs than are emitted and PM remains localized to the installation.

3.3.1.3 Cumulative Impacts

The Region of Influence (ROI) for Air Quality lies within FSGA and the lands immediately adjacent. Past, present, and reasonably foreseeable future events with potential to result in cumulative impacts to Air Quality are discussed in the analysis below.

3.3.1.3.1 Alternative No. I: No Action Alternative

Past actions in the ROI consist of the historical development of the communities of Hinesville and FSGA and the associated infrastructure and transportation network that supports them. This included periodic iterations of timber harvest, site clearing/grading/stabilization, and construction, as well as the eventual emissions associated with the operations and activities that accompanied this development. This also included military training on FSGA, actions which continue to the present day.

Reasonably foreseeable future actions (RFFAs), include potential implementation of the Multi-Domain Task Force (MDTF) and/or the Extended Range Cannon Artillery (ERCA) units on FSGA. Construction associated with the ERCA and MDTF units is covered under separate NEPA analysis. This may add 500 plus Soldiers and their Families (per action) and associated support activities within the ROI. Construction of facilities to support these units is required, resulting in approximately 25 acres of additional ground disturbance on FSGA, as well as an increase in criteria pollutants and GHG emissions in the ROI. If there are not enough housing units on post to support these units and/or their Families, there may be a commensurate amount of construction in Hinesville to ensure their support. There will also be an increase in training-related activities in the range and training lands on FSGA to ensure the units' mission essential requirements are met. Similar construction impacts are anticipated from the construction of the Convoy Live Fire Range (CLFR) and/or Scout/Reconnaissance (RECCE) Range on.

FSGA sequesters more CO_{2e} than it releases into the atmosphere and carbon sequestration is also occurring on a large scale on the forested lands within the off-post portion of the ROI, as well. There is a strong regional focus on preserving and protecting the environmentally sensitive areas surrounding the installation, such as the forests that are shaded green on this map (CRC, 2017). In addition, a 2019 study by the U.S. Forest Service estimates that more than 1.5 billion MT of CO_{2e} is sequestered each year on Georgia timberlands (GFC, 2022), providing a valuable carbon sink both within the ROI and on its neighboring lands to offset potential emissions. The FSGA robust Army Compatible Use Buffer (ACUB) program works to ensure neighboring off-post land uses remain compatible to maintaining an environment conducive to the management of a healthy forest; this, in turn, promotes a valuable carbon sink within the ROI.

Accordingly, no more than minor adverse cumulative impacts to Air Quality are anticipated as a result of past, present, and RFFAs in the ROI. These RFFAs may result in approximately 55 acres of ground disturbance and tree removal on FSGA. However, this is not a statistically significant amount of acreage, compared to the total forested acreage on post. All disturbed areas will be stabilized and revegetated as much as possible at the conclusion of work, per existing state and federal laws and installation Standard Operating Procedures (SOPs). FSGA and the surrounding off-post forested lands sequester more CO_{2e} than is emitted into the atmosphere, due to the carbon sink provided by the forested lands within the ROI, and no more than minor adverse cumulative impacts are anticipated. No cumulative impacts are anticipated to PSD and CAA Permitting as no direct impacts are anticipated.

3.3.1.3.1 Alternative No. II: Proposed Action (Preferred)

Overall, minor adverse cumulative impacts to Air Quality are anticipated under this alternative, primarily as discussed under Alternative I. This alternative will include the clearing of 21.19 acres of forested land for the construction of the Civilian terminal access road and perimeter security fence. However, this is still not statistically significant when considering the overall forested acreage in the ROI and the carbon sequestration in the ROI. No cumulative impacts are anticipated to PSD and CAA Permitting as no direct impacts are anticipated. Overall, this indicates that this alternative results in minor adverse cumulative impacts to Air Quality.

3.3.2 Climate Change and Extreme Weather

3.3.2.1 Affected Environment

Climate is defined as the long-term (30-year) average seasonal weather conditions typical of a given location, while *weather* refers to the day-to-day conditions at that location. Climate may additionally define the average and extreme weather conditions a person might reasonably expect to occur at a given location (Pinson et al, 2020). As discussed under Air Quality, Section 3.3.1, studies indicate that the Earth's climate has warmed over the past century due to increased emissions of GHGs, and that human activities are likely an important contributing factor to that warming trend. When energy from the sun reaches the Earth, the planet absorbs some of this energy and radiates the rest back to space as heat. The Earth's surface temperature depends on this balance between incoming and outgoing energy.

Changes in climate are measured by the amount of warming or cooling they can produce, which is called "radiative forcing", and this is influenced by the amount of GHGs in the atmosphere (Graph 2). Changes that have a warming effect are called "positive" forcing, while changes that have a cooling effect are called "negative" forcing. Conditions tend to remain stable, or balanced, unless the Earth experiences a force that shifts the energy balance, causing the Earth's average temperature to become warmer or cooler, and leading to correlating changes in the lower atmosphere, on land, and in the oceans. An increase in temperature of as little as 1.6° Fahrenheit (F) results in the atmosphere being able to hold 7% more moisture, which has been shown to allow for the development of more extreme storms (Pinson et al, 2020).

This change in the climate can impact the environment in a variety of ways. It can impact the integrity of a structure by exposing it to a greater risk of floods, storm surges, or higher temperatures; it can also increase the vulnerability of a specific resource (such as wetlands) and result in impacts that are more damaging to that resource than it has experienced before. For example, rising temperatures may result in associated increases in temperatures in a stream sufficient to kill species who live in that stream, also adversely impacting species who depend on those aquatic species as a food source. Most of these climate hazards are not new, but climate change alters the frequency, intensity, and location of the hazards, contributing to vulnerability and compounding risks. Additionally, when climate change intersects with other forms of environmental degradation, such as deforestation and erosion, the impact can be magnified.

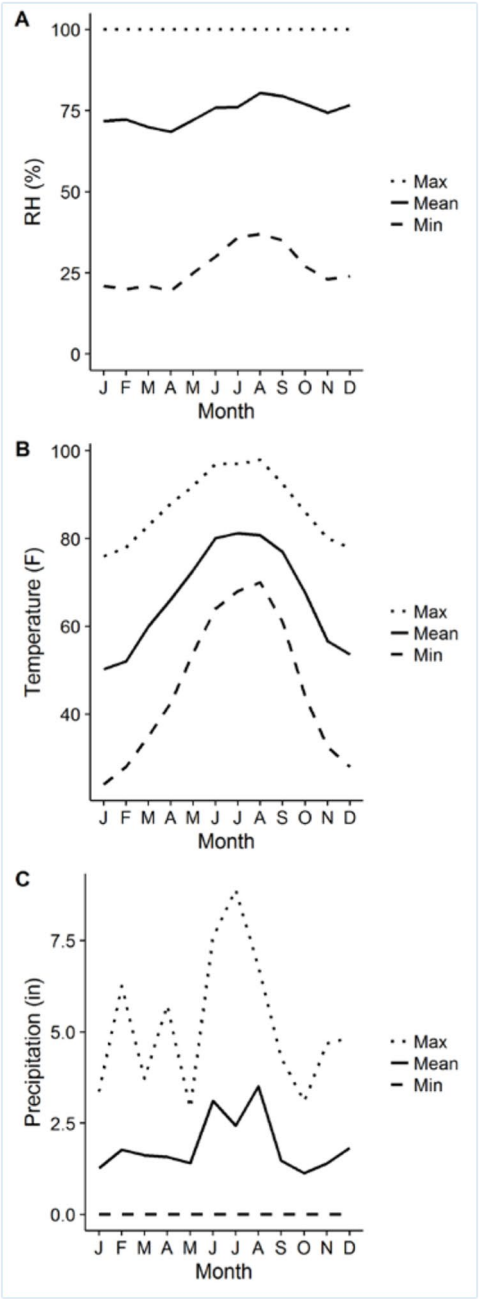
Army installations have suffered billions of dollars in damage due to extreme weather events, including back-to-back hurricanes at FSGA in 2016 and 2017. In the past 20 years, the eight southeastern coastal and Gulf Coast states experienced 28 named hurricanes, 16 of which were Category 2 or higher in strength (SMN, 2022). These extreme weather events can impact installation infrastructure, training, and readiness. Accordingly, climate change and extreme weather (CC/EW) have been identified by the Army and Department of Defense (DoD) as a critical national security threat and threat multiplier (Pinson et al, 2020). In accordance with Army Directive 2020-08, *U.S. Army Policy to Address Threats Caused by Changing Climate and Extreme Weather* (2020), DoD Directive 4715.21, *Climate Change Adaptation and Resilience* (2016). Army installations account for CC/EW in all future facility and infrastructure-related plans, policies, and procedures, including the master planning and facilities engineering processes, Integrated Natural Resources Management Plans (INRMPs), Integrated Cultural Resources Management Plans (ICRMPs), Installation Energy and Water Plans (IEWPs), emergency management plans, and others, as applicable. Climate change and adaptation were also identified as requirements in the 2017 update of DoD UUFC) 1-200-02, *High Performance and Sustainable Building Requirements* (2020).

The U.S. Army published the Army Climate Resilience Handbook (ACRH) to aid installation planners in assessing climate resilience (Pinson et al, 2020). An integral part of the process is the on-line Army Climate Assessment Tool (ACAT), which contains information on individual installations that planners can use to determine current extreme weather and climate change effects, infrastructure, and assets that are vulnerable to these effects, and adaptation measures that can be used to increase an installation's climate resilience. Utilization of the ACAT will help identify the future vulnerability of installations from climate change, based on authoritative national data sets on the following: heat impacts, drought, wildfire, energy demand for heating and cooling, land degradation (soil loss, permafrost thaw, coastal erosion), riverine flooding, coastal flooding, historic extremes. Installation planners and resource area specialists can use these tools and their associated data as a screening tool to analyze their installation's vulnerability to each risk. In May 2023, the installation began preparing a Climate Resiliency Action Plan, in which future monitoring and mitigation measures will be developed.

Weather observation in the Savannah area began in the early 1700s, including local resident Johann Bolzius, who kept a weather diary in the region from 1734-1756 (NWS, 2022). In the 1800s, the Smithsonian Institution recruited upwards of 600 local weather observers across the country to provide local and regional weather data, including several in Savannah, the

records of which are contained in the Smithsonian's archives. These efforts were interrupted by the outbreak of the Civil War but resumed following the installation of a weather observing site in a commercial building at the corner of Bay and Drayton Streets in Savannah by the U.S. Army Signal Corps in December of 1870. The U.S. Congress transferred the meteorological duties of the Signal Corps to the newly created U.S. Weather Bureau in 1890; however, weather tracking and record-keeping activities continued at the location in Savannah. These actions would shift to various locations over the next several decades, including facilities at the Savannah Post Office, HAAF, and the Savannah International Airfield. On April 1, 1996, an Automated Surface Observing System (ASOS) was commissioned at the Savannah International Airport, with instruments to report temperature, dew point, sky condition, visibility, present weather, wind speed and direction, pressure and precipitation accumulation. Due to Modernization and Associated Restructuring, the Weather Service Office associated with the ASOS in Savannah was closed in April 1996 and the Weather Forecast Office (WFO) in Charleston, SC took over warning and forecast responsibilities for Savannah and the surrounding area; however, the ASOS remains functional and provides valuable data to the National Weather Service – Climate Prediction Center (NWS-CPC) in Charleston, SC., located 90 miles to the north of HAAF and 117 miles to the north of FSGA (NWS, 2022). This NWS-CPC assesses past and current weather trends to aid in future impacts identification and the development of minimization measures for the region.

Graph 2: Weather Associated with Wildfire (WFSC, 2019).



FSGA historically has a mild, subtropical climate, typified by warm, humid summers and short, mild winters. Yearly rainfall averages 50 inches, half of which falls during the thunderstorm season of June through September. The wettest month is July (normal rainfall 7.6 inches), and the driest is November (1.7 inches). Wind speeds in the region rarely exceed five knots, except during hurricanes or tropical storms, which generally occur between September and November. Using the ACAT, FSGA planners determined that FSGA is at greatest risk for drought (and by association, wildfire), riverine flooding, and coastal flooding, as discussed below.

Drought. Drought is a reduction in the amount of water available for use and can lead to water shortages in all sectors (municipal, agricultural, industrial, energy, and environment). Over even short periods of time, drought can contribute to increased wildfire risk in the forested environment, heat stress of flora, fauna, and persons who reside in that environment (because temperatures are higher during drought), and other overall issues of concerns. The Floridan is the principal artesian aquifer in the region and provides most of the fresh water for cities and communities throughout southeastern Georgia, to include FSGA. The surface aquifer is composed of a relatively thin layer of sands, gravels, and clays and is recharged directly from rainfall percolating through sediments in the region. Groundwater levels are typically high on the FSGA. This groundwater resource is recognized as one of the most productive in North America (discussed in more detail in Section 3.3.9, Water Quality).

Warmer springs, longer dry seasons, and drier soils and vegetation have created the potential for drought in the Study Area. Drought can't be measured based on lack of/abundance of rainfall alone, as the counties within the Study area had an extremely wet September (2022) but also the driest period on record in the past 128 years (January – August 2022) (NIDIS, 2022), highlighting the complexity of drought analysis. Federal agencies are charting historical, current, and potential future drought conditions to try and effect positive change in their communities. For example, the U.S. Drought Monitor (NIDIS, 2022) releases a national map every Thursday showing parts of the U.S. that are in conditions ranging from abnormally dry to exceptionally draught, synthesizing the best available data and working with local observers to interpret the information. It incorporates a network of more than 450 observers across the country, including state climatologists, NWS staff, county extension agents, and hydrologists. At the time of this analysis, the Study Area was not in an area affected by drought (NIDIS, 2022); however, more than four million Georgians across the state were affected by drought.

Wildfire. Wildfires often go hand-in-hand with drought in many ecosystems, as dry vegetation is highly susceptible to ignition. Vegetation at FSGA dominated by fire-adapted plant communities, such as wiregrass and palmetto-gallberry, sustained by a very active prescribed fire program. The FSGA Forestry Branch conducts more than 200 prescribed burns per year on FSGA for the purpose of ecosystem management, which includes reducing the potential for wildfires. On average, the installation burns 115,000 acres per year on FSGA. No prescribed burns are currently conducted within the WAAF Airfield District, as this district is surrounded by the city of Flemington and Hinesville and would pose a safety hazard to the city and the main airfield located in the center of the WAAF Airfield District.

In 2019, an IMCOM Wildfire Risk Assessment (WRA) was conducted for FSGA that utilized historical data, current conditions, and computer modeling for the purpose of identifying current and future wildfire potential for this region, including on-Post and off-Post data from 2007-2014. Climate can influence fire behavior by (1) affecting the moisture content of the fuels based on the humidity in the air (relative humidity, RH), (2) the amount of sunlight available to dry the fuels, (3) wind speed), and (4) wind direction. Fire in southern fuels burn poorly above 60% RH (Graph 2, top left) (WFSC, 2019). Although the mean RH across all hours and all months at FSGA is 75% - typically above the ideal burning conditions – monthly minimum RH often falls within the range that is needed to support fires.

Temperatures in the region peak in the summer months – June through August - with highs that can approach 100°F. These months also have an increased monthly rainfall and an associated increase in minimum RH. Historically, installation records identify the greatest threat from wildfires to be March-May and October-November, when the average rainfall is lower, RH ranges between 40-60%, and temperatures still reach mid 80's to 90 degrees. The likelihood of a large wildfire in the summer is low unless severe drought conditions persist. However, if fuels dry during the day, temperatures climb to 90-100, and RH drops below 60% in the late evening, wildfires are still possible during the summer months (WFSC, 2019).

The FSGA Forestry Branch utilizes three means to limit the extent of wildfires: firebreaks, early detection, and fuel reduction via prescribed burning. The firebreak system primarily parallels public roads and encompasses ranges, where fires often start. Most firebreaks are 6-8 feet wide, but in some cases, they are wider, particularly along the installation's boundaries. Firebreaks are maintained with a harrow or fire plow, and most firebreak maintenance is in the fall. Firebreaks paralleling public roads are generally about 100 yards from roads and act to keep smoke from obscuring driver vision during prescribed burning operations. In many cases tank trails along highways act as firebreaks. Firebreak maintenance is accomplished by Forestry Branch and is funded from Operations and Maintenance funds on ranges and from forestry funds in areas where commercial forestry is the primary objective of forest management. Reported fires are responded to in various ways from immediate suppression, to cutting temporary fire lanes and allowing fires to burn out natural, or "let burn," and sometimes enhancing the burn with more ignition to either connect the fire with a burned-out area or creating an ecological burn if one is scheduled for the area. Soldiers often put out small fires without Forestry assistance.

Riverine and Coastal Flooding. Global sea level rise is a direct effect of climate change, resulting from a combination of thermal expansion of warming ocean waters and the addition of water mass into the ocean, largely associated with the loss of ice from glaciers and ice sheets (Sweet et al, 2022). Congress has recognized the need to consider future trends in sea level rise and coastal flooding and now requires a National Climate Assessment every four years to evaluate ocean measurements. This requirement was enacted by the Global Change Research Act and provides scenarios to help communities plan for events pertaining to sea level rise/coastal flooding in the future. Currently, there is no coordinated, interagency effort in the U.S. to identify an agreed-upon global average for sea level rise estimates; however, according to NOAA, identifying these estimates is an important step in assessing coastal impacts and vulnerabilities. NOAA estimates that the global sea level will rise between eight inches and 6.6 feet by 2100. Higher sea levels amplify the impacts of storm surge, high tides, coastal erosion, and wetland loss, even absent of changes in storm frequency and intensity (Sweet et al, 2022). Coastal areas in the Study Area also feed directly into riverine areas due to the presence of the Atlantic Ocean along the coast of Georgia.

FSGA is subject to coastal flooding, although less often, as its eastern boundary is 65 miles away from the Atlantic Ocean. Hurricanes are common in the area, the most recent of which is Hurricane Matthew, which struck the Southeast coast of the United States in 2018.

Although it downgraded to a Category 1 hurricane by the time it made landfall in Savannah, the heavy rain and winds (60-100mph) associated with this system scattered trees and power lines, created storm surges of two feet and five feet (some locations as high as eight feet along the coast), and resulted in widespread power outages and damage to homes and other infrastructure. Strong winds with these coastal storms are some of the primary causes of damage to electric networks and buildings, especially to utility distribution systems. Although most wind-related damage is aboveground, there is a potential for strong winds to topple a tree, causing the tree's root system to pull up and damage buried cables and pipes. The most common consequences of these hazards include fallen and uprooted trees and/or tree limbs that down power lines or block areas of traffic.

There are extensive riverine systems within FSGA. The Canoochee River bisects FSGA, merging with the Ogeechee River about 35 miles inland from Ossabaw Sound. Although most of the post is drained by the Canoochee, part of the northeast quadrant of the installation drains directly into the Ogeechee, and the southwestern quadrant is drained by the Altamaha River. FSGA contains 98,000 acres of wetlands and 120,000 acres of the 100-year floodplain. This extensive surface water network provides ample opportunities for riverine flooding. Flood waters can result in substantial damage to buildings and infrastructure and can shut down power to utility systems vital to the proper functioning of utility systems on the installation. For example, wastewater treatment plants in the vicinity of surface water sources are more vulnerable to flooding during extreme weather events. Communications switches and backup generators can also be at risk, especially if they are in a basement or low-lying area. For electric power systems, flood waters can damage electrical equipment such as meters, disconnect switches, and transformers. Flooded roadways can cause ingress and egress problems, causing delays to repair and recovery efforts if there are infrastructure outages.

The NWS-CPC-Charleston uses river forecast models to estimate the amount/level of water flowing through the rivers in the U.S. and these models estimate the amount of runoff a precipitation event generates, computes how the water will move downstream, and then predicts the flow of water at a given location throughout the forecast period (every six hours, three-to-five-day time-period in many locations). As the precipitation event unfolds and actual data is available, the forecasted data is replaced with actual data observed during the precipitation event. In addition to precipitation, some other factors the NWS River Models account for are snowmelt, base flow/groundwater, reservoir operations, and routed water from upstream. The forecasts are sent to the NWS Weather Forecast Offices, such as in Charleston, who in turn issue flood watches or warnings to the public. As of May 2018, all 13 NWS River Forecast Centers were routinely generating, consistently issuing, and disseminating information onto the Advanced Hydrologic Prediction Service webpages.

3.3.2.2 Environmental Consequences

3.3.2.2.1 Alternative No. I: No Action Alternative

Under this alternative, Liberty County and the installation will not implement the proposed action but will instead continue to manage the WAAF Airfield District, to include the existing Liberty County EUA under a status quo condition. The routine ongoing activities on the

installation will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation's existing resource management plans.

Routine actions on the installation are not anticipated to substantially contribute to CC/EW as they occur over a relatively short timeframe (less than 30 years); however, a discussion is provided in this section and the topic is discussed in as much detail as possible.

Drought. Under this alternative, routine operations will be implemented, which have the potential to contribute to short-term, indirect and direct, negligible, adverse impacts to drought in the Study Area. Analysis indicates the installation will maintain current and future readiness levels with regards to operations and training. Impacts are short-term as they are anticipated primarily during the summer months (June-September) when temperatures in the region approach 100^0 F, resulting in higher water evaporation rates (indirect impacts) from surface water sources and higher water usage demand (direct impacts) from users on the installation. Evaporation levels and usage levels decrease during non-summer/lower-demand months. Impacts are negligible due to the many minimization measures consistently utilized by installation personnel. This includes utilizing reclaimed water from its wastewater treatment process to irrigate a substantial portion of the greenscape, which reduces the demand on potable water supplies and helps the existing water storage supply last longer during high-usage months and in the event of an emergency (FSGA, 2021). The installation employs water conservation measures as a matter of its SOPs, to include watering lawns on rotating days (such as odd-numbered houses on certain days, even-numbered houses on others). This directly reduces pressure on the groundwater supply in the Study Area.

Potable water needs on FSGA are currently met by wells, all of which are backed up by generators. If at least two of the four wells on FSGA are operational, all critical mission needs can be supplied without curtailing installation usage. This backup system aids in energy resilience measures on the installation. If a drought is designated, water use can be prioritized to critical mission facilities and/or activities, and water restrictions (such as not watering lawns at all until the region has moved beyond the period of drought) are employed. FSGA has made identifying its Critical Facilities List a priority, ensuring they have an adequate source of power in the event of an emergency. The FSGA/HAAF IEWP provides a roadmap for supporting increased energy resilience, readiness, and mission assurance. This document is driven by Army energy and water security goals, as outlined in Army Directive 2020-03*, Installation Energy and Water Resilience Policy*, as well as other federal, DoD, and Army policies and regulations, to include CCC/EW.

Per the 2021 FSGA/HAAF IEWP, the measures under consideration include designing future facilities to withstand extreme weather conditions including, but not limited to, hurricanes or tornadoes; installing lightning protection systems to protect against surge or other damage at many locations on the installation; utilizing low impact development strategies for roadways and buildings to channel stormwater; installing electric vehicle charging stations to comply with DoD requirements; utilizing utility and cybersecurity redundancy in mission critical facilities (where possible) to mitigate for surges and losses in storm situations; enhancing natural gas regeneration and water reuse systems to withstand utility outages; and protecting mission activities and wildlife by having a robust fence line.

Drought can also contribute to increased wildfire risk in the forested environment, as temperatures rise and vegetation on the forest floor dries (serving as fuel for forest fires); however, the installation has a progressive prescribed burn program, which effectively minimizes the potential for this risk on the installation and, in turn, minimizes the risk of stress to the flora and fauna who reside in that environment due to drought conditions. Proactive education efforts throughout the year to inform the community of water conservation measures is a vital tool and minimization measures include this proactive outreach and education. These proactive actions and minimization measures by installation personnel are consistently utilized, enabling mission requirements to be met and minimal contributions to drought in the Study Area. Overall, no more than short-term, indirect and direct, negligible, adverse impacts to drought potential in the Study Area are anticipated under this alternative.

Wildfire. Under this alternative, routine operations will be implemented, which have the potential to contribute to short-term, direct, negligible, adverse impacts to wildfires in the Study Area. Analysis indicates the installation will maintain current and future readiness levels with regards to operations and training. Impacts are negligible due to the many minimization measures and proactive actions consistently utilized. Fire behavior on FSGA was evaluated by simulating 36,000 wildfires using FARSITE5, the Fire Area Simulator, one of the primary programs used by the U.S. Forest Service, National Park Service, and other wildland fire fighting agencies to assess fire spread potential. Each of the 36,000 wildfires simulated was allowed to spread for 24 hours. The analysis determined that the high level of fuels management occurring under the prescribed burn program on FSGA, combined with relatively mild fire-weather conditions, is effectively mitigating much of the potential fire risk at FSGA.

The simulation showed that wildfires were unlikely to spread off-Post due to the relatively small size of many of the wildfires, unless they are ignited near the installation boundary. The highest expected number of fires crossing the boundary was 0.325 fires per year, or about three per decade. The probability of a fire burning onto the installation from an off-Post location was much less likely, due to the lack of ignitions off installation relative to on-installation. The highest expected fire frequency for fires crossing onto Fort Stewart was 0.09, or roughly a fire once every ten years. The highest risks found in the assessment were related to range infrastructure, not surprising given the lack of fire spread elsewhere and the location of these resources within the highest fire likelihood locales, in the range and training lands. The targets and wooden buildings on these locations were at the highest risk, and the Ammunition Supply Points (ASPs) were of similar risk. However, many of these buildings are sited within or near gravel and mowed lawns, which will not carry fire and are highly unlikely to produce a fire that could be considered threatening.

The FSGA Forestry Branch conducts more than 200 intentional burns per year, which treat fuels on one-third to one-half of the fuels on the installation annually. Minimization measures utilized by the installation, such as the current prescribed burn program, have been shown to successfully reduce the amount of fuel (i.e., debris) available to result in wildfires. In addition, the installation has a well-regulated system of firebreaks, which aid in minimizing the severity of wildfires, as they cannot easily jump from one location to the next, including minimizing the potential for wildfires to jump from FSGA to an off-Post location. The prescribed fire program also provides the additional benefit of reinforcing the extensive

network of maintained roads and firebreaks on the installation, further reinforced by the natural compartmentalization on the installation that is provided by its on-Post wetlands and rivers.

On the locations where high intensity wildfire were observed, most were in locations where prescribed fire is not applied at all or is applied infrequently, such as in the installation's cantonment areas. This essentially represents the effect of the prescribed burn program on fire intensity. In those areas that cannot be prescribed burned or are burned infrequently due to smoke impacts, such as the FSGA cantonment area, the Forestry Branch has developed the Cantonment Area Wildfire Protection Plan (CAWPP). The CAWPP uses various strategies such as timber thinning, mulching/mowing, harrowed firebreaks, and chemical treatments to maintain fuel (debris) at low levels which allows any potential wildfire to be quickly suppressed. These areas around the cantonment area are maintained on a three-year cycle like the traditional prescribed burning rotation, except these alternate techniques are used to keep fuel levels reduced. Some infrequent prescribed burning may occur in areas that historically were not prescribed burned once the fuel composition is changed where smoke would not negatively affect the cantonment area or the city of Hinesville.

Historical records form the WRA (2019) identified only one wildfire in the past 30 years that required full suppression efforts by the FSGA/HAAF Fire Department. This 3-acre wildfire fire occurred on HAAF in 2021 and was started by children playing in the woods. It was successfully extinguished, and the area affected regenerated quickly. Consequently, overall impacts associated with wildfires on FSGA are anticipated to be likewise short-term and negligible, because the wildfires (simulated and actual) burn out quickly and the forest regenerates rapidly following the burn.

Within the WAAF Airfield District, no prescribed burns are occurring. The installation subject matter experts also provide valuable training to others on and off the installation regarding how to prevent wildfires and this is vital to reducing this potential hazard in the environment. These proactive actions and minimization measures by installation personnel are consistently utilized, enabling mission requirements to be met and minimal contributions to drought in the Study Area. Overall, no more than short-term, direct, adverse impacts to wildfire potential in the Study Area are anticipated under this alternative.

Riverine and Coastal Flooding. Under routine operations, the installation has the potential to contribute to long-term, direct, minor, adverse impacts to riverine and coastal flooding in the Study Area. Impacts are long-term and minor because, although the installation enacts minimization measures and proactive actions on a consistent basis, the installation has a substantial number of streams, wetlands, and floodplains and the potential for flooding and storm surges that are associated with those resources. However, analysis indicates the installation will maintain current and future readiness levels with regards to operations and training.

Flooding can lead to power outages, and water systems are heavily dependent on power for the supply, distribution, and treatment of drinking water and for the pumping of wastewater, and this is of special importance for the installation's critical facilities (FSGA/HAAF, 2021). Loss of power during storms can result in mandatory building closures

in two hours or less, sewer backups or overflows in buildings due to inoperable lift stations, and immediate mandatory building closures because of unsanitary and unsafe working conditions, often regardless of building criticality (FSGA/HAAF, 2021). Flooding also occurs within the ranges and training areas, which is a specific issue of concern on unimproved trails that can become unusable when flooded. This restricts use of the ranges and training areas until the storms cease, trail surfaces dry, and any associated damage to the trails is fixed by components of the FSGA Range Division. New construction is sited out of wetlands and floodplains, to the greatest extent possible, to avoid these issues proactively during the siting process. Due to the prevalence of these resources on the installation, total avoidance is not always possible. To minimize potential impacts, both to the sensitive resources and to minimize potential flooding concerns, all construction within these resources must meet federal Clean Water Act requirements, as discussed under Section 3.3.9, Water Resources. This includes elevating construction above the floodplain, in accordance with EO 11988, *Floodplain Management* and EO 11990 *Protection of Wetlands* (see Section 3.3.9 for full discussion).

Planning is key when preparing for sea level rise (MEGSG, 2022). This can help describe and establish potential situations to help organizations and communities recognize and adapt to changes over time. Through implementation of these plans, effects of sea level rise may be reduced as community members are better prepared to handle the impact of rising seas. Minimization measures include ensuring proper maintenance of stormwater drainage structures and retention/detention ponds, thus ensuring a structured flow of flood waters away from critical portions of the installation; incorporating permeable pavement where suitable to improve stormwater management; diverting new construction outside of wetlands and the 100-year floodplain; and others as identified in the FSGA/HAAF IEWP. FSGA has made identifying its Critical Facilities List a priority, ensuring they have adequate sources of power in the event of an emergency. As discussed under Drought, the FSGA/HAAF IEWP provides a roadmap for supporting increased energy resilience, readiness, and mission assurance and the 2021 FSGA/HAAF IEWP has identified many measures under consideration include designing future facilities to withstand CC/EW conditions. Overall, no more than long-term, direct, minor, adverse impacts to riverine and coastal flooding are anticipated in the Study Area.

3.3.2.2.2 Alternative No. II: Proposed Action (Preferred)

Under this alternative, the proposed action would occur which includes the expansion of the Liberty County EUA, construction of the MCRA direct access road off Old Hines Road, and the construction of the airfield perimeter security fence. Ongoing, routine activities on WAAF/MCRA within the WAAF Airfield District will also continue, to include routine operations, repair, maintenance, and training activities.

Drought. Under this alternative, there is a potential to contribute to short-term, indirect and direct, negligible, adverse impacts to drought in the Study Area, as discussed under Alternative I. Impacts are still anticipated to be short-term, occurring primarily during the warmer months. The proposed action is not anticipated to result in impacts to resources associated with drought on the installation. For example, any excavation during construction will not be deep enough to impact the Floridan aquifer, no new water wells will be dug, or existing water wells modified, and no closure of existing water wills will occur, on FSGA.

Potable water needs on FSGA will continue to be met and all critical mission needs can be supplied without curtailing installation usage. The installation will continue to utilize reclaimed water from its wastewater treatment process to irrigate a substantial portion of its greenspace, which reduces the demand away on potable water well supplies.

Wildfire. Under this alternative, there is potential to contribute to short-term, direct, negligible, adverse potential to contribute to wildfires in the Study Area, mostly as discussed under Alternative I. Construction of the Civilian terminal access road and airfield perimeter security fence will disrupt existing forested tracts of land, contributing to the compartmentalization of the areas in which this activity is planned, which helps minimize the potential for wildfire to jump from one compartment to another. Impacts are determined to be short-term due to the fact that the wildfires (simulated and historically) burn out quickly and the forest regenerates rapidly following the burn. The prescribed burn program reduces fuel loads throughout much of the installation, which results in low probabilities of high intensity wildfire. Those locations where high intensity wildfires were observed are still mostly in locations where prescribed fire is not applied at all or is applied infrequently, such as the cantonment areas.

Minimization measures utilized by the installation, such as the current prescribed burn program, have been shown to successfully reduce the amount of fuel available to result in wildfires, and include a well-regulated system of firebreaks. As discussed under Alternative I, the FSGA cantonment area is managed via the CAWPP to ensure minimization of potential impacts to adjacent communities (such as Hinesville). No prescribed burning is conducted within the WAAF Airfield District. The installation subject matter experts also provide valuable training to others on and off the installation regarding how to prevent wildfires and this is vital to reducing this potential hazard in the Study Area.

Riverine and Coastal Flooding. Under this alternative, the installation has the long-term, direct, minor, adverse potential to contribute to riverine and coastal flooding in the Study Area, as discussed under Alternative I. Portions of the civilian terminal access road will be constructed through wetlands. Accordingly, the potential for flooding at these locations is possible, and long-term direct impacts are therefore possible. As discussed under Alternative I, impacts persist until flood waters recede and repairs to facilities, grounds, and roads, and utilities, as needed, proceed. Under this alternative, the Liberty County EUA will be expanded, a civilian terminal access road would be constructed, and a perimeter security fence would be installed; however, this is not anticipated to contribute to flooding on the installation as construction design will be completed to meet pre-construction flood storage conditions. Minimization measures include installing proper stormwater drainage structures and retention/detention ponds and ensuring existing systems are properly maintained, thus ensuring a structured flow of flood waters away from critical portions of the installation; incorporating permeable pavement where suitable to improve stormwater management; diverting new construction outside of wetlands and the 100-year floodplain, and others as identified in the FSGA/HAAF IEWP (as discussed under Alternative 1).

3.3.2.3 Cumulative Impacts

The ROI is the Savannah Beaufort Air Quality Control Region, which contains both FSGA and HAAF. Past, present, and reasonably foreseeable future events with the potential to

result in cumulative impacts to Air Quality are discussed in the analysis below. Army planners utilized current and projected climate impacts to weather events in 2050 and 2085 through the ACRH and ACAT, and data sources included NOAA, NIDIS, Federal Emergency Management Agency (FEMA), U.S. Geological Survey (USGS), and the Fourth National Climate Assessment (NCA4). The climate change impacts were analyzed in context of four scenarios, defined by a high or low emissions pathway and the time period of indicator data. While drought was determined to be the dominant impact on FSGA, all impacts are considered when considering planning for the future.

3.3.2.3.1 Alternative No. I: No Action Alternative

Past and present actions in the ROI consist of the historical development of the communities within the ROI, to include Hinesville and FSGA, Savannah and HAAF, and the associated infrastructure and transportation network that supports them. This included periodic iterations of timber harvest, site clearing/grading/stabilization, and construction, which contributed to opacity and GHG emissions from both the ground disturbance associated with construction and the eventual emissions associated with industrial-level operations, vehicles, and other sources that accompanied this development. This was followed by periods of routine operations, maintenance, and repair, as well as military training activity on FSGA and HAAF. Future actions in the ROI consist of routine operations, repair and maintenance, and training on FSGA/HAAF, as well as the ongoing commercial and residential development on the adjacent Cities of Hinesville and Savannah. This includes ongoing military operations, support-related construction, maintenance of transportation support networks (roads, bridges, and railroads) and support of associated infrastructure actions (stormwater drainage systems, and utilities). Reasonably foreseeable future actions include the potential to receive the MDTF and/or the ERCA on FSGA. This will result in the addition of Soldiers, their Families, and an associated increase in activities associated with their training, operations, and construction related to their support, both on FSGA and potentially within the greater ROI as well for the Soldiers and their Families that are not residing on post. Similar actions are anticipated in association with construction of the CLFR and Scout/RECCE Range on FSGA and the 3/160TH Complex on HAAF, both during their construction and their operational phases.

The ACRH and associated ACAT use two planning scenarios, described as “higher” or “lower” depending on the projected accumulation of GHGs in the atmosphere by 2050 and 2080. The higher scenario reflects a greater accumulation of GHGs in the atmosphere, due to higher emissions levels resulting in higher temperatures. The lower scenario assumes a lower net accumulation of GHGs in the atmosphere, due to lower emissions rates and a less dramatic rise in temperatures. The rate at which GHGs accumulate in the atmosphere is directly related to the rate at which temperatures increase in the atmosphere and drive changes in climate. Accordingly, the higher scenario is a faster, bigger change scenario and the lower scenario is a slower, smaller change scenario. As discussed in Section 3.3.1, Air Quality, FSGA and the surroundings lands in the ROI contain substantial forested acreage, that act as a carbon sink for GHGs and absorb more CO_{2e} than is released into the atmosphere in the ROI. None of the reasonably foreseeable future actions under analysis in this EA represent a substantial reduction in the forested acreage within the ROI. Accordingly, a lower net accumulation of GHGs in the atmosphere is anticipated and the

lower emissions rate is more realistic for the determination of potential cumulative impacts associated with CC/EW in 2050 and 2080.

Utilization of the ACAT determined FSGA and HAAF are at the greatest risk of Wildfire, followed by Drought and Riverine Flooding. The greatest contributing factor to wildfire is identified as fuel abundance; however, as discussed previously in this EA, the installation minimizes potential fuel abundance (or fuel loads) and reduces the risk of wildfire on installation lands through its substantial prescribed burning and CAWPP programs. This in turn minimizes the risk of wildfires jumping across the installation boundary and onto off-Post lands within the overall ROI. Accordingly, installation minimization measures, combined with a low potential GHG emissions scenario, are anticipated to reduce potential impacts associated with wildfire to be minor at most within the ROI.

Drought is the secondary CC/EW risk in the ROI and is closely associated with wildfire, as drought conditions can result in drying of fuel sources on the ground, increasing the risk of wildfire ignition. The substantial installation prescribed fire program minimizes this potential and drought conditions in the ROI were seasonally moderate in 2021-2022 and are anticipated to remain so through the end of the calendar year and into early 2023 (NIDIS, 2022). Drought conditions can stress groundwater supplies and local communities in the ROI utilize water management measures to conserve water during times of drought. Drought can also increase energy demands, as utilities must work harder to cool facilities during lengthier periods of heat, and energy resilience measures are of utmost importance in the plans developed by the various MPOs within the ROI. For example, the City of Savannah passed a resolution in 2020 to ensure all electricity consumed in the city is generated by safe, clean, renewable energy by the year 2035 (The Current, 2022). Accordingly, minimization measures and regional planning efforts are anticipated to reduce potential impacts associated with drought to be less than significant and minor at most.

The ROI contains substantial acreage of wetlands, streams, and floodplains. Sea levels at Fort Pulaski, located just outside of the City of Savannah, have risen over nine inches since 1935 (MEGSG, 2022) and scientists expect coastal Georgia to experience at least six inches of sea level rise within the next 50 years because of the changing climate. Much of Georgia's shoreline lies just a few feet above sea level, putting barrier islands and coastal communities, such as Savannah and HAAF, at risk for more frequent flooding, intensified storm surges, and saltwater intrusion into low-lying areas. University of Georgia Marine Extension and Georgia Sea Grant (MEGSG) are responding to this long-term hazard by working with coastal governments such as those in the ROI to assess their communities' vulnerabilities, assist long-term planning efforts and offer training based on the latest science. FSGA/HAAF actively participates in the metropolitan planning organizations in the ROI and provides input into these planning efforts. Energy resilience is considered when planning and developing infrastructure projects. Accordingly, minimization measures and regional planning efforts are anticipated to reduce potential impacts associated with riverine and coastal flooding to be less than significant and minor at most.

3.4.2.3.2 Alternative No. II: Proposed Action (Preferred)

Past, present, and future actions in the ROI are as discussed under Alternative I, except this alternative will include expansion of the Liberty County EUA, construction of the Civilian

terminal access road off Old Hines Road, and the construction of the airfield perimeter security fence. Although this will result in additional tree clearance and ground disturbance (approximately 21.19 acres) associated with implementation of the proposed action, it is not anticipated to result in a substantial difference in cumulative impacts associated with CC/EW in the ROI, as this is not a significant reduction in a forest with 280,000 total acres, even combined with the reduction anticipated from actions anticipated in the overall ROI (75 acres), totaling less than 1%.

The installation will continue to work toward implementing its proposed resilience measures as identified in the FSGA/HAAF IEWP. Measures under consideration include designing future facilities to withstand extreme weather conditions such as hurricanes or tornadoes; installing lightning protection systems to protect against surge or other damage at many locations on the installation; utilizing low impact development strategies for roadways and buildings to channel stormwater; installing electric vehicle charging stations to comply with DoD requirements; utilizing utility and cybersecurity redundancy in mission critical facilities (where possible) to mitigate for surges and losses in storm situations; enhancing natural gas regeneration and water reuse systems to withstand utility outages; and protecting mission activities and wildlife by having a robust fence line. Through these measures, no more than minor cumulative adverse impacts to CC/EW under this alternative.

3.3.3 Biological Resources

3.3.3.1 Affected Environment

Protected species are defined as those listed by the USFWS as endangered or threatened under the ESA; listed by Georgia's Department of Natural Resources (DNR) as rare, unusual, endangered, or threatened; designated as a special species of concern by the Georgia Natural Heritage Program; or proposed for listing by the DNR or USFWS. Of the protected species known to occur on Fort Stewart, red-cockaded woodpecker (RCW) habitat is within the affected environment of the proposed action. No other Federal or State special status species are known to occur within the area of potential effect.

Fort Stewart supports one of the largest forest resources programs in the DoD. The primary purpose of the program is to manage Fort Stewart's forested lands to support the Army training mission, to protect and improve threatened and endangered species habitat, and to enhance ecosystem integrity through sound forest management practices.

The installation contains Georgia's largest remaining forest of longleaf pine, which is essential habitat for the RCW. All thinning operations include the requirements to favor the retention of longleaf pine over other pine species, as well as provide natural longleaf regeneration areas adjacent to existing longleaf seed sources. Re-establishment of longleaf pine occurs on approximately 200 acres of forestland per year. Biological resources in the proposed action's affected environment include, flora, common wildlife, migratory birds, and threatened and endangered species.

Flora. In a broad sense, there are 4 types of vegetative communities on Fort Stewart: upland longleaf pine (Pinus palustris) forests, mesic pine flatwoods, upland mixed hardwood-pine forests, and bottomland hardwood wetlands.

Upland longleaf pine forests are characterized by an overstory of longleaf pine and an understory of wiregrass (*Aristida stricta*). More xeric upland sites (sandhills) also are characterized by a midstory of turkey oak (*Querus laevis*) and bluejack oak (*Q. incana*). Mesic pine flatwoods are characterized by an overstory of longleaf pine, slash pine (*P. elliottii*), and loblolly pine (*P. taeda*), and an understory of wiregrass, dropseed species (*Sporobolis*), saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), runner oak (*Q. pumila*), and various blueberries (*Vaccinium*) and huckleberries (*Gaylusaccia*). Midstory components of mesic flatwoods include sweetgum *(Liquidambar styraciflua*), live oak (*Q. virginiana*), water oak (*Q. nigra*), and red bay (*Personia borbonia*). Upland mixed hardwood-pine forests generally occur in oldfield situations and are characterized by loblolly and slash pine, sweet gum, and water oak in the overstory and midstory.

The groundcover of oldfields is often characterized by oldfield grasses like broomsedge (*Adropogon virginicus*). Connected wetlands (river and streamside floodplains) are typified by an overstory of bald cypress (*Taxodium distichum*), sweet gum, and water tupelo (*Nyssa sylvatica*), Ogeechee tupelo (*N. ogeechee*), while the overstory of isolated wetlands are dominated by pond cypress (*T. ascendens*), slash pine, and loblolly pine. The midstory of isolated wetlands often comprise myrtleleaf holly (*Ilex myrtifolia*). The groundcover of isolated wetland ecotones frequently is dominated by wiregrass and dropseed.

Common Wildlife. Common wildlife on Fort Stewart includes white-tailed deer (*Odocoileus virginianus*), wild boar (*Sus scrofa*), fox (*Vulpes and Urocyon spp.*), bobcat (*Lynx rufus*), rabbit (*Sylvilagus spp.*), squirrel (*Sciurus spp.*), and other small mammals. In addition to a diverse assemblage of forest songbirds, game birds such as eastern wild turkey (*Meleagris gallopavo silvestris*) and northern bobwhite quail (*Colinus virginianus*) occur on the installation (INRMP, 2005).

Migratory Birds. Approximately 340 species of birds protected under the MBTA occur on Fort Stewart, either seasonally or year-round, and many of these species can be expected to occur in the areas affected by the action alternatives. Fort Stewart complies with the MBTA by implementing Army Policy Guidance (17 August 2001) and EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds.

Protected Species. The following protected species occur, or may occur, in the proposed action area and were considered in this assessment:

Red-cockaded woodpecker (*Dryobates borealis*) – Endangered
Eastern black rail (*Laterallus jamaicensus jamaicensus*) – Threatened
Wood stork (*Mycteria americana*) – Threatened
Eastern indigo snake (*Drymarchon couperi*) – Threatened
Frosted flatwoods salamander (*Ambystoma cingulatum*) – Threatened
Atlantic sturgeon (*Acipenser oxyrinchus*) – Endangered
Shortnose sturgeon (*Acipenser brevirostrum*) – Endangered
Smooth coneflower (*Echinacea laevigata*) – Threatened (Reclassified from Endangered on July 6, 2022)

The following sections further define the affected environment of each individual protected species. Information contained in the following sections utilize information from the BA conducted by FSGA Directorate of Public Works (DPW) Fish and Wildlife Branch in April 2021 for the proposed Airfield Access Road Construction Project.

Red-cockaded Woodpecker (RCW). RCWs are territorial, non-migratory, cooperative breeders that exclusively excavate their roost and nest cavities in living pines. A cooperative social structure, called a group, is formed with a breeding pair of RCWs, the current year's offspring, and helpers. Helpers are usually male offspring from previous breeding seasons that assist the breeding pair with cavity excavation and maintenance, egg incubation, feeding young, and defending a group's territory. The nesting season occurs from April to July. Some juvenile males disperse from their native territory to find vacant territories or to establish their own. Most juvenile females disperse after fledging. The average distance fledgling males and females disperse at Fort Stewart is 3.96 miles. Each group of RCWs occupies a discrete territory or area consisting of its cavity trees, called a cluster, and adjacent foraging habitat.

Fort Stewart contains Georgia's largest remaining forest of longleaf pine, which is essential habitat for the RCW. The quality of RCW foraging habitat varies depending upon vegetation in the understory, weather, soils, season, and fire frequency and intensity. The highest populations of RCWs occur on areas with active prescribed burning programs that control hardwoods (frequency of every 2-3 years). Fort Stewart reached its RCW recovery goal of 350 potential breeding groups during the breeding season of 2012 and has enough suitable or potentially suitable habitat to support 657 RCW clusters.

Frosted Flatwoods Salamander (FFS). FFS habitat is widespread on Fort Stewart and includes many areas not heavily used or impacted by mechanized training activities. Salamander breeding sites are small ponds, often less than one acre, which receive surface water runoff from adjacent pine habitat. Terrestrial adult FFS inhabit low areas in pine flatwoods, where they live in underground burrows that they excavate or in crayfish tunnels. The FFS have been found more than one mile from their breeding ponds.

A protective buffer of 492 yards from a wetland's edge is a recommended distance by USFWS and used by Fort Stewart. Isolated pools have been ranked according to their suitability as FFS breeding sites, and protective buffers have been assigned to minimize impacts to the potential breeding sites. The installation's conservation goal is to maintain five existing populations of FFS and 25 breeding sites currently known on Fort Stewart. Prescribed growing season burns to control midstory vegetation are used to restore and maintain the flatwood habitat. Mechanical control of midstory vegetation is avoided to prevent the creation of tire ruts in wetlands, and no herbicides are applied within wetlands and adjacent uplands in salamander habitat.

Eastern Black Rail (EBR). Threats to the EBR include habitat loss, sea level rise, and tidal flooding from increasing storm intensity and frequency. There is an ESA 4(d) rule for the EBR. Prohibited activities include incidental take that causes long-term or permanent damage, fragmentation, or conversion of EBR habitat to other habitat types that do not support the bird.

EBR habitat is higher elevations in Estuarine and Palustrine persistent emergent wetlands and where these wetlands meet upland edges. The EBR habitat needs are; the higher elevations of salt, brackish, or freshwater marsh, dense herbaceous vegetative cover that allows movement underneath the canopy, plant structure is considered more important that plant species composition, elevated refugia to escape high water events, and moist to saturated substrates interspersed with or adjacent to very shallow water.

On the Georgia Coast, habitat is the higher elevations of Estuarine Persistent Emergent Wetlands dominated by saltmarsh cordgrass (*Spartina alterniflora*) and needlerush (*Juncus roemerianus*). Inland habitat in both non-tidal wetlands and low salinity tidal areas is Palustrine Persistent Emergent Wetlands that contain a vast array of grasslike plants such as cattails (*Typha* spp.), bullrushes (*Scirpu*s spp.), sedges (*Carex* spp.), and true grasses such as reed (*Phragmites australis*). Inland minimum habitat size, based on the breeding home range, is 3.2 acres. Shrub-scrub and forested areas are not EBR habitat.

Wood Stork (WS). The WS is a large, bald-headed wading bird that stands more than 3 feet tall, has a 5-foot wing spread, and weighs 4 to 6 pounds. It is the only stork that breeds in the United States. It eats primarily fish, foraging in a variety of open, shallow freshwater and estuarine wetlands. It favors areas with falling water levels (when fish and other prey are likely to be more concentrated in pools). Birds forage mainly by wading in shallow water with their bills partly open in the water, so they can quickly snap them shut when contact is made with prey.

The wood stork is a highly colonial species usually nesting in large rookeries and feeding in flocks. Colony size in Georgia has ranged from fewer than 12 to more than 500 nests. Nests may be located in small trees (3-7' above ground) or large trees (60' or more above ground), but the trees must be in standing water or on islands surrounded by water to protect from predators. Nesting periods vary geographically. In north and central Florida, Georgia, and South Carolina, storks lay eggs March-late May, with fledging occurring July-August. Wood storks have also nested in man-made structures. Storks occasionally use the same rookeries for years, but most colonies are shorter lived. Loss of foraging and breeding wetland habitat is the primary cause for declines.

Atlantic and Shortnose Sturgeon*.* Atlantic Sturgeon are anadromous, meaning that adults reside in the ocean, but return to their natal river to spawn. Adults inhabit large areas of the coastal ocean and may even leave the continental shelf. Adults and subadults from different populations mix offshore, and fish originating from Georgia are observed coastwide. Spawning occurs near the fall line, in habitat featuring hard substrates such as gravel or cobble. Larvae gradually migrate downstream to the upper estuary. River-resident juveniles reside in nursery areas below the head of tide, and marine migratory juveniles inhabit coastal marine waters.

Atlantic Sturgeon populations suffered major declines due to a variety of anthropogenic factors. Historically, they were over-harvested for both their meat and roe (caviar). Additionally, the construction of impoundments in spawning rivers impeded access to historic spawning sites and modified natural hydraulic flow and temperature regimes.

Additionally, threats include commercial by-catch and ship strikes while migrating through busy ports and shipping channels. Habitat modifications also pose a large threat to sturgeon conservation and recovery. Dredging and construction may directly or indirectly impact sturgeon due to habitat damage, sedimentation, or altered flow patterns that negatively affect spawning habitat or holding areas. Water pollution also adversely affects many fish populations, including sturgeon. In southern rivers, naturally poor water quality resulting from high temperatures and low dissolved oxygen pose a threat to conservation and recovery of Atlantic Sturgeon.

Shortnose Sturgeon live in rivers and coastal waters from Canada to Florida. They hatch in freshwater of rivers and spend most of their time in estuaries of these rivers. Unlike the Atlantic Sturgeon, Shortnose Sturgeon tend to spend relatively little time in the ocean. When they do enter marine waters, they generally stay close to shore. In the spring, adults move far upstream and away from saltwater to spawn. After spawning, the adults move rapidly back downstream to the estuaries. Shortnose Sturgeon historically suffered major declines for the same reasons previously mentioned for the Atlantic Sturgeon. Primary threats to this species are habitat degradation, water pollution, dredging, water withdrawals, fisheries bycatch, and habitat impediments (e.g., dams).

Smooth Coneflower (SC). The Smooth Coneflower (SC) is a threatened plant with 44 distinct populations existing in Virginia (15), North Carolina (6), South Carolina (12), and Georgia (11). Sixteen of these 44 populations are considered healthy and occur within protected national forests and nature preserves where threats from habitat modification have been reduced. It is a prairie plant and has a smooth stem and drooping purplish petals. SC was reclassified from endangered to threatened with a Section 4(d) Rule on July 6, 2022. The closest identified SC population in relation to the study area lies in Evans County, Georgia.

SC habitat includes grassy openings and rocky clades with shallow soil over mafic bedrock and sunny roadsides and rights-of-way through these habitats. SC appears to need bare soil that is rich in magnesium and/or calcium for seed germination and growth. SC relies on some type of periodic disturbance to clear encroachment of woody vegetation and reduces shading. Fire, well-timed mowing, or careful clearing is essential to maintaining the glade remnants occupied by this plant. The largest threats to SC populations occur from the destruction of SC habitat by conversion to pine plantations, residential and commercial developments, utility and highway rights-of-way, fire suppression in prairie habitats, the use of herbicides in rights-of-way, and poaching.

The U.S. Forest Service (USFS) manages SC habitat within Chattahoochee National Forest, Sumter National Forest, George Washington and Jefferson National Forests, as well as at the Savannah River Site. Since its listing, the USFS has designated Special Management Areas for each of their populations, thereby limiting access to the plants. They use prescribed fire to maintain suitable habitat, helping ensure SC populations thrive. In addition to the USFS, other organizations collaborating on SC conservation include the North Carolina Botanical Garden, North Carolina Plant Conservation Program, the State Botanical Garden of Georgia, the Atlanta Botanical Garden, the Georgia Plant Conservation Alliance, U.S. Army Corps of Engineers, county governments, and numerous other partners. These

groups monitor SC populations on a regular basis and also plant SC to augment existing populations. Prescribed fire is used to reduce competition from woody species, eradicate invasive species, and promote SC germination and growth.

3.3.3.2 Environmental Consequences

3.3.3.2.1 Alternative No. I: No Action Alternative

Under this alternative, Liberty County and the installation will not implement the proposed action but will instead continue to manage the WAAF Airfield District, to include the existing Liberty County EUA under a status quo condition. The routine ongoing activities on the installation will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation's existing resource management plans.

Flora. If the status quo were maintained without implementing the proposed action, no adverse impacts to fauna would occur as no changes to the status quo would occur.

Common Wildlife. If the status quo were maintained without implementing the proposed action, no adverse impacts to wildlife would occur as no changes to the status quo would occur.

Migratory Birds. If the status quo were maintained without implementing the proposed action, no adverse impacts to migratory birds would occur as no changes to the status quo would occur.

Protected Species. If the status quo were maintained without implementing the proposed action, no adverse impacts to protected species would occur as no changes to the status quo would occur.

3.3.3.2.2 Alternative No. II: Proposed Action (Preferred)

Under this alternative, the proposed action would occur which includes the expansion of the Liberty County EUA, construction of the MCRA direct access road off Old Hines Road, and the construction of the airfield perimeter security fence. Ongoing, routine activities on WAAF/MCRA within the WAAF Airfield District will also continue, to include routine operations, repair, maintenance, and training activities.

Flora. The proposed action would cause the clearing of approximately 5.97 acres for the construction of the proposed Civilian terminal access road. Approximately 1.70 acres would be located within the bottomland hardwood wetland habitat and most of the impact (approximately 4.27 acres) would be within the mesic pine flatwoods upland habitat and an existing unimproved roadbed. Approximately 5.13 acres of merchantable timber exists within the proposed access road footprint and would be harvested by FSGA.

The proposed action would cause the disturbance to approximately 5.76 acres for the installation of the perimeter security fencing. Of this 5.76-acre area, 3.23 acres will consist of the clearing of mesic pine flatwoods upland and bottomland hardwood wetland habitat and 2.53 acres will be located within existing cleared areas associated with the existing cleared RPZs. Approximately 3.23 acres of merchantable timber exists within the proposed perimeter security fencing project boundaries. Short-term, direct, minor, beneficial impacts

are anticipated because of timber sales, providing funding for all Department of the Army forestry and natural resource management programs.

Overall, the conversion of approximately 13.41 acres of existing mesic pine flatwood upland habitat and bottomland hardwood wetland habitat to a paved access road with grassed shoulders and maintained cleared habitat for the perimeter security fence is a long-term, direct, minor, adverse impact of the proposed action.

No indirect impacts to habitats outside of the immediate footprint of the proposed access road or perimeter security fence are expected to occur during construction. Proper erosion and sedimentation control best management practices (BMPs) will be implemented through the duration of construction activities in accordance with the Georgia Erosion and Sedimentation Control Act of 1975.

Common Wildlife. The proposed action would cause a long-term, direct, minor adverse impact to wildlife through the loss of approximately 5.97 acres of suitable wildlife habitat for the construction of the proposed Civilian terminal access road and the loss of approximately 3.23 acres of suitable habitat for the construction of the perimeter security fence. Short-term, indirect, negligible, adverse impacts to wildlife are expected due to the wildlife being potentially displaced during construction activities but immediately returning to the surrounding area when construction activities have been completed.

Migratory Birds. The proposed action's loss of habitat is not anticipated to have any direct or indirect adverse impact on migratory birds. The minor loss and/or conversion of habitat within the project area is not anticipated to adversely impact any migratory bird's feeding, nesting, or breeding habitat. The proposed action is not expected to cause any alteration of any migratory bird migration pattern.

Protected Species. A BA for the proposed airfield access road construction project was completed by FSGA DPW Fish and Wildlife Branch in April 2021. The following species occur, or may occur, in the proposed action area and were considered in the assessment:

- Red-cockaded woodpecker (*Dryobates borealis*) – Endangered
- Eastern black rail (*Laterallus jamaicensus jamaicensus*) – Threatened
- Wood stork (*Mycteria americana*) – Threatened
- Eastern indigo snake (*Drymarchon couperi*) – Threatened
- Frosted flatwoods salamander (*Ambystoma cingulatum*) – Threatened
- Atlantic sturgeon (*Acipenser oxyrinchus*) – Endangered
- Shortnose sturgeon (*Acipenser brevirostrum*) – Endangered
- Smooth coneflower (*Echinacea laevigata*) – Endangered

Under this alternative, long-term, direct, minor, adverse impacts are anticipated to protected species. Each of the identified species are managed in accordance with their species-specific Endangered Species Management Plan (ESMP), a component of the installation's INRMP, and no changes to the ESMP for any of these species is proposed because of this alternative. The FSGA cantonment area, including WAAF, is not managed for protected species and no impacts are anticipated because of routine and ongoing actions in that

location. All installation actions are conducted in compliance with federal, state, and local laws and regulations and include adherence to the ESA, ensuring no more than negligible adverse impacts to protected species at those locations. These stipulations have assisted in the preservation of the environment and the vitality of the protected species populations on FSGA. The FSGA/HAAF biologists conduct routine surveys for these species in accordance with the installation INRMP and manage accordingly based on the results of those surveys and federal and state laws and regulations.

The BA concluded that the project would impact 10.91 acres of existing RCW Habitat Management Unit (HMU), 1.01 acres of lowland hardwood, and 1.12 acres of non-forested habitat as identified in Fort Stewart's INRMP. The nearest RCW cluster is 1.51 miles northwest of the project area in NRMU A-18.2. Habitat degradation (lack of prescribed fire due to proximity to the WAAF/MCRA and the City of Hinesville) in the project area contributes to the area's unsuitable for the RCW. The BA concluded that due to the small amount of acreage removed from the RCW HMU, habitat degradation, and the distance to the nearest RCW cluster from the project area, any negative effects to the RCW habitat will be insignificant and that the proposed action would not affect the RCW and the group, neighborhood, population, and recovery unit analyses are not warranted.

The BA concluded that the project will not impact FFS HMU or any FFS breeding ponds. No FFS have ever been detected in the project area. The nearest known FFS occurrence is 2.34 miles northwest of the project area in NRMU A-18.1. Due to the distance from the project area to the nearest FFS sighting, unsuitability of the habitat, and the implementation of control measures required during construction, the proposed action will not affect the FFS.

The BA concluded that the project area does not lie within the EIS HMU. No EIS have ever been detected within the project area. The habitat in the project area may be suitable for EIS hunting grounds, however, the lack of overwintering and breeding sandhill habitat contributes to the project area's unsuitability for the EIS. The nearest known occurrence of the EIS is 3.71 miles north-northwest of the action area in NRMU B-4.14. The BA concluded that the proposed project would not affect the EIS.

The BA concluded that no EBR have ever been observed in the proposed project area, nor have they ever been observed on FSGA, though they may potentially migrate through FSGA. The nearest confirmed sighting of EBR is in Greene County, Georgia, > 150 miles northwest of the installation. Habitat in the project area is unsuitable for the EBR due to the mix of closed canopy pine and hardwood dominated wetlands. The BA concluded the proposed project would not affect the EBR due to unsuitable habitat within the project area and the distance between the project area and confirmed EBR sightings.

The BA concluded that no WS were observed, nor have they ever been observed, foraging in the project area. Habitat in the project area comprises closed canopy mixed pine and hardwood, which is not preferred habitat for the WS, and therefore, is generally unsuitable. The nearest area where foraging WS have been observed is approximately 2.24-miles north-northeast of the project area in NRMU A-16.2. The BA concluded the proposed project would not affect the WS due to the distance from confirmed WS sightings to the project area,

unsuitable habitat characteristics, and the implementation of erosion and sedimentation control measures during construction activities.

The BA concluded that Atlantic and Shortnose Sturgeon would not be impacted from the proposed project due to unsuitable habitat in the project area and the distance between the proposed project area and documented sturgeon sightings. The proposed project lies in low elevation wetland habitat and is greater than 15 miles southwest of the nearest Atlantic Sturgeon critical habitat and nearest Shortnose Sturgeon occurrence on the Canoochee River.

The BA concluded that no SC were observed within the proposed project area. The nearest population of SC is located in NRMU F-11.1, approximately 20.53 miles northwest of the project area. Habitat suitable for SC is generally dry, open woodlands. Therefore, habitat in the project areas is unsuitable due to its main wetland characteristics. The BA concluded that the proposed action would not affect the SC due to the distance from the nearest confirmed SC population and the unsuitable environmental conditions within the project area.

The BA concluded that the proposed action will not adversely affect any protected species because habitat in the action area is not suitable, or fundamentally unsuitable, for these species. A copy of the complete BA may be found attached in Appendix H.

In May 2023, FSGA DPW Fish and Wildlife Branch re-evaluated the project due to a project modification which removed the western arm from the original proposed access road route and added a perimeter security fence to the project. The FSGA DPW Fish and Wildlife Branch identified that the project modification reduced the amount of RCW HMU to be removed by 2.64 acres from the previous project design that was evaluated in the April 2021 BA. The FSGA DPW Fish and Wildlife Branch concluded that the project amendment did not change the original assessment of the project due to the changes in acres of habitat impacted and that the original conclusions of the effect of the action on listed species and critical habitat remained unchanged. A copy of the May 2023 FSGA DPW Fish and Wildlife Branch BA re-evaluation letter may be found attached in Appendix H.

Informal Section 7 Consultation was initiated by FSGA DPW Fish and Wildlife Branch with USFWS in April 2021 and May 2023. USFWS provided concurrence with the determination that the proposed action of the construction of the proposed access road “may affect but is not likely to adversely affect” the RCW and FFS. USFWS concurred that the requirements of Section 7 of the ESA have been satisfied based on the provided information. A copy of the USFWS concurrence letter and coordination email from May 2023 may be found attached in Appendix H.

3.3.3.3 Cumulative Impacts

The ROI for the cumulative impacts for biological resources is the WAAF Airport District.

3.3.3.3.1 Alternative No. I: No Action Alternative

Cumulative impacts to fauna, common wildlife, migratory birds, and protected species because of the no action alternative are not anticipated because direct and indirect impacts are not expected.

3.3.3.3.2 Alternative No II: Proposed Action (Preferred)

Flora. Cumulative impacts to flora are expected to occur based on the projects identified in the WAAF ADP and MCRA ALP. Anticipated long-term development within the proposed expanded EUA indicates the reasonably foreseeable impact to approximately 47.41 acres of habitat to be converted to mostly impervious surface for the development of additional taxiways and of areas available for operations to military centric defense contractors. The reasonably foreseeable impacts are approximately 2.21 acres to bottomland hardwood wetland habitat, approximately 35.83 acres to mesic pine flatwoods habitat, and 9.36 acres of existing grass pastureland associated with the maintained areas of the existing airfield. Future clearing activities would be subject to the same protocol previously discussed with the overall harvest having a beneficial monetary impact to FSGA. The overall conversion of approximately 47.41 acres of existing habitat to mostly impervious paved areas is considered to be a minor, adverse cumulative impact of the proposed action.

Common Wildlife. Minor, adverse cumulative impacts to wildlife are expected to occur based on the projects identified in the WAAF ADP and MCRA ALP. Anticipated long-term development within the proposed expanded EUA indicates the reasonably foreseeable impact to approximately 47.41 acres of suitable wildlife habitat to be converted to mostly impervious surface for the development of additional taxiways and of areas available for operations to military centric defense contractors. The overall conversion of approximately 47.41 acres of existing habitat to mostly impervious paved areas is a minor, adverse cumulative impact to wildlife based in relation to the proposed action.

Migratory Birds. Cumulative impacts to migratory birds are not anticipated because adverse direct and indirect impacts are not expected.

Protected Species. Upon the consideration of the proposed action in conjunction with the mid- and long-term projects identified within the WAAF ADP and MCRA ALP, the proposed action is anticipated to have a minor, adverse impact to protected species due to the continued loss of RCW HMU habitat for the planned future development activities coupled with the current and past development activities at WAAF/MCRA.

No RCW cavity trees have been found within the project area, neither are any RCW foraging partitions anticipated to be impacted by the proposed current and reasonably foreseeable future actions. The nearest RCW cluster is 1.51 miles northwest of the project area in NRMU A-18.2. Habitat degradation within the project area due to lack of prescribed fire due to the proximity to the WAAF/MCRA and the City of Hinesville contributes to the project area's unsuitability for the RCW.

The proposed action will not adversely impact any cavity or start trees. These actions cumulatively will not impact any RCW forage partitions and FSGA still expects to continue its achievement of 350 potential breeding groups (the recovery benchmark).

3.3.4 Hazardous Materials and Waste

3.3.4.1 Affected Environment

Specific environmental statutes and regulations govern hazardous materials and hazardous waste management activities at WAAF/MCRA. For the purposes of this analysis, the terms "hazardous waste," "hazardous materials," and "toxic substances" include those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and/or the Toxic Substances Control Act (TSCA). In general, they include substances that because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present substantial danger to public health, welfare or the environment when released into the environment. The Installation Restoration Program for FSGA/HAAF is outlined in its Installation Action Plan (IAP), which identifies environmental cleanup requirements at each site, or area of concern, and proposes a comprehensive approach to conduct investigations and necessary remedial actions when and as required.

Asbestos Containing Materials (ACM). All WAAF facilities scheduled for repair, maintenance, renovation, or demolition are inspected for ACM prior to project implementation. If no survey results are available, it is assumed that buildings and structures built prior to 1981 contain ACM, as this is the date these materials were phased out of use within the United States. If ACM will either be disturbed or removed as part of work within a building on WAAF, the contractor performing the work must conduct asbestos abatement, containment, disposal, and submit a 10-day notification to the GA EPD, as required by the Georgia Asbestos Safety Act, Official Code of Georgia, Annotated Section 12-12-1. The disposal of ACM must be in accordance with both the GA EPD and Occupational Safety and Health Administration regulations (OSHA). Copies of all disposal manifests are provided to the FSGA DPW Environmental Division ASB Points of Contact (POC). Projects identified in the ADP for WAAF and in the ALP for MCRA will undergo individual project-level review by the FSGA ASB, who will ensure adherence to these requirements. This process will continue as each project within the WAAF ADP and MCRA ALP is developed, with guidance provided at each stage of project development. Based on the construction date of the civilian terminal at the MCRA, the presence of ACM is not anticipated. Because ACM management and disposal procedures are mandatory and compliance will be monitored, no impacts are anticipated, and this area is not discussed further.

Lead Based Paint (LBP). All WAAF facilities scheduled for repair, maintenance, renovation, or demolition are inspected for LBP prior to project implementation. If no survey results are available, it is assumed that buildings and structures built prior to 1978 contain LBP, as this is the date these materials were phased out of use within the United States. If tests indicate LBP removal is necessary, it is collected and disposed of off-Post in accordance with local, State, and Federal regulations, and copies of all disposal manifests are provided to the FSGA DPW Environmental Division. Projects identified in the ADP for WAAF and in the ALP for MCRA will undergo individual project-level review by the FSGA LBP POC, who will ensure adherence to these requirements. This process will continue as each project within the WAAF ADP and MCRA ALP is developed, with guidance provided at each stage of project development. Based on the construction date of the Civilian terminal at the MCRA, the presence of LBP is not anticipated. Because LBP management and disposal procedures

are mandatory and compliance will be monitored, no impacts are anticipated, and this area is not discussed further.

Polychlorinated Biphenyls (PCBs). The presence of PCBs is often associated with older electrical system components. Sampling for PCBs in accordance with EPA regulations and the Federal Facilities Compliance Act is ongoing at WAAF. Projects identified in the ADP for WAAF and in the ALP for MCRA will undergo individual project-level review by the FSGA PCB POC, who will ensure adherence to all applicable requirements. This process will continue as each project within the WAAF ADP and MCRA ALP is developed, with guidance provided at each stage of project development. Based on the construction date of the Civilian terminal at the MCRA, the presence of LBP is not anticipated. Because PCB management and disposal procedures are mandatory and compliance will be monitored, no impacts are anticipated, and this area is not discussed further.

Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). The MCRA currently has a 24-hour self-service fuel island to provide fuel to Civilian aircraft utilizing the Civilian terminal. MCRA currently utilizes two (2) individual fuel farms. The first fuel farm consists of a 650-gallon AST for AVGAS (100 LL) and the second fuel farm consists of one (1) 12,000-gallon AST for Jet-A fuel and one (1) 12,000-gallon AST for AVGAS (100LL). All USTs and ASTs must have appropriate secondary containment and be installed, inspected, managed, maintained, and monitored in accordance with local, state, and federal law. Projects identified in the ADP for WAAF and in the ALP for MCRA will undergo individual project-level review and the UST/AST Program Manager will determine which project-specific requirements apply to each project, to include required data tracking and associated permitting, as/if applicable. This process will continue as each project within the WAAF ADP and MCRA ALP is developed, with guidance provided at each stage of project development. Because UST/AST management procedures are mandatory and compliance will be monitored, no impacts are anticipated.

Per- and Polyfluoroalkyl Substances (PFAS). On September 4, 2018, the Army issued guidance for addressing releases of PFAS on Army lands (DA, 2018) that applied to Active Army Installations, BRAC Installations, Army National Guard facilities, and Army Reserve facilities. Currently, the Army is performing preliminary assessments (PAs) and site inspections (SIs) on the current or potential historical use of PFAS with a focus on perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS), at Army installations (installations) nationwide. These PAs identify areas of potential interest (AOPIs) where PFAS-containing materials were used, stored, and/or disposed, or areas where known or suspected releases to the environment occurred. Each SI includes multi-media sampling at AOPIs to determine whether a release has occurred, and may conclude further investigation is warranted, a removal action is required to address immediate threats, or no further action is required. All PAs/SIs are completed in accordance with CERCLA, National Oil and Hazardous Substances Pollution Contingency Plans, and Army/DoD policy and guidance.

The Fort Stewart PA identified 13 AOPIs for investigation during the SI phase, the results of which were compared to risk-based screening levels calculated by the Office of the Secretary of Defense (OSD). The results on FSGA indicated the presence of PFOS, PFOA,

and/or PFBS in soil and/or groundwater at 12 AOPIs, and further that 9 of the 13 AOPIs had these contaminants present at concentrations greater than the risk-based screening levels. Accordingly, it was determined that there is a need for further study in a CERCLA remedial action investigation, although the exact timing and details for the investigation is currently pending. The PA identified five AOPIs located on WAAF/MCRA (Figure 11).

Hazardous Materials and Wastes Management. The FSGA Environmental Division oversees the management of hazardous materials and wastes on behalf of the military units and activities on WAAF, all in accordance with 32 CFR 650, Environmental Protection and Enhancement, and all other applicable Federal, state, DoD, and local laws and regulations. The primary hazardous wastes generated at WAAF are those associated with vehicle and aircraft maintenance, and the waste stream includes used lubricating oil, hydraulic fluid, degreasing solvent, scrap metal, wire, and waste asbestos. Other wastes which may also be generated on the installation includes waste acid, lead-based paint, waste paint, paint sludge, PCBs in transformer oil, plastics, pesticides, herbicides, sanitary wastes, and construction debris. All hazardous wastes generated by Army activities at WAAF are taken to the DPW Environmental Division's 90-day Treatment, Storage, and Disposal Facility (TSDF) for disposal. All construction wastes are not disposed of on WAAF but are instead taken to off-Post sites approved for construction waste disposal. There are no active landfills on WAAF. There is one environmental restoration site, Solid Waste Management Unit (SWMU) No. 13, located on the northwest portion of WAAF (Figure 12). This was a former fire training site and currently has 15 groundwater monitoring wells, however the regulator (GAEPD) has reduced the annual groundwater sampling requirement to one well that continues to exceed the GA EPD maximum contamination level (MCL) for benzene.

3.3.4.2 Environmental Consequences

3.3.4.2.1 Alternative No. I: No Action Alternative

Under this alternative, Liberty County and the installation will not implement the proposed action but will instead continue to manage the WAAF Airfield District, to include the existing Liberty County EUA under a status quo condition. The routine ongoing activities on the installation will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation's existing resource management plans.

USTs and ASTs: If the status quo were maintained without implementing the proposed action, no adverse impacts to USTs or ASTs would occur as no changes to the status quo would occur.

PFAs: If the status quo were maintained without implementing the proposed action, no adverse impacts to PFAs would occur as no changes to the status quo would occur.

Hazardous Materials and Waste Management: If the status quo were maintained without implementing the proposed action, no adverse impacts to hazardous materials or waste management would occur as no changes to the status quo would occur.

3.3.4.2.2 Alternative No. II: Proposed Action (Preferred)

Under this alternative, the proposed action would occur which includes the expansion of the Liberty County EUA, construction of the MCRA direct access road off Old Hines Road, and the construction of the airfield perimeter security fence. Ongoing, routine activities on WAAF/MCRA within the WAAF Airfield District will also continue, to include routine operations, repair, maintenance, and training activities.

USTs and ASTs: The projects identified in the proposed action do not include removal or addition of any USTs or ASTs and is limited to the expansion of the Liberty County EUA, clearing and construction of the proposed Civilian terminal access road, and clearing and installation of the airfield perimeter security fence. The proposed action will require the utilization of fossil fuel powered equipment for the timber harvest, clearing, and construction of the proposed Civilian terminal access road. Equipment utilized during these activities is routinely fueled in the field on an as-needed basis utilizing portable truck or trailer mounted ASTs and 5-gallon containers. All fueling containers and methods will follow state and federal guidelines for their appropriate utilization and handling. The proposed action therefore poses a short-term, direct, negligible, adverse effect in relation to the short-term increase of fossil fuel to be utilized by on-site equipment during the clearing and construction activities. No long-term effects are anticipated to occur as a part of the proposed action and all fueling containers will be cleared from the project area upon completion of the proposed action.

PFAs: The proposed action is limited to the expansion of the Liberty County EUA, clearing and construction of the proposed Civilian terminal access road, and clearing and installation of the airfield perimeter security fence. The construction of the fence is anticipated to occur in the vicinity of AOPIs on WAAF/MCRA (Figures 7 and 11), resulting in potential indirect, temporary, minor, adverse impacts, as the FSGA PFAS Program Manager will review each iteration of the project design and determine what, if any, project-specific requirements apply. This may include land-use controls such as ensuring all ground disturbances remains a minimum of 100 feet from each site's perimeter. This process will continue as each project within the WAAF ADP and MCRA ALP develops, with guidance provided at each stage of the project's development. The proposed action will not lead to the utilization of any materials that contain PFAS. The FSGA/HAAF Environmental Division will review all project design documents to ensure all work remains outside the boundaries of the AOPI sties, as well as any that would be identified in the future. No AOPI sites were identified in the locations proposed for the EUA or access road.

Hazardous Materials and Waste Management: The proposed action is limited to the expansion of the Liberty County EUA, clearing and construction of the proposed Civilian terminal access road, and clearing and installation of the airfield perimeter security fence. As previously indicated, work will occur in the vicinity of SWMU No. 13, located on the northwest portion of WAAF. The regulator (GAEPD) has reduced the annual groundwater sampling requirement to one well that continues to exceed the GA EPD MCL for benzene. An optimization project is being evaluated to remove this hot-spot soil contamination source for the continued benzene level exceedance in the groundwater at this location, as the exceedance level of benzene fluctuates above and below the GAEPD acceptance level. If the optimization effort to remove the soil contamination is successful, it is assumed the

groundwater contamination level will be reduced to below the GA EPD guideline and no further action will be required at this site within the next five (5) years. Per the WAAF ADP and MCRA ALP and timelines provided in this EA, no projects are proposed in this vicinity until the long term (16-20 years), and this site should be cleared by that time, resulting in no impacts to Hazardous Materials and Management because of the proposed action. The location of SWMU is provided on Figure 12 and the location of the 15 monitoring wells is provided on Figure 12 for clarification purposes. The FSGA/HAAF Environmental Division will review all project design documents to ensure construction does not occur at this location prior to obtaining clearance.

3.3.4.3 Cumulative Impacts

The ROI for the cumulative impact analysis of the alternatives is limited to the WAAF District.

3.3.4.3.1 Alternative No. I: No Action Alternative

Cumulative impacts to hazardous waste and materials because of the no action alternative are not anticipated because direct and indirect impacts are not expected.

3.3.4.3.2 Alternative No. II: Proposed Action (Preferred)

Upon the consideration of the proposed action in conjunction with the mid- and long-term projects identified within the WAAF ADP and MCRA ALP, the proposed action is anticipated to have a minor, adverse cumulative impact to hazardous materials and waste when considering the reasonably foreseeable actions set to occur in the future at WAAF/MCRA. The mid-term and long-term projects located within the WAAF ADP and MCRA ALP will increase the utilization of the facility over time. Projected growth and utilization will lead to future use of larger volumes of aviation gas and jet fuel for Civilian and military aircraft, although there is no reasonably foreseeable need for the increase in overall fuel storage space at WAAF/MCRA. Should future consumption of fuel due to the increased utilization of the airfield facility by both the Civilian and military operations outgrow existing capacity, future expansion of the existing fuel farms may be required. Any potential future ASTs must have appropriate secondary containment and be installed, inspected, managed, maintained, and monitored in accordance with local, state, and federal law. Installation and Civilian personnel will take care to adhere to land use controls associated with AOPI sites associated with the airfield, in accordance with guidance provided at the local, state, and federal level. Collectively, this will ensure impacts do not reach a level greater than minor adverse.

3.3.5 Human Health and Safety

3.3.5.1 Affected Environment

Health and Safety includes the evaluation of airfield/aviation safety and worker safety associated with on-Post airfields and worker safety issues during construction, operations, repairs/maintenance on Installation job sites and facilities. Occupational health and safety apply to on-the-job safety and implements the requirements of 29 CFR 1926 et. seq., the Occupational Safety and Health Act (OSHA). All construction and demolition on-Post is required to be performed in accordance with applicable OSHA regulations to protect human health and minimize safety risks.

Airfield Safety. There is one airfield located on WAAF/MCRA. Land immediately adjacent to the airfield is located within the Airfield District. Regulation of facilities and infrastructure in the vicinity of the airfield in necessary to ensure there are no distractions to aircrew members. This includes highly reflective surfaces and the presence of detention/retention ponds that attract waterfowl capable of interfering with landing and takeoff, among others. Regulating the use of this land assists in the safety of airfield resources. Airfields must be kept free of vertical and horizontal obstructions, in accordance with FAA regulations, 14 CFR Part 139 Section 331, Obstructions, and UFC 3-260-01, Airfield and Heliport Planning and Design. Future construction on, adjacent, or in the immediate vicinity of the airfield must also adhere to these requirements to ensure these safety measures are in place for the future workers and flight crew.

Accident potential, as discussed here, is in terms of where, within the airfield, an accident is likely to take place and how large an impact area is likely to result from any single accident. Thus, RPZs are designated at both ends of military runways. The RPZ design standard for Army airfields based on UFC Design Standards for Class A facilities is 3,000 feet long and 500 feet wide. The accident potential in this area is so high that no building within the RSA is allowed. Currently, all four (4) RPZs remain on the installation, are zone for the airport district, and do not contain any structures.

Worker Safety. Occupational health and safety apply to on-the-job safety and implements the requirements of 29 CFR 1926 et seq. All construction, demolition, and associated actions on FSGA are performed in accordance with applicable OSHA regulations to protect human health and minimize safety risks, and all such activities are coordinated between contractors and the Safety Office prior to their start. The “Army Safety Program,” implemented under AR 385-10, provides additional guidance, and governs Army policies, responsibilities, and procedures to protect and preserve Army personnel and property against accident loss (DA, 2013). This provides for operational safety and mandates compliance with applicable safety laws and regulations. To ensure worker health, compliance with OSHA standards and the Army Safety Program is required and only authorized personnel are allowed within the footprint of a proposed activity. In addition, all workers must adhere to safety standards established by OSHA and noted per the Army Safety Program.

3.3.5.2 Environmental Consequences

3.3.5.2.1 Alternative No. I: No Action Alternative

Under this alternative, Liberty County and the installation will not implement the proposed action but will instead continue to manage the WAAF Airfield District, to include the existing Liberty County EUA under a status quo condition. The routine ongoing activities on the installation will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation’s existing resource management plans.

Airfield Safety: If the status quo were maintained without implementing the proposed action, long-term, direct, minor, adverse impacts to airfield safety would occur due to the lack of a perimeter security fence preventing wildlife and unauthorized personnel for accessing the interior of the airfield. Additionally, a long-term, direct, minor, adverse impact to commuters within the installation boundary would occur through the continued Civilian

airfield traffic traveling through the installation boundaries instead of through the proposed Civilian terminal access road.

Worker Safety: If the status quo were maintained without implementing the proposed action, no adverse impacts to worker safety would occur due to the planned construction activities not occurring and the status quo would remain unchanged from present day conditions.

3.3.5.2.2 Alternative No. II: Proposed Action (Preferred)

Under this alternative, the proposed action would occur which includes the expansion of the Liberty County EUA, construction of the MCRA direct access road off of Old Hines Road, and the construction of the airfield perimeter security fence. Ongoing, routine activities on WAAF/MCRA within the WAAF Airfield District will also continue, to include routine operations, repair, maintenance, and training activities.

Airfield Safety. Only as-needed, as-required construction, maintenance, and operational vehicles and materials are permitted on any portion of the airfield or immediately adjacent to it, to ensure compliance with FAA, CFR, and UFC requirements for Army airfields. Personnel access to the airfield, to include parking aprons, taxiway, and runway is strictly controlled and all personnel working on the projects within the proposed action will be granted access via a coordinated pass system. Access, vehicle entry, and fill/borrow haul routes are coordinated in advance and are typically located where they are most adjacent to the location on the airfield receiving the work. Once the project is complete, this access location is closed, and passes are revoked. Access sites for each project are determined and coordinated well in advance of the start of all projects and, if required, that portion of the airfield is cordoned off, to ensure airfield and worker safety. Construction activities for the proposed access road will be south of the existing airfield and RPZs and will not cause any direct effects to airfield safety. Construction activities for the perimeter security fencing will cause a direct, short-term, negligible, adverse impact through the utilization of construction crews and their associated equipment, to include clearing and fence installation activities, immediately along the perimeter of the airfield. Prior development of access pathways to the worker locations will be utilized to minimize any overall impact to airfield operations and safety.

The proposed action will result in the direct, long-term, minor, beneficial impact through the enhanced safety of the overall airfield through the installation of the perimeter security fence to prevent wildlife from migrating onto the airfield footprint, as well as to prevent unauthorized personnel from gaining access onto the airfield. Additionally, the proposed Civilian terminal will result in the direct, long-term, minor, beneficial impact through the reduced vehicular traffic located within the boundaries of the installation and allowing for the enhanced security of separating DoD and Civilian utilization of the airfield.

Worker Safety. The proposed action includes construction activities for the construction of a Civilian terminal access road and installation of perimeter security fencing. Short-term, direct, negligible, adverse impacts to on-Post Worker Safety is anticipated. Traffic hazards on FSGA may increase slightly as personnel supporting projects proposed under the proposed action enter and exit the traffic network each day. This may result in traffic delays,

especially during heavy traffic flows that are common during the early morning/mid-afternoon, when most personnel head into and out of work. These impacts will be temporary and construction traffic will concentrate primarily at the start of each project, and then cease upon each project's completion.

Ultimately, the construction of the Civilian terminal access road will be a beneficial impact to FSGA by reducing automobile traffic within the boundaries of the installation by allowing all MCRA Civilian traffic to access the airfield off Old Hines Road, located outside the boundaries of FSGA. The proposed action will cause a long-term, direct, negligible adverse impact to the localized area of Old Hines Road through the increase in vehicular traffic utilizing the civilian terminal access road.

Short-term, direct, negligible, adverse impacts to on-Post Worker Safety is anticipated. Personnel involved in timber harvest, site clearing, and other associated actions, must adhere to all known prescribed safety standards per OSHA and act in accordance with the project-specific timber harvest plan. Only authorized personnel are allowed within each project's footprint. Prior to implementation of any proposed action, including timber harvest, site clearance or construction activities, coordination must be completed between the contractor and the FSGA Safety Office, including their approval of the contractor's Health and Safety Plan. All workers on site must adhere to all requirements of the Plan, to include wearing any and all required personal protective equipment (PPE).

With regard to worker exposure to noise, the Center for Disease Control recommends an exposure limit of 85 dBA as an eight-hour time-weighted average. Most of the equipment to be utilized by workers potentially impacted as a result of the proposed action generate less than 85 dBA, which has been determined to not result in significant adverse impacts to health and safety. In addition, the use of this equipment occurs sporadically throughout the daytime hours and not for an eight-hour constraint period. Accordingly, only short-term, direct and potentially indirect, negligible adverse impacts to on-Post worker safety are anticipated, and no impacts are anticipated to migrate to the off-Post community. Impacts may be minimized via adherence to standard BMPs, such as safety helmets and ear plugs and modification of shifts, and no mitigation is proposed.

3.3.5.3 Cumulative Impacts

The ROI is limited to the WAAF Airfield District and surrounding lands which serve as travel corridors into and out of the Installation and MCRA Civilian terminal.

3.3.5.3.1 Alternative No. I: No Action Alternative

Cumulative impacts to human health and safety as a result of the no action alternative are anticipated to minor adverse due to the perimeter security fence to establish a secure barrier for wildlife and unauthorized personnel from gaining access to the interior of the airfield. Additionally, the MCRA is planned for growth in the future and the lack of a direct access Civilian access road to the Civilian terminal will continue to allow for more vehicular traffic in the future within the boundaries of the installation and provide more effort of the installation to provide security to prevent unauthorized personnel from accessing the airfield.

3.3.5.3.2 Alternative No. II: Proposed Action (Preferred)

Airfield Safety. Upon the consideration of the proposed action in conjunction with the mid- and long-term projects identified within the WAAF ADP and MCRA ALP, minor, adverse cumulative impacts to the overall WAAF/MCRA are expected in relation to Airfield Safety due to the projected increase in utilization of the airfield for additional Civilian and military operations allowing for more of a chance for accidents to occur. As airfield operations continue to grow based off of the planned future developments, continual updates to the overall Airfield Safety guidelines will be conducted in order to minimize any potential risks for accidents to occur. Additionally, long-term, minor beneficial cumulative impacts to the overall airfield safety of WAAF/MCRA are anticipated to occur as a part of the proposed action due to the establishment of a secure perimeter around the entire airfield boundary to prevent wildlife and unauthorized personnel from accessing the interior of the airfield.

Worker Safety. Negligible, adverse cumulative impacts to worker safety are anticipated because of this alternative. All health and safety personnel will continue to adhere to all installation, Army, DoD, federal, and state regulations and laws, and this will ensure that potential impacts are minimized to the fullest practical extent.

3.3.6 Land Use

3.3.6.1 Affected Environment

Land use generally refers to human modification of land for a specific use but may also refer to the specific or primary use that a community has set aside for a parcel of land. Land use is guided by management plans, policies, ordinances, and/or regulations that determine the types of activities that are allowed on that specific parcel of land, as well as established guidelines for implementing said activities and the process through which new activities may be added over time. The Army Real Property Master Planning process determines the types of activities that are allowed on specific portions of Army land and the installation utilizes the master planning process to manage land uses and development decisions efficiently and appropriately across the installation. Compatibility of land use adjacent to military installations is encouraged at the federal, state, and local levels, and several encroachment prevention efforts may be used, including conservation partnerships, regional and county comprehensive plans, zoning codes, state or federal legislation, and financial assistance. A review of the WAAF District Area Development Plan indicates that all proposed actions evaluated within this EA are located within the WAAF District of FSGA.

Joint Land Use Study (JLUS). The JLUS is a collaborative, compatible use planning effort involving military installations and adjacent local governments. It provides land use and developmental control recommendations that support and encourage acceptable development near military installations. Its goal is to protect the public health, safety, and welfare by guiding the long-term development decisions made by neighboring governmental entities to ensure that the Installation mission is not compromised by unacceptable development. The JLUS program is centrally managed by the Department of Defense Office of Economic Adjustment (OEA) (DoDD 3030.1).

Finalized in 2004, the FS/HAAF JLUS is a cooperative land use planning initiative between the U.S. Army and surrounding cities and counties, to include Bryan, Effingham, Chatham, Liberty, Long, Tattnall, and Evans counties; the cities of Hinesville, Savannah, Pooler, Bloomingdale, Pembroke, Richmond Hill, Glennville, Gum Branch, Allenhurst, Flemington, and Walthourville; the Coastal Georgia Regional Development Center, as well as the Heart of Georgia-Altamaha Regional Development Center. It guides local government and Army actions to enhance compatibility and strengthen the Civilian-military relationship.

Army Compatible Use Buffer (ACUB). The ACUB program is an integral component of the Army sustainability triple bottom line: Mission, Environment, and Community. In recent years, Army installations have been experiencing increasing encroachment from a variety of sources, including population growth, urban land use, and environmental requirements. The ACUB program proactively addresses encroachment and is a powerful tool that allows the military to contribute funds to partners' purchase of these easements and properties for willing landowners. These partnerships preserve high-value habitat and limit incompatible land use near military installations.

Title 10, Section 2684a, of the United States Code authorizes the DoD to partner with nonfederal government or private organizations to limit encroachment and protect habitat around installations. The Army implements this authority through the ACUB program, which is managed at Army headquarters level by the office of the Assistant Chief of Staff for Installation Management based on priorities established by the Directorate of Planning, Training, Mobilization, and Security (DPTMS). The Army Environmental Command provides technical assistance, facilitates ACUB proposal development, and monitors program execution and advancement. The Georgia Alabama Land Trust is FS/HAAF's ACUB partner and works with Fort Stewart to protect neighboring properties from incompatible development that might hamper the military mission. The ACUB will ultimately protect approximately 120,000 acres using conservation easements that limit development and protect sensitive environments. Additionally, the Georgia Sentinel Landscape (GSL) is a coalition of federal and state agencies, non-governmental organizations, and private parties that seek to limit development that would negatively impact the mission of military installations in the Coastal Plain of Georgia. Another goal of GSL is to conserve sensitive species, particularly the gopher tortoise, on federal, state, and private lands in order to prevent listing under the Endangered Species Act.

Installation Compatible Use Zone (ICUZ) Study. The Army has also implemented an Operational Noise Management Program that provides a method for evaluating the effect of noise and the hazards associated with training operations that stem from activities at military installations. The purpose of the program is to identify land areas that are exposed to unacceptable noise levels and aircraft accident potential and then recommend uses for the land within these areas that are compatible with the needs of the Civilian community and the Army. One focus of the Army's Operational Noise Program has been to develop the ICUZ Study. In addition to the focus on maintaining land use compatibility, the plan includes information to educate installation personnel, surrounding residents and local government officials, provide recommendations on the management of noise complaints, strategies for the mitigation of the noise, noise abatement procedures, and advice on steps to take when the noise environment is already incompatible. Note: this program is discussed more fully in

Section 3.3.6, Noise. Local government officials, including the zoning and planning boards, are informed regarding future activities on Post (and an open dialogue maintained) so they will be able to accurately assess both sides of issues before them and factor such information into any decision-making process concerning urban development and land use. In this manner, potential land use conflicts and/or incompatibilities are identified early, and issues of concern resolved prior to coming to fruition.

Training. Fort Stewart is an active training installation and Soldiers utilize a variety of training ranges, installation lands, and the airfield proper for these purposes. All training is conducted in compliance with the provisions of Army Regulation (AR) 385-63, DA Pam 385-63, AR 350-19, weapons system Technical Manuals (TMs), the FS/HAAF Aviation Procedures Guide (2015), and the Post Range Guide (2019). All training is managed and maintained by the FS/HAAF DPTMS. The Army Range Requirements Model (ARRM) is the official source of doctrinal requirements for range and training land assets in accordance with AR 350-19, The Army Sustainable Range Program. Factors that drive the ARRM include unit stationing, unit weapons authorizations, training doctrine, and training loads caused by tenant and non-tenant units that habitually train at a given Installation. To help ensure the Army has the lands and ranges it needs to meet future training requirements, the Army has implemented a "Sustainable Range Program (SRP)." Army Training Circular (TC) 25-8, "Training Ranges," describes the standard designs and requirements of the Army's Sustainable Range Program for training Army units to doctrinal standards.
To ensure Soldiers are operationally deployed, at a minimum they must continually meet semi-annual weapons marksmanship proficiency requirements and conduct realistic maneuver rehearsals. Without adequate ranges and maneuver lands, Soldiers cannot meet these requirements. The Fort Stewart training resources are schedulable 24 hour a day, seven days a week, via the RFMMS system, the Army/Marine Corps standard web-based database application which automates the scheduling, operations, and management functions of the DPTMS Range Branch. Ranges and training lands are maintained via the SRP and the ITAM/LRAM program, as discussed in Water Quality, which are Army-wide programs that provide quality training environments to support the Army's military mission.

3.3.6.2 Environmental Consequences

3.3.6.2.1 Alternative No. I: No Action Alternative

Under this alternative, Liberty County and the installation will not implement the proposed action but will instead continue to manage the WAAF Airfield District, to include the existing Liberty County EUA under a status quo condition. The routine ongoing activities on the installation will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation's existing resource management plans. If the status quo were maintained without implementing the proposed action, no adverse impacts to land use would occur as no changes to the status quo would occur.

3.3.6.2.2 Alternative No. II: Proposed Action (Preferred)

The proposed action would result in an 84.11-acre expansion of the Liberty County EUA from the existing 34 acres to a total of 117.67 acres. The planned area of the expansion is located within the existing WAAF District. As defined in the WAAF District Area Development Plan, the WAAF District Planning Vision is defined as "The U.S. Army's preeminent joint use

airfield, advancing the Nation's training, readiness, and power projection capabilities through modern, sustainable facilities and infrastructure, while enhancing expanded DoD and regional aviation opportunities". The planned EUA is located within the WAAF District boundary but outside of areas with critical natural, cultural, or mission constraints. The direct and indirect impacts associated with the EUA expansion will have long-term, direct, negligible, adverse impacts to land use as a part of the proposed action.

As previously discussed in this EA, the proposed action will cause long term, direct, minor, adverse impacts to biological resources through the conversion of timberland and wetlands to a permanent access road and additionally through the installation of perimeter security fencing. The proposed action will cause the conversion of forested land to paved areas as well as cleared, maintained areas for the perimeter security fencing. The conversion of land previously mentioned will not change the overall land use associated with the WAAF District and is considered to pose a long-term, direct and indirect, negligible, adverse impact in relation to the study area.

3.3.6.3 Cumulative Impacts

The ROI for the cumulative impacts analysis is limited to the WAAF Airfield District and surrounding properties.

3.3.6.3.1 Alternative No. I: No Action Alternative

Cumulative impacts to land use because of the no action alternative are not anticipated because direct and indirect impacts are not expected.

3.3.6.3.2 Alternative No. II: Proposed Action (Preferred)

Upon the consideration of the proposed action in conjunction with the mid- and long-term projects identified within the WAAF ADP and MCRA ALP, minor, adverse cumulative impacts, as well as minor, beneficial cumulative impacts, to the overall WAAF/MCRA are expected in relation to Land Use due to the projected increase developments within the planned EUA future development areas. The future developments will cause the conversion of forested land to industrial development; however, the future developments are located within the existing WAAF District and will be directly related to meeting the WAAF District Planning Vision through advancing the Nation's training, readiness, and power projection capabilities through modern, sustainable facilities and infrastructure. Additionally, opportunities for the DoD and regional aviation opportunities will be enhanced through the future planned development. All future development activities will be consistent with the land use guidelines set forth for the WAAF District.

3.3.7 Noise

3.3.7.1 Affected Environment

Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying. Human response to noise varies by the type and characteristics of the noise source, distance from the source, receptor sensitivity, and the time of day. Noise can be intermittent or continuous, steady, or impulsive, and it may be

generated by stationary or mobile sources. Sound levels are expressed in decibels (dB), usually weighted for human hearing. In the A-weighted system (dBA), the decibel values of sounds made at low frequencies are reduced, as compared to unweighted decibels, in which no correction is made. To describe “average” sounds on a 24-hour basis, the day-night sound level (DNL) metric is used. The DNL provides a single measure of overall noise impact and is the accepted single measure for determining human annoyance.

The Army uses the DNL measurement to measure environmental noise levels for their activities. This metric is recommended by the USEPA, used by most Federal agencies when defining their noise environment, and applied as a land-use planning tool for predicting areas of potential annoyance both inside and outside of an installation. The DNL describes the average daily acoustic energy over an entire year – meaning that the whole spectrum of sound, from quiet to loud noises, is averaged across the year. The DNL metric also incorporates a “penalty” for nighttime noise (normally 10:00 p.m. to 7:00 a.m.) when loud sounds are more noticeable and annoying. However, when measuring noise levels from small arms and large caliber sources, weighted noise metrics are used.

Airfield airspace criteria prohibit certain land uses from being present/occurring within the airfield’s clear zone and Accident Potential Zone (APZs). These land uses include the storage and handling of munitions and hazardous materials and the construction/operation of live-fire weapons ranges. Both helicopters, fixed-wing aircraft, and unmanned aerial vehicles (UAVs) are a source of noise at WAAF/MCRA, which operates 365-days a year supporting both military and Civilian aviation needs.

Analyses of noise complaints received by the Army have shown that the short-term increases in DNL, not the long-term average, are the best predictors of complaints. In the absence of regulatory noise exposure standards, complaints have become the effective or *de facto* standard. To FSGA’s knowledge, a state or Federal agency has never come to the Army with a Notice of Violation (NOV) for noise. At the same time, there are many instances when Army commanders have voluntarily curtailed noisy activities to reduce complaints. Through a formal ICUZ study, Army installations try to prevent complaints through self-monitoring of operations and partnering with land use planning efforts by local government. Currently helicopter and aircraft operations and maintenance activities dominate the existing noise environment on WAAF/MCRA, which range between 65 and 85 day-night average. Daily operation of motor vehicles in and around WAAF/MCRA is also considered a minor source of noise and typically range from 50 dB (for light traffic) to 80 dB (for diesel trucks).

3.3.7.2 Environmental Consequences

3.3.7.2.1 Alternative No. 1: No Action Alternative

Under this alternative, Liberty County and the Installation will not implement the proposed action but will instead continue to manage the WAAF Airfield District, to include the existing Liberty County EUA under a status quo condition. The routine ongoing activities on the installation will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation’s existing resource management plans. If the status quo were maintained without implementing the proposed action, no adverse impacts to noise would occur as no changes to the status quo would occur.

3.3.7.2.2 Alternative No. 2: Proposed Action (Preferred)

Under this alternative, the proposed action includes the expansion of the Liberty County EUA, construction of the MCRA direct access road off of Old Hines Road, and the construction of the airfield perimeter security fence. Ongoing, routine activities on WAAF/MCRA within the WAAF Airfield District will also continue, to include routine operations, repair, maintenance, and training activities. No direct or indirect adverse impacts to noise would occur through the expansion of the EUA as no new receptors of noise would be directly or indirectly related through that expansion.

Short-term, direct, minor, adverse impacts to noise would occur through the construction of the proposed Civilian terminal access road and perimeter security fence. Noise will occur as a result of site clearing/grading/stabilization and construction activities. The impacts are considered to be short-term as they will mostly reduce back to baseline conditions upon completion of both projects.

In 2015, the Centers for Disease Control and Prevention published a document that identified an 85 dBA recommended exposure limit for noise and accordingly, FSGA maintains adherence to an exposure limit of 85 dBA as an eight-hour time-weighted average for all working on the installation. Compliance with this and all OSHA regulations is required, at a minimum, as a measure to minimize the potential for hearing loss at all project sites. Accordingly, only short-term, direct, less than significant adverse impacts are anticipated, and no impacts are anticipated to migrate to the off-Post community. Impacts may be minimized via adherence to Standard BMPs, such as safety helmets and hear plugs and modifications of shifts.

Additional measures to minimize potential noise impacts to workers may be found in DoD Instruction 6055.12, Hearing Conservation Program, and U.S. Department of the Army Pamphlet 40-501, *Hearing Conservation Program*. Impacts to workers, and the surrounding community, are expected to be less than significant because construction would occur during normal business hours, would vary based on the phase of work occurring, would last only the time in which actual work would be occurring, and would be below the 85 dBA limit.

Overall, this alternative would result in short-term, direct, minor adverse impacts in the Noise environment. No mitigation is proposed; however, standard noise abatement policies and procedures currently employed on the installation have been successful at ensuring no significant impacts occur and should continue to do so. Should additional minimization measures be required, they will be developed and implemented as each project is designed and implemented.

3.3.7.3 Cumulative Impacts

The ROI for cumulative impacts analysis of the alternatives is limited to the WAAF District and immediate surrounding areas.

3.3.7.3.1 Alternative No. I: No Action Alternative

Cumulative impacts to noise because of the no action alternative are not anticipated because direct and indirect impacts are not expected.

3.3.7.3.2 Alternative No. II: Proposed Action (Preferred)

Upon the consideration of the proposed action in conjunction with the mid- and long-term projects identified within the WAAF ADP and MCRA ALP, minor, adverse cumulative impacts, to the overall WAAF/MCRA are expected in relation to Noise due to the projected future construction projects and developments within the planned EUA future development areas. All future projects will be constructed and mitigated in accordance with the U.S. Army Noise Guidelines and Policies. No significant sources which pose a suspected increase in noise levels to the WAAF District or immediate surrounding areas are suspected to occur as a part of the reasonably foreseeable future actions. No mitigation is proposed; however, standard noise abatement policies and procedures currently employed on the installation have been successful at ensuring no significant impacts occur and should continue to do so.

3.3.8 Socioeconomics and Environmental Justice

In 2021, FSGA/HAAF commissioned an Economic Impact and Contribution Analysis (EICA) through the Center for Business Analytics and Economic Research (CBAER), a component of the Business Innovation Group at Georgia Southern University. The study is a comprehensive analysis of the economic contribution the installation makes to the Savannah-Hinesville-Statesboro Combined Statistical Area (SHSCSA), which includes Bulloch, Bryan, Effingham, Chatham, Liberty, Long and Wayne Counties and includes the entirety of FSGA and HAAF. Although part of FSGA's northwestern boundary lies within Tattnall County, it was not included in this specific economic analysis and no explanation was provided for it not being included in the 2021 EICA; however, economic impacts are anticipated to be similar to those in the other counties discussed in this EICA.

The EICA did not analyze indices associated with Environmental Justice; accordingly, the installation utilized the EPA's Environmental Justice (EJ) Screening Tool (EJ Screen) to identify existing conditions associated with EJ in the local, regional, state, and national environment. The EJ Screening Tool utilized data from Chatham, Bryan, Liberty, Evans, and Long Counties (EJ ROI), which account for all HAAF and all but a small portion of the northwestern corner of FSGA (Tattnall). For the purposes of this analysis, it captures all the required data, as no EJ communities are identified in that northwestern portion of the ROI, as shown on the EJ Screen figures. Other documents utilized in this section include the Compressive Plan 2040 for Chatham County-Savannah (CC-S), Hinesville MPO 2045 Plan (HAMPO), FSGA/HAAF Consolidated Strength Report (CSR), and U.S. Census Data, as identified in the discussion. For the purposes of this analysis, the Study Area for Socioeconomics is the SHSCSA and the Study Area for EJ is the counties from which data was analyzed in the EJ Screening tool, or the EJ ROI.

3.3.8.1 Affected Environment

Population. The SHSCSA is the second largest population center in Georgia, outside of Atlanta and has experienced consistent growth over the past 20 plus years (Figure 12). The largest urban center in the immediate vicinity of Fort Stewart is Hinesville, located just south of the installation's cantonment area in Liberty County. Other substantial municipalities outside the boundary include Richmond Hill (southeast, in Chatham County), Glennville (southwest, in Tattnall County), and Pembroke (North, in Bryan County), as well as several

smaller communities through the multi-county area. HAAF is surrounded on its north, east, and south by the City of Savannah, the largest urban center in its vicinity, and the smaller communities of Pooler (northwest) and Garden City (north), all located in Chatham County. As of 2019, there were 708,061 people living in the AHSCS (CBAER, 2021).

Data collected in 2019 by the U.S. Census Bureau and Coastal Resources Commission (CRC) show growth trends increasing in Bryan, Chatham, Effingham, and Long counties and decreasing in Evans, Liberty, and Tattnall counties (Figures 13, 14) (CRC, 2019). Many persons who work on FSGA reside in communities located within these counties. Although Chatham County has experienced more modest growth by percentage, the total number of persons added since 2010 exceeds Bryan and Long Counties combined. Growth in Chatham County is partially attributable to the City of Savannah, which is the fifth overall largest city in Georgia; however, many other small-to-midsize cities in the area, such as Pooler and Richmond Hill, have seen considerably high growth rates during the last few years. Growth trends are anticipated to continue in a study conducted by the Coastal Regional Commission in 2020, based on consistent existing and anticipated future economic opportunities in the region (CRC, 2020).

There are an estimated 21,000 Soldiers and 37,000 associated Family members residing on and off-Post in the overall SHSCSA, and an additional 3,200 unaccompanied Soldiers residing on-Post. Approximately 5,000 military retirees and their dependents live within a 40-mile radius of FSGA/HAAF, and an additional 65,000 military retirees/dependents live outside that 40-mile radius, many of whom make use of the facilities on Post. Population density (per square mile) tends to be highest around Savannah and Hinesville, and HAAF and FSGA by association. No regional data was available for percentage male or female in the SHSCSA; however, state data for 2019 was 51% female and 49% male and is anticipated to be commensurate in the Study Area (CBAER, 2021)

Employment. In 2019, the SHSCSA was identified as a $27.8 billion component of a $616 billion state economy (GA) with 358,721 individuals in the SHSCSA workforce (Figure 13). In 2021, the unemployment rate in the SHSCSA was 2.4 percent, less than that of the state of Georgia at 3.1 percent for the same period, indicating a strong local economy (EIA, 2021). The Energy Independence Security Act (EISA) indicates that the installation supports a combined 39,293 jobs within the region, which includes 28,615 individuals whose work is directly linked to the installation and the 10,678 people who are employed by businesses that provide products or services that support base operations. However, the most significant single contributing factor to the regional economy was determined to be personnel, including active-duty Soldiers, Civilian employees, and Civilian contractors, accounting for approximately 14.9 percent of the total employment opportunities in the region (CBAER, 2021).

In 2019 alone, FSGA/HAAF contributed $1.27 billion in military salaries, $210 million in Civilian salaries, and $164 million in retiree's pensions; in addition, $31 million dollars was spent on construction projects in the region (CBAER, 2021). During federal fiscal year 2018, total defense spending in Georgia was 13th in the nation, based on contractor and payroll spending, and based on work done by defense contractors and defense personnel. Statewide contract figures included funds spent on supplies and equipment (53%), services

(38%), research and development (5%), and construction (4%). Personnel payroll spending included active duty (52%), Civilian employees (27%), National Guard (11%), and reserves (10%). About two-thirds of these funds were spent on Army personnel due to the location of three military installations in Georgia. There are also 46 active farms in SHSCSA, comprising just over 6,000 total acres of land. Top crop items by acre included forage-land used for hay, silage, and greenchop; corn for grain; soybeans; pecans; and cut Christmas trees. In 2019, the median household income was $50,411 in Liberty County and $57,739 and Chatham County, which was not far from the Georgia mean household income of $56,000.

Housing. Military personnel stationed on FSGA/HAAF live in on-Post Army Family Housing Areas (AFHAs) and military barracks, as well as in off-Post housing. There are 3,268 Family housing units, 334 unaccompanied housing units, and 6,177 barracks spaces (FSGA/HAAF, 2022). In 2003, FSGA transferred responsibility for providing AFHAs services and ancillary supporting facilities, to include unaccompanied personnel housing (barracks) to a private entity, in accordance with the Residential Communities Initiative (RCI). Accordingly, the Army's RCI partner, Balfour Beatty Communities, has all ownership, maintenance, and repair responsibilities for these properties. Both married soldiers and single soldiers with family members who are enrolled in the Defense Enrollment Eligibility Reporting System (DEERS) are authorized a Basic Allowance for Housing (BAH) based on their pay grade and is issued monthly to cover the cost of housing (FSGA/HAAF, 2022).
As of 2019, the median housing value in Liberty County was $124,500 and the median housing value for Chatham County was $194,500, both lower than the state of Georgia's median value of $306,113. The larger value of homes in Chatham County is likely due to the presence of the city of Savannah within Chatham County, which drives up the cost of housing in that market. This is not the case in Liberty County, in which the predominant community is Hinesville, which is not the size or composition of Savannah. Age of housing available in the SHSCSA tends to be newer and trends at 21% constructed between 2000-2009, 20% constructed between 1990-1999, 15% constructed between 1980-1989, and 12% constructed between 1970-1979 (CBAER, 2021). Newer housing tends to require less upkeep for the renter or owner. As of 2019, there were more units rented (19,768) county-wide than properties whose owners reside in the property as their primary residence (19,092). Due to continuous transition of military personnel arriving to the community and leaving, it is often easier for military families to rent property as opposed to purchasing a home. Mean rent in the region is $1,009, which is in line with the state of Georgia mean rent of $1,006 (CBAER, 2021).

Schools. The U.S. Department of Education provides federal impact aid to school districts that have federal lands within their jurisdiction. This federal impact aid is authorized under Public Law 103-382 as payment in lieu of taxes that would have been paid if the land was not held by the federal government. School districts receive federal funding for each student whose parent or parents live on or work on federal property. The amount of federal aid a school district receives is dependent on the number of "federal" students the district supports in relation to the total district student population. Schools receive more funding for students whose parents both live and work on federal property, although total funding varies annually according to congressional appropriations for the program. Funding has ranged from $200 to $3,000 per pupil. There are elementary and middle schools located on FSGA and HAAF, as well as Child Development Centers (CDCs) and these facilities are utilized by the Post's

pre-school aged children. High-school-aged children on Post attend Liberty and Chatham County public school district schools or private schools within the Study Area.

The FSGA Army Education Centers provide adult and continuing education services to active-duty Soldiers and their Family members, Army Civilians, reserve personnel, and retired personnel. The center provides counseling, an English as a second language program, high school completion preparation, on-duty performance enhancement programs, and testing and professional development programs. Associate's, Bachelor's, and Master's degrees programs are offered on-post through a consortium of area colleges and universities offering a variety of degree programs. Armstrong Atlantic State University, Coastal Georgia Community College, Georgia Southern University, East Georgia College, and Savannah State University are the institutions that compose the Liberty Center. There are a number of universities and colleges in the ROI and nearby Savannah, including the Brewton-Parker College Hinesville campus, St. Leo College in Savannah, the Savannah College of Art and Design, South College in Savannah, Altamaha Technical Institute in Jessup in Wayne County, and the Savannah Technical Institute.

Environmental Justice. On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The Executive Order is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Environmental justice analyses are performed to identify the disproportionate placement of high and adverse environmental or health effects from proposed federal actions on minority or low-income populations and to identify alternatives that could mitigate these effects. Title VI of the Civil Rights Act of 1964 states that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title VI further states that Environmental Justice "is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."

Federal agencies are legally mandated to identify and address disproportionally high or adverse human health or environmental impacts of programs, policies, and activities on minority or low-income populations. EJ is an important aspect of the transportation planning process and must be addressed as part of the MTP development, specifically as it relates to public involvement, project funding priorities, and disproportionate impacts to protected populations. Through a thoughtful NEPA analysis, the Army seeks to avoid, minimize, or otherwise mitigate any disproportionately high and/or adverse environmental effect from its proposed action, which may include social and/or economic effects on minority and low-income populations. This process can be assisted via a full and fair participation by all potentially affected communities in the NEPA process.

Race and Ethnicity. To assess the potential impacts to EJ communities, FSGA/HAAF is utilizing the *50% Analysis* in combination with the *Meaningfully Greater Analysis (MGA)*. The *50% Analysis* is used in areas where more than half the residents and/or potentially affected persons are defined as minorities. This analysis is often used in combination with the MGA,

where more people in the affected area (such as 10-20%) are minorities than in the general population or in other areas used as a reference area (such as the state). Even if a *Fifty-Percent Analysis* shows a majority-minority population justifying an EJ analysis, conducting the *MGA* can add additional important information, as it could show a large difference between the affected community and the reference community and help ensure a meaningful analysis of potential impacts.

In 2020, the racial/ethnicity composition in the Study Area was 61% Caucasian/White and 39% persons of color, defined as individuals who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino (EJ, 2022) (Figure 15). However, when examined on a county-by-county basis Liberty County (in which much of FSGA is located) is 45% Caucasian/White and 55% Persons of Color and Chatham County (in which all of HAAF is located) is 52% Caucasian/White and 48% Persons of Color. In 2022, utilization of the EPA EJ Screening Tool identified a racial/ethnicity composition of 50% Caucasian/White and 50% Persons of Color (FSGA, 2020; EJ, 2022; CRC, 2019).

Analysis of available materials and data did not identify EJ communities within the boundaries of FSGA or HAAF; however, EJ Communities have been identified within the Study Area adjacent to the installation and have been highlighted on Figure 16 and Figure 17 for the purposes of this discussion. There is one MGM population located approximately three miles southeast of FSGA (Figure 16) that is 76% Persons of Color, 8% unemployed, 9% less-than-high-school graduates, and 8% persons over the age of 64. Another MGM population is located to the north, west, and slightly east of HAAF (Figure 17), and this community is 71% Persons of Color, 13% unemployed, 13% less-than-high-school graduates, and 17% over the age of 64.

Provision for the Handicapped. The Americans with Disabilities Act (ADA) guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications. All actions on FSGA, and the surrounding communities, occur in accordance with the ADA, unless there is a specific exclusion, such as (on FSGA) for ranges and other areas where the disabled are not reasonably anticipated to be present.

Persons without Transportation. The Coastal Georgia Region contains the state's largest urbanized area (Savannah) that is located outside of the metropolitan Atlanta (CRC, 2020). The counties in this region consist of several cities and communities and three urbanized areas, Savannah in Chatham County, Brunswick in Glynn County, and Hinesville in Liberty County. The development of mobility options, connecting rural communities to urbanized areas, and properly addressing rural growth factors must occur to ensure public transportation service needs are met in rural Coastal Georgia. The time and/or distances involved for Georgia's rural coastal residents to reach services such as healthcare, education, retailers and other destinations that affect quality of life can be significant. This is especially true for the elderly, individuals with special needs, low-income families, and those with limited access to personal vehicles where public transportation is not available. The further development and improvement of rural public transportation services in Coastal Georgia is critical in addressing the rural region's population (CRC, 2020).

Based on the U.S. Census, 13.9 percent of Georgia residents between the ages of 5 and 64 have one or more disabilities; therefore, many of them have a difficult time driving and rely heavily on transportation assistance in order to be a functioning member of society. For Coastal Georgia, the highest percentage of disabled persons is in the Study Area is Chatham County at 13.5%, followed by Liberty County at 13.4%. There is continued growth within the Coastal Region area and connectivity is necessary in order to provide support to major business centers. This requires planning by local governments to accommodate the needs of its citizens particularly because rural communities are extended within the region (CRC, 2020).

A small percentage of the persons residing and/or working within the SHSCSA do not have access to vehicles, as shown in Figure 18, ranging from 5.36% in Liberty County to 8.16% in Chatham County (CBAER, 2021). There is an existing public transportation network available to assist those without vehicles. The Liberty Transit System is a regional, urban, transportation service in the Hinesville/FSGA area, operating three fixed routes via a fleet of nine buses, each equipped with ADA compliant wheelchair lifts and tie downs, as well as bicycle racks for multimodal passengers. Curb-to-curb service is available, including a limited number of stops on FSGA. In the Savannah/HAAF area, similar services are provided by the Chatham County Area Transit System (Catch a CAT). Although it does not come onto HAAF itself, the CAT routes terminate adjacent to the Installation's Access Control Point located at Montgomery Street (CAT, 2019). Hinesville, Savannah, and their neighboring communities are also investing in bicycle and pedestrian infrastructure to provide greater network connectivity in the event persons within transportation in the community prefer to bike or walk to their destination of choice.

Elderly. In 2019, the largest age group in the SHSCSA were those 65 and older, who made up 13.9% of the population, followed by those aged 20-24, at 8.4% of the population, and those aged 25-29 at 8.2%. This is consistent with the EJ Screen data from 2022, which identified 13% of the population in the EJ ROI as over 65 years or older. This is roughly comparable to the State of Georgia, in which roughly 14.7% are over the age of 65 (CBAER, 2021). In recent years, census reports that indicated that the population has been slowly growing older over the past five years, and this trend is projected to continue for at least the next 20 years; accordingly, this should be planned for at the local level as the aging population lives longer and requires services (U.S. Census, 2019). In the year 2030, an estimated one in six (17%) of Georgia residents will be at least 65 years of age of older. This portion of the population will require consistent transportation access to the services vital to their quality of life (CRC, 2020).

As indicated earlier, approximately 5,000 military retirees and their dependents live within a 40-mile radius of FSGA/HAAF, and an additional 65,000 military retirees/dependents live outside that 40-mile radius. Many of these retirees and their dependents make use of the facilities on Post (medical clinics, physicians, pharmacies, physical therapy, etc.), Winn Army Community Hospital on FSGA, and the Veterans Administration facilities within the local community (FSGA, 2022).

Poverty, Help for the Homeless, and Protection of Children. There are several shelters and assistance programs in the SHSCSA for individuals and Families in need of temporary

placement due to lack of fixed, regular income, or an adequate residence. A mixture of government and private funding supports these programs, to include the FSGA/HAAF Family Advocacy Program, which provides shelter and referral information in the Study Area. In 2019, approximately 16.3% of the population in the Study Area lived below the poverty line, slightly more than the state average, which was 15.1% at that time (CBAER, 2021; CRC, 2019). No discussion was provided for the decrease noted poverty numbers from 2017-2019; however, this region has a strong economy and diverse employment opportunities and that may contribute to the relatively lower and decreasing trend in poverty. Some residents in this region are on fixed incomes and receive assistance via Social Security, retirement, public assistance, and/or food stamps (CRC, 2019; FSGA, 2022).

In January 2020, the U.S. Department of Housing and Urban Development (HUD) reported that Georgia had an estimated 10,234 individuals experiencing homelessness on any given day (USICH, 2022), higher than its immediate neighbors to the west (Alabama at 3,351), to the north (Tennessee at 7,256), and to the east (South Carolina at 4,207), but lower than its neighbor to the south (Florida at 27,487). SHSCSA data from 2019 indicated that 5,044 persons identified as homeless in the SHSCSA (Figure 20, for numbers per county) (CBAER, 2021). Within the Study Area, the highest homeless rate was identified in Chatham County, with 4,641 persons identified as experiencing homelessness during that period.
FSGA lies within portions of several counties; however, as Hinesville is the largest community within this portion of the Study Area, and it lies entirely within Liberty County, that will be the focus of this discussion. During 2019, there were 24 individuals identified as homeless in Liberty County. The City of Hinesville provides support for the homeless via a CoC, all of which is detailed in the City of Hinesville (COH) Consolidated Plan (COH, 2014). The city established the Liberty County Homeless Coalition, a collaborative entity comprised of representatives from multiple agencies and nonprofits in the county. The Coalition serves as a referral agency that utilizes a central, coordinated assessment system that helps the community (service providers, agencies, churches and other organizations) to systematically assess the needs of persons seeking assistance, and link them with the appropriate resources. Additionally, the city formed a Homeless Prevention and Fair Housing Advisory Board for the purpose of collaboration and recommendations in homeless efforts (COH, 2014). Information regarding potential available services may also be obtained from the COH Homeless Prevention Office and these services are available to all citizens within the county, not only those within the COH (COH, 2022).

Hinesville has also implemented the Kirk Healing Center, a non-profit organization whose long-term goal is to construct a facility adequate to accommodate at least 100 single persons. The Center maintains facilities in Hinesville to provide transitional and emergency housing and food for single homeless people who are divorced, widowed, abandoned, at risk, and disadvantaged, with no job or employment experience. The Center presently has facilities with the capacity to separately accommodate single homeless women and single homeless men. Walk-in resources in this portion of the Study Area for those in need of shelter include Liberty County Manna House, United Way of Liberty County, and Liberty County Re-Entry Coalition in Liberty County (COH, 2022). There are no homeless populations on FSGA.

EO 13045, *Protection of Children from Environmental Health and Safety Risks*, requires federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. Children are present at FSGA as residents in the AFHAs and as visitors to the CDCs and recreational facilities. The Army takes precautions for their safety through a number of means, including, but not limited to, the use of fencing, limitations on access to certain areas, and provision of adult supervision. The Family Advocacy Program at FSGA provides classes on child abuse prevention and personal safety for children. A curfew is enforced for children on Fort Stewart. Children under the age of 14 must be inside between the hours of 9 p.m. and 6 a.m., and children aged 14 to 17 years must be inside between 11 p.m. and 5:30 a.m. unless accompanied by a parent, guardian, or responsible adult 21 years of age or older. Public school data reported to the U.S. Department of Education during the 2018-2019 school year shows that an estimated 38,891 public school students experienced homelessness over the course of the year. Of that total, 642 students were unsheltered, 2,675 were in shelters, 7,632 were in hotels/motels, and 27,942 were doubled up (FSGA, 2022).

3.3.8.2 Environmental Consequences

Impacts to Socioeconomic and EJ Resources anticipated as a result of implementing the proposed action are discussed in this section. For the purposes of this analysis, the ROI for Socioeconomics is the SHSCSA and the ROI for EJ is the counties from which data was analyzed in the EJ Screening tool, or the EJ ROI.

3.3.8.2.1 Alternative No. 1: No Action Alternative

Under this alternative, Liberty County and the installation will not implement the proposed action but will instead continue to manage the WAAF Airfield District, to include the existing Liberty County EUA under a status quo condition. The routine ongoing activities on the installation will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation's existing resource management plans.

Long-term, direct, minor, beneficial, impacts are anticipated to Socioeconomics under this alternative. Population growth in the Study Area has been consistent over the past 20 years and is anticipated to continue under this alternative. This is due in part to the presence of a healthy local and regional economy in which there are numerous job opportunities. FSGA/HAAF contributed approximately 14.9 percent of the total employment opportunities in the region in 2021, consisting of $1.27 billion in military salaries, $210 million in Civilian service salaries, and $164 million in retiree's pensions (CBAER, 2021). These funds provide support to the businesses in the region that support the military, their dependents, Civilian service workers, and the retiree community in the region, and this in turn provides a stable source of employment in the region. In 2021, the unemployment rate of the SHSCSA was 2.4 percent, less than that of the state of Georgia at 3.1 percent for the same period, and this is anticipated to continue under this alternative.

As indicated in Figure 20, the percentage of persons living under poverty had been decreasing steadily within the Study Area over a three-year period. No discussion is provided for the cause of this decrease; however, this region has a strong economy and diverse employment opportunities that may have contributed to the decreasing trend in poverty. No updated, post-2019, statistics from the overall Study Area were available;

however, 2020 statistics from the individual counties indicate persons living in poverty had risen from 15.1 % to 15.6% in Chatham County but decreased from 15.9% to 14.7% in Liberty County and decreased overall in the State of Georgia from 15.1% to 14.0% (UGA, 2022). Again, this relatively consistent decrease in overall poverty levels could be due to the strong economy in the Study Area and the contribution of the military to the overall economy in the region and the state. Although there is a 0.5% increase in poverty in Chatham County, this is not a substantially high increase and could be due to the difficulties experienced nation-wide due to COVID and/or other factors.

Routine ongoing activities under this alternative are not anticipated to impact the elderly, the handicapped, and those without transportation in the SHSCSA, as existing services in the region will not be impacted. The Coastal Area Agency on Aging serves the nine counties along the Georgia coast, including Bryan, Bulloch, Camden, Chatham, Effingham, Glynn, Liberty, Long and McIntosh, ensuing all seniors, persons with disabilities, and family caregivers are able to access information and services that promote health, mental well-being, and options for their daily lives within the Study Area. Public transportation services are available to assist the elderly and the handicapped and ensure they have consistent access to services needed for their support, including medical care, shopping, and others. Handicapped access is required in all facilities and all city/county transportation services, including on FSGA and HAAF, unless a valid exception is needed and granted (such as on installation ranges). There are numerous reliable public transportation services in the Study Area, some of which also travel on Post, to assist persons without transportation of their own.

Routine, ongoing activities are not anticipated to impact children and the homeless as their implementation will not impact existing services in the Study Area. There are numerous schools, CDCs, pre-school, after-school, tutoring, and other child-focused resources in the Study Area for parents to access. Child welfare services for children in need of assistance are also numerous throughout the multi-county area. There are services within the Study Area to assist those struggling with homelessness, including on FSGA and HAAF. All facilities proposed for demolition on the installation must first be analyzed to see if they qualify for housing for the homeless, per HUD protocols, to ensure full consideration is given for this sensitive portion of the population. Residents in this region on fixed incomes are eligible for assistance via Social Security, retirement, public assistance, and food stamps, and this also aids vulnerable members of the Study Area. Overall, long-term, direct, minor, beneficial, impacts are anticipated to Socioeconomics under this alternative.

No impacts are anticipated to EJ-MGM communities under this alternative. There are no EJ-MGM communities located within the boundaries of FSGA, although EJ-MGM communities do lie several miles to its southeast (Figure 17). None of the routine, ongoing activities on FSGA are anticipated to impact this community or disrupt existing services that are provided to it or on which it is dependent in the Study Area. This includes services for the elderly, children, unemployed, and those living in poverty, all of whom will continue to be served by the existing services within the community, as discussed under Socioeconomics. All other activities that could potentially impact this community, such as noise from training, occur too far within the interior of the installation to leave its boundaries and adversely impact this community. Accordingly, no impacts are anticipated.

3.3.8.2.2 Alternative No. 2: Proposed Action (Preferred)

Under this alternative, the proposed action would occur which includes the expansion of the Liberty County EUA, construction of the MCRA direct access road off of Old Hines Road, and the construction of the airfield perimeter security fence. Ongoing, routine activities on WAAF/MCRA within the WAAF Airfield District will also continue, to include routine operations, repair, maintenance, and training activities.

Long-term, direct, moderate, beneficial impacts are anticipated to Socioeconomics as a result of this alternative, for reasons primarily as discussed under Alternative I. As this is not major construction, it is anticipated that the work will be completed by companies already in the Study Area and using an existing work force. An influx of new companies, new personnel, and their associated Family members is therefore not anticipated, nor is their associated increase in population. Population levels are anticipated to remain steady, as discussed under Alternative I. All other potential impacts are as discussed under Alternative I. No impacts are anticipated to EJ-MGM communities under this alternative.

Overall, long-term, direct, moderate, beneficial, impacts are anticipated to Socioeconomics and no impacts are anticipated to Environmental Justice under this alternative.

3.3.8.3 Cumulative Impacts

The ROI for Socioeconomics is the SHSCSA and the ROI for EJ is the EJ ROI. Past, present, and reasonably foreseeable future events with the potential to result in cumulative impacts are considered in the analysis below.

3.3.8.3.1 Alternative No. I: No Action Alternative

Overall, minor beneficial cumulative impacts are anticipated under this alternative. The population in the ROI has grown steadily over the past 20 years and this trend is anticipated to continue for the reasonably foreseeable future, or next 20 years, as indicated in Figure 12, Population Growth. Data collected by the U.S. Census Bureau and CRC indicates the greatest anticipated future growth in Effingham County and the least anticipated growth is in Liberty County. The lack of growth in Liberty County may be due to persons working in the Liberty County/FSGA area but residing in outlying, adjacent counties. Growth within Chatham County is anticipated to remain consistently positive over the long term, although not to the same degree as anticipated in Effingham County. This growth may be complemented by reasonably foreseeable future actions in the ROI, such as potentially receiving personnel and dependents associated with the MDTF and/or the ERCA on FSGA. The realignment of one or both of these units may increase the population in the ROI by as much as 500 Soldiers per action (plus their Family), although no decisions have been made at this time.

The military presence contributes substantially economically to the ROI and was identified as a $27.8 billion component of a $616 billion state economy (GA) in 2021 and this is anticipated to remain constant in the ROI in the future. There are no known plans to close FSGA or HAAF (such as Base Realignment and Closure actions) and the installation has continual realignments to and from its roster of active units on Post that contribute positively to the economic base of the ROI. Military personnel, their dependents, Civilian services

workforce, and retirees will continue to contribute to the economic base. If the MDTF and/or the ERCA are assigned to FSGA, they will contribute to the local economy in a beneficial manner as this incoming population will eat at local restaurants, buy local gas, and shop at local stores, and these impacts will ripple out into the overall ROI.

Support of an increasing population may require construction of new housing and schools within the ROI, and it is anticipated there are sufficient workers and resources within the ROI to accomplish these tasks. Housing and schools will continue to be developed to support these persons, as needed. No impacts are anticipated to EJ communities, as no direct impacts were anticipated. Overall, minor beneficial cumulative impacts are anticipated under this alternative.

3.3.8.3.2 Alternative No. II: Proposed Action (Preferred)

Impacts resulting from implementation of this alternative are primarily as discussed under Alternative I; however, under this alternative the installation will also implement the Proposed Action which includes the expansion of the Liberty County EUA, the construction of a Civilian terminal access road, and an airfield perimeter security fence. When combined with the other future actions discussed under Alternative I, all have the potential for minor beneficial cumulative impacts to socioeconomics in the ROI. As discussed under Alternative I, it is not anticipated that these job opportunities will bring in a substantial population from outside of the ROI; however, it will be a beneficial stimulus to the local economy. It is not anticipated to be a substantial degree higher than Alternative I, however impacts are anticipated to remain minor. No impacts to EJ communities are anticipated under this alternative, as none were identified under the direct and indirect analysis. Overall, this alternative is anticipated to result in minor beneficial cumulative impacts to Socioeconomic resources.

3.3.9 Water Resources

3.3.9.1 Affected Environment

Water resources are inclusive of surface waters like that in streams, rivers, lakes, and estuaries; groundwater, wetlands and floodplains. Water resources management requirements are typically derived from the CWA, Safe Drinking Water Act, and water rights laws that vary from state to state. Fort Stewart is located in the Atlantic Coastal Plain physiographic province of Georgia. The Atlantic Coastal Plain is characterized by flat to undulating topography, high water tables, and generally coarse sandy soils, except when broken by areas of extensive swamplands containing mostly organic soils. The installation contains about 159,000 acres of upland forest, 90,000 acres of forested wetlands, and 38,000 acres of clearings.

Surface Waters. Within the greater Fort Stewart watershed, surface water resources are diverse and include over 265 miles of freshwater rivers, streams, and creeks, numerous ponds and lakes, and over 12 miles of brackish streams (FSGA, 2005). Although Fort Stewart occupies parts of four separate watersheds, the majority of the installation lies within the Canoochee watershed. The Canoochee watershed is located in southeastern Georgia and contains several different types of land uses. The land uses upstream of Fort Stewart

include agricultural (crops and pasture), mixed forest, commercial, and low intensity residential uses.

The Study Area comprises a subwatershed of the Canoochee watershed, as the Canoochee River crosses the installation from its northwest corner to its eastern side. The Canoochee River is 4.8 miles north of the ROI as shown in attached Figure 2. It is listed as a CWA 303(d) “impaired water” for fecal coliform and for trophic weighted residue of mercury in fish tissue. The probable sources contributing to the impairment are unspecified nonpoint sources throughout the Canoochee watershed (EPA, 2014). Nonpoint sources are dispersed and cannot be identified as entering the water body at a single location. Different land uses collect and distribute mercury and fecal coliform at different rates as a function of runoff and erosion (EPA, 2005; GA EPD , 2015). These sources generally involve land use activities that contribute bacteria to streams during a rainfall runoff event (GA EPD, 2015).

A point source, on the contrary, is defined as a discernable, confined, and discrete conveyance from which pollutants are or may be discharged to surface waters (GA EPD, 2015). Point source discharges occur through a National Pollutant Discharge Elimination System (NPDES) permitting program whereby GA EPD rule and regulations require those discharges to be in compliance with the conditions of their NPDES permit at all times. In addition, the permits include routine monitoring and reporting requirements (GA EPD, 2015). Thus, NPDES point sources usually do not significantly contribute to the impairment of the listed stream segment because most facilities are required to treat to levels corresponding to instream water quality criteria (GA EPD, 2015).

Although proposed activities in Alternative II are not expected to affect tributaries of the Canoochee River watershed or any other significant surface water bodies in the vicinity of the ROI, specific requirements required under Georgia code will be strictly adhered to during all construction activities. This includes the following:

For all projects that disturb more than 0.75 acres, fees in the amount of $80.00/disturbed acre must be paid to the GA EPD. A copy of the fee submission must be provided to the FSGA Environmental Division along with a prepared and initialed Notice of Intent (NOI) for coverage under the FSGA NPDES Permit for Stormwater Discharges Associated with Construction Activities and the project’s approved Erosion and Sedimentation Pollution Control (ESPC) Plan. The FSGA Environmental Division will complete the NOI and process it for submittal to the State (approximately 14 days from submittal). Land disturbance, inclusive of timber harvesting and/or grubbing/grading activities, may not commence until 14 days from the date of certified mailing of the NOI packet. The total acre shall include material laydown areas, muck out/soil fill sites, stockpile and equipment storage areas, work-site entrance/exits, utility rights-of-way, demolition works sites, and timber harvest sites.

E&S Control BMPs will be identified in the ESPC Plan and must be utilized by the site operator. The ESPC Plan will include those requirements identified in the “Green Book” (Manual for Erosion & Sedimentation Control for the State of Georgia), the Coastal Stormwater Supplement, the Energy Independence and Security Act Section 438, the US Environmental Protection Agency (EPA) Technical Guidance (EPA 841-B-09-001

December 2009), the Unified Facilities Criteria (UFC) Manual for Low Impact Design, additional applicable Federal and local requirements, and a summary of how these materials apply is provided in the three sub-bullets below. The ESPC Plan must also include flow calculations demonstrating concentrated runoff flows from peak rain events will not impact (a) any existing stream, (b) upstream systems and downstream systems of the site as required for Total Maximum Daily Loads to maintain water quality standards by the removal of any potential pollutants.

During preparation of the ESPC Plan, two Installation Policies (#10 and #11) must be utilized that require engineers / proponents to take a more holistic approach to stormwater management of individual construction projects. Specifically, engineers must use Low Impact Development (LID) and Green Infrastructure (GI) stormwater control practices along with water quantity management practices found in the Georgia Stormwater Management Manual and the Coastal Stormwater Supplement. This is necessary to completely satisfy aquatic resource protection, overbank flood protection, and extreme flood protection, which are criterion found in these documents for post-construction BMPs.

Dry detention basins must be located downstream of other LID/GI structural controls. Hydraulic considerations are necessary to ensure dry detention basins are sized to store the entire water quality design volume or have adequate structural controls to meet the minimum criteria for a 1-year, 24-hour storm event.

The operator of the project site (regardless of size, i.e., including sites less than or greater than 0.75 acres) is required to continuously maintain all BMPs through the duration of site disturbing activities. For the Army to accept the project as complete, the site must be stabilized to prevent silts and/or sediments from leaving the project site. The Army, through its Contracting Officer Representative, National Resource Conservation Service, and the FSGA Environmental Division, must agree that the project site meets necessary site stabilization parameters as required by the State of Georgia prior to project acceptance by the Army.

At a minimum, a Level 1A E&S Control State Certified trained individual is to be on the site during ANY land disturbance activity, regardless of size. Site dewatering requires prior approval from the Fort FSGA Environmental Division. If approved, dewatering must incorporate BMPs to dissipate or disperse the flows. Equipment cleanout (brushes, rollers, spray guns/lines, etc.) must occur in designated areas (sink basins or washracks which discharge to sanitary or industrial wastewater treatment plants) and must not discharge to the stormwater conveyance system. Ensure all washouts of trucks and equipment is controlled and is discharged with adequate and appropriate BMPs for E&S Controls. Ensure proper drip pans and secondary containment are utilized for any of the equipment during these operations, for staging, storing, loading, fueling, maintenance, repairs, etc. Place all fuel storage tanks within plastic lined earthen berms, drive-on, or drive-over containment. The containment area must have a minimum capacity of 110% of the fuel storage tanks capacity for spill prevention, and to capture incidental spills.

Groundwater. The Fort Stewart region has three distinct aquifer systems: the Floridan, Brunswick, and surficial. Within the upper Floridan aquifer, groundwater flow near Fort

Stewart is easterly because of the effects of lowered groundwater levels to the northeast. The lowered groundwater level has caused saltwater to intrude into the upper Floridan aquifer, increasing its salinity. The GA EPD has capped withdrawal from the upper Floridan aquifer at 1997 rates in parts of coastal Georgia to limit further saltwater intrusion, prompting interest in developing alternative sources of drinking water, primarily from the shallower surficial and Brunswick aquifer systems. Fort Stewart withdraws its drinking water supplies from these groundwater sources, not surface water sources, and does not transfer water from one watershed into another. The proposed action is likewise not anticipated to impact groundwater. Therefore, the groundwater resource will not be carried forward for impact evaluation.

Wetlands. 33 CFR Part 328.3(b) of the CWA (33 USC § 1251 et seq.) defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." EO 11990, Protection of Wetlands, requires federal agencies to avoid new construction in wetlands unless it finds that there is no practicable alternative to such construction, and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Approximately one-third of Fort Stewart's 280,000 acres are considered wetland as determined by the National Wetlands Inventory (NWI), a map-based planning tool. Given their prevalence on the installation, Fort Stewart has made avoidance and minimization of wetland impacts a top priority and is a primary factor to be considered when siting a new project. In this manner, much of the avoidance and minimization of wetlands impacts takes place before actual site selection occurs. If impacts are unavoidable, Fort Stewart and/or Liberty County develops a mitigation plan and applies for a Section 404 permit as required by the CWA. If issued, the Section 404 permit requires the Army to compensate for permitted watershed impacts as required by 33 CFR 332, Compensatory Mitigation for Losses of Aquatic Resources.

For impacts requiring mitigation for Liberty County projects, the applicable quantity of mitigation credits are purchased through an approved commercial mitigation bank within the primary service area (PSA) or secondary service area (SSA) if sufficient credits are not available from a bank located within the PSA and are documented through the U.S. Army Corps of Engineers – Savannah District in accordance with the 2018 SOP for Commercial Mitigation Banking.

The land cover in the 380-acre wetland study area is largely upland pine forest with palustrine forested wetlands and emergent wetlands making up the bulk of the wetland habitat (180.177 acres). These freshwater wetlands are dominated by trees, shrubs, and persistent emergents and are links connecting larger systems outside of the proposed action footprint.

Floodplains. The general types of land where flood hazards are encountered are riverine floodplains and coastal floodplains. A floodplain is not limited to areas surrounding large bodies of water such as coastal areas and the shores of large rivers. A floodplain can be

any area susceptible to inundation from any source of flooding, including those which can be flooded from small and often dry watercourses (FEMA, 2015). The proposed action is located in a riverine 1-percent-annual-chance (100-year) floodplain of the Canoochee River according to the latest FEMA mapping.

EO 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, issued January 30, 2015, amended EO 11988, Floodplain Management, signed May 24, 1977, to improve the Nation's resilience to current and future flood risk.

The language used in EO 13690 and the Federal Flood Risk Management Standard reflects a transition beyond a former emphasis on flood control and protection to a broader focus on flood risk management, recognizing that floodwaters cannot be fully controlled, full protection from floods cannot be provided by any measure or combination of measures, and risk cannot be completely eliminated (FEMA, 2015).

Extreme hazard is associated with those portions of riverine and coastal floodplains nearest to flood sources, where depths and velocities of floodwaters are greatest. These areas are usually referred to as a "floodway" and "coastal high-hazard area," and with few exceptions, are locations to avoid (FEMA, 2015). Locating buildings, facilities, and other development, including fill, can obstruct flood flows and cause the water to slow down and back up, resulting in higher flood elevations. Special floodplain areas encompass sheet flow or shallow flooding areas, wetlands, mudflows, and ground failures, such as sinkholes, subsidence, and liquefaction (FEMA, 2015). When a clearly defined channel does not exist, the path of flooding is unpredictable. A significant portion of the EA Study Area is largely identified to be within Zone A (100-year floodplain) based on the National Flood Hazard Layer (NFHL) Firmette map panel. Wetlands are located in the proposed action footprint and are considered special floodplain areas.

To comply with EO 13690, the floodplain elevation must be established through one of three approaches: climate-informed science approach, freeboard value approach, or "500-year" elevation approach. The climate-informed science approach utilizes the best-available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate and related science to determine the flood elevation and flood hazard area in a manner appropriate to policies, practices, criticality and consequences (FEMA, 2015). The 500-year elevation approach allows an agency to use the 0.2-percent-annual-chance flood elevation to determine the elevation and flood hazard area (FEMA, 2015).

Fort Stewart does not currently have the data necessary to determine the floodplain elevation through a climate-informed science approach or through the 500-year elevation approach. The freeboard value approach is based upon the current base flood elevation (100-year floodplain), with the addition of freeboard to account for uncertainties in future conditions.

The term "freeboard" is a factor of safety usually expressed in feet above a flood level for purposes of floodplain management and tends to compensate for the many unknown factors

that could contribute to flood height (e.g., the hydrological effect of urbanization of the watershed) (FEMA, 2017). For non-critical action areas prone to either riverine or coastal flood hazards, a freeboard of 2 feet should be added to the base flood elevation (FEMA, 2015). For critical actions, a freeboard of 3 feet should be added to the base flood elevation to determine the flood elevation for actions (FEMA, 2015). A review of the NFHL Firmette database contained within ArcGIS Pro indicates that the base flood elevation in the general area of the proposed action location is 21-feet above mean sea level (amsl). Thus, utilizing the freeboard value approach for non-critical actions, the proposed action is in a floodplain considered to be 23 feet in elevation.

3.3.9.2 Environmental Consequences

3.3.9.2.1 Alternative No. I: No Action Alternative

Under this alternative, Liberty County and the installation will not implement the proposed action but will instead continue to manage the WAAF Airfield District, to include the existing Liberty County EUA under a status quo condition. The routine ongoing activities on the installation will continue, to include routine operations, repair, maintenance, and training activities, and implementation of the installation's existing resource management plans. If the status quo were maintained without implementing the proposed action, no adverse impacts to water resources would occur as no changes to the status quo would occur.

3.3.9.2.2 Alternative No. II: Proposed Action (Preferred)

Under this alternative, the proposed action would occur which includes the expansion of the Liberty County EUA, construction of the MCRA direct access road off Old Hines Road, and the construction of the airfield perimeter security fence. Ongoing, routine activities on WAAF/MCRA within the WAAF Airfield District will also continue, to include routine operations, repair, maintenance, and training activities.

Short-term, direct, minor, adverse impacts to water resources are anticipated under the Alternative II location. Land cover changes that result from new development include limited timber removal and paving operations, but natural drainage patterns are expected to continue as they currently exist within the study area.

Surface Waters and Floodplains. Long-term, direct, minor, adverse impacts are anticipated to floodplains under the Alternative II location. In the natural, undisturbed environment rain that falls is quickly absorbed by trees, other vegetation, and the ground. Most rainfall that is not intercepted by leaves infiltrates into the ground or is returned to the atmosphere by the process of evapotranspiration. Very little rainfall becomes stormwater runoff in permeable soil, and runoff generally only occurs with larger precipitation events. Floodplains provide for the natural storage of surface and ground waters and the natural improvement of water quality (FEMA, 2015). The physical characteristics of the floodplain shape flood flows. The proposed action location is a naturally vegetated floodplain that provides a broad area to spread and slow floodwaters, thereby reducing velocities and flood peaks. The proposed action is not expected to significantly alter the current hydrology of the study area to negatively impact surface waters and floodplain environments.

In addition to limited site disturbance to construct these proposed elements, minimization efforts include compliance with Section 438 of the EISA, Georgia's Coastal Stormwater Supplement (CSS), and establishing ESPC BMPs in accordance with State requirements. The Army complies with EISA Section 438 by designing facilities based on the goal of maintaining pre-development hydrology on a site-specific basis and an objective methodology with which to determine appropriate practices to protect the receiving environment.

Coupled with EISA Section 438, Fort Stewart also specifies the requirement for site designers to utilize the CSS. The purpose of the CSS is to protect Georgia's existing water quality standards, particularly those of the State's coastal waters. By utilizing the CSS, post-construction stormwater runoff rates and volumes are reduced through the use of low impact development practices to help maintain existing site hydrology, help prevent downstream water quality degradation, and to help prevent downstream flooding and erosion. Not only does this approach protect water resources from pollutant stresses including sedimentation loads, but it also minimizes potential harm to or within the floodplain, consistent with revisions to EO 11988, Floodplain Management.

The proposed action also calls for controlled methods used for grading and filling to minimize erosion and sedimentation during construction. The Georgia Water Quality Act (GWQA) (Official Code of Georgia [OCGA] § 12-5-20), and Georgia Erosion and Sedimentation Control Act (OCGA § 12-7-1) requires permitting and the establishment of erosion control measures prior to land disturbance. The control measures that must be established are referred to as BMPs which are identified on an ESPC Plan to be developed by the Army for the proposed construction. These BMPs must be utilized by the construction contractor and will be inspected by the Army periodically for adequacy and to have the contractor correct any deficiencies as measured by turbidity samples and physical examination of downstream areas. The ESPC Plan will also include requirements identified in the Manual for Erosion & Sedimentation Control for the State of Georgia, the CSS, EISA Section 438, and local stormwater control requirements.

Permitting associated with State erosion and sedimentation control rules also requires fees in the amount of $80.00/disturbed acre and must be paid to the GA EPD. The Army will provide payment and an initialed Notice of Intent (NOI) for coverage under the State's NPDES Permit. Land disturbance, inclusive of timber removal may not commence until 14 days from the date of certified mailing of the NOI packet to GA EPD. During construction, the State requires a Level 1A Erosion and Sedimentation Control certified individual to be on the site during any land disturbance activity. In order for the Army to accept the project as complete, the site must be stabilized to prevent silts and sediments from leaving the construction site.

Wetlands. Long-term, direct, minor, adverse impacts are anticipated to wetlands from the proposed action under the Alternative II location. Maintaining floodplain and wetland vegetation buffers reduces sedimentation and delivery of chemical pollutants to water bodies. In accordance with Section 404 of the CWA and EO 11990, Fort Stewart and Liberty County are required to implement measures to avoid, minimize and compensate for wetland impacts.

Several variations of the roadway alignment were evaluated for the proposed access road and the final path determination was decided based on avoidance and minimization of identified wetlands in the area. The final road alignment was selected based on the path that resulted in the least impacts to the existing wetlands.

Based on a review of wetland survey completed in April – May 2020 and the proposed construction exhibits, a total of 1.703 acres of jurisdictional wetlands will be impacted for the construction of the proposed access road within the study area. The approved jurisdictional determination (AJD) of the aquatic resource boundaries and their jurisdictional status was issued by USACE – Savannah District on September 28, 2021. Liberty County, as the permit applicant, will submit a Standard Individual Permit (IP) to the USACE – Savannah District for permitting the proposed access road impacts through Section 404 of the CWA. The proposed impacts will be offset through purchase of mitigation credits in accordance with the USACE – Savannah District 2018 SOP from a commercial mitigation bank whose primary service area (PSA) is located within the impact location. A total of 1.60 2018 SOP wetland credits (12.80 legacy wetland credits) will be required to offset the impacts to jurisdictional wetlands. The wetland mitigation credit purchase will be completed after the USACE – Savannah District issues the IP for the project and documentation of the purchase will be provided to USACE – Savannah District prior to initialization of work being completed within the impact areas.

Additionally, clearing activities within wetlands are anticipated to occur from Army actions through the installation of security fencing on the eastern and northern side of the airfield property. An up-to-date survey of aquatic resources has not been completed by Fort Stewart at the time of this EA. Prior to the construction of the security fencing, the Army will complete a survey of aquatic resources within the proposed fence location. Coordination and approval of the strategy for security fencing installation will be conducted by Fort Stewart at the time of the delineation of aquatic resources and jurisdictional determination submittal. Additionally, any wetlands identified during the future wetland delineation which would be impacted during the security fence construction would require permitting through the USACE – Savannah District with a Section 404 IP. Additional wetland mitigation credits would be required to be obtained to offset impacts to wetlands in accordance with the USACE – Savannah District 2018 Compensatory Mitigation SOP.

3.3.9.3 Cumulative Impacts

The ROI for the cumulative impact analysis to water resources is limited to the WAAF District.

3.3.9.3.1 Alternative No. I: No Action Alternative

Cumulative impacts to water resources as a result of the no action alternative are not anticipated because direct and indirect impacts are not expected.

3.3.9.3.2 Alternative No. II: Proposed Action (Preferred)

A review of the WAAF ADP and MCRA ALP indicates that future impacts to water resources will occur within the airfield district. Future development areas within the proposed EUA

expansion will result to impacts to floodplains and wetlands through the development of additional taxiways and two future development areas located within the proposed expanded EUA. The mid- and long-term projects will impact an additional 3.70 acres of Wetland A through the proposed expansion of the existing apron and taxiway construction. The mid- and long-term projects will impact an additional 0.49 acres of Wetland D for the proposed future taxiway construction.

These are considered to be minor, adverse cumulative impacts based on the amount of wetland acreage to remain within the WAAF Airfield District upon completion of the proposed mid- and long-term projects and the impacts will be properly offset through the purchase of compensatory mitigation credits in accordance with the USACE – Savannah District 2018 SOP. The proposed mid-term and long-term projects will be engineered in the future to avoid all aquatic resources to the fullest extent practical in accordance with Section 404(b)(1) avoidance and minimization analysis.

4.0 CONCLUSIONS

This PEA analyzed the potential environmental impacts associated with expansion of the Liberty County EUA, construction of a new Civilian airfield terminal access road, and installation of additional airfield perimeter security fencing on Fort Stewart, Georgia. Following an analysis and comparison of impacts of the no action and proposed action alternatives, it was determined that neither will result in significant impacts, and that the preparation of a FONSI by the Army for the proposed action is appropriate.

Irreversible and irretrievable resource commitments are related to the non-renewable resources and the effects that the use of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource, such as energy and minerals, which cannot be regained. The proposed action will not result in the use of or destruction of any specific resource that cannot be regained in the future.

5.0 REQUIRED PERMITS

Best Management Practices as defined by the Georgia's Department of Natural Resources, Environmental Protection Division and Georgia Soil and Water Conservation Commission must be followed to prevent erosion, consequent damage to endangered species habitat, or sedimentation of streams and wetland areas. Projects one acre or greater require a state approved Erosion and Sedimentation Control Plan, fee submittal for disturbed acreage, and Notice of Intent. The Directorate of Public Works will provide an engineering review and sign off. An individual permit under Section 404 of the Clean Water Act must be obtained from the USACE – Savannah District prior to any wetland impacts. In support of this permit, a Water Quality Certification (under Section 401 of the CWA) and a Federal Consistency Certification (under the Federal Coastal Management Program) must both be obtained from the Georgia Department of Natural Resources. Construction safety plans should be reviewed and approved by the Installation Safety Office prior to the start of site work.

6.0 LITERATURE CONSULTED

The PEA incorporates by reference provisions of the following documents:

32 CFR, Part 651. Environmental Analysis of Army Actions. 2002. Washington: U.S. Government Printing Office.

29 CFR Part 1926 et seq. Occupational Safety and Health Act. 1979. Washington: U.S. Government Printing Office.

16 U.S. Code (USC) 470. National Historic Preservation Act. 1966 (Public Law 89-665), as amended through 1992.

16 USC 668–668d. Bald and Golden Eagle Protection Acts. 1940 (Public Laws 86-70, 87-884, 92-535, 95-616).

16 USC 703-711, §§ 703–712. Migratory Bird Treaty Act. 1918. (July 3, 1918, Ch. 128, § 2,

40 Stat. 755; June 20, 1936, Ch. 634, § 3, 49 Stat. 1556; Pub. L. 93–300, § 1, June 1, 1974, 88 Stat. 190; Pub. L. 101–233, § 15, Dec. 13, 1989, 103 Stat. 1977; Pub. L. 108–447, div. E, title I, § 143(b), Dec. 8, 2004, 118 Stat. 3071.).

16 USC 1451. Coastal Zone Management Act. 1972, (Public Law 92-583).

16 USC 1531–1544. Endangered Species Act. 1973. (Public Law 93-205).

25 USC 3001 et seq. Native American Graves Protection and Repatriation Act. 1990 (Public Law 101-601).

33 USC 1251. Clean Water Act. 1972 (Public Law 92-500).

42 USC 4321–4347. 1969. National Environmental Policy Act. (Public Law 91-190).

Army Regulation 200-1, Environmental Protection and Enhancement, HQ, Department of the Army, 1997.

Army Regulation 200-3, Natural Resources – Land, Forest and Wildlife Management, HQ, Department of the Army, 1995.

City of Hinesville (COH). 2014. COH Georgia Consolidated Plan. Community Development Department, City of Hinesville.

COH. 2022. Homeless Client Services. https://www.cityofhinesville.org/521/Homeless-Client-Services. Retrieved November 2, 2022.

Coastal Regional Commission (CRC). 2012. The Regional Plan of Coastal Georgia. Brunswick, GA: Planning and Government Services Department, Planning Division.

Coastal Region Metropolitan Planning Organization (CORE). 2014. CORE MPO 2040 Metropolitan Transportation Plan and Total Mobility Plan. CORE MPO.

Cultural Resource Management (2015) Fort Stewart and Hunter Army Airfield Archaeological Site Database. Fort Stewart: DPW Environmental Division.

DA. 2018. Army Guidance for Addressing Releases of Per- and Polyfluoroalkyl Substances. Colonel, Mary Williams-Lynch, Chief, Army Environmental Command.

DA. 2013. Army Regulation 385-10: The Army Safety Program. Department of the Army. Washington, D.C.

DA. 2012. 385-63, The Range Safety Program. Department of the Army. Washington, D.C.
DA. 2007. Army Regulation 200-1, Environmental Protection and Enhancement. Department of the Army. Washington, D.C.
DA. 2004b. Army Strategy for the Environment. Department of the Army. Washington, D.C.
Department of the Army. 2002.

Executive Order No. 13186. Responsibilities of Federal Agencies to Migratory Bird Treaty Act, August 17, 2001. Washington: U.S. Government Printing Office.

Executive Order 11988, Revised Guidelines for Implementing Floodplain Management. 2015. Washington: U.S. Government Printing Office.
Executive Order 11990, Protection of Wetlands, 44 CFR Part 9. 1977. Washington: U.S. Government Printing Office.

Directorate of Public Works (DPW), Final EA and FONSI for Establishment of Wright Army Airfield as a Joint Use Airfield and lease of 34 acres to the Liberty County Development Authority, February 2003.

Endangered Species Act of 1973 (as amended), US Fish and Wildlife Service, Washington, DC, 1988 Environmental Analysis of Army Actions; Final Rule, 32 Part 651, Department of the Army, Washington, DC, 2002.

Environmental Noise Program, 2004. Draft Environmental Noise Management Plan and Installation Compatible Use Zone Study for Fort Stewart, Georgia; Directorate of Environmental Health Engineering; US Army Center for Health Promotion and Preventive Medicine, 5158 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5422

Executive Order 11990, Protection of Wetlands, 1977.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations, 1994.

Executive Order 13045, Environmental Health and Safety Risk Upon Children, 1997.

Building Inventory Fort Stewart, Georgia: An Inventory of Department of Defense Buildings Built Prior to 1989. Fort Stewart: DPW Environmental Division.

Georgia Department of Transportation, Average Daily Traffic Counts, Liberty County, 2001-2005.

Georgia Department of Natural Resources. 1999. Protected Animals of Georgia.

Georgia Department of Natural Resources. 1995. Protected Plants of Georgia.

Georgia Forestry Commission, 2019. Georgia's Best Management Practices for Forestry. Management Guidelines for the Red-cockaded Woodpecker on Army Installations, Headquarters, Department of the Army, Washington, DC, May 1996.

Morehead, James R., William R. Mallory, Carrie Williams-Bourgeois, L. Janice Campbell, James H. Mathews, and Eric Ian Hamilton. (2008). Cultural Resources Survey at Fort Stewart Military Reservation (Vols.1-3) [Delivery Order 9] (NRMUs A18.2, A18.3, A18.5, A19.2, A20.1, AWAAF, B5.1, B5.2, B6.2, C5.3, D2.1, D3.4, D3.7, D4.3, D4.4, D15.1, DTRASH, F10.1, F14.1, F19.1, F19.2,F19.4, F20.1, F20.2, & F20.4) In Bryan, Evans, Liberty and Long Counties, Georgia.

Prentice Thomas and Associates, Inc., Mary Esther, Florida. Submitted to the National Park Service, Southeast Archeological Center, Tallahassee, and the Directorate of Public Works, Environmental Branch, Fort Stewart, Georgia under Contract# C5000030247.

Phase I Cultural Resources Survey of the Wright Army Airfield Joint Use Area II, Fort Stewart, Georgia, August 12, 2004.

Ross, James. (2004). Archaeological Investigations at Fort Stewart: An Intensive Archaeological Survey of 9,690 Acres (NRMUs A2.1, A2.2, A11.2, BEOD, B9.5, B10.2, B21.1, B22.2, B24.1, B24.3, E5.1, E6.1, E6.2, E7.3.2, E21.4, F1.3, and F12.4 in Bryan, Evans, Liberty and Long Counties) at Fort Stewart, Georgia [Delivery Order 7]. Panamerican Consultants, Inc. Submitted to the National Park Service, Southeast Regional Office, Atlanta, and funded by the Directorate of Public Works, Environmental Branch, Fort Stewart under Contract #1443CX509098044.

United States Census Bureau Decennial Census. (n.d.) American Community Survey, GA Governor’s Office of Planning and Budget.

United States Environmental Protection Agency (USEPA). 2022 version. EJ Screen.

United States Interagency Council on Homelessness (ISICH). (n.d.). https://www.usich.gov. Accessed July 11, 2022.

Wildland Fire Support Center (WFSC). 2019. Wildfire Risk Assessment for Fort Stewart. The Center for Environmental Management of Military Lands Colorado State University, Fort Collins, Colorado

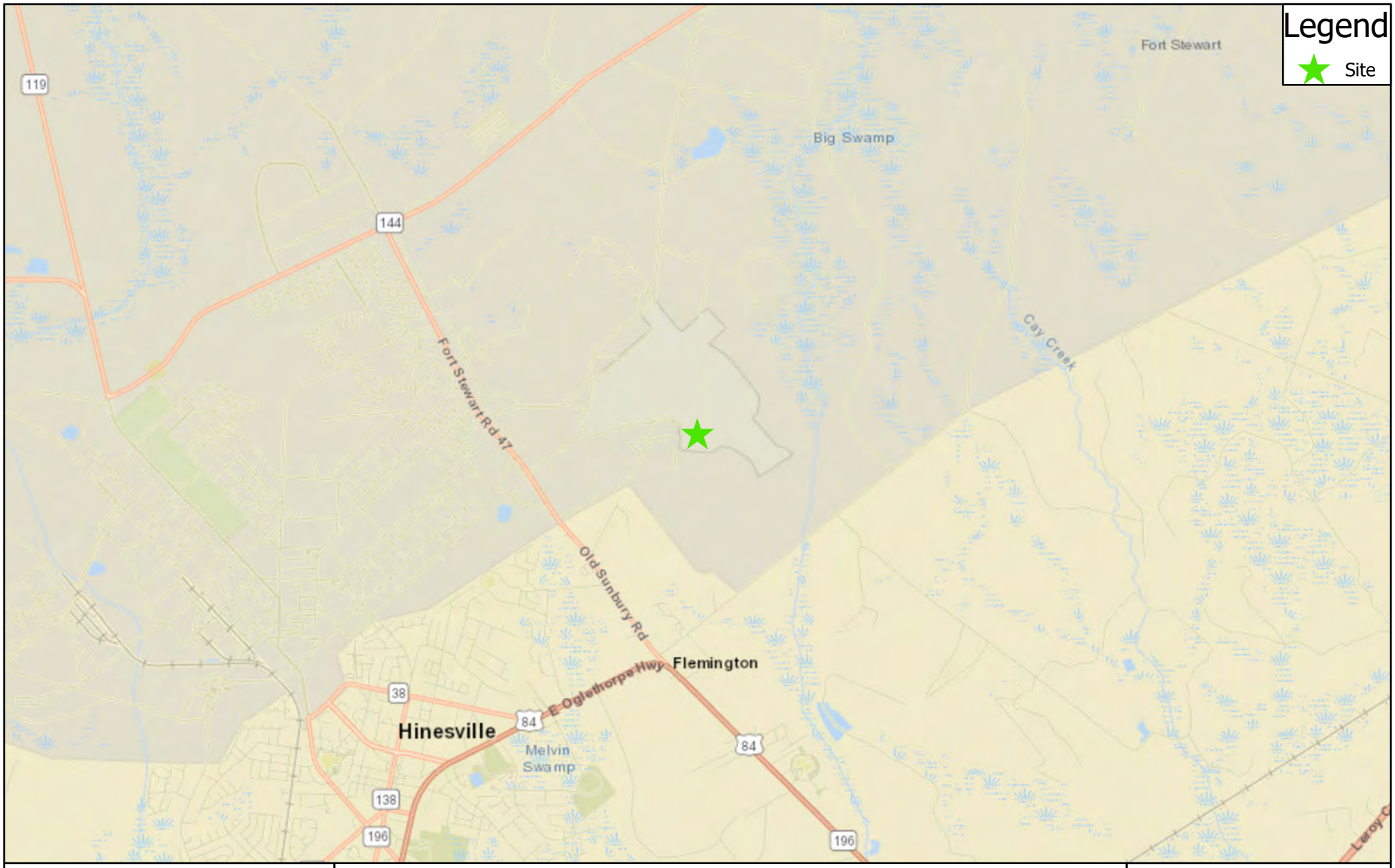
7.0 ABBREVIATIONS AND ACRONYMS

ADP	Area Development Plan
APE	Area of Potential Effect
APZ	Accident Potential Zone
AR	Army Regulation
AST	Aboveground Storage Tank
BMP	Best Management Practice
BN.	Battalion
BDE	Brigade
CERCLA	Comprehensive Environmental Responsibility, Compensation, and Liability Act
CFR	Code of Federal Regulation
COA	Course of Action
COL	Colonel
COR	Contracting Officer Representative
CWA	Clean Water Act
CX	Categorical Exclusion
CZMA	Coastal Zone Management Act
DA	Department of the Army
DOD	Department of Defense
DOT	Department of Transportation
DOPAA	Description of Proposed Action and Alternatives
DPW	Directorate of Public Works
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPD	Environmental Protection Division
Era	Environmental Remediation Active
ESA	Endangered Species Act
ESCA	Erosion and Sedimentation Control Act
FAA	Federal Aviation Administration
FY	Fiscal Year
GC	Garrison Commander
GIS	Geographic Information System
GHG	greenhouse gas
HAP	Hazardous Air Pollutant
HQ	Headquarters
HQDA	Headquarters, Department of the Army
ICRMP	Integrated Cultural Resource Management Plan
IMCOM	U.S. Army Installation Management Command
IPB	Installation Planning Board
IPR	In-Process Review
IRP	Installation Restoration Program
INRMP	Integrated Natural Resources Management Plan
IPMP	Integrated Pest Management
JAG	Judge Advocate General
KO	Contracting Officer

LBP	Lead-Based Paint
LUPZ	Land Use Planning Zone
MBTA	Migratory Bird Treaty Act
MCA	Military Construction, Army (budget code)
MDMP	Military Decision Making Process
MEC	Munitions and Explosives of Concern
MILCON	Military Construction Account (budget code)
MMRP	Military Munitions Response Program
MOA	Memorandum of Agreement; or Military Operations Area (airspace)
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEC	Network Enterprise Center
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OACSIM	Office of the Assistant Chief of Staff for Installation Management
OC	Office of Counsel
OGC	Office of General Counsel
OMA	Operations and Maintenance, Army
OSJA	Office of the Staff Judge Advocate
PA	Programmatic Agreement
PAO	Public Affairs Office
PCB	Polychlorinated Biphenyls
PEA	Programmatic EA
PFAS	Per- and Polyfuoroalkyl Substances
PN	Project Number
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
ROI	Region of Influence
RPMP	Real Property Master Plan
SDZ	Surface Danger Zone
SHPO	State Historic Preservation Office
SUA	Special-Use Airspace
UFC	Unified Facilities Criteria
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Command
USAG	U.S. Army Garrison
USFWS	U.S. Fish and Wildlife Services
UST	Underground Storage Tank
UXO	Unexploded Ordnance

FIGURES

FIGURES



Site Vicinity Map - Street Map View

Figure 1

ARROWOOD ENVIRONMENTAL GROUP, INC.

MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date: 6/14/2021

Scale: 1" = 5,000 '

N

0 2,500 5,000 Feet



ARROWOOD
ENVIRONMENTAL GROUP, INC.

Site Vicinity Map - Aerial Map View

Figure 2

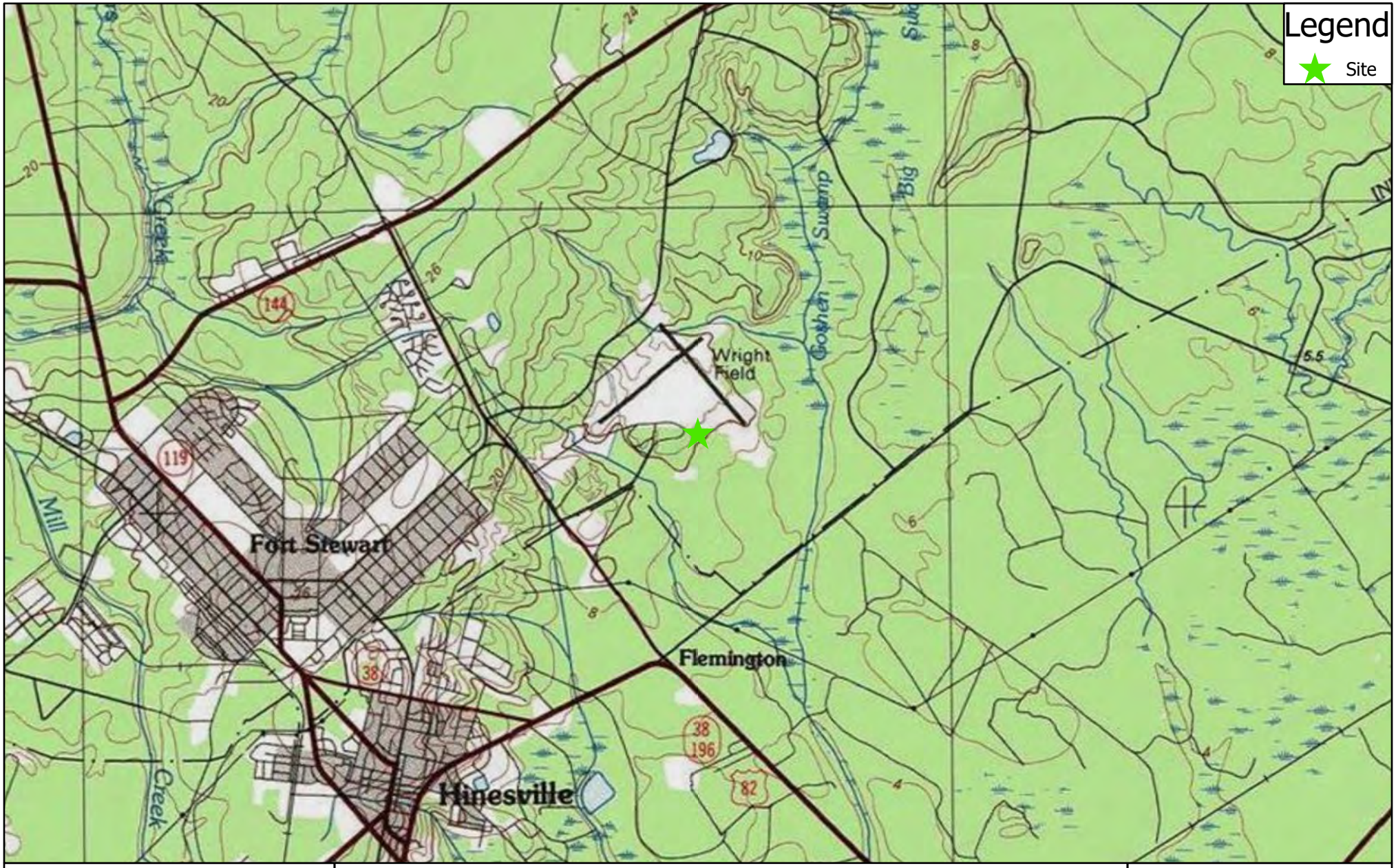
MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date: 6/14/2021

Scale: 1" = 5,000 '

N

0 2,500 5,000 Feet



Site Vicinity Map – Topographic Map View

Figure 3

ARROWOOD ENVIRONMENTAL GROUP, INC.

MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date: 6/14/2021

Scale: 1" = 5,000 '

N

0 2,500 5,000 Feet



ARROWOOD ENVIRONMENTAL GROUP, INC.

NEPA EA Study Area

Figure 4

MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date: 6/14/2021

Scale: 1" = 1,800 '

N

0 900 1,800 Feet

Image Redacted for
Operation Security.

ARROWOOD
ENVIRONMENTAL GROUP, INC.

Proposed Land Acquisition for EUA Expansion

Figure 5

MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date:3/23/2023

Scale: 1" = 1,800 '

N

0 900 1,800 Feet

Image Redacted for Operation Security.

ARROWOOD ENVIRONMENTAL GROUP, INC.	**Perimeter Fence Alignment**	**Figure 6**
	MidCoast Regional Airport / Wright Army Airfield **Fort Stewart** **Liberty County, Georgia**	**Date: 6/14/2021** Scale: 1" = 1,800 '

N

0 900 1,800 Feet



ARROWOOD
ENVIRONMENTAL GROUP, INC.

Floodplains Within Project Area

Figure 7

MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date:3/23/2023

Scale: 1" = 1,800 '

N

0 900 1,800 Feet

Figure Redacted for Operation Security.

ARROWOOD ENVIRONMENTAL GROUP, INC.

Proposed Access Road Alignment

Figure 8

MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date:3/23/2023

Scale: 1" = 1,000 '

N

0 500 1,000 Feet

Image Redacted for Operation Security.

ARROWOOD ENVIRONMENTAL GROUP, INC.	**Delineation of Aquatic Resources**	**Figure 9**
	MidCoast Regional Airport / Wright Army Airfield **Fort Stewart** **Liberty County, Georgia**	**Date: 6/14/2021** Scale: 1" = 1,200 '
		N 0 600 1,200 Feet

Image Redacted for Operation Security.

ARROWOOD ENVIRONMENTAL GROUP, INC.

Proposed Access Road Impacts to Aquatic Resources

MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date:3/23/2023

Scale: 1" = 1,000 '

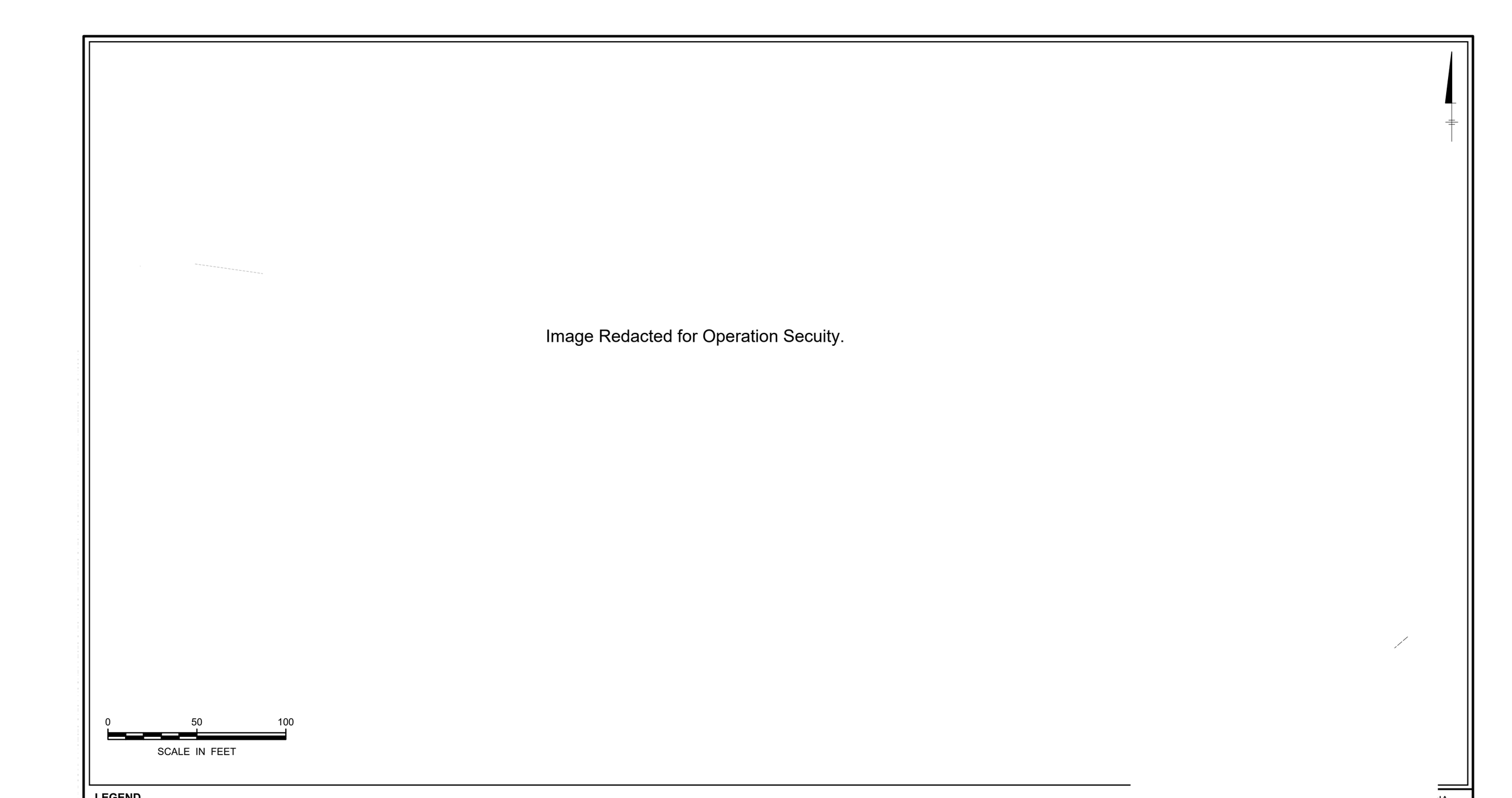
Figure 10

N

0 500 1,000 Feet

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Operation Security.

Figure 11



LEGEND

- Sampled Well
- Well Not Sampled
- Former Monitor Well (Abandoned, Destroyed or Removed)
- 1997 IRA Excavation Area
- 2001 IRA Excavation Area
- 2008 IRA Excavation Area

NOTES:
1) MW-01 and MW-06 were destroyed by heavy equipment backing over them.
2) MW-12 was removed, MW-14 and MW-17 were damaged during the 2001/2002 Interim Removal Action (IRA).
3) MW-02, MW-05 MW-07 and MW-09 were abandoned in 2001/2002.
4) MW-18 was abandoned as part of the IRA in 2008.
5) MW-16 was abandoned in 2019/2020.

Figure 12: SWMU 13, WAAF, FSGA

1) Corrective Action Plan Progress Report for the calendar year 2007, for the former Fire Training Area at Wright Army Airfield - Solid Waste Management Unit 13 (SAIC 2008).
2) Final Interim Remedial Action and Corrective Action Progress Report at Wright Army Airfield Fire Training Area, SWMU 13 (SES 2008).

IA
AF

URE
-2

Figure 13: Population Growth in the Study Area

Total Population					
Geography	2000	2010	2019	2030 (Est)	2040 (Est)
Bryan County	23,417	30,233	37,063	51,025	61,808
Bulloch County	55,983	70,217	76,120	93,233	105,549
Camden County	43,664	50,513	53,231	59,056	62,037
Chatham County	232,048	265,128	288,496	315,524	335,211
Effingham County	37,535	52,250	60,477	85,054	103,498
Glynn County	67,568	79,626	84,470	96,110	98,151
Liberty County	61,610	63,453	61,349	62,286	61,727
Long County	10,304	14,464	18,692	23,327	26,607
McIntosh County	10,847	14,333	14,174	17,234	17,361
Screven County	15,374	14,593	13,989	14,095	13,810
Region	558,350	654,810	708,061	802,849	871,949
Georgia	8,186,453	9,687,653	10,617,423	11,979,787	13,006,562

Source: U.S. Census Bureau Decennial Census, American Community Survey, GA Governor's Office of Planning and Budget

Figure 14 Total Persons in Work Force in Study Area.

Total in Work Force (16 and older)	
Geography	Total in Labor Force
Bryan County	18,689
Bulloch County	37,345
Camden County	27,104
Chatham County	152,956
Effingham County	30,323
Glynn County	41,073
Liberty County	30,546
Long County	8,165
McIntosh County	6,524
Screven County	5,996
Region	358,721

Source: American Community Survey 2015-2019

Figure 15: Population Density in the Study Area.

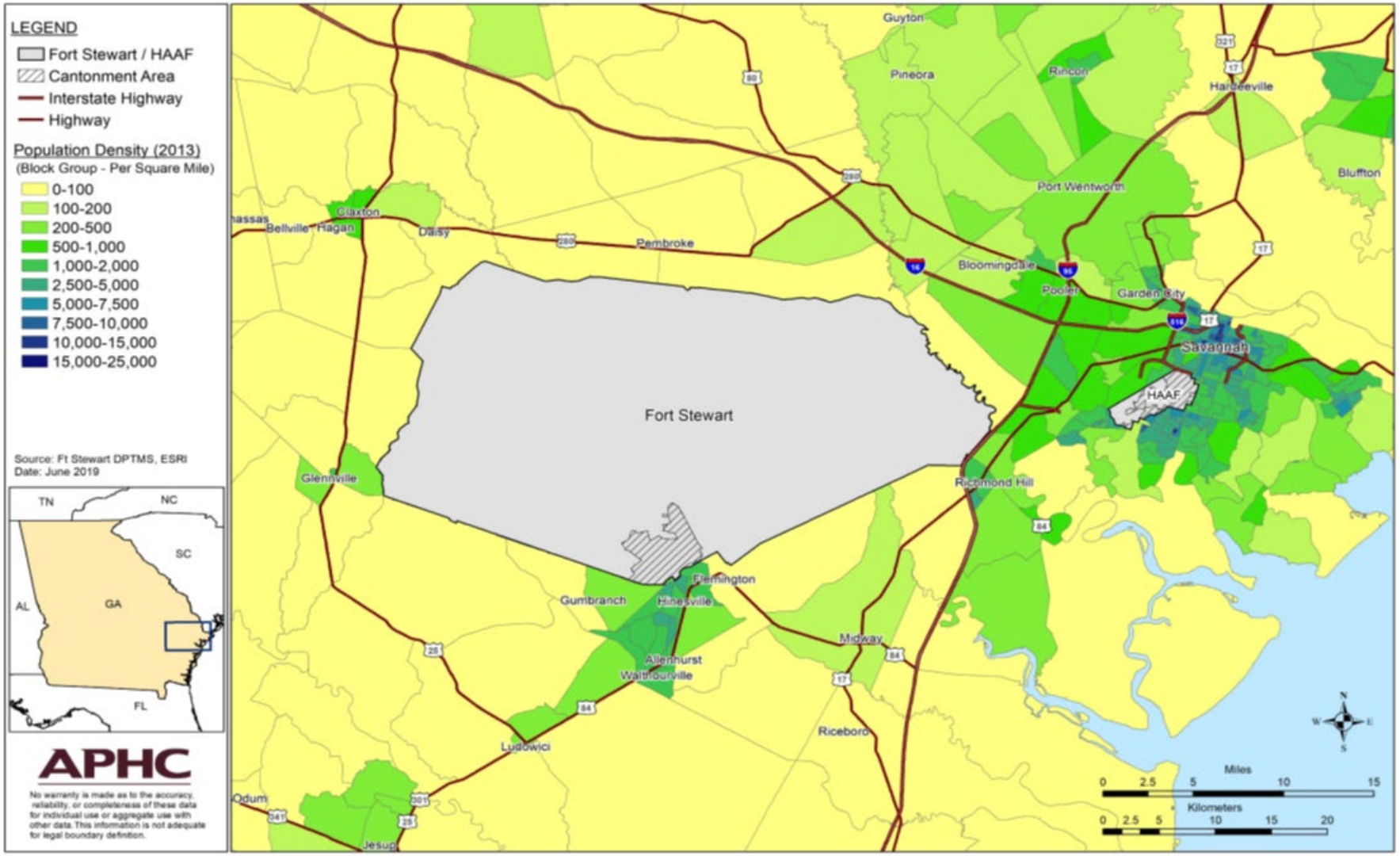
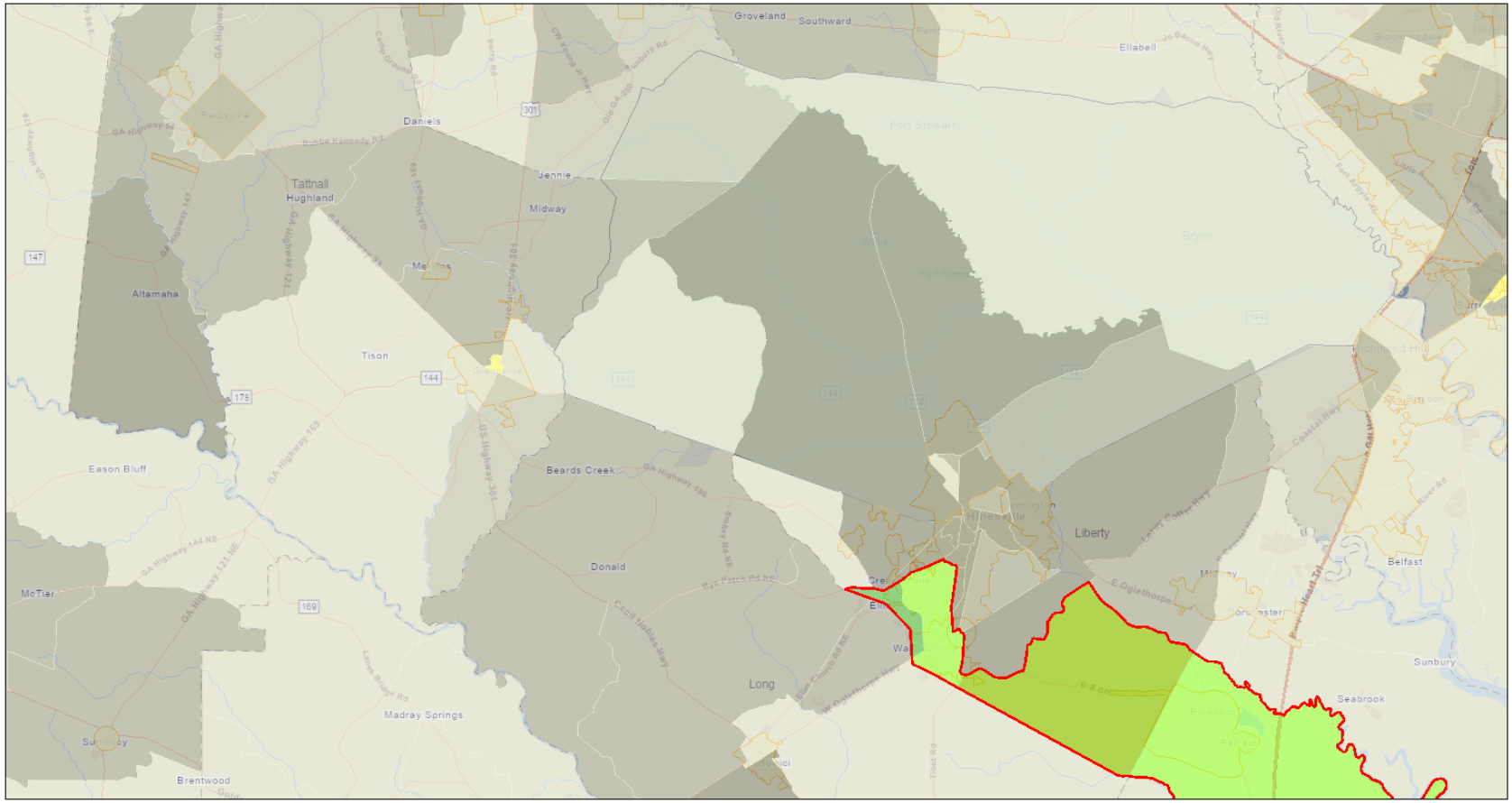


Figure 16: Race and Ethnicity in the Work Force.

Race/Ethnicity									
Geography	Total Pop	White	Black or African American	American Indian and Alaska Native	Asian Alone	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races	Hispanic/ Latino (Any Race)
Bryan County	37,063	77.0%	14.4%	0.4%	1.4%	0.1%	2.4%	4.3%	7.1%
Bulloch County	76,120	65.1%	27.9%	0.4%	1.3%	0.3%	1.5%	3.5%	4.0%
Camden County	53,231	73.0%	18.8%	0.7%	2.2%	0.1%	1.7%	3.5%	6.7%
Chatham County	288,496	52.7%	39.9%	0.3%	2.6%	0.1%	1.5%	2.9%	6.4%
Effingham County	60,477	81.6%	13.3%	0.2%	0.9%	0.0%	1.2%	2.8%	4.4%
Glynn County	84,470	68.5%	26.3%	0.4%	1.3%	0.1%	1.0%	2.4%	6.6%
Liberty County	61,349	45.8%	41.2%	0.5%	2.1%	0.5%	3.4%	6.6%	12.6%
Long County	18,692	63.9%	24.9%	0.2%	1.1%	0.4%	4.2%	5.3%	11.3%
McIntosh County	14,174	62.3%	35.5%	0.1%	1.3%	0.1%	0.0%	0.6%	0.3%
Screven County	**13,989**	55.6%	41.6%	0.2%	0.7%	0.0%	0.7%	1.1%	2.2%
Region	708,061	61.1%	31.4%	0.4%	1.9%	0.2%	1.7%	3.3%	6.5%

Source: American Community Survey 2019

Figure 17: EJ-MGM Population Southeast of Fort Stewart, Georgia.



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Figure 18: EJ-MGM Population North of Hunter Army Airfield, Georgia

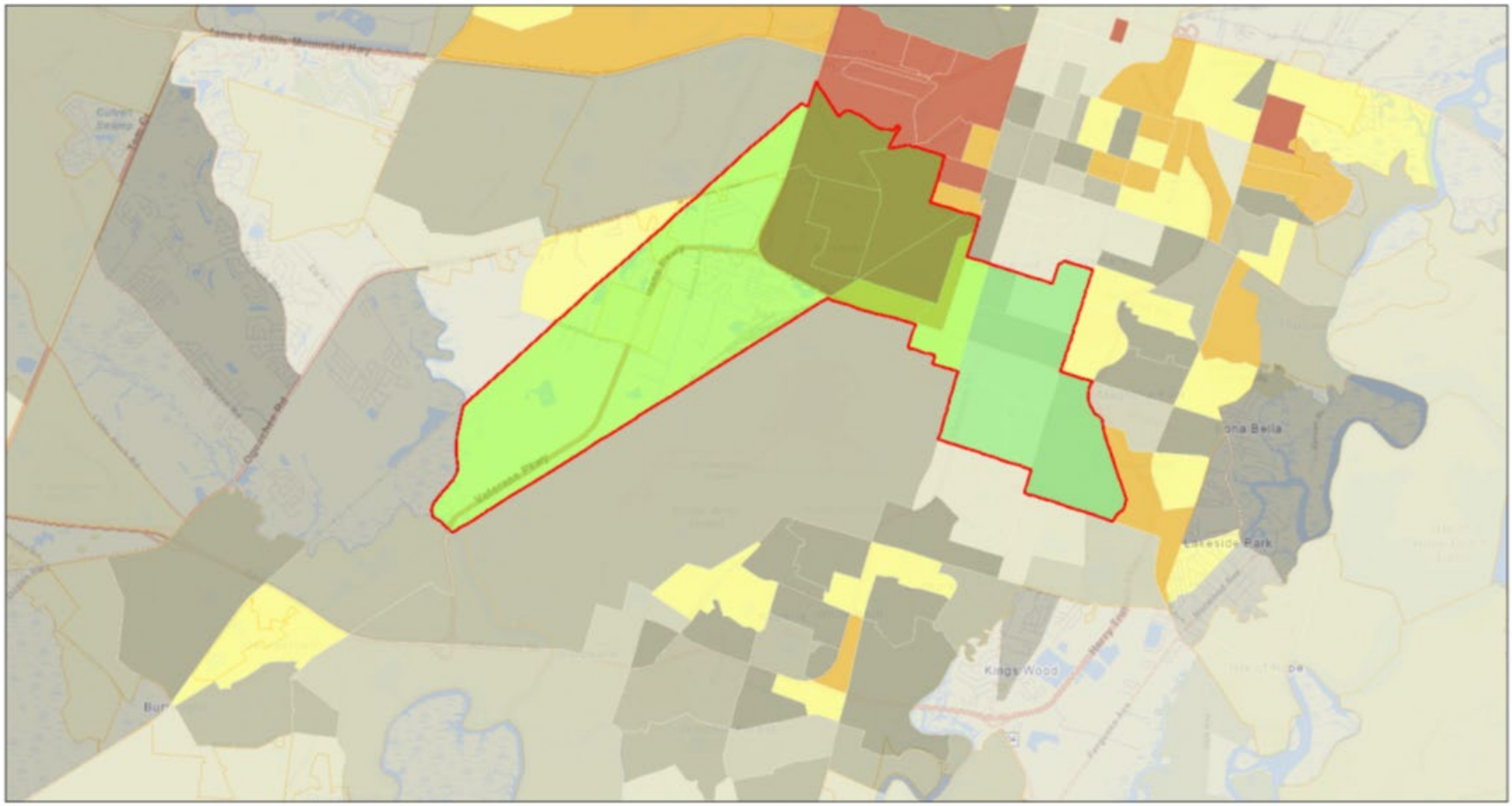


Figure 19: Households in the Study Area without Access to Vehicles.

Households without Vehicles			
Households without vehicles	**Total households**	**No vehicle**	**No vehicle %**
Bryan	13,048	631	4.84%
Bulloch	27,375	1,367	4.99%
Camden	19,338	854	4.42%
Chatham	108,568	8,861	8.16%
Effingham	21,172	605	2.86%
Glynn	34,119	2,480	7.27%
Liberty	23,485	1,258	5.36%
Long	5,695	204	3.58%
McIntosh	6,042	303	5.01%
Screven	5,098	473	9.28%
Source: American Community Survey 2015-2019			

Figure 20: Poverty Levels in the Study Area.

Poverty Status: Percent Below Poverty Line				
Geography	2017	2018	2019	3-Year Change
Bryan County	14.1%	14.1%	12.4%	-6.8%
Bulloch County	30.4%	28.7%	26.4%	-11.3%
Camden County	12.7%	12.9%	15.5%	24.1%
Chatham County	17.3%	15.8%	15.1%	-11.9%
Effingham County	9.6%	8.6%	8.5%	-6.1%
Glynn County	19.2%	18.3%	18.1%	-4.3%
Liberty County	16.6%	16.8%	15.9%	-5.2%
Long County	20.0%	20.0%	18.9%	-1.4%
McIntosh County	22.6%	22.3%	22.5%	-1.6%
Screven County	22.6%	22.3%	22.5%	-1.6%
Average	17.8%	16.8%	16.3%	-7.3%
Georgia	16.9%	16.0%	15.1%	-9.0%

Source: American Community Survey 2015-2019

Figure 21: Individuals Experiencing Homelessness in the Study Atrea.

Individual Experiencing Homelessness (2019)	
Geography	**Number (PIT 2019)**
Bryan County	4
Bulloch County	20
Camden County	5
Chatham County	4641
Effingham County	25
Glynn County	324
Liberty County	24
Long County	0
McIntosh County	0
Screven County	1
Total Region	5044

Source: Georgia Balance of State Continuum of Care, Chatham Savannah Authority for the Homeless

Appendix A

Resources Not Analyzed

As discussed in Chapter 3, implementation of the No Action and Proposed Action alternatives had the potential to result in impacts to Air Quality, Biological Resources, Hazardous Materials and Waste, Human Health and Safety, Land Use, Noise, Socioeconomics and Environmental Justice, Transportation and Traffic, and Water Resources, and these resources are discussed in detail in the Draft EA. Preliminary analysis predicted no impacts to Cultural Resources, Earth Resources, or Utilities. The basis for excluding these resources is discussed below.

Cultural Resources Management (CRM). Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. The Installation's Integrated Cultural Resources Management Plan (ICRMP) incorporates cultural resource laws and regulations into an internal document outlining how Fort Stewart manages its cultural resources. Both the proposed action and its alternative would be implemented at the WAAF Airfield District. WAAF Airfield District was previously surveyed for cultural resources, during which time no sites potentially eligible for the National Register of Historic Places were identified. Therefore, this resource is not carried forward for further analysis.

Recreation & Visual Resources. Recreational opportunities on Fort Stewart are abundant and include hunting, fishing, and camping. Visual resources include the natural and manmade physical features that give a particular landscape its aesthetic character and value. At present, the B-3 Battle Area is utilized for military training only and is not utilized for recreation or its visual resources. Although additional tree removal will occur, it will not detract from the existing viewshed and overall aesthetics at this location, which will remain a forested training land environment, negating potential impacts to these resources as a result of the proposed action. Under the No Action Alternative, no impacts will occur to these resources as no tree removal or other landscape altering activities will occur. Therefore, this is not carried forward for further analysis.

Utilities. The Installation adheres to policies set forth under Army Regulations 420-1 (Army Facilities Management), which raises the bar for Federal leadership and performance. All systems (privatized or not) are capable of meeting the demands of existing and anticipated future development discussed within this EA. The proposed actions in this EA and their impacts to Energy, Communications, Potable Water, Wastewater, and Stormwater will be undertaken under the policies set forth under the Army Facilities Management Plan. Therefore, this resource is not carried forward for further analysis.

Appendix B

MCRA ALP and WAAF
ADP

FINAL

FORT STEWART

WRIGHT ARMY AIRFIELD DISTRICT AREA DEVELOPMENT PLAN







OCTOBER 2019

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Fort Stewart

Wright Army Airfield District Area Development Plan

Prepared By:

AECOM

Funded and Managed By:

Headquarters, Installation Management Command

Under Contract To:

US Army Corps of Engineers, Mobile District

Contract No. W91278-18-F-0453

US Army Corps of Engineers®

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PART I
EXECUTIVE SUMMARY



Heavy Lift Operations at Wright Army Airfield
Source: army.mil

Area Development Planning

Real Property Master Plan

The United States (US) Army is responsible for managing millions of acres of land and billions of dollars in facilities and infrastructure worldwide. Installations achieve effective long-term management of these resources through a comprehensive and collaborative planning process that results in a Real Property Master Plan (RPMP).

The RPMP supports sustainable installation development that meets mission and environmental requirements, and establishes planning philosophies and strategies applicable across the US Army. The document is a flexible road map that permits installation expansion, reduction, and operational change, while ensuring that assets meet long-term mission requirements. A well-prepared RPMP expresses a 20-year planning framework for a high quality, sustainable, and enduring installation.

Unified Facilities Criteria

Unified Facilities Criteria (UFC) 2-100-01 Installation Master Planning sets a consistent approach for master planning across the Department of Defense (DoD), while Army Regulation (AR) 420-1 *Army Facilities Management*, Chapter 10, offers specific guidance for US Army installations.

Fort Stewart

The *Fort Stewart Real Property Vision Plan* (November 2014) divided the installation into identifiable and connected planning districts based on geographical features, land use patterns, building types, and transportation networks. Planning districts allow for a focused analysis of needs based on mission requirements, physical characteristics, and command priorities. As part of the Long-Range Component, installations prepare Area Development Plans (ADPs) for each planning district. ADPs follow an iterative and collaborative planning process. The Wright Army Airfield (WAAF) District (also referred to as District) ADP includes the following components:

- Analysis of Real Property Vision, Goals, and Objectives
- Analysis of Existing Conditions
- Analysis of Planning Standards
- Development and Evaluation of Alternatives
- Fully Developed Preferred Alternative
- Preparation of Regulating Plan/Form-Based Code
- Illustrative Plan
- Implementation Plan

REAL PROPERTY MASTER PLAN PROCESS AND PRODUCTS

1. DEVELOP VISION PLAN		
Vision, Goals, Objectives	Framework Plan	Network & Green Infrastructure Plans

2. PREPARE INSTALLATION PLANNING STANDARDS		
Building Standards	Street Standards	Landscape Standards

3. UPDATE LONG-RANGE COMPONENT		
Area Development Plans For Each District in the Framework Plan		
Constraints and Opportunities Maps		
Illustrative Plan	Regulating Plan	Street and Transit Plan
Green Infrastructure Plan	Sidewalk and Bikeway Plan	Primary Utility Plan

4. DOCUMENT CAPITAL INVESTMENT STRATEGY (CIS)		
Project Lists	Analysis of Requirements	Future Development Plan

5. CREATE PLAN SUMMARY			
Vision Plan	ADP Executive Summaries	Network Plans	CIS Executive Summary

Fort Stewart Vision and Goals

During the Fort Stewart Real Property Vision Workshop, held in April 2014, stakeholders focused on creating a real property installation Vision and Goals that would provide a foundation for further planning at the district level. Fort Stewart's Vision and Goals are in compliance with UFC-2-100-01 and are listed below.

Fort Stewart's Real Property Planning Vision:

*Support Fort Stewart's training mission and power projection capabilities by creating a **sustainable community** with well-defined **town centers** and other **walkable campuses** connected by public spaces and quality **multimodal transportation** and pedestrian networks while maintaining its **southern coastal identity.***

From the Planning Vision, five Real Property Planning Goals emerged to guide the development process. Each Goal was further defined to provide meaningful guidance in implementing the Real Property Vision.

1. **Sustainable Community –** Provide multi-use, high performance buildings developed with low impact on the environment and promote preservation of green space with appropriately landscaped parking.
2. **Walkable Campuses –** Create a network of walkable campuses that are safe, secure, and in convenient proximity to a variety of compact facilities through streetscape, paths, and courtyards.
3. **Town Centers –** Create a series of pedestrian-oriented town centers modeled after traditional historic Savannah town squares that provide a number of services to Soldiers, their families, and the civilian workforce.
4. **Multimodal Transportation –** Improve existing transportation network systems and rail marshaling for deployments of 3rd Infantry Division assets by creating a regional park and ride system that connects to troops and pedestrians through the use of bikeways, bus ways, rails, and other forms of public transportation in support of regional, community, and local assets.
5. **Southern Coastal Identity –** Preserve the southern coastal identity by incorporating architectural elements, styles, and landscaping, by using long-established flora while protecting indigenous fauna.



MidCoast Regional Airport Terminal



Taxiway and Apron



Building 7707

Wright Army Airfield District Planning Overview

The WAAF District ADP is a critical component of the consolidated master plan for Fort Stewart, Georgia. A planning workshop was held 05 – 08 March 2019 to craft a long-range development plan for the District, consistent with the overall Real Property Vision of Fort Stewart. The workshop focused on future development that supports the current aviation mission and identifies growth opportunities, while maintaining a collaborative partnership with the MidCoast Regional Airport.

More than 20 people from various user groups in the District attended the first-day session, including staff or representatives from:

- Directorate of Public Works (DPW)
- 3rd Combat Aviation Brigade
- 3rd Infantry Division
- Directorate of Plans, Training, Mobilization and Security (DPTMS) Airfield Division
- Liberty County
- City of Hinesville
- Fire Department

The Acknowledgements section contains a complete list of attendees.

The workshop kicked off with a discussion of the Vision Plan, long-range development, and existing constraints, with insight provided on the master planning needs of Fort Stewart and the WAAF District. Following this introduction, the facilitator presented US Army master planning principles, including sustainable planning, resource management, defensible planning, healthy community planning, capacity planning, area development planning, network planning, form-based planning, facility standardization, and plan-based programming.

Workshop attendees participated in an exercise to identify the WAAF District's strengths, weaknesses, opportunities, and threats (SWOT). Stakeholders also worked collaboratively to analyze existing conditions, create concept maps depicting common themes, craft a guiding real property Vision statement for the District, develop long-range alternatives, and select and refine a preferred alternative.



WAAF District Facilities

Wright Army Airfield District Vision and Goals

The WAAF District ADP workshop took place on 05 - 08 March 2019. Throughout the workshop, stakeholders focused on creating a Vision and Goals to guide future planning within the District.

WAAF District Planning Vision:

The US Army's preeminent joint use airfield, ***advancing the Nation's training, readiness, and power projection*** *capabilities through* ***modern, sustainable facilities and infrastructure,*** *while enhancing* ***expanded DoD*** *and* ***regional aviation opportunities.***

From this planning Vision, four planning Goals emerged to guide the development process:

1 **Advance Training, Readiness, and Power Projection –** Increase airfield functionality, safety, and available capacity and maximize functional performance of aviation-dependent operations.

2 **Implement Modern, Sustainable Facilities and Infrastructure –** Construct modern, flexible facilities that can adapt to a wide range of aviation-related uses and training demands and offer amenities to support a growing mission community.

3 **Support Expanded DoD Opportunities –** Identify growth areas and facilities to support deployment capabilities, additional training and readiness elements, and an expansion of the UAS mission.

4 **Support Expanded Regional Aviation Opportunities –** Build on military and civilian partnership to enhance the capabilities, visibility, and strategic positioning of both DoD operations and general aviation in Southeast Georgia.

WAAF District

KEY ASSUMPTIONS

1. The study area for this analysis is limited to the WAAF District boundary.
2. Compatible development will consolidate into compact areas to maximize flexibility and efficiency in the use of land.
3. Demolition will focus on poor condition facilities to reduce the footprint and free up land for potential redevelopment opportunities.
4. Development will follow existing AT/FP guidance.
5. New development will occur within the District boundary but outside of areas with critical natural, cultural, or mission constraints.
6. New projects will align with the Regulating Plan and building envelope standards.



Stakeholders Discuss Existing Buildings

Planning Objectives

Planning Objectives offer clear, measurable guidance in creating a functional, sustainable, high quality setting.

The WAAF District Vision, Goals, and Objectives work in concert to achieve a desired development pattern that reflects the installation's mission, existing conditions within the District, and the overall Fort Stewart Real Property Vision.



Aging Infrastructure in the WAAF District

Goal 1: Advance Training, Readiness, and Power Projection

- Enhance Airfield Capabilities
- Consolidate and Organize Placement of Uses to Maximize Efficiency and Security

Goal 2: Implement Modern, Sustainable Facilities and Infrastructure

- Construct Flexible, Functional, Modern Facilities
- Enhance Quality of Life Amenities in Conjunction with Planned Growth

Goal 3: Support Expanded DoD Opportunities

- Preserve Areas for Future Mission Growth

Goal 4: Support Expanded Regional Aviation Opportunities

- Integrate Partners and Mission

Preferred Alternative

Participants worked in groups to prepare two alternatives for future development of the WAAF District, consistent with the District Vision and Goals. Following evaluation, stakeholders reviewed the lower-ranked alternative to identify elements that should carry forward to the Preferred Plan. The Preferred Plan for the District combines the best ideas and common themes of each scenario.

The Preferred Plan addresses current facility and infrastructure deficiencies by proposing the demolition or renovation of aging and obsolete structures; repairs or construction of airfield pavement, including runways, aprons, taxiways, and overruns; the removal of unused interior runways in disrepair; the replacement of airfield signage and lighting; the installation of an Instrument Landing System (ILS); and construction of a replacement Air Traffic Control (ATC) tower.

Beyond improving the safety and function of existing facilities, the plan proposes projects that will expand training and readiness capabilities, including the construction of hangars and related infrastructure on the north side of the airfield to accommodate aviation battalion complexes and Gray Eagle Unmanned Aircraft System (UAS) mission growth. A development opportunity offers a visible, prominent site for a new Brigade Headquarters. Construction of a new UFC-compliant 24-hour manned Access Control Point (ACP) on the west side of the airfield, at Fort Stewart Road and Gray Eagle Road, will enhance airfield access and security. Improvements to the pedestrian circulation network and addition of a shoppette will improve the quality of life for those who work and train in the District.

The Preferred Plan also embraces the strong partnership between Fort Stewart and MidCoast Regional Airport. An expanded Exclusive Civil Lease Area offers opportunities for compatible airfield-related uses.

GOAL 1: ADVANCE TRAINING, READINESS, AND POWER PROJECTION

The Preferred Plan includes projects that meet WAAF's existing mission, and expand its deployment and training capabilities. New hangars and support facilities along the flightline will accommodate growth in the Gray Eagle UAS mission and any incoming aviation battalions. Expansion and construction of runways, taxiways, aprons and an ILS will allow WAAF to function as a secondary option for troop deployment from Fort Stewart and support C-17 aircraft for training operations.

GOAL 2: IMPLEMENT MODERN, SUSTAINABLE FACILITIES, AND INFRASTRUCTURE

The Preferred Plan includes projects that update and replace aging facilities and infrastructure within the District. The demolition of existing obsolete and failing facilities will create space for the construction of modern facilities in consolidated, functionally aligned areas. Modern support facilities, such as a fire station and ATC tower, will improve safety and expand capabilities at the airfield.

GOAL 3: SUPPORT EXPANDED DOD OPPORTUNITIES

New hangars and associated support infrastructure allow for the growth of the existing mission at WAAF. Additional space on the flightline will give Fort Stewart the ability to add new training and readiness elements or attract new battalions. The construction of new runways, taxiways, aprons, and cargo pads also will support Fort Stewart as it builds capabilities to become a recognized CTC on the East Coast.

GOAL 4: SUPPORT EXPANDED REGIONAL AVIATION OPPORTUNITIES

The Preferred Alternative includes the renovation of existing taxiways and runways to improve the Pavement Condition Number (PCN) that would allow for increased load carrying capacity, as well as the construction of new runway extensions, aprons, and cargo pads to allow for the expansion of aviation opportunities for both the US Army and MidCoast Regional Airport. Additional paved space at WAAF, along with construction of the new ATC tower and fire station, will offer benefits in safety and efficiency for regional aviation.

Preferred Alternative – Illustrative Plan

The illustrative plan above demonstrates one possible alternative that incorporates the approaches, planning Goals, and Objectives that were derived from the workshop.

Image Redacted for Operation Security.

The illustrative plan above demonstrates one possible alternative that incorporates the approaches, planning Goals, and Objectives that were derived from the workshop.

Project List

Illustrative Plan ID	Project Name	Project Description	Units/ Organizations Affected	Regulating Plan Designation
A	Execute Existing Reconstruction of Apron and Bravo Taxiway Project	Reconstruction of 19,444 square yards of the Bravo Taxiway due to poor pavement condition. Reconstruction of 44,444 square yards of Bravo Apron to expand laydown and storage capabilities.	Military/General Aviation Users	Airfield
B	Execute Existing Replacement of Airfield Signage and Lighting Project	Execute existing replacement of airfield signage and lighting project.	Military/General Aviation Users	Airfield
C	Construct Hazardous Cargo Pad	Construction of a 26,111-square-yards hazardous cargo pad to increase mission capabilities for Echo Taxiway. Repaving 10,556 square yards for heavy aircraft.	Multiple Military Users	Airfield
D	Construct Overruns	Construction of three 150-foot by 250-foot paved overruns to increase aviation safety. The total new overrun pavement will be 12,500 square yards.	Military/General Aviation Users	Airfield
E	Renovate Transient Ramp for Refueling	Renovation of 11,222 square yards of transient ramp for refueling. Installation of 14 "hot pits" (underground fuel storage) for the Aircraft Direct Fueling Facility.	Multiple Military Users	Airfield
F	Re-route Tank Trail	Re-routing of tank trail from its existing alignment to a route away from the runway and outside of the Accident Potential Zone (APZ).	3rd Infantry Division	Open Space
G	Install ILS	Installation of ILS.	Military/General Aviation Users	Airfield
H	Demolish WWII-era Bldgs.	Demolition of six World War II (WWII)-era wood-framed buildings south of the airfield to allow for the construction of future Brigade Headquarters (see Project AA): Bldg. 7706 (2,765 square feet), Bldg. 7707 (2,567 square feet), Bldg. 7708 (2,698 square feet), Bldg. 7709 (3,114 square feet), Bldg. 7711 (3,105 square feet), Bldg. 7711A (584 square feet), and Bldg. 7712 (2,981 square feet).	ASOS	Flex-Use
I	Repair Runway 33R/15L (PCN)	Repair and reconstruction of the south end of the 33Right (33R)/15Left (15L) runway, including 13,889 square yards of renovated runway pavement.	Military/General Aviation Users	Airfield
J	Install Fencing	Installation of 11,500 linear feet of new security fencing around airfield.	District-wide	Airport Operations/ Open Space
K	Remove Interior Runways (6R and 33L)	Removal of unused interior runways 6Right (6R) and 33Left (33L). A total of 61,111 square yards of runway pavement will be removed.	Military/General Aviation Users	Airfield
L	Demolish Bldgs. 7734, 7738, 7739 (Small Storage)	Demolition of three, small, concrete masonry unity (CMU) storage buildings: Bldg. 7734 (1,206 square feet), Bldg. 7738 (565 square feet), and Bldg. 7739 (1,024 square feet).	Multiple Military Users	Airfield Support

Project List (Continued)

Illustrative Plan ID	Project Name	Project Description	Units/ Organizations Affected	Regulating Plan Designation
M	Renovate Bldg. 7733 (Hangar)	Renovation of 9,655-square-foot, steel rotary aircraft hangar (Bldg. 7733).	Multiple Military Users	Airfield Operations
N	Demolish VIP Bldg. 7730	Demolition of 651-square-foot CMU VIP building (Bldg. 7730).	Multiple Military Users	Airfield Operations
O	Construct ACP	Construction of a new two-lane ACP with a vehicle inspection station and 1,500-square-foot steel canopy along Gray Eagle Road near Fort Stewart Road to improve security within the District. Project will include road improvements (11,111 square yards of pavement) around the airfield and the closing of the existing airfield ACP at Wright Field Road.	District-wide	Airfield Support
P	Construct ATC Tower	Construction of a new ten-story, 100-foot by 100-foot ATC tower near the Charlie Taxiway. This will replace the existing ATC tower (Bldg. 7754). The project will also include a 100-foot by 150-foot Terminal Radar Approach Control (TRACON) facility.	Military/General Aviation Users	Airfield Operations
Q	Construct Fire Station	Construction of a new 25,000-square-foot fire station to serve the airfield, along the Bravo Taxiway and Wright Field Road. The new fire station will hold a minimum of two fire engines. This will replace the current Fire Station (Bldg. 7703).	Military/General Aviation Users	Airfield Operations
R	Renovate Bldg. 7718 (Readiness Facility)	Renovation of 4,000-square-foot, steel-frame Bldg. 7718 (Readiness Facility).	Multiple Military Users	Flex-Use
S	Renovate Bldg. 7704 (Hangar)	Renovation of 8,112-square-foot Bldg. 7704 (aircraft hangar). The building will be a steel frame structure with corrugated metal siding.	Multiple Military Users	Airfield Operations
T	Renovate Bldgs. 7723 (POL Shed), 7727	Renovation of two, small buildings: 485-square-foot, wood-framed Bldg. 7723 (petroleum, oil, and lubricants [POL] shed), and 600-square-foot, prefabricated Bldg. 7727 with wood studs and stucco finish.	Multiple Military Users	Airfield Operations
U	Renovate Bldgs. 7705, 7731, 7732, 7755 (Water Well System)	Renovation of water well system buildings 7705, 7731, 7732, and 7755.	District-wide	Flex-Use
V	Renovate Wastewater Treatment Facilities	Renovation of the existing wastewater treatment facilities, including the oxidation lagoons.	District-wide	Flex-Use

Project List (Continued)

Illustrative Plan ID	Project Name	Project Description	Units/ Organizations Affected	Regulating Plan Designation
W	Construct Facilities for Aviation Battalion Complex	Construction of a 60,000-square-foot assault hangar, a 25,000-square-foot CMU support structure, and 16,000-square-foot CMU support structure for an incoming battalion. The project includes 66,667 square yards of apron pavement.	3rd Combat Aviation Brigade	Airfield Operations/ Airfield Support
X	Construct Facilities for Aviation Battalion Complex	Construction of a 60,000-square-foot assault hangar, a 25,000-square-foot CMU support structure, 16,000-square-foot CMU support structure, and supporting infrastructure for an incoming aviation battalion. The project includes 66,667 square yards of apron pavement.	3rd Combat Aviation Brigade	Airfield Operations/ Airfield Support
Y	Construct Facilities for Aviation Battalion Complex	Construct a new 131,036-square-foot aviation support battalion maintenance hangar and two 25,000-square-foot CMU support structures (Motor Pool Building and Administration Building) for an incoming aviation battalion. The project includes 166,667 square yards of apron pavement and 11,111 square yards of parking area.	3rd Combat Aviation Brigade	Airfield Operations/ Airfield Support
Z	Extend and Renovate Delta Taxiway	Extension of Delta Taxiway (53,889 square yards of pavement) and retrofit of existing runway (44,444 square yards) to accommodate future aviation battalion growth and proposed hangar construction.	3rd Combat Aviation Brigade	Airfield
AA	Construct Brigade Headquarters	Construction of new 138,000-square-foot CMU Brigade Headquarters south of the airfield.	Multiple Military Users	Flex-Use
BB	Construct Shoppette	Construction of new 10,000-square-foot shoppette near the proposed ACP and hangars to provide food options for airfield personnel. The project includes 4,444 square yards of pavement.	District-wide	Flex-Use

Regulating Plan

Image Redacted for Operation Security.

The Regulating Plan creates layered access with Airfield Operations receiving priority for direct adjacency to the flightline. Most Flex-Use and Airfield Support areas then form an outer tier. The Regulating Plan preserves areas of open space and establishes building heights to ensure adequate vertical clearance in transitional surfaces associated with the runways. The Regulating Plan also expands the Exclusive Civil Lease Area to promote compatible joint use development opportunities associated with MidCoast Regional Airport.



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PART II
PLANNING



Operations Exercises at Wright Army Airfield
Source: army.mil

Planning Scope

The US Army at WAAF participates in a Joint Management Board along with the City of Hinesville, the Liberty County Board of Commissioners, and the Liberty County Development Authority. The Joint Management Board oversees airfield operations for military and civilian use. WAAF features one 6,500-foot by 100-foot paved runway -Runway 6Left (6L)/24Right (24R) and one 5000-foot by 100-foot paved runway - Runway 15Left (15L)/33Right (33R) - and two shorter parallel runways formerly used for smaller fixed wing aircraft and rotary wing operations but currently closed due to degraded pavements. The current runway capacity for Runway 6L-24R is adequate for large military aircraft and handles routine C-130 and periodic C-17 military aircraft operations. The US Army maintains and operates the airfield's ATC tower, while a fixed-base operator (FBO), Volo Aviation, offers support services, such as aircraft storage, flight planning, and fueling for general aviation users. A 13,825-square-foot terminal building houses the FBO and a military operations building, leased by the US Army Corps of Engineers (USACE).

The west side of WAAF accommodates the Gray Eagle UAS of Company E, 1st Battalion, 3rd Aviation Regiment, 3rd Combat Aviation Brigade. In addition to its aviation-based mission, the District supports the 15th Air Support Operations Squadron (ASOS).

At the outset of the workshop, stakeholders highlighted key planning priorities listed below to guide the ADP process.

- Identify opportunities to deploy personnel and equipment and host additional training elements.
- Preserve, consolidate, and rationalize space within WAAF for aviation-dependent missions.
- Enhance overall airfield capabilities, including support for large aircraft.
- Continue the cooperative joint use effort between the US Army and community stakeholders, and balance opportunities for growth in the DoD mission and regional general aviation.

The Garrison Commander, COL Jason A. Wolter, received a briefing on the Preferred Alternative for development of the District. He reinforced the general planning themes expressed by stakeholders with an emphasis on identifying mission growth opportunities, including increasing the airfield's deployment capabilities and accommodating expansion of Gray Eagle UAS operations.

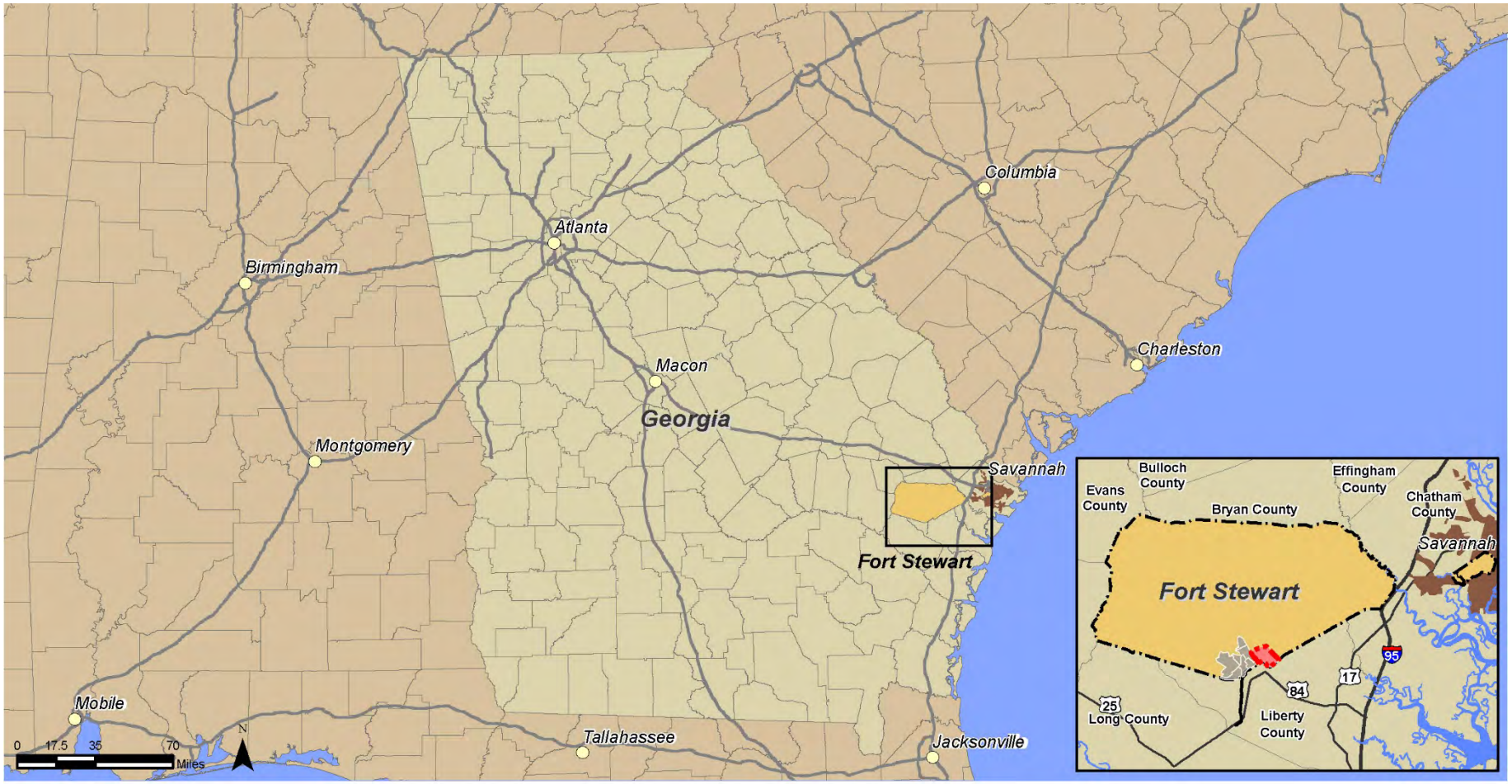


Stakeholders Tour Wright Army Airfield



Activity Mapping

Study Area – Vicinity Map



Fort Stewart Vicinity

Fort Stewart is in coastal Georgia, 40 miles southwest of the city of Savannah. The installation is adjacent to the city of Hinesville and lies primarily in Bryan and Liberty Counties. A rural, wooded landscape, with wetlands and other low-lying areas surrounds the installation's 280,000 acres.

Fort Stewart is the largest US Army installation east of the Mississippi River and is home to the 3rd Infantry Division. The installation's size, terrain, climate, and proximity to the Atlantic Coast add significant strategic value. The installation uses the deep-water Port of Savannah and Hunter Army Airfield (HAAF), both in Savannah, for training, mission, and power projection purposes. Fort Stewart has grown significantly since the 2005 Base Realignment and Closure mandates, with a total Soldier population of over 20,000 and 30,000 family members.

LEGEND

- Installation Boundary
- District Boundary
- Other District Boundary
- Interstate
- US / State Highway
- Water Body
- City
- County

Study Area – Wright Army Airfield District

Image Redacted for Operation Security.

During the Fort Stewart Real Property Vision Plan workshop (November 2014), stakeholders organized the installation into eight distinct planning districts, reflecting mission, land uses, activity centers, pathways, landmarks, and edges.

The WAAF District encompasses 2,498 acres in the southern portion of Fort Stewart, approximately 3 miles from the main gate along Fort Stewart Road and Old Sunbury Road. The airfield functions as a joint military and public use airport, known as the MidCoast Regional Airport. A Joint Management Board consisting of the City of Hinesville, Liberty County, and the US Army manages airfield facilities.

Workshop Overview

From 05 – 08 March 2019, Fort Stewart held a four-day ADP Workshop to define a district planning Vision and identify capacity for future development of the WAAF District.

Day 1:

The workshop began with an introduction from the consultant team, followed by a discussion of goals and expectations. Participants reviewed US Army planning practices for creating an effective, sustainable, and compatible vision for the District. Stakeholders then analyzed the WAAF District's SWOT and distilled results into concept maps that graphically depict main themes.

The first day concluded with a field survey of the District and a review of the existing constraints. The consultant team and participants observed military operations and general aviation activity on the flightline from the MidCoast Airport terminal. Participants split into groups to document the exterior conditions of buildings, airfield pavement, and streets. They also noted attractive and unattractive features (rights and blights) in the District. Participants created maps to reflect survey results and then briefed the overall findings.

Workshop participants then reviewed operational, land use, natural resources, and utilities maps to verify constraints and identify areas of potential growth. Team members drew on the observations and results from Day 1 to inform later planning decisions in the workshop.

Day 2:

The second day began with a review of the results from the field survey, building and pavement assessments, and constraints discussions. Using the results generated from these activities and the SWOT analysis, workshop participants developed a Real Property Vision specific to the WAAF District. Stakeholders also developed goals to implement each component of the Vision statement.

Participants then split into two groups to develop District alternatives, each with a specific emphasis. Working within the parameters of the respective scenarios, the teams prepared separate alternative development plans.

Upon completion of the alternative development exercise, teams briefed the overall group on their proposed projects and discussed common themes, strengths, and weaknesses. Participants then analyzed each alternative by rating its ability to advance the District's Vision and Goals.



Stakeholders Identify Projects



SWOT Analysis

Workshop Overview (Continued)

Day 3:

Based on the evaluation results, stakeholders selected an alternative as the base and created a Preferred Plan that combined aspects of the two alternatives. The consultant team then worked with DPW staff to develop the phasing of the Preferred Plan projects and prepare the Regulating Plan for the District. During this step, the team identified areas to preserve for future mission growth, which informed development of the Capacity Plan.

Day 4:

Workshop participants led an outbrief of the week's efforts, addressed questions, and received input on the plans.



SWOT Analysis



Presenting the SWOT Analysis

Workshop Schedule

<table>
<tr><th></th><th>TUESDAY</th><th>WEDNESDAY</th><th>THURSDAY</th><th>FRIDAY</th></tr>
<tr><th></th><th>5 March 19</th><th>6 March 19</th><th>7 March 19</th><th>8 March 19</th></tr>
<tr><td>0900 - 0930</td><td rowspan="2">Inbrief – Introductions, Purpose, and Overview
Leadership Direction</td><td rowspan="2">District Vision Statement and Goals</td><td rowspan="3">Developing a Preferred Plan</td><td>Outbrief Preparation</td></tr>
<tr><td>0930 - 1000</td><td rowspan="2">Outbrief @ 0930</td></tr>
<tr><td>1000 - 1030</td><td>SWOT</td><td rowspan="3">Developing Alternatives</td></tr>
<tr><td>1030 - 1100</td><td>Army Planning Principles</td><td rowspan="6"></td></tr>
<tr><td>1100 - 1130</td><td rowspan="3">SWOT Concept Mapping</td><td rowspan="2">Phasing Plan
Making the Regulating Plan</td></tr>
<tr><td>1130 - 1200</td></tr>
<tr><td>1200 - 1230</td><td rowspan="2">Lunch</td><td rowspan="2">Lunch</td><td rowspan="2">Lunch</td></tr>
<tr><td>1230 - 1300</td></tr>
<tr><td>1300 - 1330</td><td rowspan="3">Field Survey
Rights and Blights
Street and Building Assessment</td><td rowspan="3">Outbrief Alternatives</td><td rowspan="5">Planning Team/DPW:
Finalize the Phasing Plan
Finalize the Regulating Plan</td></tr>
<tr><td>1330 - 1400</td></tr>
<tr><td>1400 - 1430</td></tr>
<tr><td>1430 - 1500</td><td rowspan="3">Constraints Review</td><td rowspan="3">Analyzing Alternatives</td></tr>
<tr><td>1500 – 1530</td></tr>
<tr><td>1530 - 1600</td></tr>
</table>

Fort Stewart Vision and Goals

During the Fort Stewart Real Property Vision Workshop, held in April 2014, stakeholders focused on creating a real property installation Vision and Goals that would provide a foundation for further planning at the district level. Fort Stewart's Vision and Goals are in compliance with UFC-2-100-01 and are listed below.

Fort Stewart's Real Property Planning Vision:

*Support Fort Stewart's training mission and power projection capabilities by creating a **sustainable community** with well-defined **town centers** and other **walkable campuses** connected by public spaces and quality **multimodal transportation** and pedestrian networks while maintaining its **southern coastal identity.***

From the Planning Vision, five Real Property Planning Goals emerged to guide the development process. Each Goal was further defined to provide meaningful guidance in implementing the Real Property Vision.

1. **Sustainable Community –** Provide multi-use, high performance buildings developed with low impact on the environment and promote preservation of green space with appropriately landscaped parking.
2. **Walkable Campuses –** Create a network of walkable campuses that are safe, secure, and in convenient proximity to a variety of compact facilities through streetscape, paths, and courtyards.
3. **Town Centers –** Create a series of pedestrian-oriented town centers modeled after traditional historic Savannah town squares that provide a number of services to Soldiers, their families, and the civilian workforce.
4. **Multimodal Transportation –** Improve existing transportation network systems and rail marshaling for deployments of 3rd Infantry Division assets by creating a regional park and ride system that connects to troops and pedestrians through the use of bikeways, bus ways, rails, and other forms of public transportation in support of regional, community, and local assets.
5. **Southern Coastal Identity –** Preserve the southern coastal identity by incorporating architectural elements, styles, and landscaping, by using long-established flora while protecting indigenous fauna.



MidCoast Regional Airport Terminal



Taxiway and Apron



Building 7707

Wright Army Airfield District Vision and Goals

The WAAF District ADP workshop took place on 05 - 08 March 2019. Throughout the workshop, stakeholders focused on creating a Vision and Goals to guide future planning within the District.

WAAF District Planning Vision:

The US Army's preeminent joint use airfield, ***advancing the Nation's training, readiness, and power projection*** *capabilities through* ***modern, sustainable facilities and infrastructure,*** *while enhancing* ***expanded DoD*** *and* ***regional aviation opportunities.***

From this planning Vision, four planning Goals emerged to guide the development process:

1 **Advance Training, Readiness, and Power Projection –** Increase airfield functionality, safety, and available capacity and maximize functional performance of aviation-dependent operations.

2 **Implement Modern, Sustainable Facilities and Infrastructure –** Construct modern, flexible facilities that can adapt to a wide range of aviation-related uses and training demands and offer amenities to support a growing mission community.

3 **Support Expanded DoD Opportunities –** Identify growth areas and facilities to support deployment capabilities, additional training and readiness elements, and an expansion of the UAS mission.

4 **Support Expanded Regional Aviation Opportunities –** Build on military and civilian partnership to enhance the capabilities, visibility, and strategic positioning of both DoD operations and general aviation in Southeast Georgia.

WAAF District

KEY ASSUMPTIONS

1. The study area for this analysis is limited to the WAAF District boundary.
2. Compatible development will consolidate into compact areas to maximize flexibility and efficiency in the use of land.
3. Demolition will focus on poor condition facilities to reduce the footprint and free up land for potential redevelopment opportunities.
4. Development will follow existing AT/FP guidance.
5. New development will occur within the District boundary but outside of areas with critical natural, cultural, or mission constraints.
6. New projects will align with the Regulating Plan and building envelope standards.



Stakeholders Discuss Existing Buildings

Planning Objectives

Planning Objectives offer clear, measurable guidance in creating a functional, sustainable, high quality setting.

The WAAF District Vision, Goals, and Objectives work in concert to achieve a desired development pattern that reflects the installation's mission, existing conditions within the District, and the overall Fort Stewart Real Property Vision.



Aging Infrastructure in the WAAF District

Goal 1: Advance Training, Readiness, and Power Projection

- Enhance Airfield Capabilities
- Consolidate and Organize Placement of Uses to Maximize Efficiency and Security

Goal 2: Implement Modern, Sustainable Facilities and Infrastructure

- Construct Flexible, Functional, Modern Facilities
- Enhance Quality of Life Amenities in Conjunction with Planned Growth

Goal 3: Support Expanded DoD Opportunities

- Preserve Areas for Future Mission Growth

Goal 4: Support Expanded Regional Aviation Opportunities

- Integrate Partners and Mission

Goal 1: Advance Training, Readiness, and Power Projection

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- Integrate Partners and Mission



National Guard Training at WAAF


Aging Airfield Support Facilities

Enhance Airfield Capabilities

The District's airfield assets are essential in supporting the training and readiness operations of Fort Stewart's aviation-based units and other partners. The primary focus of this objective is increasing airfield safety, functionality, and available capacity to accommodate a broader mix of rotary, fixed wing and UAS aircraft, including heavier aircraft, such as the C-17. While HAAF, with its longer runway, will remain the primary Power Projection Platform for the 3rd Infantry Division, an enhanced WAAF will offer deployment of personnel and equipment in the event of contingency operations, and will support additional training and readiness activities for Fort Stewart units, tenants, and other agency partners, such as the Federal Emergency Management Agency.

Investments address current asset deficiencies with the programmed reconstruction of the Bravo Taxiway and apron, removal of interior runways in disuse and disrepair, an increased load-carrying capacity of the runway, paving of overruns, and the addition of a hazardous cargo pad. Additional projects upgrade airfield signage and lighting, the ILS, and ATC tower.

Consolidate and Organize Placement of Uses to Maximize Efficiency and Security

The organization of compatible uses maximizes functional performance and conserves valuable airside access for aviation-dependent operations. Given that WAAF operates as a joint use facility, it is critical that the airfield's layout adequately separates military and civilian activities. Planning should also prioritize direct adjacency to the flightline for aviation missions with secondary landside access for support functions. Several planning actions will minimize potential conflicts between the airfield's existing uses and will expand the functional capacity of DoD operations. The new ACP to the west will establish enhanced, AT/FP-compliant connectivity to the main installation, while more clearly delineating WAAF and MidCoast general aviation operations. The demolition of aging structures and the construction of new facilities will create a consolidated and more functionally aligned footprint for airfield support, operations, and maintenance uses. The re-routing of the tank trail away from the runway and outside of the Accident Potential Zone II increases safe operational space.

Planning Goal 2 *Implement Modern, Sustainable Facilities and Infrastructure*

Goal 1: Advance Training, Readiness, and Power Projection
- Enhance Airfield Capabilities
- Consolidate and Organize Placement of Uses to Maximize Efficiency and Security

Goal 2: Implement Modern, Sustainable Facilities and Infrastructure
- Construct Flexible, Functional, Modern Facilities
- Enhance Quality of Life Amenities in Conjunction with Planned Growth

Goal 3: Support Expanded DoD Opportunities
- Preserve Areas for Future Mission Growth

Goal 4: Support Expanded Regional Aviation Opportunities
- Integrate Partners and Mission



Hangar Planned for Renovation



New Shoppette at Fort Stewart

Construct Flexible, Functional, Modern Facilities

Given its function, the District must be equipped with modern, flexible facilities that can adapt readily to a wide and evolving set of aviation-related uses and training demands. Investments to update, modernize, and as necessary, replace aging buildings and utilities will position WAAF to expand its capacity, while meeting current mission requirements. Projects include the demolition of functionally obsolete WWII-era buildings and the renovation of other old structures. In the construction and renovation of facilities, planning should emphasize the use of modular, scalable design and layout that ease repurposing to meet mission change. Supporting infrastructure also must be adequate to accommodate proposed growth, including expansion of the Gray Eagle UAS mission on the west side of the airfield. Investments will upgrade the water well buildings and wastewater treatment system. Installation of new fence will mitigate potential security threats and wildlife encroachment.

Enhance Quality of Life Amenities in Conjunction with Planned Growth

Given its current operational capabilities, WAAF has a limited Soldier presence within the District. As proposed growth brings new aviation units to the west side, WAAF should plan for the phased development of corresponding quality of life amenities. An enhanced pedestrian network and shoppette, for example, will offer convenient mobility and food options to support a growing mission community.

Goal 1: Advance Training, Readiness, and Power Projection
- Enhance Airfield Capabilities
- Consolidate and Organize Placement of Uses to Maximize Efficiency and Security

Goal 2: Implement Modern, Sustainable Facilities and Infrastructure
- Construct Flexible, Functional, Modern Facilities
- Enhance Quality of Life Amenities in Conjunction with Planned Growth

Goal 3: Support Expanded DoD Opportunities
- Preserve Areas for Future Mission Growth

Goal 4: Support Expanded Regional Aviation Opportunities
- Integrate Partners and Mission



Training Operations at WAAF

Preserve Areas for Future Mission Growth

The District demonstrates significant growth capacity both in terms of developable land adjacent to the flightline and the airfield's strategic location within protected regional airspace. Expanded capabilities position WAAF to supplement HAAF's deployment capacity, host additional training elements, and ultimately function as a recognized Combat Training Center (CTC) responsible for the preparation of combat-ready units and leaders.

The District is available to absorb additional capacity as units returning from Europe draw down programmed space at HAAF.

The plan identifies substantial future growth footprints to the north of the runway that are capable of accommodating a new aviation brigade composed of three battalions and supporting elements. Taxiway repairs and extensions further build on the existing Gray Eagle mission to expand UAS capabilities. The plan also highlights a prominent, accessible space for a future Headquarters function.

Planning Goal 4 *Support Expanded Regional Aviation Opportunities*

Goal 1: Advance Training, Readiness, and Power Projection
- Enhance Airfield Capabilities
- Consolidate and Organize Placement of Uses to Maximize Efficiency and Security

Goal 2: Implement Modern, Sustainable Facilities and Infrastructure
- Construct Flexible, Functional, Modern Facilities
- Enhance Quality of Life Amenities in Conjunction with Planned Growth

Goal 3: Support Expanded DoD Opportunities
- Preserve Areas for Future Mission Growth

Goal 4: Support Expanded Regional Aviation Opportunities
- Integrate Partners and Mission



MidCoast Regional Airport

Integrate Partners and Mission

WAAF and MidCoast Regional Airport operate as a joint use facility. The mutually beneficial management of the airfield has improved facility quality and contributed to local economic growth. Planning should continue to build on this cooperative effort between the City of Hinesville, the Liberty County Board of Commissioners, the Liberty County Development Authority, and the US Army. Proposed improvements will enhance the capabilities, visibility, and strategic positioning of both DoD and civilian general aviation in Southeast Georgia.

The plan identifies an expanded Exclusive Civil Lease Area to the south and an adjoining area of flex-use space to accommodate airfield-related uses and services. Long-term planning should focus on minimizing any internal conflicts that result from joint use, including clear, secure separations between DoD and civilian footprints and advancing ongoing efforts to reduce any threats of external encroachment that result from residential growth in the surrounding community.



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PART III
ANALYSIS



Stakeholders Analyze Existing Building Conditions

Site Analysis Overview

During the workshop, stakeholders conducted a site analysis by visually confirming exterior building and street conditions, and documenting rights and blights to understand current conditions in the WAAF District.

Exterior Building Assessment

Analysis teams assessed the exterior conditions of buildings. This field building assessment is not an Installation Status Report analysis, but rather focuses on the long-term planning needs of the District. Field teams considered the durability of building materials, potential adaptability, and the layout of buildings. The teams also noted the building number, use, material, number of floors, and condition (function). Based on this qualitative analysis, the participants assigned a red, yellow, or green rating, which indicates the ability of the buildings to serve the long-term needs of the WAAF District. The conditions of the assigned red buildings warrant demolition within 20 years. Yellow buildings may require demolition within 20 years. Green buildings are of sufficient quality to remain functional in 20 years.

Field Street Assessment

Teams assessed the extent to which streets in the WAAF District incorporated the following elements: curbs, planting strips, sidewalks, and adequate pavement. Teams also assessed existing street dimensions to determine the need for capacity improvement, expansion, or redevelopment. Street standards identify proposed recommendations for improvements.

Rights and Blights Assessment

The teams identified rights and blights as they surveyed the District. Blights are unsightly conditions that require correction, while rights are positive visual or functional elements that should be maintained and enhanced.



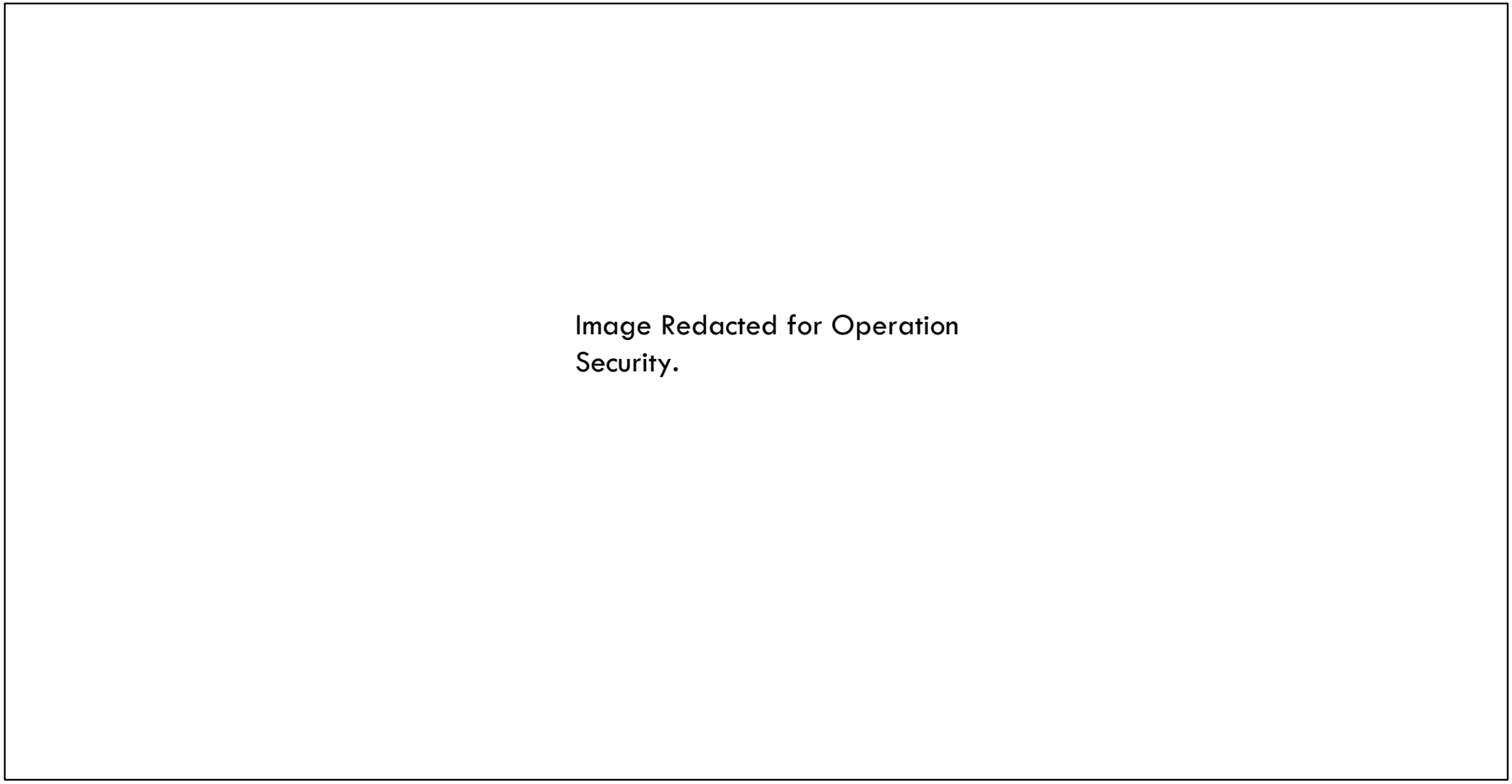
Exterior Building Assessment


Field Street and Pavement Assessment



Rights & Blights Assessment

Field Building Assessment



Based on an assessment of external building conditions, stakeholders identified most large facilities within the WAAF District as being in fair or good condition (as shown on this and the following page) and, therefore, they are likely to remain functional over a 20-year planning horizon.

Field Building Assessment (Continued)



Buildings classified as poor (red) due to age, functional obsolesce or disrepair include WWII-era structures and some airfield support facilities, such as the existing ATC tower (Bldg. 7754) and hangar (Bldg. 7733).

Field Building Assessment (Continued)

WAAF District



Buildings

39



Should Remain
May Remain
Should Be Demolished

Area

370,293

Square Feet (SF)



x 1,000 SF

Should Remain
May Remain
Should Be Demolished

Buildings Should Remain	
Bldg. #	**SF**
7649	18,734
7650	25,324
7651	120,382
7651-E	12,010
7653	1,267
7655	1,311
7659	688
7660	572
7704-A	5,450
7710	484
7737	16,526
7737-A	13,562
7742	30,272
7743	11,150
7799	15,476
7799-A	16,619
7799-B	5,194
7799-C	10,907
7799-G	8,074

Buildings May Remain	
Bldg. #	**SF**
7704	8,112
7714	5,744
7718	4,000
7723-A	123
7731	1,551
7732	234

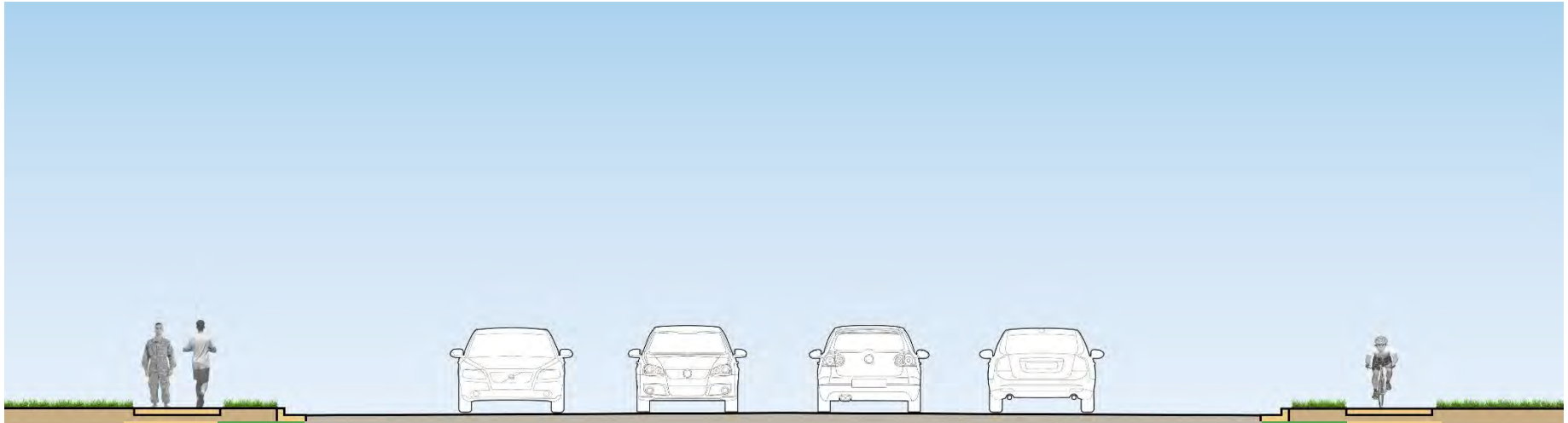
Buildings Should Be Demolished	
Bldg. #	**SF**
7703	3,942
7705	1,375
7706	2,765
7707	2,567
7708	2,698
7709	3,114
7711	3,105
7711-A	584
7712	2,981
7730	651
7733	9,655
7734	1,206
7754	713
7755	1,171

Field Street Assessment

Image Redacted for Operation Security.

The roadways, including Perimeter Road, that comprise the WAAF District's external circulation system are in good or fair condition. Portions of the local internal network such as East Lowe Circle are in poor condition.

Field Street Assessment (Continued)



Street Name	Sidewalk	Plant Strips	Parking	Travel Lane	Travel Lane	Travel Lane	Travel Lane	Parking	Plant Strips	Sidewalk	Condition
Perimeter Road	-	-	-	-	12'	12'	-	-	-	-	
Wright Field Road	-	-	-	-	12'	12'	-	-	-	-	
Wright Field Access Road	-	-	-	-	12'	12'	-	-	-	-	
East Lowe Circle	-	-	-	-	10'	10'	-	-	-	-	
West Lowe Circle	-	-	-	-	10'	10'	-	-	-	-	

Both Appropriate and Good Condition

Either Inappropriate or Poor Condition

Both Inappropriate and Poor condition

Street Condition Assessment Summary Table

This table summarizes the existing dimensions and conditions of streets within the WAAF District, as documented in the field by workshop stakeholders. As an airfield, the District has a minimal transportation network designed for functional circulation. Streets do not feature a full complement of streetscape elements.

Roads categorized as good have quality pavement conditions and provide adequate travel lane capacity for expected vehicle volumes.

Rights & Blights Assessment – Rights

Image Redacted for Operation Security.

Rights & Blights Assessment – Blights

Image Redacted for Operation Security.

Document Analysis/Review

The workshop planning team reviewed existing documents to identify planning standards and develop a better understanding of Fort Stewart and the WAAF District. Key findings from these documents shaped workshop planning ideas to ensure that the WAAF District ADP remains consistent with the overall Vision for Fort Stewart.



Fort Stewart Real Property Vision Plan
November 2014

Highlights:

- Identifies the installation's Mission, Vision, Goals, and Objectives.
- Includes background information on installation history, organizations, demographics, community setting, and current conditions.
- Emphasizes sustainable development, compact infill development, and connectivity.
- Emphasizes WAAF/MidCoast Regional Airport as an important asset.

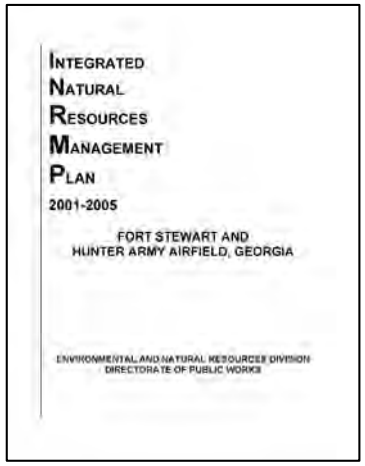


Fort Stewart Installation Planning Standards
November 2014

Highlights:

- Identifies building and street standards and principles.
- Highlights existing transportation network and need for connectivity and efficiency.
- Emphasizes the protection of open space and the preservation of natural landscaping where appropriate.

Document Analysis/Review (Continued)



Integrated Natural Resources Management Plan 2001-2005, Fort Stewart and Hunter Army Airfield, Georgia
September 2012 Update

Highlights:

- Establishes significant conservation goals.
- Emphasizes the proper stewardship of the installation's 80,000 acres of wetlands, which provide habitat for a variety of species.
- Promotes forest management practices, such as maintenance of the longleaf pine-dominated ecosystems that conserve habitat for the Red-Cockaded Woodpecker.
- Identifies Best Management Practices, including erosion control and banking as a primary protection strategy to protect, maintain, and improve various wetland functions and potential uses.



Fort Stewart Hunter Army Airfield Area Development Plan
September 2017

Highlights:

- Identifies flexible training spaces that support power projection capabilities.
- Emphasizes sustainable, resilient, secure, and energy-efficient infrastructure.
- Promotes pedestrian safety and multiple modes of transportation through an interconnected transportation network.
- Identifies a system of public spaces that organize the installation into cohesive areas and promote quality of life.

GIS Analysis Overview

The prevalence of natural and cultural features, as well as the operational impacts and safety requirements of aviation operations, influence development potential. The planning team analyzed the following geographic information system (GIS) layers to determine development constraints.

- Utilities
- Natural and Cultural Resources
- Operational and Safety Impacts
- Slope

The constraints analysis sorts land into four categories based on suitability for future development, including non-developable areas.

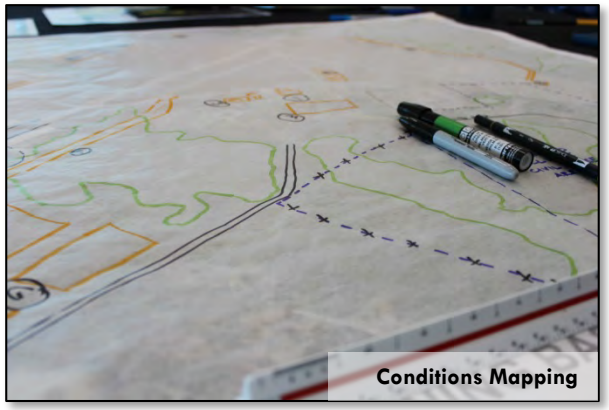
- **Developable Area 1** is land that can be developed immediately with minimal preparation, relocation, or demolition.
- **Developable Area 2** is land that can be developed with some effort.
- **Developable Area 3** is land that can be developed with extensive effort.
- **Non-Developable Area** is land that cannot be developed due to significant constraints.



Stakeholders Present SWOT Analysis



Reviewing Airfield Constraints



Conditions Mapping

Utilities

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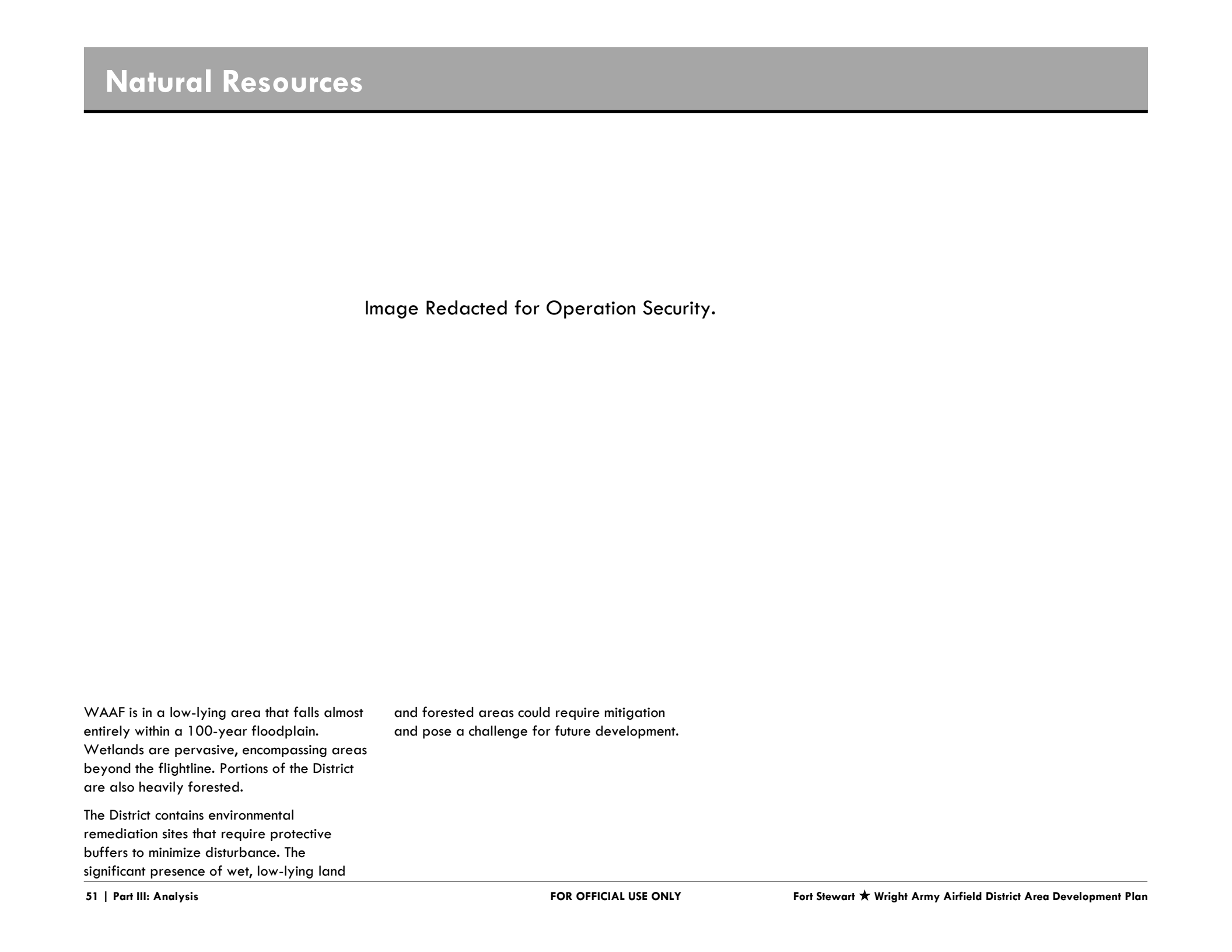
Placement of facilities near existing infrastructure produces cost-effective, efficient, and compact development patterns. Utilities networks are concentrated in the airfield support area and along the flightline.

Electric lines and stormwater lines are parallel to the runways and near clusters of buildings. Water and wastewater lines serve buildings and tenant operations.

A wastewater treatment system and oxidation lagoon are at the far southern end of the District.

Stakeholders noted that future mission growth likely would require utilities upgrades and extensions, particularly to accommodate planned growth at the western end of WAAF.

Natural Resources



WAAF is in a low-lying area that falls almost entirely within a 100-year floodplain. Wetlands are pervasive, encompassing areas beyond the flightline. Portions of the District are also heavily forested.

The District contains environmental remediation sites that require protective buffers to minimize disturbance. The significant presence of wet, low-lying land and forested areas could require mitigation and pose a challenge for future development.

Operational and Safety Impacts

Image Redacted for Operation Security.

Operational and safety constraints relate primarily to paths of aircraft departures and arrivals. The Clear Zones and Accident Potential Zones (APZs) indicate areas of higher risk for an aircraft accident. Planning should ensure that the Clear Zones remain free of any development. The APZs should avoid development with concentrations of people to reduce exposure in the event of a mishap. Development also should ensure that the sloping imaginary surfaces around the airfield are free of any visual or physical intrusions that could impact aircraft safety. Air safety zones extend beyond the installation into the surrounding community. WAAF supports a collaborative encroachment reduction program with neighboring jurisdictions.

Slope

Image Redacted for Operation Security.

The topography of WAAF is flat, posing few constraints to planned development. Slight elevation changes are found along Wright Field Road, Fort Stewart Road, and in some wooded areas surrounding the airfield.

Developable Areas

Image Redacted for Operation Security.

Developable Area 1

Developable Area 1 is land that can be developed with minimal preparation, relocation, or demolition. This includes non-organizational parking areas, roads, and paved areas of minor significance, buildings smaller than 500 SF, structures similar to canopies and gazebos, hydrologic features of minor concern, and relatively flat areas with slopes less than or equal to 5%.

Developable Area 2

Developable Area 2 is land that can be developed with some effort. For buildings, this includes buildings on the demolition list, buildings that are semi-permanent or temporary, along with a 10-meter area around these buildings. In addition, Developable Area 2 includes roads of significance, wetlands under 1/5 acre, floodplains, and moderately sloped areas (slopes greater than 5% or less than or equal to 10%).

Developable Area 3

Developable Area 3 is land that can be developed with extensive effort. For buildings, this includes existing permanent buildings smaller than or equal to 5,000 SF in area, along with a 10-meter area around these buildings. Developable Area 3 also includes wetlands larger than 1/5 acre, land under Runway Class A, moderately sloped areas (slopes greater than 10% and less than or equal to 18%), and areas leased by the MidCoast Regional Airport.

WAAF District Developable Area 1:

Developable Area 1:	738 acres
District Area:	2,498 acres
Percentage of Total Area:	30%

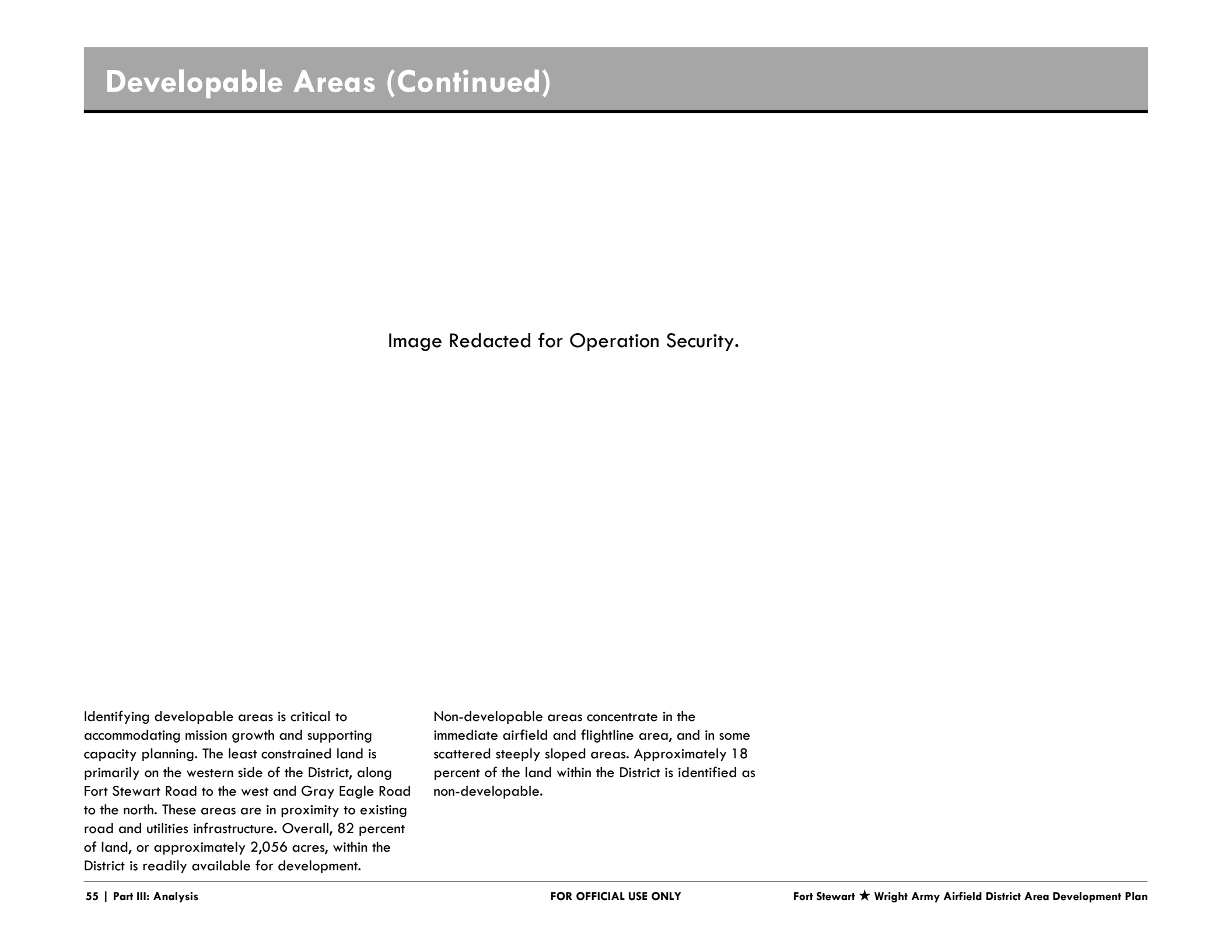
WAAF District Developable Area 2:

Developable Area 2:	1,136 acres
District Area:	2,498 acres
Percentage of Total Area:	45%

WAAF District Developable Area 3:

Developable Area 3:	182 acres
District Area:	2,498 acres
Percentage of Total Area:	7%

Developable Areas (Continued)



Identifying developable areas is critical to accommodating mission growth and supporting capacity planning. The least constrained land is primarily on the western side of the District, along Fort Stewart Road to the west and Gray Eagle Road to the north. These areas are in proximity to existing road and utilities infrastructure. Overall, 82 percent of land, or approximately 2,056 acres, within the District is readily available for development.

Non-developable areas concentrate in the immediate airfield and flightline area, and in some scattered steeply sloped areas. Approximately 18 percent of the land within the District is identified as non-developable.

SWOT Analysis Overview

Stakeholders identified the SWOT of the WAAF District and organized themes into concept maps that visually depicted the overarching categories.



Stakeholders Sorting SWOT Slips

STRENGTHS

- Partnerships
- Facilities
- Infrastructure
- Location

WEAKNESSES

- Environment
- Security
- Operations
- Encroachment
- Infrastructure
- Coordination
- Funding

OPPORTUNITIES

- Mission Growth
- Development Potential
- Partnerships
- Environment

THREATS

- Environmental
- Funding
- Policy
- Security

Strengths of WAAF District

Location

- Surrounding buildable land available for expansion and growth
- Good road access for future connectivity
- Close to Fort Stewart and Hinesville
- Located in a strategically favorable area
- In proximity to restricted airspace

Partnerships

- Ability to be joint use
- Good relationship with the community
- Experienced stakeholders
- Multi-agency training capabilities
- Capability to enhance local economy growth

Facilities

- Newer, state-of-the-art facilities
- Security and controlled access
- New, modern terminal and operations building
- New UAS hangar and COF

Infrastructure

- New runway extension
- Infrastructure improvements that allow for training opportunities
- Joint use enhances runway
- Mission flexibility for Senior Commander
- Capacity



Weaknesses of WAAF District

Infrastructure
- Access control point does not meet standards
- Another access point needed
- Signage and lighting
- Buildings, including fire station and traffic control tower, need renovation
- Limited hangar space
- Lack of fencing; allows wildlife onto runways and facilities
- Road and parking behind the tower need to be addressed

Environment
- Lengthy environmental process
- Uncontrolled wildlife access
- Potential limited expansion due to wetlands
- Wright Army Airfield in a floodplain

Encroachment
- Limited for expansion by current boundaries

Coordination
- Outlook disparity between military and civilian facilities
- Hierarchy order; multiple agencies

Funding
- Lack of funding for new construction or MCA development

Security
- Area is easily accessible
- Security issues in certain boundary areas

Operations
- Lack of deployment capability



Opportunities for WAAF District

Partnerships

- Potential for future intergovernmental support agreements
- Possible use as a FEMA staging area
- Supportive political environment for development
- Joint partnerships for fueling aircraft
- Future Public/Private ventures
- Potential for aviation-related commercial businesses

Development Potential

- Developable land available for missing requirements
- Existing infrastructure could accommodate future expansion
- Consolidation of airport or military airfield activities

Mission Growth

- Runway repair and upgrade allows for more flexibility of aircraft management
- Potential to support future mission capabilities
- Assess to ports and interstate roadways
- Opportunity for airspace and mission growth

Environment

- Moderate climate
- Potential use of wetland areas for nature park/hiking area/conservation



Threats to WAAF District

Environmental

- Lack of wildlife control plan
- Wetlands and endangered species
- Site encroachment
- Hurricane susceptibility and possible flooding
- Noise from aircraft activity

Policy

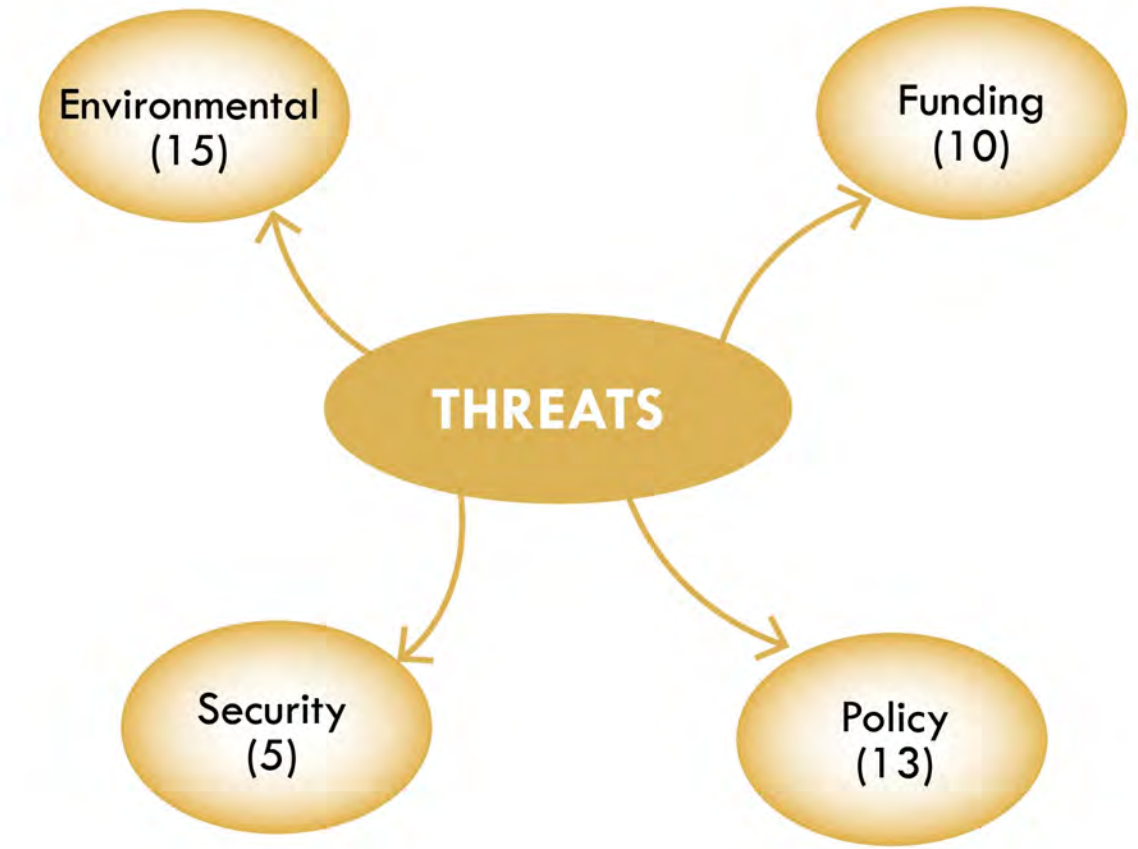
- Base Realignment and Closure
- Changing priorities of leadership
- Shifting relationships between Army and General Aviation

Funding

- Limited funding
- Possibility of economic downturn

Security

- Increased vehicular traffic
- Easy access to facilities
- Difficult to access General Aviation side



PART IV
IMPLEMENTATION



MidCoast Regional Airport Terminal
Source: libertycountyga.gov

Implementation Overview

Workshop participants worked in groups to develop alternatives for future development of the WAAF District, guided by planning assumptions and the District Vision and Goals. The alternatives emphasized two distinct themes to encourage the diversity and creativity of ideas. The stakeholders evaluated the alternatives based on each alternative's ability to meet District goals. Participants worked to combine the best ideas and common themes of each alternative to create a refined Preferred Alternative.

The Preferred Alternative, shown in the Illustrative Plan, incorporates all known future program requirements in a phased approach. The Illustrative Plan represents only a snapshot of development, designed to meet the current planning vision. The plan must remain flexible to adapt to the US Army's evolving needs and changing political and fiscal climate.



Alternatives Exercise Presentations

Alternative 1

- Siting of known planned/funded projects
- Identify solutions for blights
- Focus on low-cost/Sustainment, Restoration, and Modernization (SRM) solutions
- Repair and upgrade existing taxiways and aprons
- Demolish or repair inadequate buildings and pavement
- Signage, lighting, and other safety improvements

Alternative 2

- Siting of known planned/funded projects
- Identify solutions for blights
- Repair and upgrade existing taxiways and aprons
- Demolish or repair inadequate buildings and pavement
- Limited to 2 military construction (MILCON) projects
- Identify additional capacity for growth

Alternative 1

Alternative 1

- Siting of known planned/funded projects
- Identify solutions for blights
- Focus on low-cost/Sustainment, Restoration, and Modernization (SRM) solutions
- Repair and upgrade existing taxiways and aprons
- Demolish or repair inadequate buildings and pavement
- Signage, lighting, and other safety improvements

Image Redacted for Operation Security.

Alternative 2

Alternative 2

- Siting of known planned/funded projects
- Identify solutions for blights
- Repair and upgrade existing taxiways and aprons
- Demolish or repair inadequate buildings and pavement
- Limited to 2 MILCON projects
- Identify additional capacity for growth

Image Redacted for Operation Security.

Alternatives Analysis

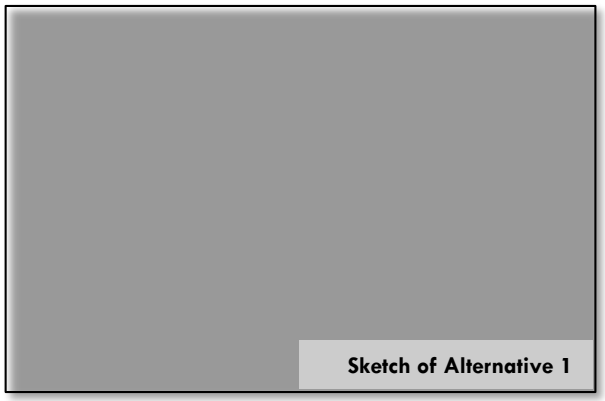
Workshop attendees developed a set of Goals to guide the implementation of the Vision in WAAF. Participants then assigned an importance weighting to each Goal on a scale of one (not very important) to three (very important), as noted in the Goal Score column. Next, the participants scored the status quo (existing conditions) and each alternative to identify how well the scenarios met the Goals of the District on a scale of one (does not meet goal) to three (meets the goal). The existing conditions and alternatives columns show the average score for each scenario. Finally, for each Goal, the item weight was multiplied by the average score to determine a weighted score. The weighted scores were then totaled to get an overall score for existing conditions and each alternative. Based on this analysis, participants ranked Alternative 2 as the scenario that best achieved the District Vision and Goals.

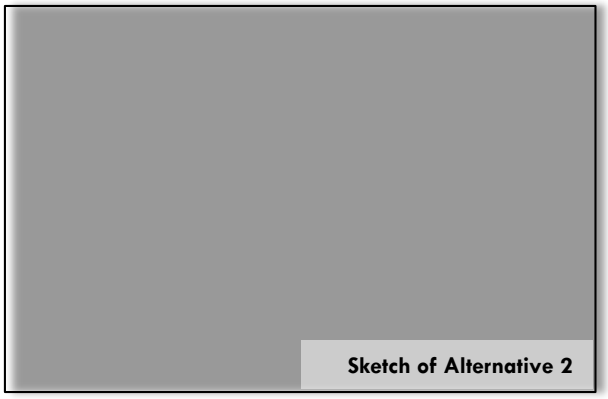
Alternatives Evaluation

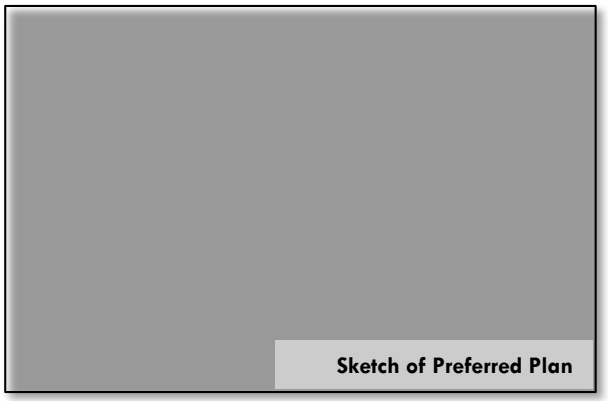
Goal	Goal Score	Existing Conditions	Alternative 1	Alternative 2
1 Advance Training, Readiness, & Power Projection	3.00	1.73	1.82	3.00
2 Implement Modern, Sustainable Facilities & Infrastructure	2.91	1.36	1.91	3.00
3 Support Expanded DoD Opportunities	2.18	1.55	1.55	2.82
4 Support Expanded Regional Aviation Opportunities	2.09	1.91	1.55	2.91
Overall Evaluation		**1.38**	**1.47**	**2.50**
Percent of Total Possible Score		**54.06%**	**57.66%**	**98.08%**

1 - Does Not Meet the Goal/Not Important 2 - Partially Meets the Goal/Somewhat Important 3 - Meets the Goal/Important

Image Redacted for Operation Security.


Sketch of Alternative 1


Sketch of Alternative 2


Sketch of Preferred Plan

Preferred Alternative

Participants worked in groups to prepare the two alternatives for future development of the WAAF District, consistent with the District Vision and Goals. Following evaluation, stakeholders reviewed the lower-ranked alternative to identify elements that should carry forward to the Preferred Plan. The Preferred Plan for the District combines the best ideas and common themes of each scenario.

The Preferred Plan addresses current facility and infrastructure deficiencies by proposing the demolition or renovation of aging and obsolete structures; repairs or construction of airfield pavement, including runways, aprons, taxiways, and overruns; the removal of unused interior runways in disrepair; the replacement of airfield signage and lighting; the installation of an ILS; and construction of a replacement ATC tower.

Beyond improving the safety and function of existing facilities, the plan proposes projects that will expand training and readiness capabilities, including the construction of hangars and related infrastructure on the north side of the airfield to accommodate aviation battalion complexes and Gray Eagle UAS mission growth. A development opportunity offers a visible, prominent site for a new Brigade Headquarters. Construction of a new UFC-compliant 24-hour manned ACP on the west side of the airfield, at Fort Stewart Road and Gray Eagle Road, will enhance airfield access and security. Improvements to the pedestrian circulation network and addition of a shoppette will improve the quality of life for those who work and train in the District.

The Preferred Plan also embraces the strong partnership between Fort Stewart and MidCoast Regional Airport. An expanded Exclusive Civil Lease Area offers opportunities for compatible airfield-related uses.

GOAL 1: ADVANCE TRAINING, READINESS, AND POWER PROJECTION

The Preferred Plan includes projects that meet WAAF's existing mission, and expand its deployment and training capabilities. New hangars and support facilities along the flightline will accommodate growth in the Gray Eagle UAS mission and any incoming aviation battalions. Expansion and construction of runways, taxiways, aprons and an ILS will allow WAAF to function as a secondary option for troop deployment from Fort Stewart and support C-17 aircraft for training operations.

GOAL 2: IMPLEMENT MODERN, SUSTAINABLE FACILITIES, AND INFRASTRUCTURE

The Preferred Plan includes projects that update and replace aging facilities and infrastructure within the District. The demolition of existing obsolete and failing facilities will create space for the construction of modern facilities in consolidated, functionally aligned areas. Modern support facilities, such as a fire station and ATC tower, will improve safety and expand capabilities at the airfield.

GOAL 3: SUPPORT EXPANDED DOD OPPORTUNITIES

New hangars and associated support infrastructure allow for the growth of the existing mission at WAAF. Additional space on the flightline will give Fort Stewart the ability to add new training and readiness elements or attract new battalions. The construction of new runways, taxiways, aprons, and cargo pads also will support Fort Stewart as it builds capabilities to become a recognized CTC on the East Coast.

GOAL 4: SUPPORT EXPANDED REGIONAL AVIATION OPPORTUNITIES

The Preferred Alternative includes the renovation of existing taxiways and runways to improve the PCN that would allow for increased load carrying capacity, as well as the construction of new runway extensions, aprons, and cargo pads to allow for the expansion of aviation opportunities for both the US Army and MidCoast Regional Airport. Additional paved space at WAAF, along with construction of the new ATC tower and fire station, will offer benefits in safety and efficiency for regional aviation.

Preferred Alternative – Illustrative Plan

Image Redacted for Operation Security.

The illustrative plan above demonstrates one possible alternative that incorporates the approaches, planning Goals, and Objectives that were derived from the workshop.

Project List

Illustrative Plan ID	Project Name	Project Description	Units/ Organizations Affected	Regulating Plan Designation
A	Execute Existing Reconstruction of Apron and Bravo Taxiway Project	Reconstruction of 19,444 square yards of the Bravo Taxiway due to poor pavement condition. Reconstruction of 44,444 square yards of Bravo Apron to expand laydown and storage capabilities.	Military/General Aviation Users	Airfield
B	Execute Existing Replacement of Airfield Signage and Lighting Project	Execute existing replacement of airfield signage and lighting project.	Military/General Aviation Users	Airfield
C	Construct Hazardous Cargo Pad	Construction of a 26,111-square-yards hazardous cargo pad to increase mission capabilities for Echo Taxiway. Repaving 10,556 square yards for heavy aircraft.	Multiple Military Users	Airfield
D	Construct Overruns	Construction of three 150-foot by 250-foot paved overruns to increase aviation safety. The total new overrun pavement will be 12,500 square yards.	Military/General Aviation Users	Airfield
E	Renovate Transient Ramp for Refueling	Renovation of 11,222 square yards of transient ramp for refueling. Installation of 14 "hot pits" (underground fuel storage) for the Aircraft Direct Fueling Facility.	Multiple Military Users	Airfield
F	Re-route Tank Trail	Re-routing of tank trail from its existing alignment to a route away from the runway and outside of the APZ.	3rd Infantry Division	Open Space
G	Install ILS	Installation of ILS.	Military/General Aviation Users	Airfield
H	Demolish WWII-era Bldgs.	Demolition of six WWII-era wood-framed buildings south of the airfield to allow for the construction of future Brigade Headquarters (see Project AA): Bldg. 7706 (2,765 square feet), Bldg. 7707 (2,567 square feet), Bldg. 7708 (2,698 square feet), Bldg. 7709 (3,114 square feet), Bldg. 7711 (3,105 square feet), Bldg. 7711A (584 square feet), and Bldg. 7712 (2,981 square feet).	ASOS	Flex-Use
I	Repair Runway 33R/15L (PCN)	Repair and reconstruction of the south end of the 33R/15L runway, including 13,889 square yards of renovated runway pavement.	Military/General Aviation Users	Airfield
J	Install Fencing	Installation of 11,500 linear feet of new security fencing around airfield.	District-wide	Airport Operations/ Open Space
K	Remove Interior Runways (6R and 33L)	Removal of unused interior runways 6R and 33L. A total of 61,111 square yards of runway pavement will be removed.	Military/General Aviation Users	Airfield
L	Demolish Bldgs. 7734, 7738, 7739 (Small Storage)	Demolition of three, small, concrete masonry unity (CMU) storage buildings: Bldg. 7734 (1,206 square feet), Bldg. 7738 (565 square feet), and Bldg. 7739 (1,024 square feet).	Multiple Military Users	Airfield Support

Project List (Continued)

Illustrative Plan ID	Project Name	Project Description	Units/ Organizations Affected	Regulating Plan Designation
M	Renovate Bldg. 7733 (Hangar)	Renovation of 9,655-square-foot, steel rotary aircraft hangar (Bldg. 7733).	Multiple Military Users	Airfield Operations
N	Demolish VIP Bldg. 7730	Demolition of 651-square-foot CMU VIP building (Bldg. 7730).	Multiple Military Users	Airfield Operations
O	Construct ACP	Construction of a new two-lane ACP with a vehicle inspection station and 1,500-square-foot steel canopy along Gray Eagle Road near Fort Stewart Road to improve security within the District. Project will include road improvements (11,111 square yards of pavement) around the airfield and the closing of the existing airfield ACP at Wright Field Road.	District-wide	Airfield Support
P	Construct ATC Tower	Construction of a new ten-story, 100-foot by 100-foot ATC tower near the Charlie Taxiway. This will replace the existing ATC tower (Bldg. 7754). The project will also include a 100-foot by 150-foot Terminal Radar Approach Control (TRACON) facility.	Military/General Aviation Users	Airfield Operations
Q	Construct Fire Station	Construction of a new 25,000-square-foot fire station to serve the airfield, along the Bravo Taxiway and Wright Field Road. The new fire station will hold a minimum of two fire engines. This will replace the current Fire Station (Bldg. 7703).	Military/General Aviation Users	Airfield Operations
R	Renovate Bldg. 7718 (Readiness Facility)	Renovation of 4,000-square-foot, steel-frame Bldg. 7718 (Readiness Facility).	Multiple Military Users	Flex-Use
S	Renovate Bldg. 7704 (Hangar)	Renovation of 8,112-square-foot Bldg. 7704 (aircraft hangar). The building will be a steel frame structure with corrugated metal siding.	Multiple Military Users	Airfield Operations
T	Renovate Bldgs. 7723 (POL Shed), 7727	Renovation of two, small buildings: 485-square-foot, wood-framed Bldg. 7723 (petroleum, oil, and lubricants [POL] shed), and 600-square-foot, prefabricated Bldg. 7727 with wood studs and stucco finish.	Multiple Military Users	Airfield Operations
U	Renovate Bldgs. 7705, 7731, 7732, 7755 (Water Well System)	Renovation of water well system buildings 7705, 7731, 7732, and 7755.	District-wide	Flex-Use
V	Renovate Wastewater Treatment Facilities	Renovation of the existing wastewater treatment facilities, including the oxidation lagoons.	District-wide	Flex-Use

Project List (Continued)

Illustrative Plan ID	Project Name	Project Description	Units/ Organizations Affected	Regulating Plan Designation
W	Construct Facilities for Aviation Battalion Complex	Construction of a 60,000-square-foot assault hangar, a 25,000-square-foot CMU support structure, and 16,000-square-foot CMU support structure for an incoming battalion. The project includes 66,667 square yards of apron pavement.	3rd Combat Aviation Brigade	Airfield Operations/ Airfield Support
X	Construct Facilities for Aviation Battalion Complex	Construction of a 60,000-square-foot assault hangar, a 25,000-square-foot CMU support structure, 16,000-square-foot CMU support structure, and supporting infrastructure for an incoming aviation battalion. The project includes 66,667 square yards of apron pavement.	3rd Combat Aviation Brigade	Airfield Operations/ Airfield Support
Y	Construct Facilities for Aviation Battalion Complex	Construct a new 131,036-square-foot aviation support battalion maintenance hangar and two 25,000-square-foot CMU support structures (Motor Pool Building and Administration Building) for an incoming aviation battalion. The project includes 166,667 square yards of apron pavement and 11,111 square yards of parking area.	3rd Combat Aviation Brigade	Airfield Operations/ Airfield Support
Z	Extend and Renovate Delta Taxiway	Extension of Delta Taxiway (53,889 square yards of pavement) and retrofit of existing runway (44,444 square yards) to accommodate future aviation battalion growth and proposed hangar construction.	3rd Combat Aviation Brigade	Airfield
AA	Construct Brigade Headquarters	Construction of new 138,000-square-foot CMU Brigade Headquarters south of the airfield.	Multiple Military Users	Flex-Use
BB	Construct Shoppette	Construction of new 10,000-square-foot shoppette near the proposed ACP and hangars to provide food options for airfield personnel. The project includes 4,444 square yards of pavement.	District-wide	Flex-Use

Implementation Plan Overview

Following the creation of a Preferred Alternative Illustrative Plan, DPW staff and the consultant team organized development actions into three separate phases: Short-term, Mid-term, and Long-term. Short-term actions represent development that is a high priority for the installation, is quickly implementable, and/or has low implementation costs. The Mid-term category represents development that requires more complex or lengthy planning processes, or is dependent on actions taken during the Short-term phase. Finally, Long-term actions are often large and forward thinking projects that anticipate future mission needs. Described below is a high-level overview of development activities proposed over the three phases. The following pages graphically illustrate the development proposed in each phase.

SHORT-TERM (0-5 YEARS)

Short-term projects include facility renovations and demolitions, and improvements to airfield infrastructure, signage, and lighting for the WAAF District. Reconstruction of the Bravo Taxiway, Bravo Apron, the transient refueling ramp, and south end of the 33R/15L runway will improve capabilities on the flightline. Other projects include construction of a hazardous cargo pad and overruns on the 33R/15L runway and removal of unused interior runways 6R and 33L. This phase also executes demolition of small storage buildings (Bldgs. 7734, 7738, 7739), WWII-era buildings, and the VIP building (Bldg. 7730) to accommodate future growth and development south of the airfield. New airfield fencing on the northeast side of the District will improve security and reduce aviation safety risks from encroaching wildlife.

MID-TERM (6-15 YEARS)

Mid-term projects include the construction of a replacement fire station south of the Bravo apron and a replacement ATC tower that will support air operations in the WAAF District. This phase also will execute renovation of other support buildings south of the airfield, including the readiness facility (Bldg. 7728), hangar (Bldg. 7704), POL shed (Bldg. 7723), wastewater treatment facilities and water well system buildings. A new ACP on Gray Eagle Road near Fort Stewart Road will allow for a more secure and improved entryway into the District.

LONG-TERM (16-20 YEARS)

Long-term projects include the construction of three new hangars and their associated support facilities along the Delta Taxiway. These hangars will accommodate mission growth and the arrival of new aviation battalions. This planned growth of the District also will see the extension and renovation of the Delta Taxiway, and the construction of a shoppette. A prime development site on East Lowe Circle will be the location of a new Headquarters that faces the airfield.

Implementation Plan – Short-term

Image Redacted for Operation Security.

The illustrative plan above demonstrates one possible alternative that incorporates the approaches, planning Goals, and Objectives that were derived from the workshop.

Implementation Plan – Mid-term

Image Redacted for Operation Security.

The illustrative plan above demonstrates one possible alternative that incorporates the approaches, planning Goals, and Objectives that were derived from the workshop.

Implementation Plan – Long-term

Image Redacted for Operation Security.

The illustrative plan above demonstrates one possible alternative that incorporates the approaches, planning Goals, and Objectives that were derived from the workshop.

Capacity Planning

The Preferred Alternative represents one development course of action that implements the Real Property Vision, Goals, and Objectives established for Fort Stewart and the WAAF District. While this Preferred Alternative meets currently known mission requirements, it does not demonstrate the maximum capacity of new development that could be supported in the District.

The Capacity Plan demonstrates the full build-out capacity of the District, providing flexibility to accommodate future mission changes or growth. The Capacity Plan features two additional aviation battalion complexes and hangars to the south of the airfield. The capacity summaries offer quick snapshots of development potential for installation planners and leadership.

WAAF District Capacity Summary

	Proposed New Construction or Expansion		Proposed Demolition	Total New Capacity	
	Total New Square Footage Allowed by Regulating Plan at Minimum Height	Total New Square Footage Allowed by Regulating Plan at Maximum Height	(SF)	Total Square Footage at Minimum Height	Total Square Footage at Maximum Height
Short-term	-	-	24,707	-24,707	-24,707
Mid-term	21,600	64,800	5,021	16,579	59,779
Long-term	1,897,860	5,693,580	-	1,897,860	5,693,580
Preferred Alternative Subtotal	**1,919,460**	**5,758,380**	**29,728**	**1,889,732**	**5,728,652**
Capacity Plan	-	-	-	326,852	980,556
Full Build-Out Total	**1,919,460**	**5,758,380**	**29,728**	**2,216,584**	**6,709,208**

Capacity Plan

Image Redacted for Operation Security.

The illustrative plan above demonstrates one possible alternative that incorporates the approaches, planning Goals, and Objectives that were derived from the workshop.

Full Build-Out Plan

Image Redacted for Operation Security.

The illustrative plan above demonstrates one possible alternative that incorporates the approaches, planning Goals, and Objectives that were derived from the workshop.

Transportation Network

Image Redacted for Operation Security.

As an airfield, WAAF has a minimal road network that focuses primarily on perimeter circulation and access to landside buildings.

Pedestrian Plan

Image Redacted for Operation Security.

As an airfield, WAAF has a minimal pedestrian network. However, as proposed growth introduces expanded operations to the west side of the airfield, the District should implement enhanced pedestrian connectivity to connect battalion complexes, the shoppette, and core landside facilities.

PART V
FORM-BASED CODE



Fire Station (Bldg. 7703) at Wright Army Airfield

Form-Based Code Overview

Implementation through form-based codes allows installations to exercise more control in the development process. It provides a tool to ensure that building development supports the installation's Vision, Goals, and Objectives. Form-based codes promote mixed-use, compact, and walkable development patterns, not traditional auto-oriented, segregated land uses. Form-based codes emphasize spatial principles that support sustainable development, making building form and character the most important factor, and specific building use secondary.

The code is a graphic tool that condenses the installation Vision, Goals, and Objectives into a clear, readable, enforceable plan for development. The code provides clear parameters for height, massing, siting, and basic building elements for each district on the installation.

The form-based code includes the following components:

- Regulating Plans that regulate only the most important elements of the Illustrative Plan, such as required entry and/or parking locations, and minimum/maximum building heights. The Regulating Plan refers the users to building and street standards.
- Building Envelope Standards that specify acceptable massing, height, fenestration, and uses.
- Illustrative Plans that graphically illustrate potential development outcomes that support the overarching planning vision.
- Street Standards that graphically demonstrate street design requirements in plan and section.

How to Use the Code

Five steps are required to understand and implement the code:



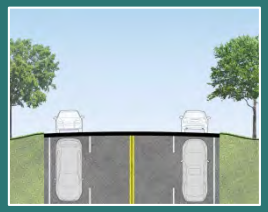
1 Find the site on the Regulating Plan. Note the color of the site block — this determines the building envelope standard for all buildings in this area. See the legend on the Regulating Plan.



2 Look at the appropriate building guideline page in this ADP. This page outlines the basic requirements for building on this site in terms of height, siting, elements and uses. It also shows where the building will sit on the site, including the limits on its massing and the range of acceptable uses.



3 Find the site on the Illustrative Plan. Note the street types of any of the streets that border or are encompassed in that site.



4 Refer to the appropriate street standard page in this ADP. This page provides specific details for vehicular traffic lane widths, sidewalks, bike lanes, tree planting area dimensions, and on-street parking configurations for each street type listed in the plan. This information explains the form of the streets framing and supporting the buildings.



5 Refer to the plant palette in the Fort Stewart Installation Planning Standards for appropriate plants, shrubs, and ground cover for the installation and district.

Form-Based Code Overview (Continued)

Regulating Plan

The Regulating Plan is the controlling document and principal tool for implementing the study area form-based code. It identifies the Building Envelope Standard for each building site and any specific characteristics assigned to it. The definitions below serve as a reference to explain the elements of the Regulating Plan.

Buildable Area vs. Developable Area

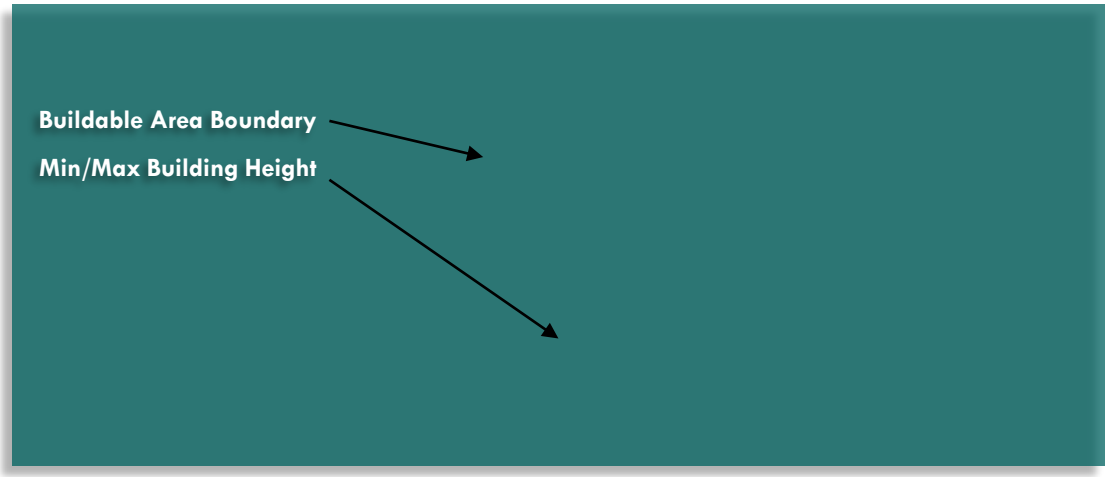
The Buildable Areas identified in the Regulating Plan are different than the Developable Areas identified earlier in this report. The purpose of the Developable Area analysis is to identify the potential for new construction based on the constraints present; whereas the Buildable Area analysis identifies land that should be regulated (e.g., zoned) and the appropriate uses for those lands. For example, an area with several existing barracks buildings will not be designated as Developable; however, that is Buildable Area that should be governed by the Regulating Plan. The Developable Area often informs the Buildable Area of the Regulating Plan by identifying sensitive lands that should be protected as non-buildable and 'zoned' appropriately.

Definitions

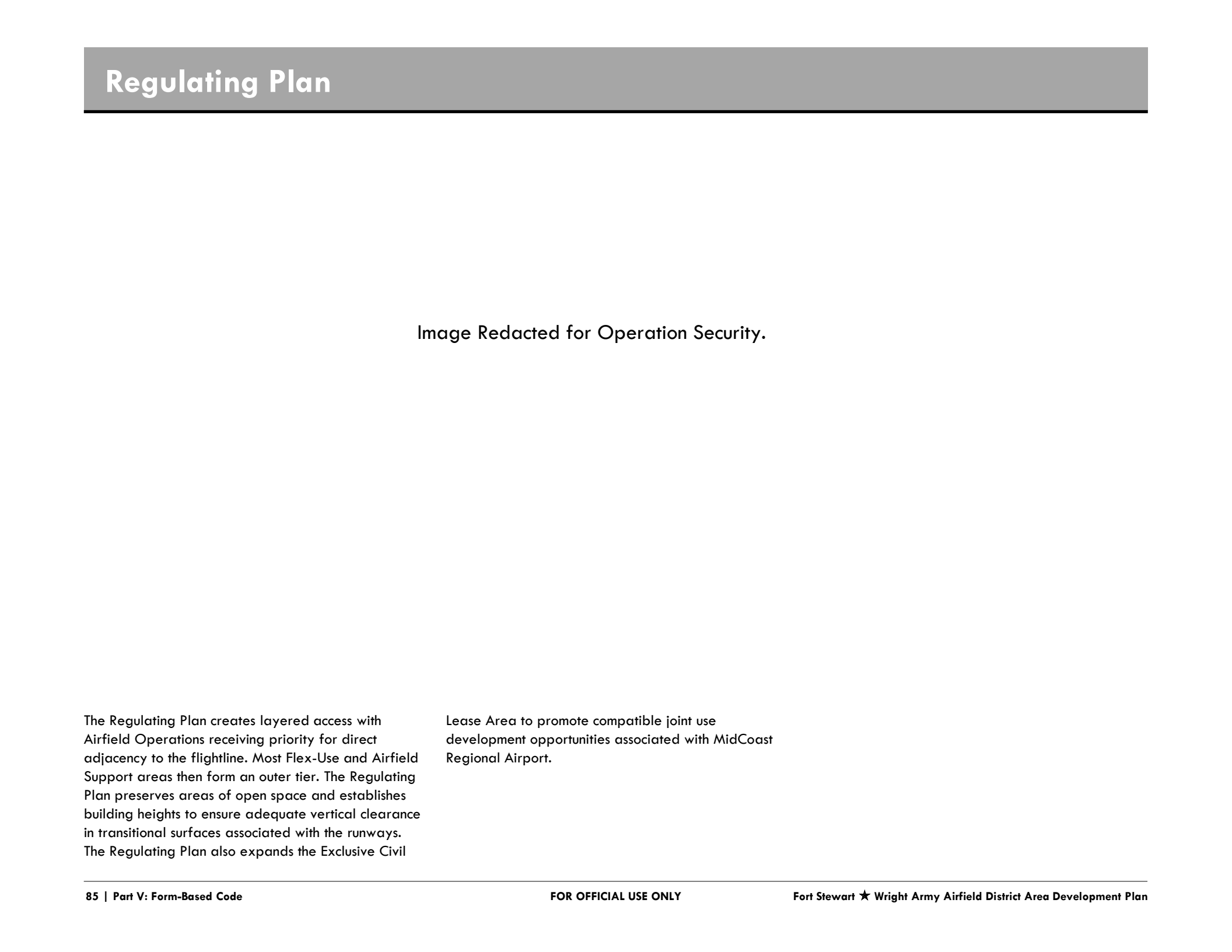
- Required Build-to Line (RBL): A thick black line where a percentage of the building facade must be located (see Building Envelope Standards for specific percentages).
- Minimum/Maximum Building Height: Two numbers indicating the minimum and maximum number of levels a building may have within the coordinating building area boundary.
- Building Area Boundary: A highlighted area showing the maximum extent of buildable area on a parcel.
- Building Envelope Standards: The intent of building standards is to shape and detail public space that is safe, comfortable, and functional through placement and envelope controls for each building type. The standards aim for the minimum level of control necessary to meet the planning goals, and include building standards, site planning standards, and building-related force protection standards.
- Open Spaces: These areas have limited potential for development. A majority of the area has been designated as permanent open space due to the need for maintaining existing wetlands, stormwater management functions, and airfield safety criteria.

Specific Notes on Regulating Plan

- Undeveloped lots shall not be developed into parking areas unless specifically noted as a parking area on the Regulating Plan. As a rule, all parking, unless otherwise designated on the plan, shall be located to the sides or to the rear of buildings.
- Existing buildings that are not slated for demolition are not required to meet the guidelines of the Regulating Plan. Only buildings constructed on redeveloped lots must meet the requirements. Should a planning team wish to deviate from the Regulating and Transportation Plans, they must follow through a variance.

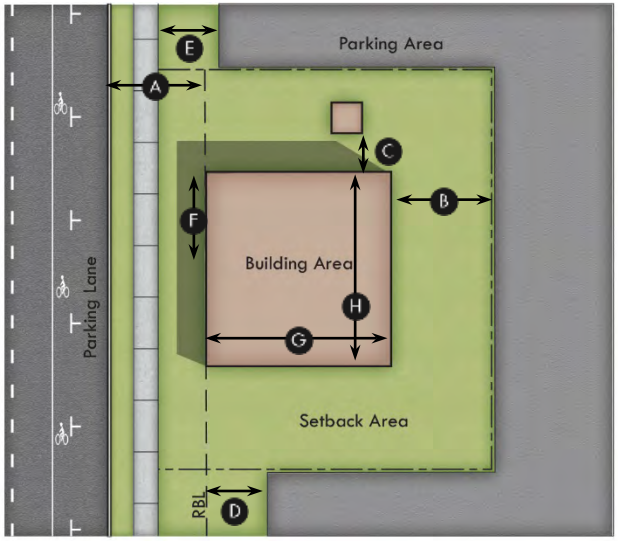


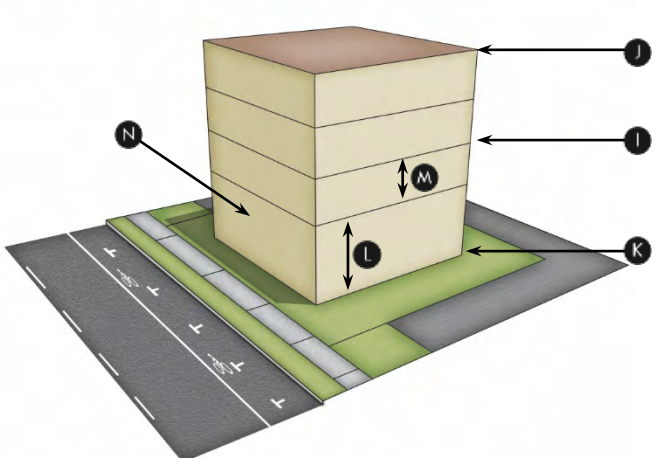
Regulating Plan



The Regulating Plan creates layered access with Airfield Operations receiving priority for direct adjacency to the flightline. Most Flex-Use and Airfield Support areas then form an outer tier. The Regulating Plan preserves areas of open space and establishes building heights to ensure adequate vertical clearance in transitional surfaces associated with the runways. The Regulating Plan also expands the Exclusive Civil Lease Area to promote compatible joint use development opportunities associated with MidCoast Regional Airport.

Building Guidelines - Airfield Operations





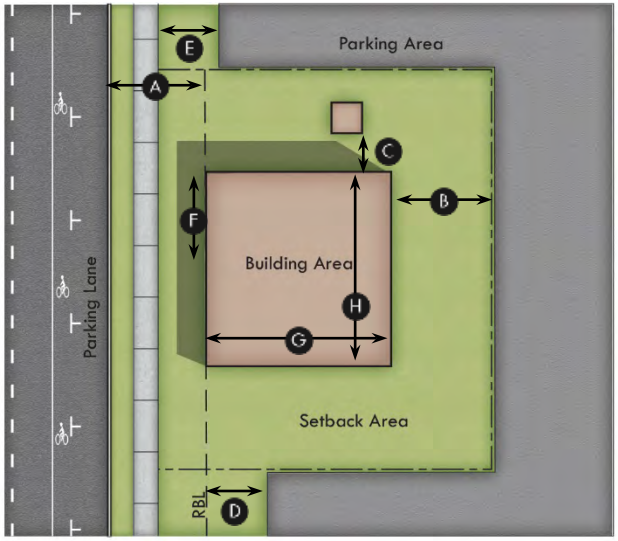
Use		
Ground Floor	Airfield Operations, Direct Aviation Support Functions	
Upper Floors	Airfield Operations, Direct Aviation Support Functions	
Placement		
RBL setback from roads/parking	11 meters (36')	A
Setback from roads/parking	11 meters (36')	B
Setback from other buildings	Any	C
Parking setback from RBL	15 meters (49')	D
Parking setback no RBL	7 meters (23')	E
Shape		
Building frontage along RBL	70% minimum	F
Building width	100' maximum	G
Building length	No maximum	H
Height		
Minimum number of floors	See Regulating Plan	I
Maximum number of floors	See Regulating Plan	J
Finish ground floor level	18 inches (") above sidewalk	K
First floor ceiling height	No maximum	L
Floor-to-floor height	10' minimum	M
Fenestration		
Percent of facade area	60%-90%	N

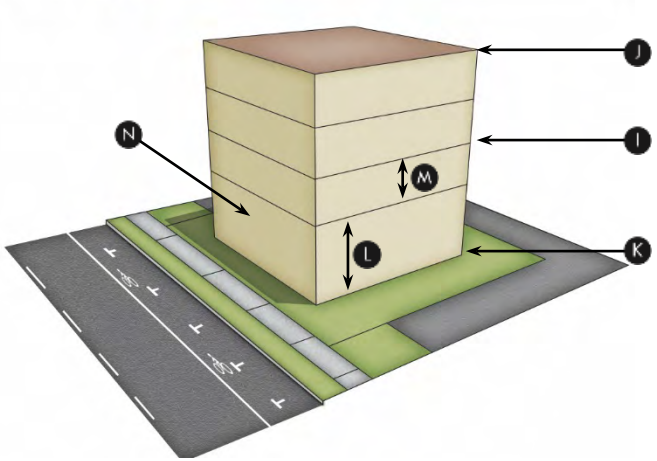
Parking
Maximum 3 spaces per 1,000 SF of floor space
Trees shall be planted such that 70% of parking will be shaded within 15 years
If access is controlled, government vehicle parking is not subject to setbacks
Parking drive width shall be a maximum of 15 feet (') per lane

Notes

- Corner lot street facades must be built to RBL within 30' of street corner
- Setback from roadways and other buildings must conform to minimum current AT/FP guidance
- Where no RBL is designated, a building may occupy any portion of the site within the buildable area boundary

Building Guidelines - Airfield Support





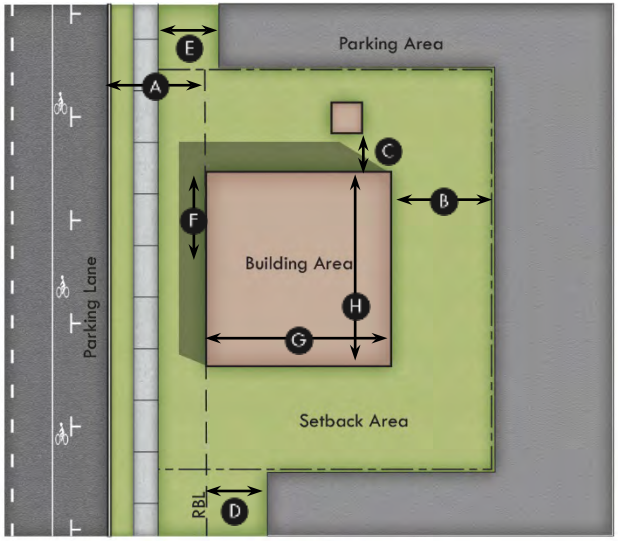
Use		
Ground Floor	Aviation Support	
Upper Floors	Aviation Support	
Placement		
RBL setback from roads/parking	11 meters (36')	A
Setback from roads/parking	11 meters (36')	B
Setback from other buildings	Any	C
Parking setback from RBL	15 meters (49')	D
Parking setback no RBL	7 meters (23')	E
Shape		
Building frontage along RBL	70% minimum	F
Building width	100' maximum	G
Building length	No maximum	H
Height		
Minimum number of floors	See Regulating Plan	I
Maximum number of floors	See Regulating Plan	J
Finish ground floor level	18" above sidewalk	K
First floor ceiling height	No maximum	L
Floor-to-floor height	10' minimum	M
Fenestration		
Percent of facade area	60%-90%	N

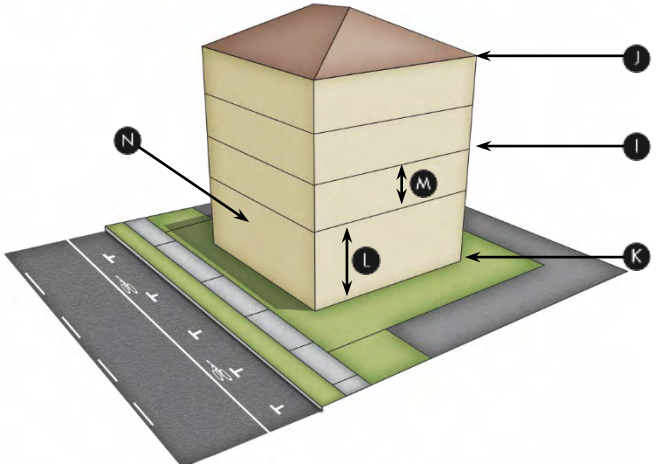
Parking
Maximum 3 spaces per 1,000 SF of floor space
Trees shall be planted such that 70% of parking will be shaded within 15 years
If access is controlled, government vehicle parking is not subject to setbacks
Parking drive width shall be a maximum of 15' per lane

Notes

- Corner lot street facades must be built to RBL within 30' of street corner
- Setback from roadways and other buildings must conform to minimum current AT/FP guidance
- Where no RBL is designated, a building may occupy any portion of the site within the buildable area boundary

Building Guidelines - Flex-Use





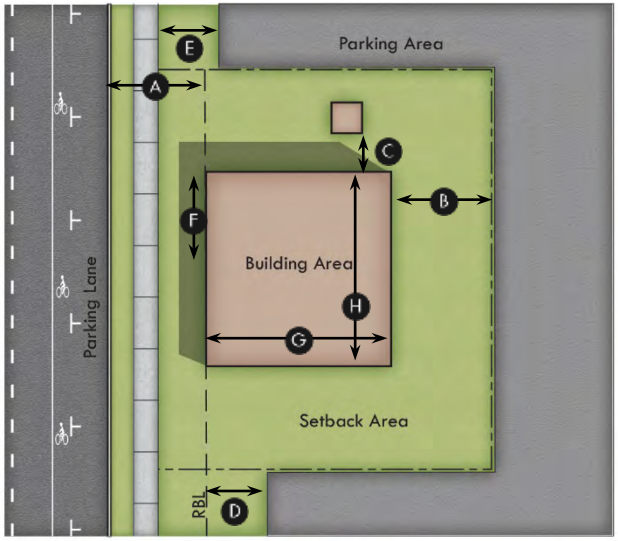
Use		
Ground Floor	Administration, Airfield Support, Mission	
Upper Floors	Administration, Airfield Support, Mission	
Placement		
RBL setback from roads/parking	11 meters (36')	A
Setback from roads/parking	11 meters (36')	B
Setback from other buildings	Any	C
Parking setback from RBL	15 meters (49')	D
Parking setback no RBL	7 meters (23')	E
Shape		
Building frontage along RBL	70% minimum	F
Building width	100' maximum	G
Building length	No maximum	H
Height		
Minimum number of floors	See Regulating Plan	I
Maximum number of floors	See Regulating Plan	J
Finish ground floor level	18" above sidewalk	K
First floor ceiling height	12' minimum clear, 20' maximum	L
Floor-to-floor height	12' minimum clear, 20' maximum	M
Fenestration		
Percent of facade area	40%-90%	N

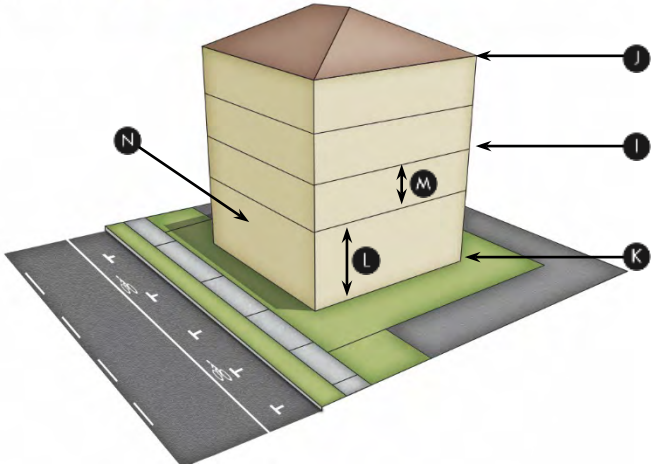
Parking
Maximum 4 spaces per 1,000 SF of floor space
Trees shall be planted such that 70% of parking will be shaded within 15 years
If access is controlled, government vehicle parking is not subject to setbacks
Parking drive width shall be a maximum of 15' per lane

Notes

- Corner lot street facades must be built to RBL within 30' of street corner
- Setback from roadways and other buildings must conform to minimum current AT/FP guidance
- 70% of all buildings must be built within the buildable area boundary
- Where no RBL is designated, a building may occupy any portion of the site within the buildable area boundary

Building Guidelines - Civil Flex-Use





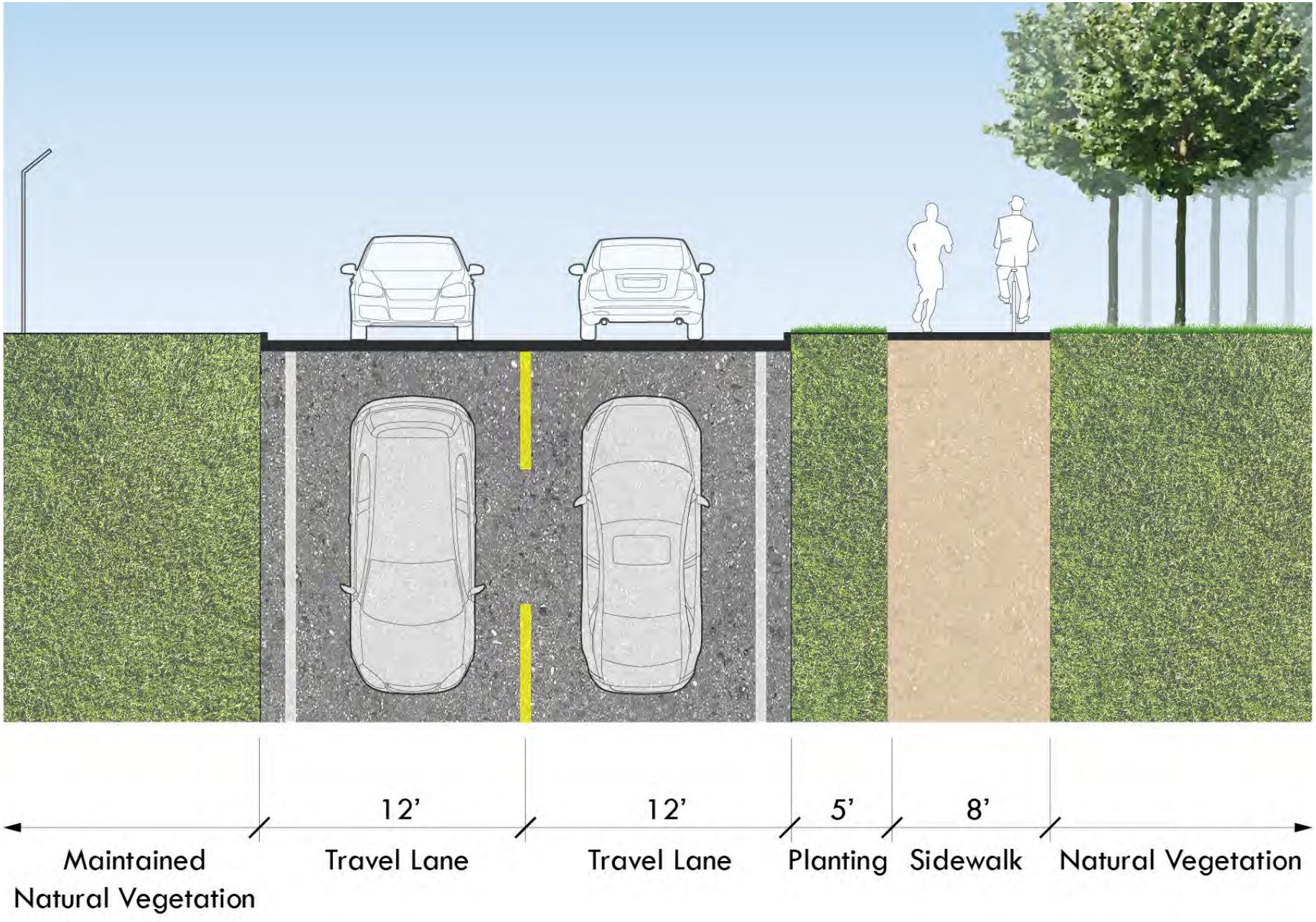
Use		
Ground Floor	Administration, Airfield Support	
Upper Floors	Administration, Airfield Support	
Placement		
RBL setback from roads/parking	11 meters (36')	A
Setback from roads/parking	11 meters (36')	B
Setback from other buildings	Any	C
Parking setback from RBL	15 meters (49')	D
Parking setback no RBL	7 meters (23')	E
Shape		
Building frontage along RBL	70% minimum	F
Building width	100' maximum	G
Building length	No maximum	H
Height		
Minimum number of floors	See Regulating Plan	I
Maximum number of floors	See Regulating Plan	J
Finish ground floor level	18" above sidewalk	K
First floor ceiling height	12' minimum clear, 20' maximum	L
Floor-to-floor height	12' minimum clear, 20' maximum	M
Fenestration		
Percent of facade area	40%-90%	N

Parking
Maximum 4 spaces per 1,000 SF of floor space
Trees shall be planted such that 70% of parking will be shaded within 15 years
If access is controlled, government vehicle parking is not subject to setbacks
Parking drive width shall be a maximum of 15' per lane

Notes

- Corner lot street facades must be built to RBL within 30' of street corner
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- 70% of all buildings must be built within the buildable area boundary
- Where no RBL is designated, a building may occupy any portion of the site within the buildable area boundary

Street Standards – Typical Street Section



Landscape Standards

Landscaping is an important element in the design of outdoor spaces. Overall, the goals for plant material use include improving the physical and psychological well-being of those living and working on Fort Stewart; preserving and restoring natural resources; and increasing the sustainability of developments through use of native plants for energy conservation, climate modification, erosion control, air purification, and noise abatement.

Landscapes in the WAAF District should emphasize design and planning principles consistent with low impact development and the protection of ecological functions, including:

- Conserving undisturbed natural areas;
- Minimizing site development impacts;
- Reducing impervious cover;
- Using natural features for stormwater management;
- Using native plants compatible with the climate and soils; and
- Enhancing open spaces.



Landscaping at MidCoast Regional Airport Apron

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PART VI
APPENDICES

1. Implementation
2. List of Acronyms and Abbreviations
3. Acknowledgements



Operations Exercises at Wright Army Airfield
Source: army.mil

PART VI
APPENDICES
1. Implementation

Strategy Overview

Per UFC 2-100-01 and US Army guidance, this ADP planning process feeds directly into the CIS. The CIS is the installation strategy for using and investing in real property to support installation missions and US Army objectives. It describes Long-term solutions, as well as Short-term actions necessary to correct deficiencies and meet real property requirements.

To assist Fort Stewart in developing a CIS that implements the Preferred Plan, this strategy details each project. The Implementation Appendix is intended to allow for smooth execution of the individual projects that work together to achieve the Fort Stewart Real Property Vision. The details are presented according to the Phasing Plans – Short-, Mid-, and Long-term. All demolition proposed has been included as well.

Planning level cost estimates provide a rough order of magnitude (ROM) comparison of proposed projects and assist installation planners in prioritization and execution. The following pages present a more detailed review of each phase of the Preferred Alternative, followed by a table listing the necessary projects and their ROM cost estimate.



Developing Alternatives



Leadership Presentation

Strategy Overview (Continued)

The ROM cost estimates were developed using the following references and assumptions.

Reference Guides

- Army Facilities Pricing Guide, PAX Newsletter 3.2.2, dated 30 May 2018
- UFC 3-701-01 DoD Facilities Pricing Guide, Change 1, dated 25 June 2018, including attached data tables
- DoD Area Cost Factors (ACF) PAX Newsletter No. 3.2.2, dated 30 June 2018, Table 4-1

Building Construction Assumptions

The proposed buildings are assumed to include the following:

- AT/FP features inside the building, when minimum setback/standoff distance is achieved;
- Building Information Systems (e.g., conduits, racks, trays, telecommunication rooms) for facilities without any special communications requirements;
- Energy Management Control System Connection;
- Intrusion Detection System infrastructure, to include conduits, racks, and trays;
- Mandated Sustainable Design and Development features for criteria in effect (e.g., Leadership in Energy and Environmental Design [LEED] Silver Rating, Energy Policy Act of 2005, etc.);
- Built-in equipment and furnishings normally funded by MILCON funds; and
- Uncomplicated strip/spread-footing type foundation. For any special foundations, such as pile foundations and structural fill, cost would be listed separately.

Buildings are <u>not</u> assumed to include the following:

- AT/FP features required inside the building when minimum standoff distance cannot be achieved or when enhanced AT/FP features are required due to the height of the building, such as for three-or more storied buildings when the past designs did not require Progressive Collapse measures;
- Built-in renewable and alternative energy features (e.g., roof-mounted solar panels);
- Special foundation cost (e.g., cost of pre-stressed concrete pile foundation or structural fill);
- Special architectural features to comply with the historic preservation guidelines; or
- Equipment acquired with non-MILCON fund sources (e.g., intrusion detection systems).

Unit Cost Assumptions

All unit costs are assumed to include:

- Adjustments for ACF;
- Contractor's mark-ups for overhead and profit;
- Construction contingency and supervision, inspection, and overhead allowances (estimated at 5.7 percent); and
- Design-Build design costs (estimated at 10 percent).

Unit Cost Calculations

- Factored unit construction costs are calculated by adding together the ACF, contractor markup, and design development contingency. The final unit cost then has the 5.0 percent government contingency applied on top of the contract value (subtotal including Design-Build costs).
- Factored unit renovation costs are assumed to be 50 percent of the factored unit new construction cost. This is a reasonable planning assumption as when the renovation cost exceeds 50 percent of the new construction, a complete replacement is usually considered more economically feasible.
- Each line is assumed to have only one type of cost (new construction, renovation, or demolition).
- Following the unit cost calculations, the total project cost is rounded to the nearest $10,000.

Strategy Overview (Continued)

In addition to the unit cost and building assumptions, costs were escalated based on anticipated construction. To simplify the calculations, the escalation rate is the middle year of the phasing term.

- Short-term (0 – 5 Years)
- Mid-term (6 – 15 Years)
- Long-term (16 – 20 Years)

Because the fiscal year planning extends beyond the range of data provided in UFC 3-701-01, escalation factors are derived from USACE Civil Works Cost Index System, EM 1110-2-1304, dated 31 March 2018. Cost index values were pulled from the rows for category 19 "Buildings, Grounds & Utilities."

Contingency Factor

Design contingency allowance is provided to estimate component items that cannot be analyzed or evaluated at the time the facility cost estimate is prepared. It lessens at each successive design stage. The initial magnitude of the contingency at the pre-design stage depends on the technical complexity of the project for which the facility cost estimate is being prepared. The contingency factor used for these estimates is 25 percent.

Net to Gross Factor

For calculation of gross area of buildings for cost estimates, an approximate net-to-gross circulation factor of 35 percent (normal circulation areas, and internal and external wall thickness allowances) was used to increase the net area of the buildings and an additional 3 percent per floor was used for vertical circulation allowance (stairs and elevators with lobbies) when multiple level buildings are considered. Demolition quantities for buildings are considered to be gross square feet (perimeter of existing building).

Construction Types

Construction types are based on the DoD categories of construction type listed as a cost per unit of measure. Building/structure unit costs are for construction of the building/structure to within 5 feet of the perimeter of the building/structure. A separate Budget Estimate Summary Sheet includes line item costs needed to account for infrastructure construction costs to service the building/structure. These costs are listed under "Supporting Facilities." Some projects have work scope that falls entirely under the Supporting facilities category.

Potential Funding Sources

- MILCON
- SRM

Short-term Plan - Overview

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PART VI
APPENDICES
2. List of Acronyms and Abbreviations

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List of Acronyms and Abbreviations

‘	feet
“	inch
6L	6Left
6R	6Right
15L	15Left
24R	24Right
33L	33Left
33R	33Right
ACF	Area Cost Factors
ACP	Access Control Point
ADP	Area Development Plan
APZ	accident potential zone
AR	Army Regulation
ASOS	Air Support Operations Squadron
AT/FP	anti-terrorism/force protection
ATC	air traffic control
Bldg.	Building
FBO	fixed-base operator
CIS	Capital Investment Strategy
CMU	concrete masonry unit
COL	Colonel
CTC	Combat Training Center
DoD	Department of Defense
DPTMS	Directorate of Plans, Training, Mobilization and Security
DPW	Directorate of Public Works
FBO	fixed-base operator
GIS	geographic information system
HAAF	Hunter Army Airfield
ILS	Instrument Landing System
LEED	Leadership in Energy and Environmental Design
MILCON	military construction
PCN	Pavement Condition Number
POL	petroleum, oil, and lubricants
RBL	Required Build-to Line
ROM	rough order of magnitude
RPMP	Real Property Master Plan
SF	square feet/footage
SRM	Sustainment, Restoration, and Modernization
SWOT	strengths, weaknesses, opportunities, and threats
SY	square yards
TRACON	Terminal Radar Approach Control
UAS	Unmanned Aircraft System
UFC	Unified Facilities Criteria
US	United States
USACE	US Army Corps of Engineers
WAAF	Wright Army Airfield
WWII	World War II

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PART VI
APPENDICES
3. Acknowledgements

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Acknowledgements

This study could not have been completed without the insights and contributions of many throughout the installation including:

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Melissa Kendrick

Sandra LaCoursiere

Jack Mayfield

Amber McCormick

Kevin McKay

Brian Mixon

Jose Olivieri (CW4)

Andrea Stolba

Michael Thomas

Kyle Wemett



AIRPORT LAYOUT PLAN UPDATE
FINAL REPORT
MIDCOAST REGIONAL AIRPORT
AT WRIGHT ARMY FIELD

Presented to:

Liberty County
JULY 2020

Presented by:

Holt Consulting Company, LLC
2801 Devine Street
Suite 201
Columbia, SC 29205

HOLT
CONSULTING COMPANY, LLC.

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CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

Development of the Airport Layout Plan (ALP) Update Narrative Report for the MidCoast Regional Airport at Wright Army Airfield (WAAF) was undertaken by Liberty County for the purpose of examining the Airport's existing and future role and to provide direction for long term development of the Airport. Financial assistance for the preparation of the Airport Layout Plan Update was provided by the Georgia Department of Transportation (GDOT) – Aviation Programs and the Federal Aviation Administration (FAA).

1.2 PURPOSE OF STUDY

The purpose of this study is to determine the aviation needs of the MidCoast Regional Airport/WAAF and its service area for the next 20 years and to ensure safety standards and facility requirements are met and /or planned for. The study is part of the continuing planning process necessary to assure adequate and compatible airport improvements as required to meet the growing aviation demands associated with the airport.

1.3 GOALS AND OBJECTIVES

The overall goal of this study is to provide the Liberty County Board of Commissioners and the Joint Military Board (JMB) with an effective planning tool to guide the future development of the MidCoast Regional Airport/WAAF. This Airport Layout Plan Update Narrative Report provides local officials with such guidance while ensuring that the development of the airport is accomplished in a manner that respects the military's mission for Wright Army Airfield, the local environment and is consistent with the financial policies of the county. Accomplishment of this goal requires the evaluation of existing airport activity and facilities, and determination of actions needed to maintain an adequate, safe and reliable airport facility to meet the needs of Liberty County, and the surrounding areas.

Specific objectives of the Airport Layout Plan Update Narrative Report include the following:

- Inventory existing airside, landside and other support facilities and services currently at the airport;
- Update historical aviation data and develop new forecasts based on historical trends and major changes anticipated for the future;
- Document the methodology, findings, analysis and conclusions for the technical investigation of concepts and alternatives which were performed to develop the proposed plan; and
- Identify anticipated airport funding needs and proposed airport development policies for consideration by the MidCoast Regional Airport/WAAF.

1.4 AIRPORT LAYOUT PLAN NARRATIVE REPORT

The Airport Layout Plan Update for the MidCoast Regional Airport/WAAF is organized into functional chapters on the following plan elements:

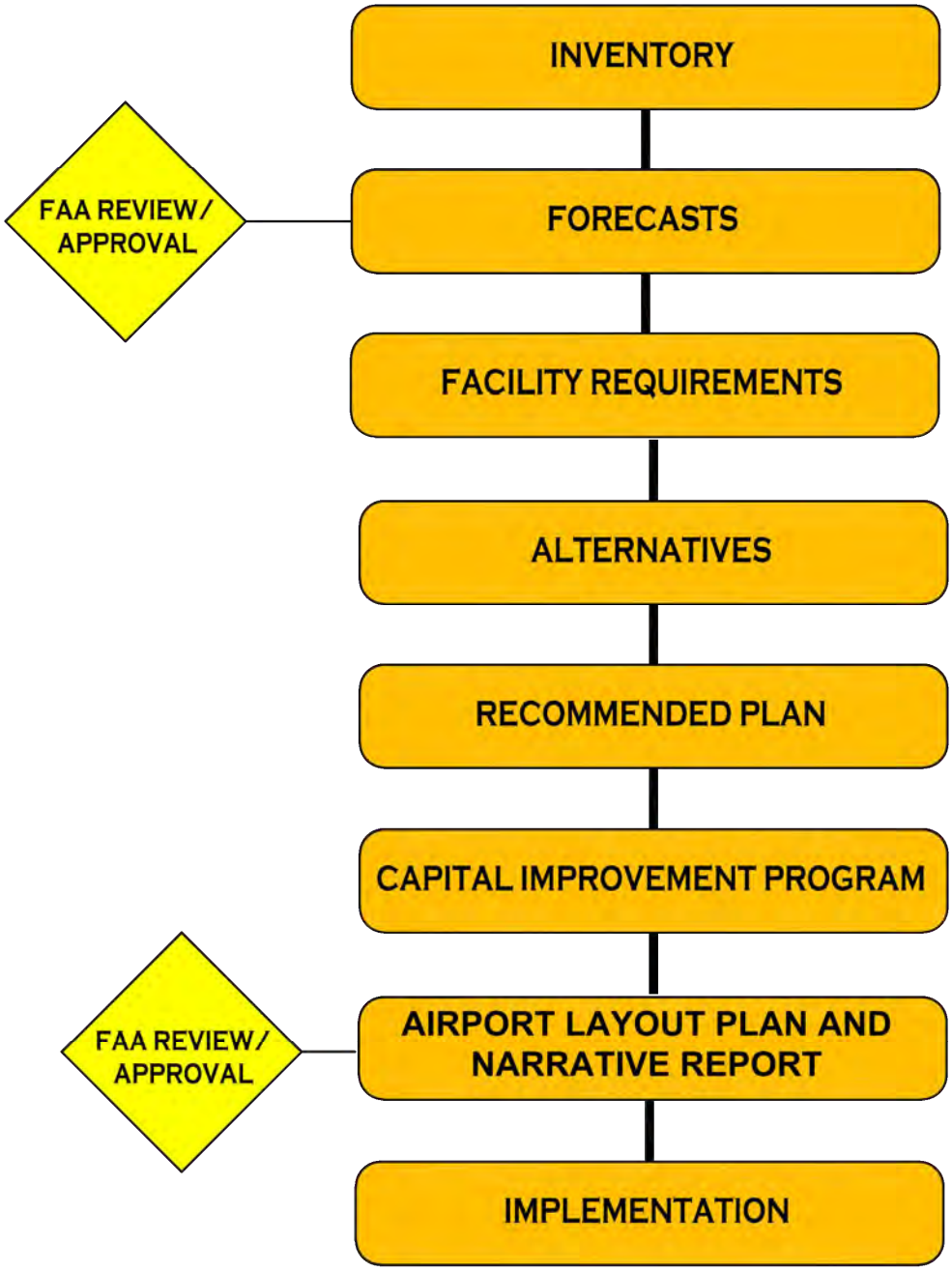
- Introduction – Purpose of study and overall goals and objectives;
- Airport Inventory – Inventory existing airport facilities and services including airside, landside and airport related land uses;
- Aviation Demand Forecasts – Update forecasts of general aviation demand for the short (5 years), medium (10 years) and long range (20 year) periods;
- Facilities Requirements – Determine existing airport facilities' ability to accommodate the forecasted aeronautical demands and identify needed improvements to provide the required safety and capacity of airport facilities;
- Airport Layout Plans – Provide recommended plans for airport development, including the Airport Layout Plan (ALP), Terminal Area Plan, Part 77 Airspace Plan, Inner Portion of Approach Surface Drawing, Land Use Drawing, and Property Map; and
- Recommended Capital Improvement Program – A schedule and cost estimates of the proposed development will be prepared, as well as funding sources for the recommended facilities requirements.

1.5 RELATED STUDIES

During the early part of the study, several sources of background information were assembled and referenced for this study. These publications have been acquired from various Federal, State, and local agencies. Such publications include:

1. Terminal Area Forecast, Fiscal Years 2018-2045, U.S. Department of Transportation, Federal Aviation Administration.
2. FAA Aerospace Forecast, Fiscal Years 2019-2039, U.S. Department of Transportation, Federal Aviation Administration.
3. National Plan of Integrated Airport Systems (NPIAS) 2019-2023, U.S. Department of Transportation, Federal Aviation Administration, September 2018.
4. Georgia Aviation System Plan 2018, Georgia Department of Transportation.
5. FAA AC 150/5070-6B, Airport Master Plans, U.S. Department of Transportation, Federal Aviation Administration.
6. MidCoast Regional Airport Layout Plan Update, prepared by Wilbur Smith Associates, March 2010.

The organization and format of the MidCoast Regional Airport/WAAF Airport Layout Plan Update is designed to provide an easily readable, yet comprehensive presentation of the complete plan. A graphic representation of the ALP planning process is depicted in **Exhibit 1-1**.



AIRPORT LAYOUT PLAN UPDATE
NARRATIVE REPORT
STEPS IN PLANNING PROCESS

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JULY 2019

EXHIBIT 1-1

CHAPTER 2
INVENTORY AND EXISTING CONDITIONS

2.1 INTRODUCTION

Preparation of the Airport Layout Plan (ALP) Update for the MidCoast Regional Airport at Wright Army Airfield (WAAF) requires collection and analysis of various data relating to the airport, as well as the area it serves. This includes an inventory of the existing airport facilities, airspace and pertinent local and regional conditions as well as historical information. The data presented was collected through on-site inspections, interviews with county staff, the Federal Aviation Administration (FAA), Georgia Department of Transportation Aviation Programs, internet sites, and a review of previous reports, maps, and aerial photographs. Data contained in this chapter will be used as references to conduct additional analyses in subsequent chapters.

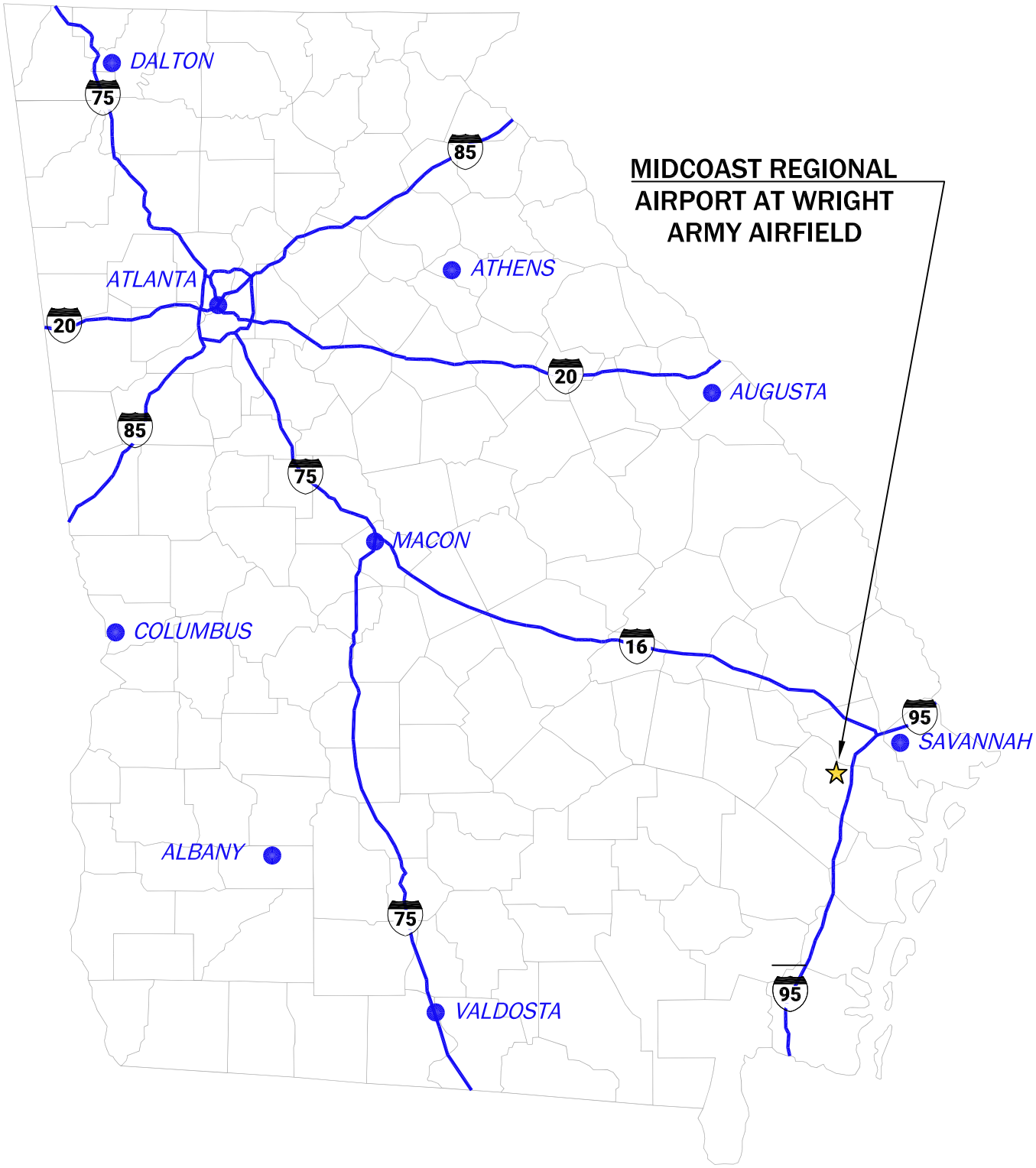
2.2 AIRPORT SETTING

The MidCoast Regional Airport/WAAF is a joint use-use airport located in Liberty County in southeastern Georgia, on Wright Army Airfield, Fort Stewart, Georgia. Wright Army Airfield is approximately 35 miles southwest of Savannah and 60 miles north of Brunswick, Georgia. MidCoast Regional Airport is situated on the southern side of the airfield on approximately 35.7 acres leased from the U.S. Department of Defense. The airport can be accessed from the southwest and northeast via U.S. Highway 84. Other highways in the vicinity include Interstate 95, U.S. Highway 17, Georgia Highway 144, and Georgia Highway 196. The field elevation is 46 feet MSL and the existing airport reference point (ARP) is latitude N31° 53' 17.90", longitude W81° 33' 41.84". **Exhibits 2-1 and 2-2** illustrate the location and vicinity maps.



In early 1942, construction began on an airfield at Camp Stewart. Camp Stewart Army Airfield (AAF) was also known as Liberty Airfield for its Georgia county location. The facility was quite small with two 5,000-ft. runways, approximately 18 hardstands, and barracks for 50 officers and 300 men.

On January 1, 1943, the Air Technical Command 4th Tow Target Detachment moved to the newly completed airfield from Atlanta Army Airfield with a mission of towing aerial targets for anti-aircraft artillery training, with the airfield becoming a sub-base of Atlanta, with the 142nd Army Air Force Base (AFB) Unit being the host unit. The Detachment's aircraft consisted of a mixture of aircraft, consisting of the Douglas A-20 Havoc, Beech C-43 Staggerwing, Taylorcraft L-2 Grasshopper, Beech AT-7, Douglas A-24 Dauntless, Curtiss A-25 Helldiver, and the B-34 Lexington.

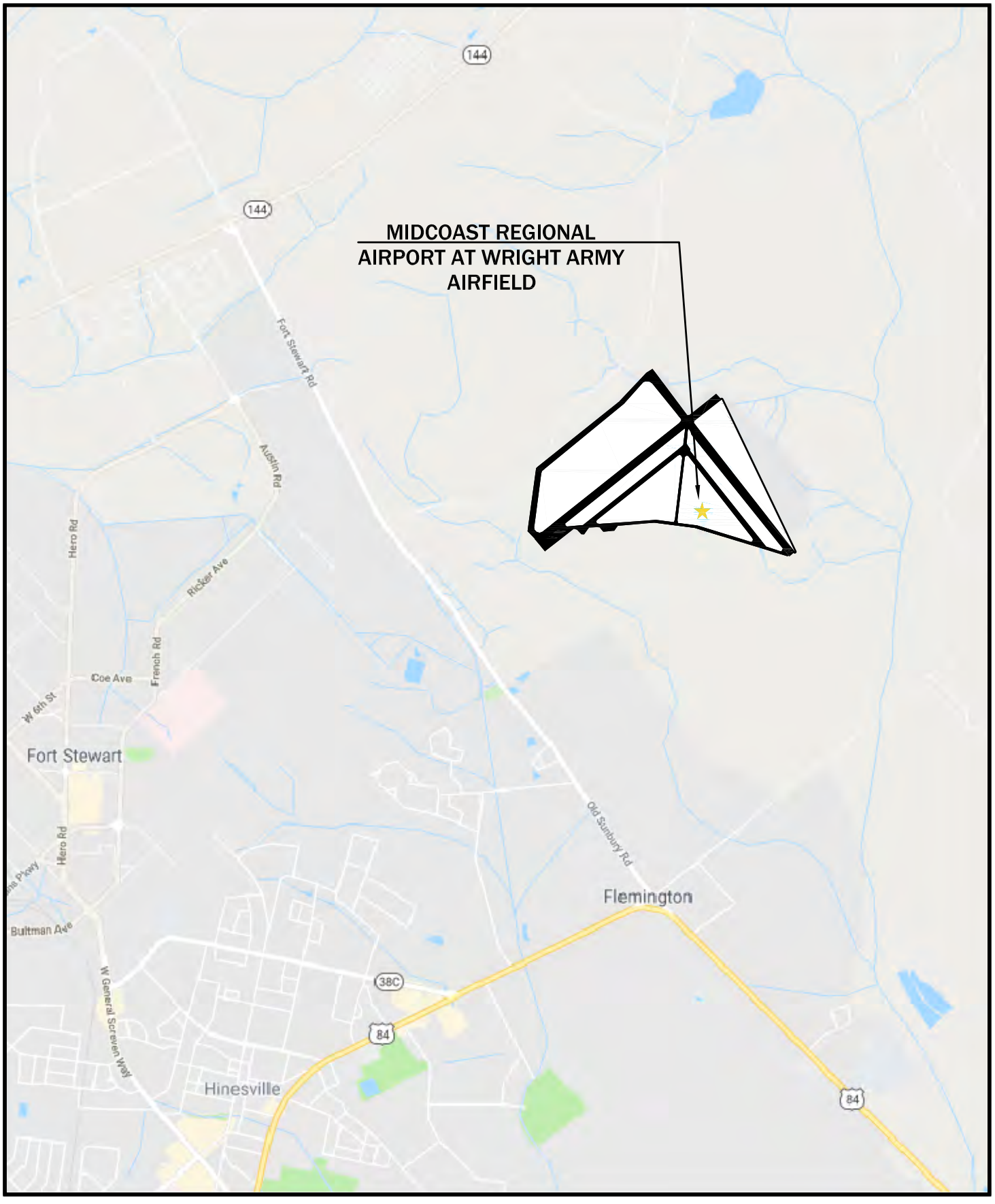


AIRPORT LAYOUT PLAN UPDATE
NARRATIVE REPORT
LOCATION MAP

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AIRPORT LAYOUT PLAN UPDATE
NARRATIVE REPORT

VICINITY MAP

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JULY 2019

EXHIBIT 2-2

The peak utilization of Stewart AAF took place in the spring of 1944, during the buildup for the invasion of Europe when over 55,000 men were present. In addition to anti-aircraft artillery training, Stewart AAF also trained cooks and bakers as well as postal units. The camp also had a POW compound for Germans and Italians captured in North Africa. The POWs were put to work on the camp's construction projects and local farms. By the spring of 1945, the camp was virtually empty except for the POW compound. On March 25, 1945, the airfield was deactivated, and the Detachment transferred to Chatham AAF. Following the end of the war, the Army used Camp Stewart as a separation center for a short period of time before deactivating it on September 30, 1945.

In the postwar years, the Army utilized the camp during the summer for the training of National Guard units. Camp Stewart re-opened during the Korean War for training of the 3rd Army's anti-aircraft artillery units. In 1953, the training of armor units was added. In 1959, the Army made the post a permanent United States Army facility, designated it as an Armor and Artillery Training Center, renaming it Fort Stewart. Camp Stewart Army Airfield was renamed Wright Army Airfield and used as a military airport within the Fort Stewart facility.

During the Vietnam War, the airfield trained initial entry Army fixed wing aviators and helicopter pilots. When the Air Force closed Hunter AFB in 1967, the Army took it over as a sub-base of Fort Stewart and established a Flight Training Center. Fort Stewart became the Army's focal point in Aviation Training between 1967-1970. In early 1969, construction was complete for a new control tower at Wright Army Airfield. One of the first Army control towers above 170'. In 1970, Hunter AFB was re-designated Hunter Army Airfield and was used in-conjunction with Wright Army Airfield. With the end of the Vietnam War, Fort Stewart became idle once again. That ended with the reactivation of the 24th Infantry Division at Stewart in 1974. In 1996, the 3rd Infantry Division activated and remains at Fort Stewart today, with Wright Army Airfield being an operational part of the facility.

In 2004, Liberty County began exploring options to upgrade the Liberty County Airport to expand their economic presence in the area. During that same time, the U.S. Army was investigating alternative uses for Wright Army Airfield. In the *2003 Georgia Statewide System Plan*, Liberty County was recommended as the location for a reliever facility for the Savannah-Hilton Head International Airport. These separate actions brought together the City of Hinesville, Liberty County, the Liberty County Development Authority (LCDA), the U.S. Army, the Georgia Department of Transportation (GDOT), and the Federal Aviation Administration (FAA).

The three local partners, the City, the County, and the LCDA, and the Army formed the Joint Management Board to develop a plan for converting Wright Army Airfield to a public-use facility. This facility would act as the Liberty County Airport and become the reliever for Savannah-Hilton Head International Airport.

Because of the involvement of multiple local, state, and federal agencies, a substantial amount of time was needed to program the project. To provide the development framework, numerous supporting technical documents, agreements, and study reports were produced. The hard work and dedication of these agencies culminated in the redevelopment of the Wright Army Airfield.

The schedule and timing of the required tasks was a significant challenge. Many pieces had to fall into place at the right time. Among the constantly changing list of tasks included construction of the terminal, installation of a security fence, relocation of a military gate, approval of documents, meeting of state and federal airfield requirements, and the coordination of emergency services.

The strategic planning efforts solicited funding from GDOT, FAA, the OneGeorgia Authority, and local governments. GDOT and FAA funding assisted with the airfield paving and lighting. The project team decided on a unique funding approach for the terminal and hangar construction: design/build. This method allowed greater flexibility in the construction design and schedule, while ensuring a quality final product. The new terminal offers all the amenities required by pilots, yet captures the soothing, historic coastal Georgia architecture. Liberty County, eager to see this project completed, pushed through the challenges and the MidCoast Regional Airport opened on November 5, 2007.

2.3 AIRPORT ROLE

The MidCoast Regional Airport/WAAF operates as a public-use airport facility operated by Liberty County. At the national level, it is included in the Federal Aviation Administration's (FAA) National Plan of Integrated Airport System (NPIAS). The NPIAS includes a total of 3,328 airports according to the last updated report presented in 2019-2023. The MidCoast Regional Airport/WAAF is one of 104 airports in Georgia that is included in the NPIAS. According to the NPIAS, the MidCoast Regional Airport/WAAF is defined as a non-primary general aviation airport and classified as local. Local airports supplement local communities by providing access to markets within a state or immediate region. Local airports typically accommodate flight training, emergency services, and charter passenger service. An airport must be included in the NPIAS to be eligible for federal funding.

At the state level, the MidCoast Regional Airport/WAAF is included in the Georgia Aviation System Plan. The purpose of the system plan is to provide a comprehensive look at each airport and the overall air transportation needs of the State for the next 20 years. This plan serves as a template to provide the Georgia Department of Transportation with the tools needed to improve Georgia's system of airports in a logical and cost-effective manner. In addition to reviewing the aviation system's future capital needs, the plan includes a detailed analysis of the economic impact aviation has on the state of Georgia. According to the plan, the MidCoast Regional Airport/WAAF is responsible for 66 jobs, $1.4 million in payroll and $4 million in annual economic activity.

The Georgia Statewide Aviation System Plan categorizes the MidCoast Regional Airport/WAAF as a State Classification (SC) Level III – Business Airports of Regional Impact. The Georgia Statewide Aviation System Plan has determined that these airports should have runways that are a minimum of 5,500 feet x 100 feet, full parallel taxiway, High Intensity Runway Lights (HIRL), Automated Weather Observing System (AWOS) or Automated Surface Observing System (ASOS), and offer the full range of fuels and most aviation services. **Table 2-1** details the facilities recommended for a Level III Airport.

AIRSIDE FACILITIES	
Runway Length	Minimum 5,500 feet
Runway Width	100’
Taxiway	Full Parallel
Lighting Systems	HIRL for precision approaches and commercial service airports; MITL and approach lights
Approach	Precision
NAVAIDS/Visual Aids	Rotating Beacon, segmented circle and wind cone, PAPI’s, others as required for a non-precision/precision approach
Weather Reporting	AWOS or ASOS
Runway Pavement Strength	30,000 pounds single-wheel/120,000 pounds dual-wheel
Airfield Signage	Runway hold position, location, and guidance signs
Fencing	Entire airport
PAPIs	4-Box (L)
GENERAL AVIATION FACILITIES	
Hangared Aircraft Storage	70% of based aircraft
Apron Parking/Storage	30% of based aircraft plus an additional 75% for transient aircraft
Terminal/Administration	2,500 square feet minimum of public use space including restrooms, conference area, and pilots’ lounge
Auto Parking	One space for each based aircraft plus an additional 50% for visitors/employees
SERVICES	
Fuel	Avgas and/or Jet fuel
FBO	Full service
Maintenance	Full service
Rental Car	Available

Table 2-1 – *Level III Recommendations*

2.4 CRITICAL AIRCRAFT DESIGN

The FAA classifies airports according to the size of aircraft that typically operate at an airport. As contained in FAA Advisory Circular (AC), 150/5300-13A, change 1, this classification is the Airport Reference Code (ARC). This is what provides the overall planning and design criteria for the airport based on the aircraft wingspan or tail height and approach speed. The ARC provides the guidelines for pavement surfaces, safety areas, runway lengths, separation standards, and taxiway criteria to ensure that the airfield layout and geometry provide a safe and efficient operating environment for the aircraft that typically use the airport. The ARC consists of a letter and a numeric identifier. The letter (A, B, C, D and E) represents the approach speed of the aircraft and the number (I, II, III, IV, V) represents the wingspan and tail height of the aircraft as shown in **Table 2-2**.

Aircraft Approach Category	Approach Speed (knots)	
A	Less than 91	
B	91 to 120	
C	121 to 140	
D	141 to 165	
E	166 or Greater	
Airplane Design Group #	Tail Height (feet)	Wingspan (feet)
I	Less than 20	Less than 49
II	21 to 29	49 to 78
III	30 to 44	79 to 117
IV	45 to 59	118 to 170
V	60 to 65	171 to 213
VI	66 to <80	214 to < 262

Source: FAA Advisory Circular 150/5300-13A, Change 1, *Airport Design*.

Table 2-2 – *FAA Aircraft Classifications*

Aircraft approach speeds included in categories A and B are typically small, piston-engine aircraft, whereas C, D, and E are normally larger turboprop or turbine powered aircraft. Similarly, the wingspan and tail height of small, piston-engine aircraft like the Cessna 150/172, Beech Baron 55, and Cherokee Piper normally correspond to design group category I. Typical aircraft in design group II would be a Beech King Air, Cessna Citation, or smaller Gulfstream business jets. Design groups III, IV, and V would represent air carrier aircraft, such as Boeing 737, B-757, and B-747, respectively. Group VI would include the largest of aircraft, such as an Airbus A-380 or a military cargo aircraft like the C-130 and C-5.

Based on information obtained from the ATC Chief/Air Traffic & Airspace Officer DPTMS, Airfield Division, Air Traffic Control Branch for Wright Army Airfield, the critical military aircraft is the Lockheed C-130, which has a wingspan of 132 feet, a tail height of 38 feet and an approach speed of 130 knots. This aircraft places it as a C-IV. This would remain the critical military aircraft throughout the planning period. Based on current observations and information obtained from the airport, the civilian critical aircraft was determined to be the Beech Bonanza and the Piper Cherokee, which would fall in the A-1 classification. Although smaller single and twin- engine aircraft conduct the largest number of operations, the airport has seen an increase in the number of operations by turbine-powered aircraft like the Gulfstream 650 and Hawker 400. Gulfstream Aerospace Corporation, located in Savannah, GA, has expressed interest in using the airport to conduct test flights. Because of current and future activity, this ALP Update recommends the existing ARC be a A-1 and an ultimate of C-11 as it relates to civilian aircraft.

Because the airfield already meets C-IV design standards, the overall effect of the civilian ARC is minimal in regard to the ALP. The change in ARC would not require airfield upgrades (i.e., RSA improvements and would not affect the complexity or cost of future airfield development projects. The C-II criteria should be applied to any future general aviation facility requirements.

2.5 EXISTING AIRPORT FACILITIES

Airport facilities can be functionally classified into two broad categories: airside and landside. The airside category includes those facilities directly associated with aircraft operations. The landside category includes those facilities that provide a terminal interface between surface and air transportation, as well as support services such as aircraft storage and maintenance. Airside

facilities include runways, taxiways, lighting, signs, marking, and navigational aids. **Table 2-3** provides a listing of the existing airside and landside facilities.

Pavement Condition

Based on the 2018 Pavement Study, completed by the GDOT, all existing airfield pavement has a PCI range of 70-100. The Pavement Condition Index Map, as shown in **Appendix B**, recommends preventive maintenance due to its' excellent condition.

Runways

The airfield is currently served by four asphalt runways designated as 06L/24R, 06R/24L, 15L/33R, and 15R/33L. Runway 06L/24R, the primary runway is 6,505 feet in length and 100 feet wide and Runway 15L/33R is 4,999 feet in length and 100 feet wide. Runways 6L/24R and 15L/33R are listed as having a PCN value of 30 and 15 respectively. Both runways are constructed of asphalt. Runways 6R/24L and 15R/33L, are currently closed to fixed-wing aircraft and are primarily used for helicopter traffic. These runways will not be included in the study.

Taxiways

There are five taxiways at the Airport, three in operation and two that are currently not in use. Taxiway A is asphalt, 50 feet wide, 2,135 feet in length and connects the intersection of Runways 6L/24R and 15L/33R to the military apron. Taxiway B connects Runway 6L/24R end to the military apron and Taxiway A, is asphalt and concrete, 50 feet wide, and 2,571 feet in length.

Taxiway C connects Runway 33R end to the military apron, the civil apron, and Taxiway A. It is asphalt and concrete; 50 feet wide; and 2,509 feet in length. Taxiway D and E are no longer in operation. Taxiway D is located on the west side of the airfield and connects Runway 6L end to Runway 15L. Taxiway E is located on the east side of the airfield and connects Runway 33R to Runway 24R

Airfield Lighting, NAVAIDS, and Weather Reporting

Pavement edge lighting utilizes light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. The lighting is essential for safe operations during night and/or time of low visibility, to maintain safe and efficient access to and from the runway and aircraft parking areas. Runways 06L/24R and 15L/33R are equipped with High Intensity Runway Lighting (HIRL). All major taxiways and apron edge taxiway lanes, as well as connector taxiways are equipped with Medium Intensity Taxiway Lighting (MITL).

The existing high-intensity beacon at MidCoast Regional Airport/WAAF is located to the north of the terminal building and is in fair condition. This Navigational Aid (NAVAID) is used for locating airports at night and to indicate instrument flight rules weather during daylight hours. The light color combinations indicate the type of airport. The rotating beacon produces three beams of light, two clear and one green. This is a signal to pilots that this airfield is approved for military use.

AIRSIDE FACILITIES	
RUNWAY AND TAXIWAY DIMENSIONS	
Runway 06L/24R	6,505’ Length x 100’ Wide
Parallel Taxiway	35’ Wide (Asphalt)
Runway 15L/33R	4,999’ Length x 100’ Wide
Parallel Taxiway	50’ Wide (Asphalt)
RUNWAY PAVEMENT TYPE/STRENGTH /CONDITION	
Runway 06L/24R	Asphalt/PCN 30/Good
Runway 15L/33R	Asphalt/PCN 15/Good
LIGHTING AND MARKING	
Runway 06L/24R	HIRL/Non-Precision
Parallel Taxiway	MITL
Runway 15L/33R	HIRL/Non-Precision
Parallel Taxiway	MITL
NAVIGATIONAL AIDS	
PAPIs	4-Box (L)
VISUAL AIDS	
	Rotating Beacon, Wind Cone and Segmented Circle
LANDSIDE FACILITIES	
AIRCRAFT STORAGE	
T-Hangars	1 – 12- Unit
Box Hangars	5
Maintenance Hangar	1
TERMINAL BUILDING	
	1-story; 14,000 +/- square feet
APRON	
Area/Tiedowns	250,000 SF/26 Tie-downs
FUEL STORAGE	
100 LL	600- gallon self-serve/12,000-gallon storage tank
Jet “A”	12,000-gallon storage tank
AUTO PARKING	
Number of Parking Spaces	35 +/- marked spaces
Parking Lot Area	2,500 square yards

Table 2-3: *Summary of Existing Facilities*

Windcones indicate wind direction and relative wind speed and can be lighted or unlighted. A segmented circle provides airport location, traffic pattern, and a centralized location for other indicators (typically a windcone). The windcone/segmented circle MidCoast Regional Airport/WAAF is centered between the two runways and is in good condition.

Precision approach path indicators (PAPI-4L) are available for the approach to both Runways. The PAPIs provide approach path guidance with a series of light units. The four-unit (PAPI-4L) gives the pilot an identification of whether their approach is above, below, or on-path, through the pattern of red and white lights visible from the light unit.

Airfield identification signs assist pilots in identifying their location on the airfield and directing them to their desired location. Lighted signs are installed at all taxiways and runway intersections. These signs also identify the aircraft holding position. All signs are lighted for operations at night and during low visibility periods.



Pavement markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. Both Runways 06L/24R and 15L/33R are equipped with non-precision markings. The runway markings are in good condition.

Taxiway and apron taxilane centerline markings are provided to assist aircraft using these airport surfaces. Centerline markings assist pilots in maintaining proper clearance from pavement edges and objects near the taxilane/taxiway edges. Aircraft hold positions are also marked on all taxiway surfaces. Pavement markings also identify aircraft tie-down positions.

2.6 INSTRUMENT APPROACH PROCEDURES

Instrument approach procedures are a series of predetermined maneuvers established by the FAA, using electronic navigational aids that assist pilots in locating and landing at an airport, especially during instrument flight conditions. As found in the United States Government Flight Information Publication, *U.S. Terminal Procedures,* the MidCoast Regional Airport/WAAF offers three published instrument approaches.

Global Positioning System (GPS)

GPS is a non-precision approach. It is a navigation system that consists of a network of satellites and ground stations. GPS satellites can provide aircraft with three-dimensional position (latitude, longitude, and altitude), velocity, and time of day, in all weather conditions. GPS signals may support approach procedures to any runway end and can provide both horizontal and vertical guidance depending on the receiver's certification.

RNAV Area Navigation (RNAV)

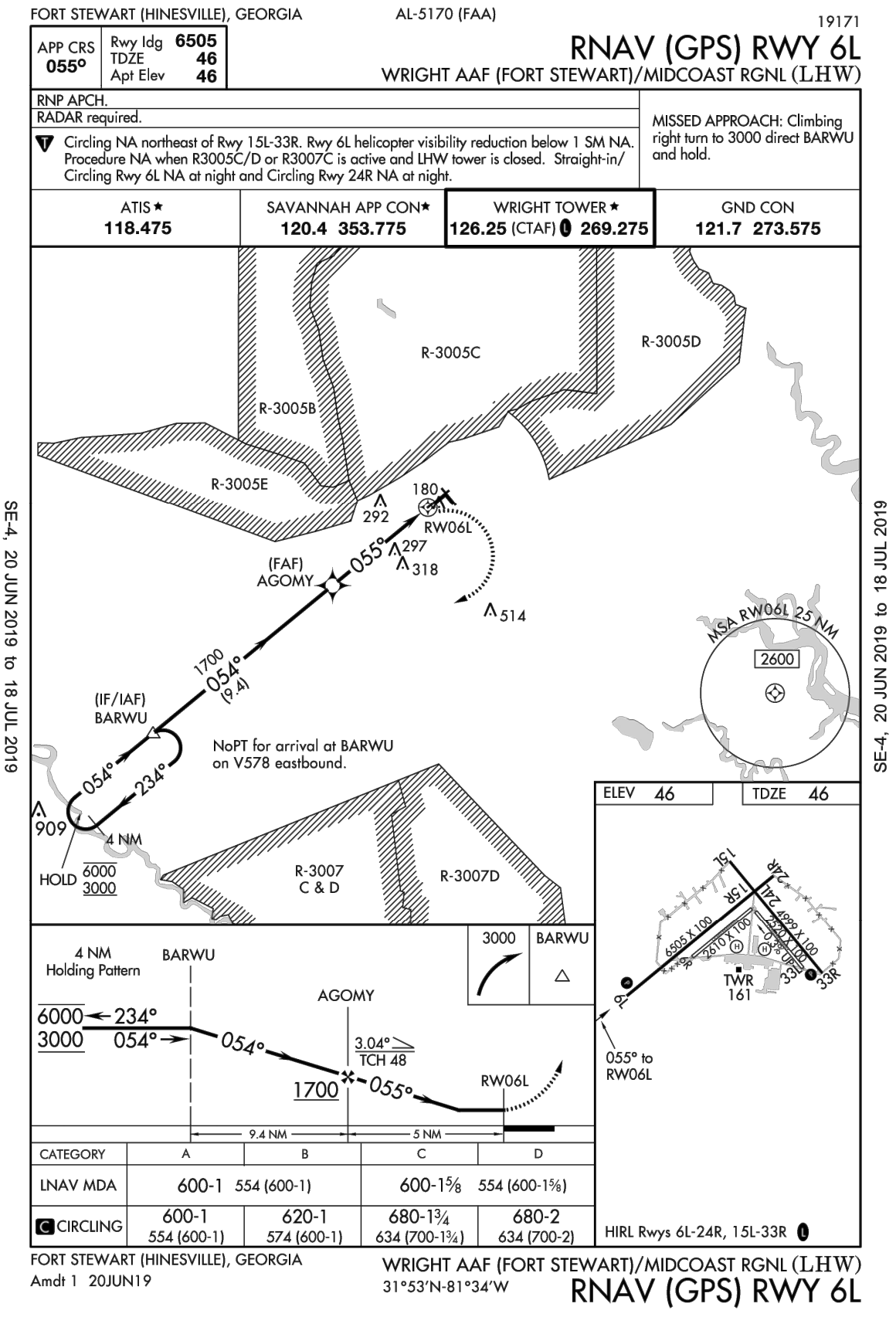
RNAV is a non-precision approach and a performance-based type of navigation that allows aircraft to fly on a desired path within the coverage of ground or space-based navigational aids. Required Navigation Performance (RNP) capable aircraft are equipped with onboard performance monitoring and alerting capabilities, that allows an aircraft to fly a specific path between two 3D-defined points in space. Localizer Performance with Vertical Guidance (LPV) provides minimum approach heights for GPS/RNAV approaches using wide area augmentation system (WAAS) and very precise GPS capabilities. In most cases, approaches with LPV have minimums comparable if not better than an Instrument Landing System (ILS) approach. A LPV approach provides landing aircraft with both lateral and vertical guidance. There is an existing RNAV GPS-based LPV instrument approach procedures for Runway 33R.

Non-Directional Beacon (NDB)

A non-directional (radio) beacon (NDB) is a radio transmitter at a known location, used as an aviation or marine navigational aid. As the name implies, the signal transmitted does not include inherent directional information, in contrast to other navigational aids such as low frequency radio range, VHF omnidirectional range (VOR) and Tactical Air Navigation System (TACAN).

The approaches mentioned above are illustrated in the figures on the following pages:

- **Figure 2-3 - RNAV (GPS) RWY 6L**
- **Figure 2-4 - RNAV (GPS) RWY 33R**
- **Figure 2-5 – NDB RWY 33R**


FORT STEWART (HINESVILLE), GEORGIA
AL-5170 (FAA)
19171
APP CRS 055°
Rwy Idg 6505
TDZE 46
Apt Elev 46
RNAV (GPS) RWY 6L
WRIGHT AAF (FORT STEWART)/MIDCOAST RGNL (LHW)
RNP APCH.
RADAR required.
Circling NA northeast of Rwy 15L-33R. Rwy 6L helicopter visibility reduction below 1 SM NA. Procedure NA when R3005C/D or R3007C is active and LHW tower is closed. Straight-in/ Circling Rwy 6L NA at night and Circling Rwy 24R NA at night.
MISSED APPROACH: Climbing right turn to 3000 direct BARWU and hold.
ATIS ★ 118.475
SAVANNAH APP CON★ 120.4 353.775
WRIGHT TOWER ★ 126.25 (CTAF) 269.275
GND CON 121.7 273.575
SE-4, 20 JUN 2019 to 18 JUL 2019
R-3005C
R-3005D
R-3005B
R-3005E
180
292
RW06L
055°
297
318
(FAF)
AGOMY
514
1700
054°
(9.4)
(IF/IAF)
BARWU
MSA RW06L 25 NM
2600
NoPT for arrival at BARWU on V578 eastbound.
054°
234°
909
4 NM
HOLD
6000
3000
R-3007 C & D
R-3007D
ELEV 46
TDZE 46
15L
15R
24L
24R
6505 X 100
2610 X 100
4689 X 100
TWR
161
33L
33R
055° to RW06L
4 NM Holding Pattern
BARWU
AGOMY
6000
3000
234°
054°
054°
3.04°
TCH 48
1700
055°
RW06L
3000
BARWU
9.4 NM
5 NM
CATEGORY | A | B | C | D
LNAV MDA | 600-1 554 (600-1) | | 600-1⅝ 554 (600-1⅝) |
C CIRCLING | 600-1 554 (600-1) | 620-1 574 (600-1) | 680-1¾ 634 (700-1¾) | 680-2 634 (700-2)
HIRL Rwys 6L-24R, 15L-33R
FORT STEWART (HINESVILLE), GEORGIA
Amdt 1 20JUN19
WRIGHT AAF (FORT STEWART)/MIDCOAST RGNL (LHW)
31°53'N-81°34'W
RNAV (GPS) RWY 6L

FORT STEWART (HINESVILLE), GEORGIA AL-5170 (FAA) 19171

RNAV (GPS) RWY 33R

WRIGHT AAF (FORT STEWART)/MIDCOAST RGNL (LHW)

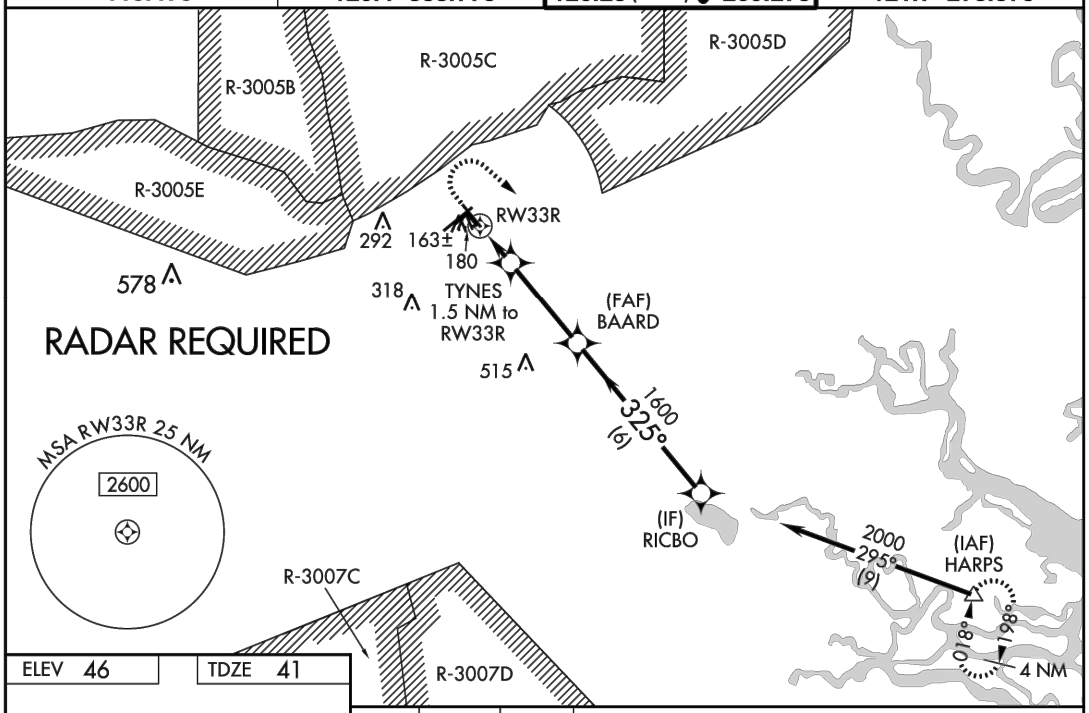
WAAS	APP CRS	Rwy Idg	4999
CH 50440	325°	TDZE	41
W33A		Apt Elev	46

RNP APCH.

T A Circling to Rwy 6R, 24L, 15R, 33L, 6L, 24R NA at night. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -6°C or above 54°C. When local altimeter setting not received, use Savannah/Hilton Head Intl altimeter setting: increase LPV DA to 346 feet, LNAV/VNAV DA to 379 feet and all visibilities ⅛ mile; increase all MDAs 60 feet and LNAV and Circling Cats C and D visibility ¼ mile. Baro-VNAV NA when using Savannah Hilton Head Intl altimeter. Circling NA northeast of Rwy 15L-33R. Procedure NA when R-3005C/D or R-3007C is active and LHW Tower is closed.

MISSED APPROACH: Climb to 500 then climbing right turn to 4000 direct HARPS and hold.

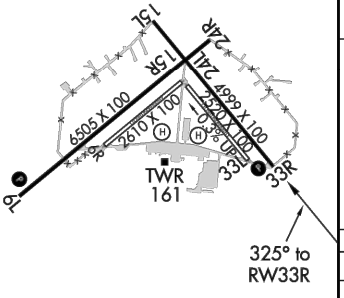
ATIS ★	SAVANNAH APP CON ★	WRIGHT TOWER ★	GND CON
118.475	120.4 353.775	126.25 (CTAF) L 269.275	121.7 273.575



SE-4, 20 JUN 2019 to 18 JUL 2019

SE-4, 20 JUN 2019 to 18 JUL 2019

ELEV 46 TDZE 41

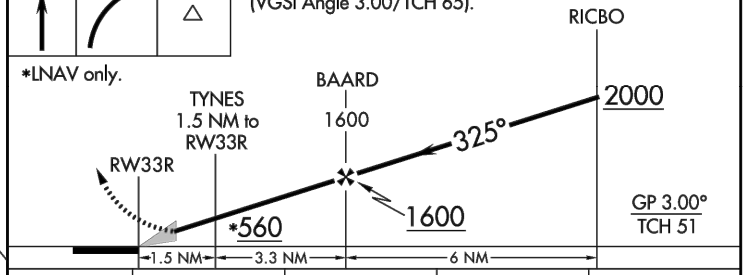


HIRL Rwys 6L-24R, 15L-33R L

500 4000 HARPS △

VGSI and descent angles not coincident (VGSI Angle 3.00/TCH 65).

*LNAV only.



CATEGORY	A	B	C	D
LPV DA	291-1		250 (300-1)	
LNAV/VNAV DA	324-1		283 (300-1)	
LNAV MDA	420-1		379 (400-1)	
C CIRCLING	560-1 514 (600-1)	620-1 574 (600-1)	660-1¾ 614 (700-1¾)	680-2 634 (700-2)

FORT STEWART (HINESVILLE), GEORGIA
Amdt 1A 06DEC18

WRIGHT AAF (FORT STEWART)/MIDCOAST RGNL (LHW)
31°53'N-81°34'W

RNAV (GPS) RWY 33R

FORT STEWART (HINESVILLE), GEORGIA

AL-5170 (FAA)

19171

NDB RWY 33R

WRIGHT AAF(FORT STEWART)/MIDCOAST RGNL (LHW)

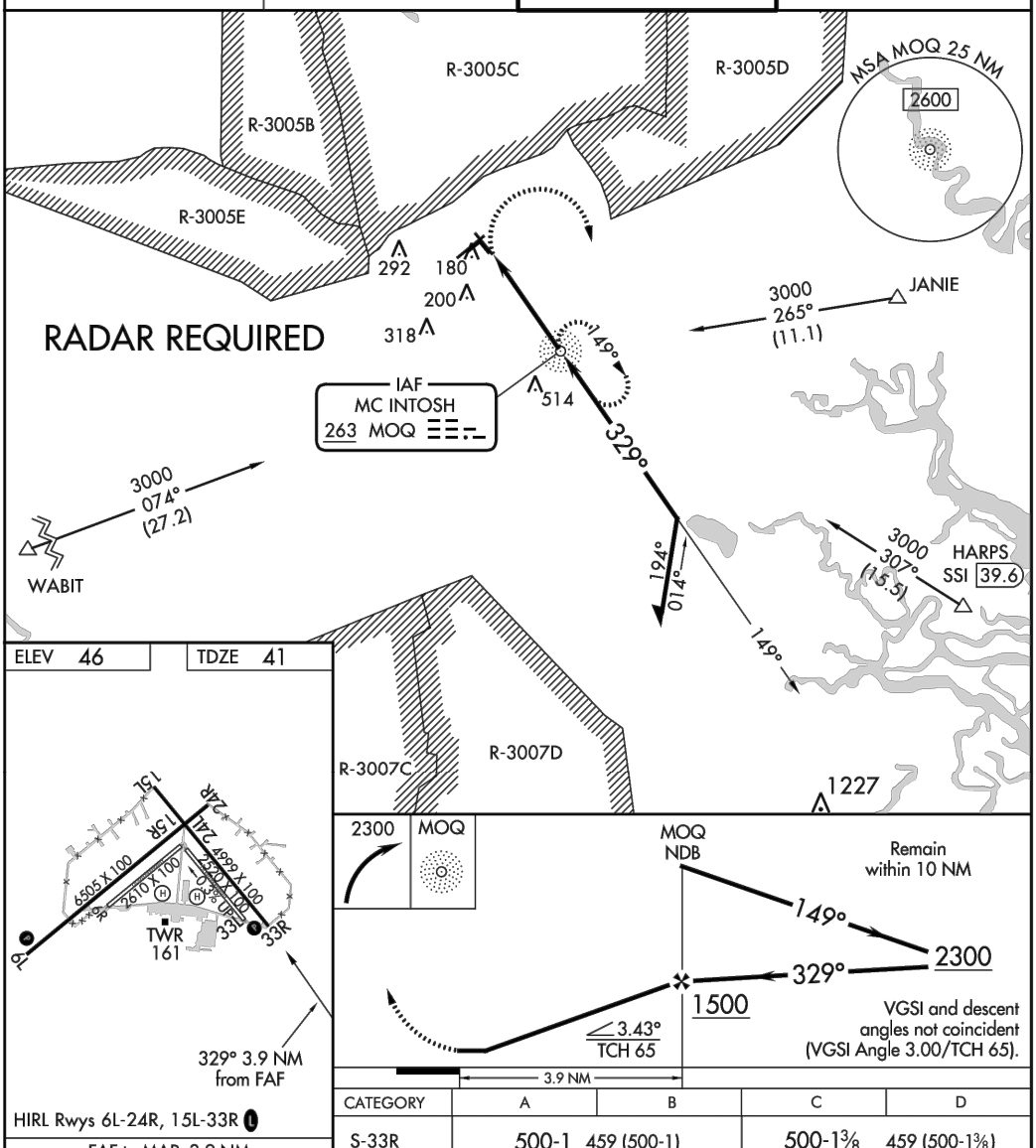
NDB MOQ	APP CRS	Rwy ldg	4999
263	329°	TDZE	41
		Apt Elev	46

▼ When local altimeter setting not received, use Savannah/Hilton Head Intl altimeter setting and increase all MDA 60 feet, S-33R Cat C/D visibility ⅛ mile, and Circling Cat C/D visibility ¼ mile. Procedure NA when R-3005C/D or R-3007C is active and LHW tower is closed. Night landing: Rwy 6R, NA. Circling NA northeast of Rwy 15L/33R. Circling to Rwy 6L, 24R NA at night.

MISSED APPROACH: Climbing right turn to 2300 direct MOQ NDB and hold, continue climb-in-hold to 2300.

ATIS ★	SAVANNAH APP CON ★	WRIGHT TOWER ★	GND CON
118.475	120.4 353.775	126.25 (CTAF) Ⓛ 269.275	121.7 273.575

SE-4, 20 JUN 2019 to 18 JUL 2019



SE-4, 20 JUN 2019 to 18 JUL 2019

HIRL Rwys 6L-24R, 15L-33R Ⓛ

FAF to MAP 3.9 NM

Knots	60	90	120	150	180
Min:Sec	3:54	2:36	1:57	1:34	1:18

CATEGORY	A	B	C	D
S-33R	500-1 459 (500-1)		500-1⅜	459 (500-1⅜)
C CIRCLING	520-1 474 (500-1)	620-1 574 (600-1)	660-1¾ 614 (700-1¾)	680-2 634 (700-2)

FORT STEWART (HINESVILLE), GEORGIA

Orig-C 06DEC18

WRIGHT AAF(FORT STEWART)/MIDCOAST RGNL (LHW)

31°53'N-81°34'W

NDB RWY 33R

2.7 EXISTING LANDSIDE FACILITIES

Landside facilities are the facilities that support the aircraft and pilot/passenger handling functions. These facilities typically include a terminal building, aircraft storage/maintenance hangars, aircraft parking aprons, and support facilities such as fuel storage, automobile parking, and connecting roadway system. Landside facilities at the MidCoast Regional Airport/WAAF are located on the west side of the airfield.

Terminal Building

The terminal building at a general aviation airport provides several general functions to the flying public, including a rest area, restrooms, food/vending, pilot lounge, flight planning area, conference facilities, offices for the manager/FBO, and classrooms. There are many other functions the terminal can serve, including pilot sleeping/shower facilities and various recreational opportunities, limited only by imagination and resources.



The one-story 14,000 square foot terminal building was constructed in 2012 and is in excellent condition. The terminal building houses both a civilian Fixed Based Operation (FBO) and military operations. It provides basic facilities including; waiting areas, restrooms, manager's/fixed base operator's offices, pilot briefing area, a pilot/crew lounge, a conference room, and a small kitchen/break room.

Aircraft Storage

Areas used for aircraft storage fall into two broad categories: hangars and aircraft apron/tie-down spaces.

Hangar space available at MidCoast Regional Airport/WAAF consists of three types: single T-hangar units, box hangars, and large bulk hangar. There are currently 1-12-unit nested T-hangars, five box hangars, and one 10,000' bulk hangar with a 30' door.



The aircraft parking apron is located adjacent to the terminal building and has approximately 250,000 square feet of pavement for aircraft parking and circulation taxilanes. Facilities associated with the apron area include the passenger terminal building, FBO, aircraft storage/maintenance hangars, aircraft parking aprons, passenger, and support facilities such as fuel storage.

Based aircraft not stored in hangars require parking positions on the airport apron. Tie-down space available at MidCoast Regional Airport/WAAF is currently arranged to park 26 aircraft, depending on the physical size of the airplane.

Automobile Parking

The public vehicle parking area at MidCoast Regional Airport/WAAF is located near the terminal and provides approximately 35 parking spaces

Fuel Storage

The Airport has a 24-hour self-service fuel island fuel farm with a 650-gallon tank for AVGAS. The Airport also has a fuel farm that consists of one 12,000-gallon storage tank for Jet-A fuel and one for AVGAS.

2.8 METEOROLOGICAL DATA

Climate

Hinesville, Georgia has a warm, humid climate as well as abundant rainfall. Average temperatures range from a low of 34 degrees Fahrenheit in January to a high of 91 degrees Fahrenheit in July.

The average rainfall is approximately 54 inches per year. The wettest season is summer, while fall is the driest. Rains in winter and spring may last for several days, but they usually occur as brief showers along the leading edge of a mass of cold air. Rains in summer come as local thundershowers.

Wind Analysis

Wind coverage indicates what percentage of the time that the crosswind components are within acceptable velocity. For the purpose of runway wind analyses, a crosswind component can be defined as the wind that occurs at a right angle to the runway centerline. The desirable wind coverage for an airport is ninety-five percent (95%). This means that the runways should be oriented so that the maximum crosswind component is not exceeded more than five (5%) of the time. In the case of the MidCoast Regional Airport/WAAF, a 16-knot crosswind component is used for runways with an Airport Reference Code of C-II. The Wind Rose indicates, Runway 6L/24R provides 99.84 percent and Runway 15L/33R provides 99.53 wind coverage for the 16-knot crosswind component. During IFR conditions, Runway 6L/24R provides 99.93 percent and Runway 15L/33R provides 99.75 percent wind coverage.

2.9 AERIAL PHOTOGRAMMETRY

Aerial photogrammetry was provided by the Georgia Department of Transportation Aviation Programs as part of the runway extension project conducted in 2015. Photogrammetry combines controlled aerial photography taken during high visibility times with reliable measurements made in the office using tri-dimensional instrumentation and digital software. The digital mapping depicts existing features, such as paved areas, buildings, above ground utilities, fencing, tree lines, and water bodies.

CHAPTER 3
GENERAL AVIATION FORECASTS

3.1 INTRODUCTION

The general aviation facilities at an airport should accurately reflect the aviation activity. To assist in the Airport Layout Plan Update for the MidCoast Regional Airport at Wright Army Airfield (WAAF), forecasts of general aviation activity have been developed for the short range (0-5 years), intermediate range (6-10 years), and the long-term range (11-20 years) planning period. The general aviation activity categories forecasted include based aircraft, operations and fleet mix. The development of forecasts includes the analyses of historic activity data, previous Federal Aviation Administration (FAA) and Georgia Department of Transportation Aviation Programs (GDOT) forecasts. The elements of this forecast include:

- Based Aircraft
- Operations
- Aircraft Fleet Mix

3.2 BASED AIRCRAFT

Forecasting based aircraft requires the assumption that the airport facilities will keep pace with and meet the demand for aviation use and will not limit the number of based aircraft to be accommodated in the future. Based on the FAA's Airport Master Record (Form 5010, Dated July 2019), a total of 26 aircraft are based at the airport. Of these, 25 are single engine aircraft with 1 multi-engine. During a follow up site visit in August 2019, it was determined that 28 single engine and 1 multi-engine aircraft were based at the airport. This information, along with forecasts developed by the FAA and the GDOT, is used to develop the based aircraft forecasts.

A combination of four methods was analyzed to develop projections of based aircraft at the airport.

Method 1 – FAA Terminal Area Forecasts. Projections from the FAA Terminal Area Forecast were assembled and examined to the year 2039.

Method 2 – Georgia Statewide Aviation System Plan. Projections from the Georgia Statewide Aviation System Plan were examined and extrapolated to the year 2039.

Method 3 - Projection of Historic Growth (Modified). A single variable linear regression analysis of historic data was performed. The data consisted of the total based aircraft for historical years 2007 – 2019.

Method 4 – 2013 Airport Layout Plan Report. Projections from the previous 2013 Airport Layout Plan were examined and extrapolated to the year 2039.

Recommended Study Forecast – The recommended forecast is based on Method 3. Specific projections are presented in **Table 3-1** and **Exhibit 3-1**.

YEAR	METHOD 1	METHOD 2	METHOD 3	METHOD 4	RECOMMENDED
2019 (Base Year)	25	25	29	54	29
2024	25	25	32	68	32
2029	25	26	35	79	35
2039	25	27	42	117	42

Table 3-1: Based Aircraft Forecasts

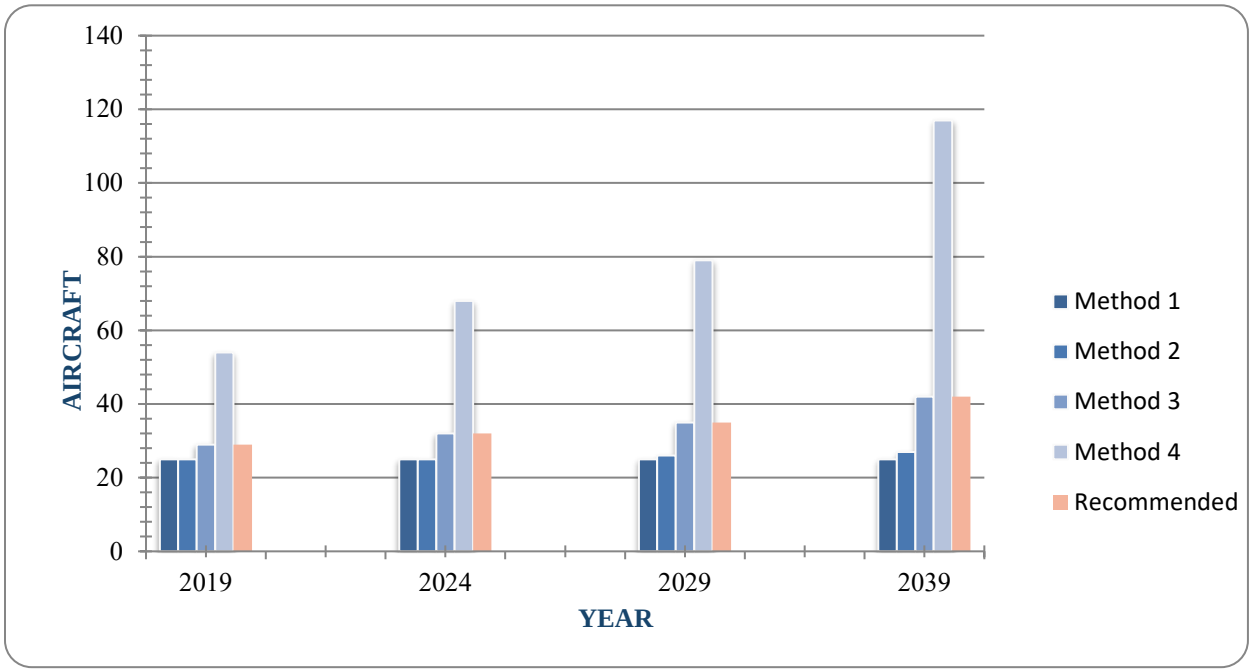


Exhibit 3-1: Based Aircraft Forecasts

3.3 BASED AIRCRAFT DISTRIBUTION

The distribution of aircraft by number and type of engines is necessary in estimating the requirements for hangar and apron space. Consideration was given to the existing conditions and national trends, both historic and predicted, in the development of this forecast. The recommended forecast recognized that, nationally, the turboprop, and business jet fleets are growing at a faster rate than the single engine piston and multi-engine aircraft fleets.

The number of based aircraft is forecasted to increase from a total of 29 for 2019 to a total of 42 by the year 2039. The proportion of single-engine aircraft based at the MidCoast Regional Airport/WAAF is expected to increase from a total of 28 for 2019 to a total of 35 by the year 2039. It is anticipated that 4 multi-engine, 2 jet and 1 helicopters will be based at the airport by the end of the planning period. The exact numbers and types of aircraft based at the Airport in any of the planning periods may vary from what is shown. However, it is believed that the totals and mix of

aircraft shown are a reasonable representation and may be adopted for planning purposes. **Table 3-2** summarizes the mix categories of the anticipated based aircraft at the airport.

YEAR	SINGLE-ENGINE	MULTI-ENGINE	JET	HELICOPTER	TOTAL
2019 (Base Year)	28	1	0	0	29
2024	30	2	0	0	32
2029	32	2	1	0	35
2039	35	4	2	1	42

Source: US Fleet Mix Percentages derived by Holt Consulting Co. from FAA Aerospace Forecasts, FY 2019-2039 and FAA's Long-Range Aviation Projections.

Table 3-2: Based Aircraft by Category

3.4 GENERAL AVIATION OPERATIONS

Projections of general aviation operations were calculated to the year 2039 based upon three methodologies.

Method 1 – The Terminal Area Forecast - Assembled and examined to the year 2039.

Method 2 – Georgia Statewide Aviation System Plan - Projections from the Georgia Statewide Aviation System Plan were examined and extrapolated to the year 2039.

Method 3 – Operations Per Based Aircraft - This technique is based on the historical average of operations compared to based aircraft. The operations per based aircraft for the last 10 years were averaged to arrive at a forecast ratio of 250 general aviation operations per based aircraft. This number was held constant throughout the forecast period and applied to the forecast for based aircraft.

Of the forecasts developed, Method 3 was recommended and is believed to be a reasonable forecast of general aviation operations for planning purposes. **Table 3-3** and **Exhibit 3-2** represent the forecast of general aviation operations for the 20-year planning period.

YEAR	METHOD 1	METHOD 2	METHOD 3	RECOMMENDED
2019 (Base Year)	3,151	3,243	7,250	7,250
2024	3,151	3,324	8,000	8,000
2029	3,151	3,483	8,750	8,750
2039	3,151	3,625	10,500	10,500

Table 3-3: General Aviation Operations Forecasts

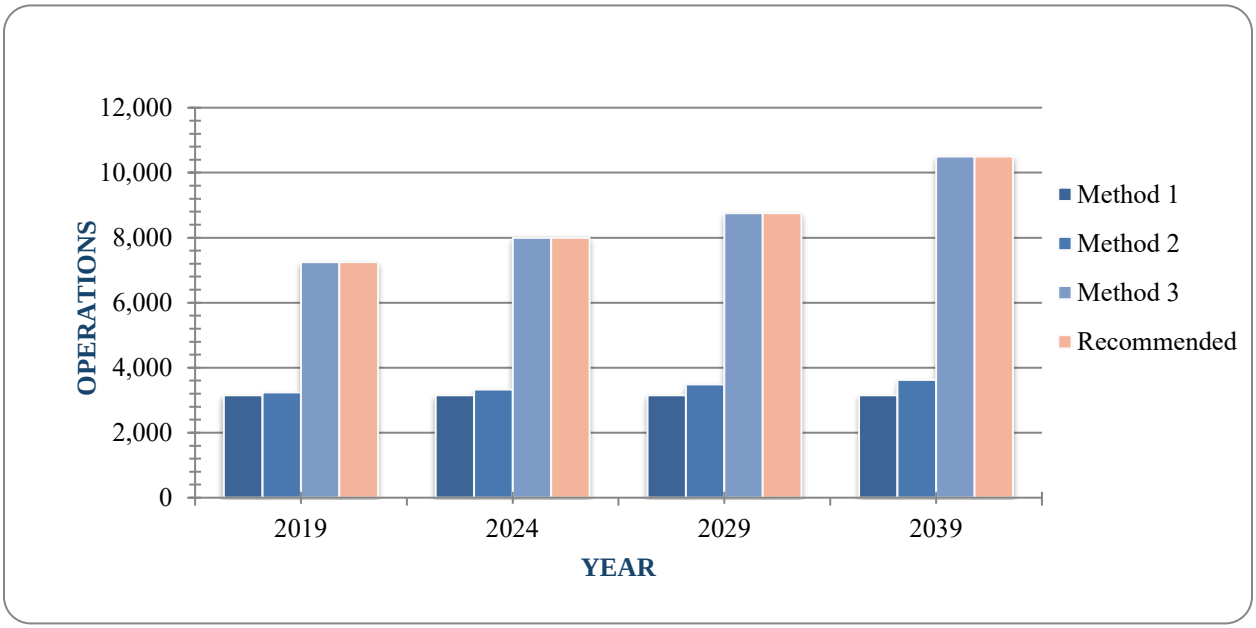


Exhibit 3-2: General Aviation Operations Forecasts

3.5 GENERAL AVIATION OPERATIONS BY TYPE

Aircraft operations are divided into two types: local and itinerant. Local operations are classified as arrivals and departures of aircraft which operate in the local traffic pattern or within sight of an ATCT and are known to be departing for or arriving from flights in local practice areas within a 20-mile radius of the airport. Itinerant operations are defined as all other operations other than local. The current ratio of local to itinerant operations is 50 percent local to 50 percent itinerant operations. This ratio is expected to remain constant throughout the study period as shown on **Table 3-4** and **Exhibit 3-3**.

YEAR	LOCAL	ITINERANT	TOTAL
2019 (Base Year)	3,625	3,625	7,250
2024	4,000	4,000	8,000
2029	4,375	4,375	8,750
2039	5,250	5,250	10,500

Table 3-4: Forecasts of General Aviation Operations by Type

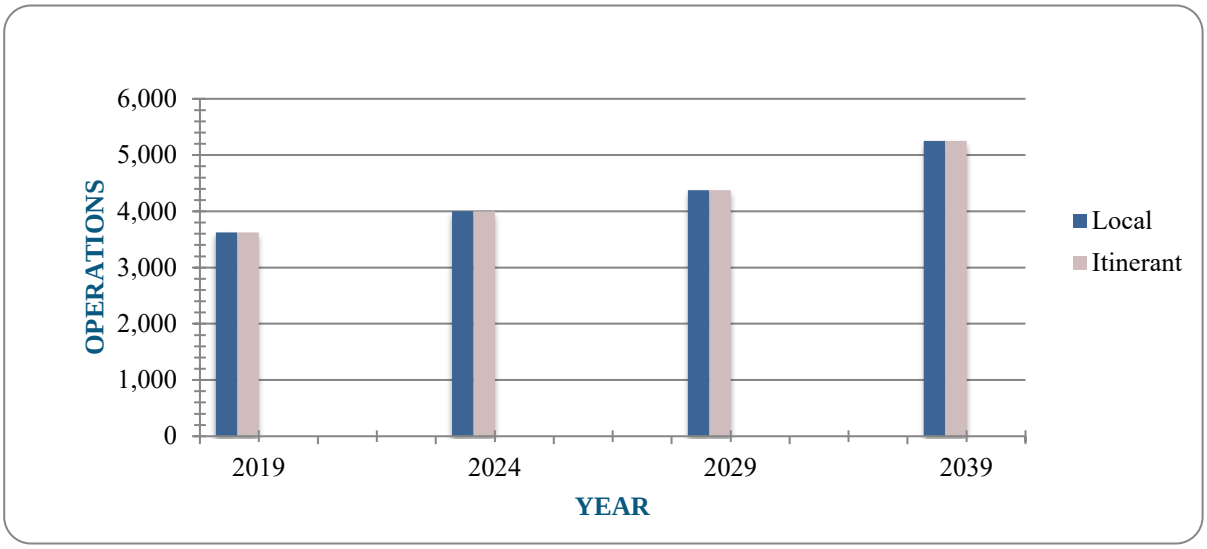


Exhibit 3-3: Forecasts of General Aviation Operations by Type

3.6 SUMMARY

The aviation forecasts made in this chapter reflect accepted methods of forecasting coupled with sound aviation planning judgments. These forecasts were based on the most recent data available. **Table 3-5** presents a summary of the analysis that adequately describe future conditions concerning aviation activity at the MidCoast Regional Airport/WAAF.

ITEM/DESCRIPTION	FORECAST			
	2019	2024	2029	2039
Based Aircraft	29	32	35	42
Aircraft Operations				
G/A Local	3,625	4,000	4,375	5,250
G/A Itinerant	3,625	4,000	4,375	5,250
G/A Total	7,250	8,000	8,750	10,500
Military	9,600	9,600	9,600	9,600

Table 3-5: Summary of General Aviation Forecasts

CHAPTER 4
FACILITY REQUIREMENTS

4.1 Introduction

This chapter identifies the airside and landslide facilities that are necessary to accommodate the forecast levels of demand at the MidCoast Regional Airport/WAAF. Generally, these requirements were determined by comparison of existing facilities capacities with forecast demand. Deficient elements are noted and the facilities necessary to correct the deficiencies are identified.

The need for new or expanded runways, taxiways, navigational aids, buildings, and parking areas which are identified as necessary elements to satisfy demand must be viewed carefully since these recommendations will affect the budgeting and financial aspects of the airport.

Facility requirements have been developed for various airport functional areas included within the airfield areas including:

- Airfield
  - Runways and Taxiways
  - Instrumentation/Lighting/Marking
  - Approaches/ FAR PART 77
- General Aviation Terminal Area
  - Terminal Building
  - Apron/Tiedowns
  - Hangars
  - Auto Parking/ Access
- Land Requirements
  - Fee Simple
  - Easements
  - Lease

The facility requirements are intended as a general planning guide, not necessarily a “must do” list of items and will require detailed review on an item-by-item basis as construction of each facility becomes imminent.

4.2 Airport Reference Code (ARC) and Critical Aircraft

At the MidCoast Regional Airport/WAAF/WAAF, the ARC and associated critical aircraft is used throughout this chapter to evaluate requirements for runway length, apron and hangar areas, airfield separations, and various other airport components. Due to MidCoast Regional Airport/WAAF/WAAF being a joint-use airfield, the critical aircraft was defined for both military and civilian. As identified in Chapter 3, the ultimate critical military aircraft is the Lockheed C-130, which has a wingspan of 132-feet, a tail height of 38-feet and an approach speed of 130-knots. This aircraft places it as a C-IV. This ALP Update recommends the Gulfstream 650 and Hawker 400 as the ultimate general aviation critical aircrafts. As part of this ALP Update, C-II criteria will be applied to any future general aviation facility requirements recommended as part of this study. Airside facilities will be coordinated with Wright Army Airfield (WAAF) to meet both FAA and military standards. Actual design requirements such as runway/taxiway separations, pavement width and strength are project specific and are evaluated during the engineering phase.

4.3 Runways

The orientation of runways for aircraft operations is primarily a function of wind velocity and direction coupled with the ability of the aircraft to operate under adverse conditions. Generally, the primary runway is aligned as closely as practical in the direction of prevailing winds. The most desirable configuration provides the largest wind coverage for given crosswind component. This component is the vector of wind velocity and direction, which acts at right angles to the runway. Specified coverage is that percent of time during which operations could safely occur on a given day due to acceptable crosswind coverage. In the case of the MidCoast Regional Airport/WAAF/WAAF, a 20-knot crosswind component is used for runways with an Airport Reference Code of C-IV. The All Weather Wind Rose indicates, Runway 6L/24R provides 99.94 percent and Runway 15L/33R provides 99.89 wind coverage for the 20-knot crosswind component. During IFR conditions, Runway 6L/24R provides 99.88 percent and Runway 15L/33R provides 99.76 percent wind coverage.

Length

Analysis of existing users, as well as, the expected future fleet mix composition indicates the runways should be designed to accommodate both Design Group C-II aircraft for general aviation and C-IV for military. The runway length was calculated using FAA Advisory Circular 150/5325-4B. The results are identified in **Table 4-1**.

DESIGN FEATURE	
Airport Elevation	46’
Mean Daily Maximum Temperature of the Hottest Month	92°
Maximum Different in Runway Centerline Elevation	3’
Length of Haul for Airplanes of More Than 60,000 Pounds	500 miles

RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small Airplanes with Approach Speeds of Less Than 30 Knots	301’
Small Airplanes with Approach of Less Than 50 Knots	3,010’
Aircraft with Maximum Takeoff Weight 12,500-60,000 Lbs.	
75 Percent of Fleet at 60 Percent Useful Load	5,405’
75 Percent of Fleet at 90 Percent Useful Load	7,000’
100 Percent of Fleet at 60 Percent Useful Load	5,800’
100 Percent of Fleet at 60 Percent Useful Load	8.900’

Reference: Chapter 2 of AC 150/5325-4B, Runway Length Requirements for Airport Design.

Table 4-1. Airport and Runway Data

Based on the above analysis and standards set forth by the Georgia Department of Transportation, the current runway length of 6,505-feet for Runway 06L/24R and 4,999-feet for Runway 15L/33R should be adequate for the 20-year planning period. An overlay/rehabilitation and remarking project is recommended in Stage I for Runway 06L/24R and Stage II for Runway 15L/33R.

Runway Width
At a current width of 100-feet, both runways meet the FAA design standard and the Unified Facilities Criteria (UFC) 3-260-01, Airfield and Heliport Planning and Design. Improvements to runway width are not required to meet Airplane Design Group II or IV.

Runway Strength
Based on the Airport Layout Plan dated September 2011, the pavement strength for both runways (6L/24R and 15L/33R) is listed as 175,000 lbs. SWG. The FAA 5010 Airport Master Record indicates Runways 6L/24R and 15L/33R are listed as having a PCN value of 30 and 15, respectively. The existing pavement strength should be adequate during the planning period. A Pavement Study should be performed during any overlay/rehabilitation project to verify the current runway strength.

4.4 Taxiways

There are five taxiways at the Airport; three in operation and two that are currently not in use. Taxiway A is made of asphalt; 50-feet wide; 2,135-feet in length; and connects the intersection of Runways 6L/24R and 15L/33R to the military apron. Taxiway B connects Runway 33R end to the military apron, civilian apron, and Taxiway A; is made of asphalt and concrete; 50-feet-wide; and 2,571-feet in length.

Taxiway C connects Runway 6L end to the military apron and Taxiway A. It is made of asphalt and concrete; 50-feet-wide; and 2,509-feet in length. Taxiway D and E are no longer in operation. Taxiway D is located on the west side of the airfield and connects Runway 6L end to Runway 15L. Taxiway E is located on the east side of the airfield and connects Runway 33R to Runway 24R. Both runways are recommended to have a full parallel taxiway. Based on the current 525-foot runway/taxiway separation constructed as part of the Runway Extension Project, it is recommended that the new parallel taxiways for Runways 6L/24R and 15L/33R be constructed to meet Unified Facilities Criteria (UFC) 3-260-01, Airfield and Heliport Planning and Design. It is recommended that the existing closed runways be removed. An extension will be required to both ends of Runway 15L/33R. It is recommended that these improvements be made in Stage II for Runway 6L/24R and Stage III for Runway 15L/33R. An overlay/rehabilitation project should be planned for each of these taxiways. An additional stub taxiway is recommended in Stage I to serve the expanded general aviation apron. Additional taxiways/taxilanes may be required to serve the future development areas which are identified and discussed in this chapter.

4.5 Geometric Standards

Ultimately, the runways and taxiways should be constructed to meet ADG C-IV in accordance with the AC 150/5300-13A and the Unified Facilities Criteria (UFC) 3-260-01, Airfield and Heliport Planning and Design. **Table 4-2** provides a comparison of the design standards for ADG C-II and C-IV both FAA and Military. Both runways are classified as Class A under the UFC.

Item	FAA Design Standards C-II - Civilian (Existing/Ultimate)	FAA Design Standards C-IV – Military	UFC Design Standards Class A (Existing/Ultimate)
Runway Width	**100’**	**150’**	**100’**
Runway Safety Area (RSA) Length Beyond Runway End	**1000’**	**1000’**	**3000’**
Runway Safety Area Width	**500’**	**500’**	**500’**
Runway Object Free Area (OFA) Length beyond each RW end	**1000’**	**1000’**	**End of Runway**
Runway Object Free Area (OFA) Width	**800’**	**800’**	**500’**
Runway Centerline to Taxiway Centerline	**300’**	**400’**	**525’**
Runway Centerline to Edge of Aircraft Parking	**400’**	**500’**	**N/A**
Taxiway Width	**35’**	**50’**	**50’**
Taxiway Safety Area (TSA)	**79’**	**171’**	**150’**
Taxiway Object Free Area (TOFA)	**131’**	**259’**	**N/A**

Table 4-2. Design Standards Comparison

4.6 Navaids/Visual Aids/Lighting/Marking

The following visual and electronic navigational aids will be eligible for federal and/or state funding in given planning periods in accordance with Federal Aviation Administration guidelines (Note: eligibility does not automatically equate with installation). The layouts for these improvements are shown, where possible, on the Airport Layout Plan.

Airport and runway navigational aid requirements are based on recommendations as depicted in ***DOT/FAA Handbook 7031.2C, Airway Planning Standards Number One,*** **and** ***FAA Advisory Circular150/5300-13, Airport Design***. Navigational aids provide visual, non-precision, or precision guidance to a runway or to the Airport itself. The basic difference between a non-precision and precision navigational aid is that the latter provides electronic decent, alignment (course), and position guidance, while the non-precision navigational aid provides only alignment and position location information. The necessity of such equipment is predicated on safety considerations and operational needs. The type, purpose and volume of aviation activity expected at the airport are factors normally used in the determination of the airport’s eligibility for navigational aids.

An Instrument Landing System (ILS) to Runway 06L has been identified by WAAF as a future project and will be included in this study. The instrument landing system (ILS) would include a glide slope, localizer, and MALSR approach lighting system.

A fundamental part of developing the runway and taxiway system will be to continue nighttime operation capability at the Airport. A new High Intensity Runway Lighting System (HIRL) and

Medium Intensity Taxiway Lighting System (MITL) is recommended for replacement during the planned overlay/rehabilitation project for each runway.

Other lighting improvements recommended for the MidCoast Regional Airport/WAAF include a Medium Intensity Taxiway Lighting System (MITL) on the new full parallel taxiways and connectors, when constructed. Precision Approach Path Indicators (PAPI-4) are recommended for Runways 24R and 15L during Stage I.

Both runways should be remarked during any overlay and strengthening projects. All airport signage is recommended to be updated in accordance with FAA standards. Signage projects should be initiated in Stage I.

4.7 General Aviation Terminal Area Requirements

The purpose of this section is to determine the space requirements needed during the planning period. Recommended facilities for the general aviation terminal area include expanded automobile parking, apron expansion, additional t-hangars/storage hangars, and additional areas for future development.

Terminal Building

A general aviation terminal building has several functions which include providing space for passenger waiting, pilot's lounge and flight planning, concessions, storage, and various other needs. This space is not necessarily limited to a single, separate terminal building, but also includes the space offered by fixed base operators for these functions and services.

The one-story, 14,000-square-foot terminal building was constructed in 2012 and is in excellent condition. The terminal building houses both a civilian Fixed Based Operation (FBO) and military operations. No additional terminal building needs are anticipated during the planning period.

Auto Parking

The requirement for automobile parking at airports is largely dependent upon the level of general aviation operations, as well as the type of general aviation facilities and activities are at the airport. General aviation terminal area parking facilities are determined under guidelines set forth in FAA publications, while the number of automobile parking spaces for other general aviation facilities is based on other factors.

Automobile parking at the MidCoast Regional Airport/WAAF will require adjustments as levels of pilots and passengers using the facility increases and the level of service increases. Additionally, since WAAF's personnel use the automobile parking lot, additional parking is recommended during Stages II and III. Areas adjacent to the existing automobile parking lot along the loop road could provide an additional 40-50 spaces.

Aircraft Parking Apron

Aircraft storage requirements are determined according to based aircraft owner preferences and the forecasts of aviation demand. In terms of rental fees, apron tie-down parking is always less expensive than hangar storage; however, hangar storage helps protect aircraft from harsh weathering that may occur while utilizing a tie-down and provides an extra level of security.

Consequently, tie-down parking is commonly occupied by older piston aircraft or by flight training aircraft that may conduct several operations a day. An adequate aircraft parking apron should be provided to accommodate those local or based aircraft not stored in hangars, as well as transient or visiting aircraft. The existing general aviation apron covers an area of approximately 27,800-square-yards and there are nearly 26 dedicated tie-down positions.

In determining future apron requirements, it is necessary to examine local and transient tie-down facilities as separate entities. The local apron should, at least, meet the demand represented by the number of aircraft currently parked on tie-downs. However, it must be noted that if hangar facilities were available at MidCoast Regional Airport/WAAF, many aircraft currently occupying the tie-downs might be interested in leasing a hangar. Transient parking requirements can be determined from knowledge of peak day operations and a certain percentage of those operations will require temporary parking at LHW. The values are then applied to the planning criteria of 300-square yards per local aircraft and 360-square yards per transient aircraft, in accordance with the procedures described in **FAA AC 150/5300-13, *Airport Design***. Based on this analysis and to identify a continuous expansion of the existing apron, it is recommended that an additional 13,900-square yards of apron area be constructed in Stage II to accommodate both future local and transient demand. It is noted that the existing pavement is currently in good condition but requires preventive maintenance in the short-term.

Aircraft Hangars

As mentioned in the inventory chapter there is currently one 12-unit nested T-hangar, five box hangars, and one 10,000-foot maintenance hangar. The demand for hangar facilities typically depends on the number and type of aircraft expected to be based at the airport. Use by general aviation aircraft is expected to grow and it is very important to determine the type and degree of development required to accommodate this most important component. Because all hangar facilities are currently occupied at MidCoast Regional Airport/WAAF, and many aircraft park on tie-downs that would be better suited in a hangar, there is a known demand for new hangar construction. The identified requirement might be satisfied with a mix of larger, bulk storage hangars that hold multiple aircraft and smaller corporate hangars that hold one or two aircraft; depending on demand, layout issues, financing, liability, aircraft management preference, etc.

As part of this study, several options were examined for additional hangar development. The recommended hangar development includes, three 12-unit T-hangars and seven storage hangars (three 50’ x 50’; three 60’ x 60’, and one 80’ x 80’).

4.8 Land Acquisition/Lease

Additional Exclusive Use property is recommended for the apron expansion, T-hangars/corporate storage hangars, and future development areas. Approximately 273-acres will be studied as part of the Environmental Assessment. The total areas for future development will be determined once all environmental issues have been documented.

4.9 Approaches/FAA Part 77 Surfaces

Although the existing non-precision RNAV (GPS) approaches to Runway 06L and Runway 33R currently serve the airport well, the airport may want to consider, in addition to the ILS, an LPV and LNAV/VNAV to Runway 06L. The addition of this type approach along with the recommended MALSR, would provide the airport with the equivalent of an ILS approach. The ILS will increase the safety and usefulness of this runway by allowing pilots to better identify the field in periods of low visibility. The airport may also want to explore a RNAV (GPS) to Runways 24R and 15L with 1-mile visibility.

MidCoast Regional Airport/WAAF’s configuration places it in the Design Group IV category with ultimate precision and non-precision approaches to the runways as follows:

RUNWAY	TYPE OF APPROACH
6L	Precision
24R	Non-Precision
15L	Non-Precision
33R	Non-Precision

Each of the approaches is either 5,000’ or 10,000' long, and the outer portion of the approaches vary according to whether they are instrument or visual. The required Runway Protection Zones (RPZ) dimensions and approach lengths are:

ZONE TYPE	RATIO	INNER WIDTH	LENGTH	OUTER WIDTH	APPROACH LENGTH
Non-Precision Instrument	34:1	500’	1,700’	1,010’	10,000’
Precision	50:1	1,000’	1,700’	1,510’	10,000’

The primary surface for runways with non-precision instrument approaches is 500-feet symmetric about the centerline and extends 200-feet beyond each runway end. The elevation of the primary surface at any point is the same as the nearest lateral point on the runway centerline. The transition surface begins at the outer edge of the primary surface and extends upward and outward at a slope of 7:1 until it intersects the horizontal surface. The horizontal surface is 150-feet above the established airport elevation and is connected by lines tangent to arcs swung from the center of each end of the primary surface with a radius of 5000-feet for visual category runways or 10,000-feet for non-precision instrument runways. The conical surface extends upward and outward from the edge of the horizontal surface at a ratio of 20:1 for a horizontal distance of 4,000-feet. It is extremely important to protect these surfaces from being penetrated by future construction.

4.10 Obstruction Analysis

The results of the obstruction analysis are identified in the Airport Layout Plan Drawings.

4.11 Summary

The preceding discussion provided a determination of the facilities required to satisfy the expected demand. **Table 4-3** provides a tabulation of the facilities recommended in the preceding discussion. The expansion, which is expected, will require an extreme amount of understanding and cooperation among all parties concerned.

ITEM	EXISTING	STAGE I (0-5 YRS.)	STAGE II (6-10 YRS.)	STAGE III (11-20 YRS.)
1. Terminal	14,000 SF	N/C	N/C	N/C
2. Auto Parking	35 Spaces	N/C	40+/- Spaces (1,300 SY)	15 +/- Spaces (350 SY)
3. Apron	27,800 SY	Overlay Apron 27,800 SY	Apron Expansion 330' x 380' (13,900 SY)	N/C
4. Tie-Downs	26 Aircraft	N/C	+16	N/C
5. Hangars				
T-Type	1 - 12 Unit	1 - 12 Unit	1 - 12 Unit	1 - 12 Unit
Storage	5 - Box	1 - 50' x 50' 1 - 60' x 60'	1 - 50' x 50' 1 - 60' x 60'	1 - 50' x 50' 1 - 60' x 60' 1 - 80' x 80'
Maintenance	1 - 80' x 100'	N/C	N/C	N/C
6. Runway 06L/24R	6,505' x 100'			
Extension		N/C	N/C	N/C
Widening		N/C	N/C	N/C
Overlay/Rehab.		6,505' x 100'	N/C	N/C
7. Runway 15L/33R	4,999' x 100'			
Extension		N/C	N/C	N/C
Widening		N/C	N/C	N/C
Overlay/Rehab.		N/C	4,999' x 100'	N/C
7. Taxiway	Connectors	N/C	Full Parallel – R/W L/24R	Full Parallel – R/W 15L/33R
a) Length			6,505'	4,999'
b) Width	50'	N/C	50'	50'
8. NAVAIDS/ Visual Aids	Rotating Beacon, Lt. Wind Cone/ Segmented Circle, PAPI-4L R/W 6L PAPI-4L R/W 15L	N/C	MALSR -R/W 6L Localizer/Glide Slope PAPI-4L R/W 24R PAPI-4L R/W 33R	N/C
9. Weather Aids/ Communications	AWOS - III	N/C	N/C	N/C
10. Lighting	HIRL, MITL	Replace HIRL	MITL	Replace HIRL/MITL
11. Fuel	1 - 650 Gal. AVGAS 1 - 12,000 Gal. AVGAS 1 - 12,000 Gal. Jet A	N/C	N/C	N/C
12. Land Acquisition Fee/Easement/Lease		Future Exclusive Lease Area Development/ Part 77 Violations- Acres (TBD)	N/C	N/C
13. Security Fence		Additional Fence	Additional Fence	Additional Fence

Table 4-3. Summary of Recommended Facilities

CHAPTER 5
DEVELOPMENT ALTERNATIVES

5.1 Introduction

In the previous chapter, facility needs for the twenty-year planning horizon were identified. Having quantified these needs, the next step in the planning process is to identify and evaluate the various ways these facilities can be provided. The evaluation of alternatives may be the most important step in the planning process since decisions made in support of a development option will result in significant capital expenditures. A strong program for airport improvements must therefore be developed. This is accomplished through careful consideration of the merits and disadvantages of various development alternatives.

This chapter introduces the "alternatives" for MidCoast Regional Airport/WAAF, which are intended for discussion purposes between the various airport stakeholders including Liberty County and the Joint Military Board. The individual components of each preliminary alternative were evaluated to aid in the selection of a "preferred alternative" representing the desired development plan for the 20-year planning period (from 2018 to 2038). For that reason, the alternatives should be viewed as flexible development plans that may be refined or combined to best satisfy the needs of airport stakeholders. In addition to the recommended layout of landside developments such as corporate hangars and aprons (i.e., physical features), the alternatives highlight potential development area on the airport property. The alternatives should subsequently be viewed as a broad examination of relationships between required and desired airside and landside developments, also considering costs and known environmental consequences, thus encouraging a proactive decision-making process and a clear understanding of the airport's possibilities and limitations.

The goal is to develop the underlying rationale which supports the final recommended Airport Layout Plan development concept. Through this process, an evaluation of the most realistic and best uses of airport property is made while considering local development goals, physical and environmental constraints, and appropriate federal airport design standards.

The development alternatives for the MidCoast Regional Airport/WAAF can be categorized into two functional areas: airside (runways, taxiways, navigational aids, etc.) and landside (general aviation hangars, aprons, taxilanes, terminal area, etc.) Resulting facility requirement improvements will be integrated and depicted on the updated airport layout drawing set (ALP). In addition, a detailed capital improvement program will be created that identifies and prioritizes specific projects that can be implemented.

5.2 Airside Development Alternatives

Several components of the airside development were examined and includes the construction of a full parallel taxiway for both runways, overlay/rehabilitation of each runway and the installation of a Medium Intensity Approach Lighting System with Flashing Lights (MALSF).

Alternative 1

Alternative 1 provides only maintenance to maintain existing facilities and capabilities without investing in facility upgrades or expansion to address future demand. The existing airfield

configuration would remain unchanged from its present configuration and the airport would essentially be operated in a "maintenance-only" mode.

The primary result of this alternative, as with any growing transportation market, would be the eventual inability of the airport to satisfy the increasing demands of the airport service area. As a result, Alternative 1is inconsistent with the management and development policies of the MidCoast Regional Airport/WAAF and its long –established commitment to provide a safe and efficient public air transportation facility that is socially, environmentally, and economically sustainable.

The following elements, which are depicted in Figure 5-1 are included as part of Airside Alternative 1:

- Overlay Runway 6L/24R and 15L/33R and associated Taxiways
- Replace HIRL & MITL

Alternative 2

Alternative 2 will construct a full parallel taxiway on both runways (6L/24R & 15L/33R). An extension of the existing taxiway would be needed to served Runway 6L/24R. The following maintenance items are also recommended: Overlay/Rehabilitate both runways and all associated taxiways and replacement of HIRL and MITL. The following elements, which are depicted in Figure 5-2, are included as part of Alternative 2:

- Construct full parallel taxiways to Runways 6L/24R and 15L/33R.
- Install Medium Intensity Approach Lighting System with Flashing Lights (MALSF) Runway 6L
- Install Localizer/Glide Slope
- Overlay Runway 6L/24R and 15L/33R and associated Taxiways
- Replace HIRL & MITL
- Install PAPI-4 Runway 24R and 15L

5.3 Landside Development Alternatives

The purpose of this section is to identify and evaluate various viable landside development alternatives at the MidCoast Regional Airport/WAAF to meet program requirements set forth in Chapter 5. Generally, the primary functions to be accommodated on the landside at an airport include terminal services, aircraft storage hangar development, aircraft parking aprons, and automobile parking and access. The interrelationship of these functions is important to defining a long-range landside layout for general aviation uses at the airport.

Landside Alternative 1

The facility requirements analysis indicated a need for the development of various types of aircraft storage hangars and additional apron area. Additional Exclusive Use property would be needed to complete the recommended for expansion for the apron expansion, T-hangars/corporate storage hangars and future development areas. The following elements, which are depicted in Figure 5-3 are included as part of Landside Alternative 1:

- Three 12-Unit T-hangars
- Corporate Storage Hangars - 3 – (50'x50'), 3 – (60'x60'), and 1 – (80'x80')
- Apron Expansion
- Existing Apron Maintenance Overlay

- Auto Parking Lot Expansion
- Additional Exclusive Use Property (Lease)

The 12-unit T-hangars (3) are proposed to be located south of the existing T-hangars. The T-hangars would provide a total of 36 storage units at approximately 1,500 square feet per unit. In addition to the T-hangar development, there are a variety of conventional storage hangars identified: 3 – (50'x50'), 3 – (60'x60'), and 1 – (80'x80'). These conventional storage hangars are proposed south of the auto parking, adjacent to the existing general aviation apron. An apron expansion is recommended (13,900 SY) along with additional auto parking.

Alternative 2

Landside Alternative 2 is similar to Alternative 1 as it also provides for the development of various types of aircraft hangars and expanded apron. This alternative locates the T-hangars south of the existing T-hangars. The following elements, which are depicted in Figure 5-4, are included as part of Landside Alternative 2:

- Three 12-Unit T-hangars
- Corporate Storage Hangars - 3 – (50'x50'), 3 – (60'x60'), and 1 – (80'x80')
- Apron Expansion (13,900 SY)
- Existing Apron Maintenance Overlay
- Auto Parking Lot Expansion
- Additional Exclusive Use Property (Lease)

5.4 Development Cost

Table 5-1, Development Costs Comparison, provides an order of magnitude of the development costs for each of the two airside and landside alternatives. Estimated costs represent construction costs only and do not include engineering or contingencies. Cost for the Future Development Areas are not included.

AIRSIDE	ALTERNATIVE 1	ALTERNATIVE 2
Overlay/Rehab. Runways	$7,058,000	$7,058,000
Overlay/Rehab Taxiways	$2,158,000	$2,158,000
Parallel Taxiway – R/W 6L/24R	$0	$3,058,000
Parallel Taxiway – R/W 15L/33R	$0	$2,517,000
MALSF/Localizer/Glide Slope	$0	$1,000,000
Airside Total	$9,216,000	$15,791,000

LANDSIDE	ALTERNATIVE 1	ALTERNATIVE 2
T-Hangars	$1,725,000	$1,725,000
Storage Hangars	$3,150,000	$3,150,000
Overlay/Rehab. Apron/Taxiways	$970,000	970,000
Apron Expansion	$851,400	$851,400
Auto Parking Lot Expansion	$80,400	$80,400
Landside Total	$6,776,800	$6,776,800

Table 5-1 Development Costs Comparison

5.5 Future Development

The Future Development Area, as shown is Figure 5-5 and 5-7 provides additional opportunities for development. Approximately 273-acres will be studied as part of the Environmental Assessment. The figures illustrate different road alignments to minimize impacts to existing wetlands. The total areas for future development will be determined once all environmental issues have been documented.

5.6 Summary

The process utilized in assessing airside and landside development alternatives involved a detailed analysis of short and long-term requirements, as well as future growth potential. Current FAA design standards were considered throughout the analysis of each alternative. The preferred alternative for the MidCoast Regional Airport/WAAF should accommodate the needs of existing and future users and create an opportunity for aviation-related and non-aviation related development. Airfield improvements that are identified in the alternatives will comply with FAA standards, offer additional capacity, and enhance safety.

Landside development sites will provide many opportunities for expanding general aviation facilities by expansion of the apron, building additional hangars, and providing opportunities for future corporate aviation potentials. Future development areas that do not have direct access to the airfield could be slated for non-aviation uses compatible with economic and community development initiatives. A preferred alternative will be selected once the Environmental Assessment has been completed and known environmental impacts have been determined.

LEGEND

PREVENTATIVE MAINTENANCE OVERLAY - RUNWAY

PREVENTATIVE MAINTENANCE OVERLAY - TAXIWAY

EXISTING RPZ

EXISTING RPZ

FUTURE MILITARY DEVELOPMENT

EXISTING PROPERTY LINE

EXISTING PROPERTY LINE

TWY "D"
(TO BE REHABILITATED
BY MILITARY)

EXISTING/ULTIMATE 6,505 X 100'

EXISTING/ULTIMATE 5,006 X 150'

TWY "A"

TWY 'E'
(CURRENTLY
NOT IN USE)

EXISTING PAPI 4-L

AWOS
CRITICAL
AREA

TWY "C"

TWY "B"

E. LOWE CI

EXISTING RPZ

ULTIMATE RPZ

EXISTING PROPERTY LINE

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FIGURE 5-1
AIRSIDE ALTERNATIVE 1

0 600 1200

1"=600' Approx.

LEGEND

- PREVENTATIVE MAINTENANCE OVERLAY - RUNWAY
- PREVENTATIVE MAINTENANCE OVERLAY - TAXIWAY
- PAVEMENT DEMOLITION
- NEW PAVEMENT - TAXIWAY

EXISTING RPZ

EXISTING RPZ

FUTURE MILITARY DEVELOPMENT

EXISTING PROPERTY LINE

TWY "D"
(TO BE REHABILITATED
BY MILITARY)

EXISTING/ULTIMATE 6,505 X 100'

EXISTING/ULTIMATE 5,000 X 150'

TWY "A"

EXISTING PAPI 4-L

AWOS
CRITICAL
AREA

TWY "C"

TWY "B"

EXISTING PROPERTY LINE

TWY 'E'
(CURRENTLY
NOT IN USE)

E. LOWE CT

EXISTING RPZ

ULTIMATE RPZ

EXISTING PROPERTY LINE

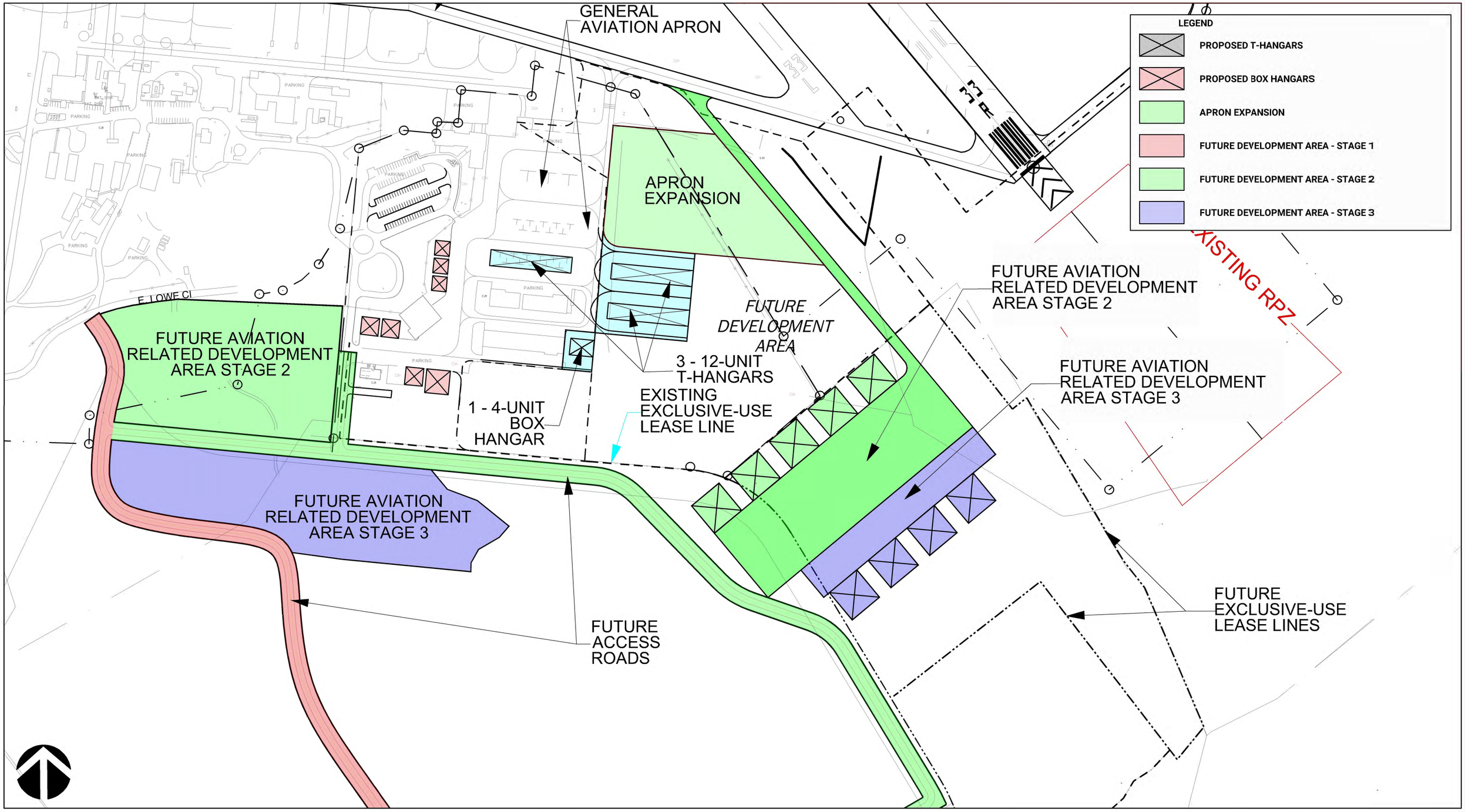
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FIGURE 5-2
AIRSIDE ALTERNATIVE 2

0 600 1200

1"=600' Approx.



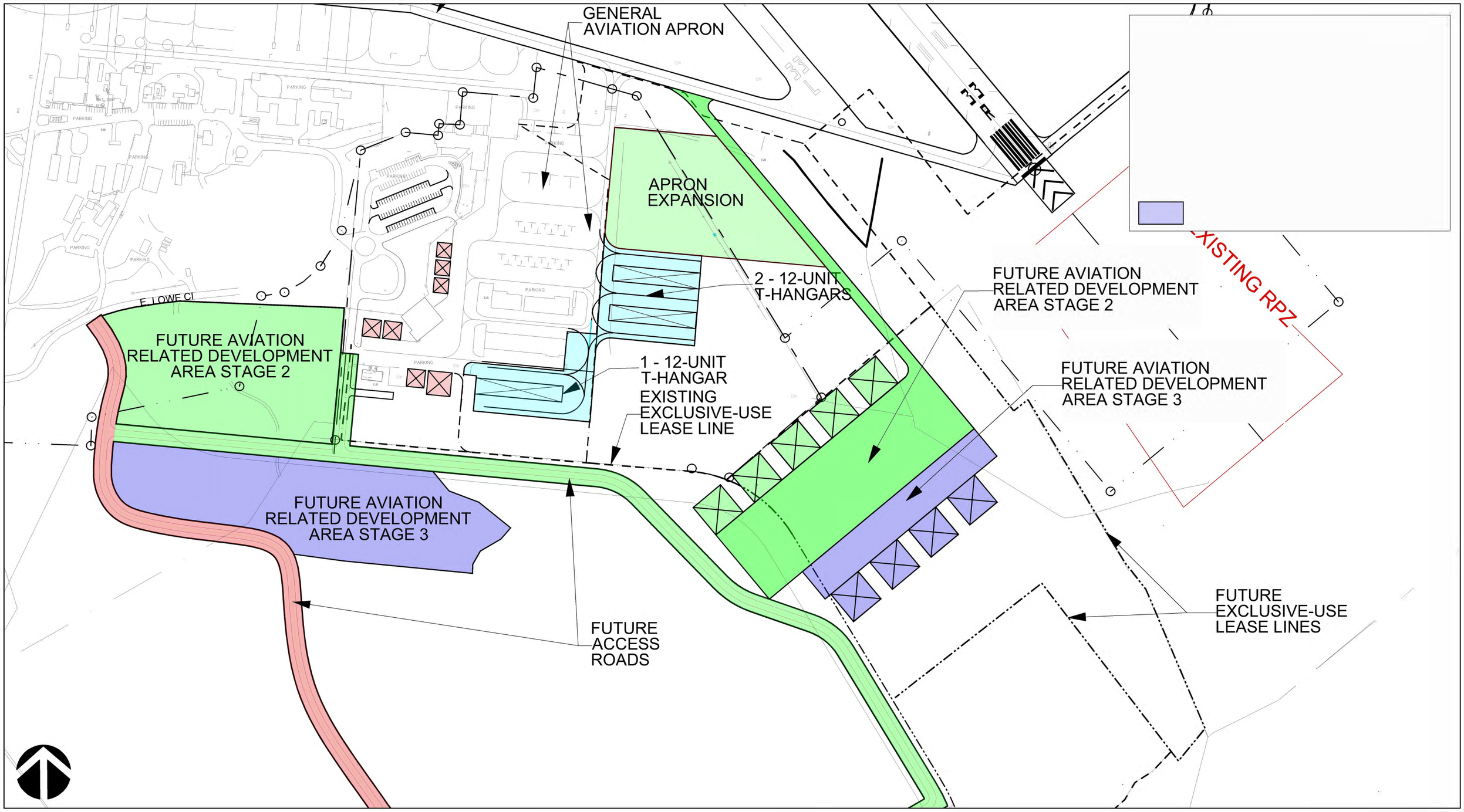
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FIGURE 5-3
LANDSIDE ALTERNATIVE 1

0 300 600
1"=300' Approx.

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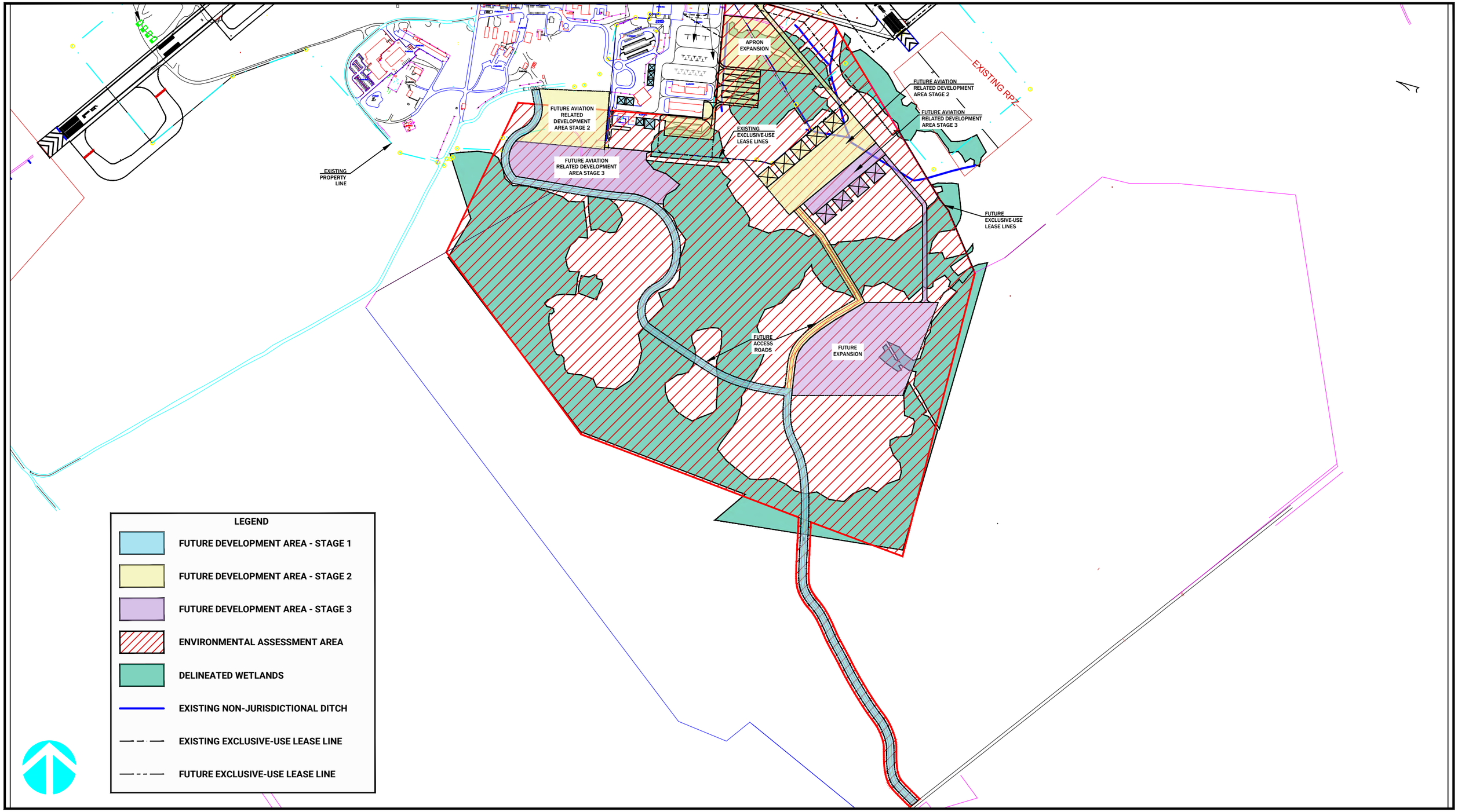


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FIGURE 5-4
LANDSIDE ALTERNATIVE 2

0 300 600
1"=300' Approx.

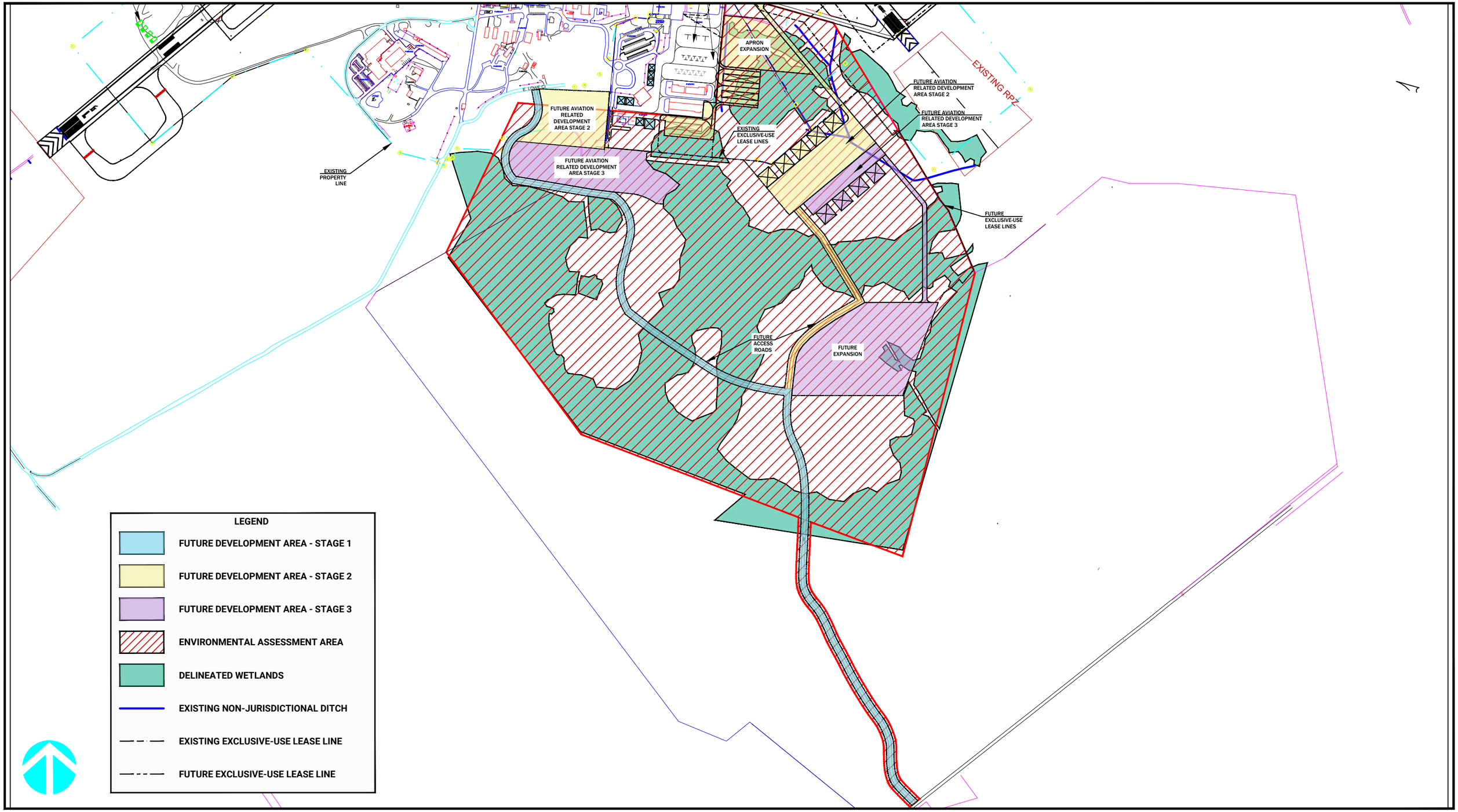


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FIGURE 5-5
EXCLUSIVE USE AREA EXPANSION - ALTERNATIVE 1

0 700 1400
1"=700' Approx.



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FIGURE 5-6
EXCLUSIVE USE AREA EXPANSION - ALTERNATIVE 2

0 700 1400
1"=700' Approx.

CHAPTER 6
CAPITAL IMPROVEMENT PLAN

6.0 Introduction

The previous sections of this ALP Update present a logical, step-by-step explanation of how the long-range improvement plan was developed for the Airport. The implementation plan presented in this section both describes the staging of proposed improvements and provides the basic capital requirements of each. Over the 20-year planning period, the plan may serve as general financial guidance in making policy decisions regarding the development of the airport.

6.1 Program Staging and Cost Estimating

An initial development schedule was prepared based upon facility needs presented in Chapter 4 Facility Requirements, which in most cases were dependent upon the operations forecast. Therefore, since actual activity levels realized at the airport may vary, the staging must remain sensitive to such variations. It is quite possible for some projects to move up in priority, while at the same time, others may move down. A prioritization of improvements considered the urgency of need, ease of implementation, logic of sequence, and input received from Georgia Department of Transportation, Aviation Programs (GDOT), Liberty County and Wright Army Airfield. The objective was to establish an efficient order for project development and implementation that satisfied forecasted activities and sponsor desires. The development schedule is divided into three general stages that represent the short (0-5 years), intermediate (6-10 years), and long-term (11-20 years). The next step focused on identifying costs associated with each capital improvement project. These project-specific development costs were then further broken down considering conventional aviation funding sources, such as FAA, State, Airport and Private/Other participation. Focus was given to detailing estimated costs for the short-term.

6.2 FAA Participation

In 1982, the passage of the Airport and Airways Improvement Act enabled the federal government to provide financial assistance to airports in support of its broad objective, to assist in the development of a nationwide system of public-use airports adequate to meet the projected growth of civil aviation. The Act provides funding for airport planning and development projects at airports included in the National Plan of Integrated Airport Systems (NPIAS) in the form of Airport Improvement Program (AIP) grants. The fund is financed by means of taxes or user fees on various aviation activities including passenger tickets, cargo waybills, fuel, oil, etc. Grants are issued to airports under several different programs, two of which are Entitlement and Discretionary programs.

Under the Entitlement program, grants are allocated to general aviation airports based on the amount submitted on the airports five-year capital improvement program. For example, Entitlement funds are provided to each airport. Or General Aviation Airports, the amount is typically $150,000 for those airports that have over $3,000,000 in project costs identified through their Five-Year Capital Improvement Program.

Discretionary funds are awarded by the Federal Aviation Administration (FAA) on a prioritized basis using a point-value system. This system provides an objective means whereby the FAA can

determine the highest level of need for all the airports requesting discretionary funding. It should be noted that these discretionary funds are not guaranteed to any airport and all airports nation-wide are in competition for these funds.

AIP grants may be used to pay a percentage of the total cost of each eligible project. The percentages vary with the nature of the project and the size of the airport at which the project is to be undertaken. Typically, the percentage is 90 percent for all AIP eligible projects at the Airport. The percentage not funded by the AIP is known as the "non-federal share". Examples of the federal participation include runway and taxiway extensions, pavement maintenance, and safety related improvements. In addition to AIP grants, the FAA may also provide funding to airports via Facilities and Equipment (F&E) funds. F&E is not part of the AIP program; however, these funds primarily support FAA constructed and maintained facilities such as runway instrumentation, weather reporting devices, and air traffic control facilities. The FAA funds the entire cost of an F&E project with no requirement for a local matching share.

6.3 State Participation

The Georgia Department of Transportation, Aviation Programs, also provides funding for eligible project costs. In general terms, the state eligibility requirements are very similar to those of AIP projects. State participation in AIP projects is usually limited to 50 percent of the non-federal share costs (5.0 percent of total project costs). Additionally, the state may participate in non-AIP projects at 75 percent of the total cost.

6.4 Airport/Private/Participation

There are several sources the Airport has available to fund a portion of the capital improvements. General obligation bond programs can be used by Airports to advance project implementation. In addition, when the Airport establishes its rates for use of certain facilities, they can allocate certain portions of the capital cost to users such as tenants and air carriers. Other potential sources of funds include non-conventional federal, military, state, and local government programs as well as private capital investments.

6.5 Capital Improvement Program

The Capital Improvement Program (CIP) development schedule and cost summaries are presented in **Table 6-1** and provide an itemized breakdown of the FAA, State, Local, and other/private funding for the improvements proposed by this Airport Layout Plan Update.

As noted, cost projections are based on 2020 dollars and include estimated engineering fees and contingencies. These projections, however, should be used for planning purposes only and do not imply that funding for these will necessarily be available. Each year indicates construction initiation and therefore, any environmental/design efforts not listed in these table will need to precede construction. The total cost of the projects identified for Stage 1 (2018-2023) is $8,193,560. The FAA eligible portion is $6,663,708 which is 90 percent of the AIP Eligible total costs. The remaining $1,529,852 is the Non-Federal share. The total cost of the projects identified for Stage II (2023-2028) is $10,744,854. The FAA eligible portion is $8,664,591 which is 90 percent of the AIP Eligible total costs. The remaining $2,080,263 is the Non-Federal share. The total cost of the projects identified for Stage III (2028-2038) is $4,857,600. The FAA eligible

portion is $2,391,720 which is 90 percent of the AIP Eligible total costs. The remaining $2,465,880 is the Non-Federal share.

The next step focused on identifying costs associated with each capital improvement project. These project-specific development costs were then further broken down considering conventional aviation funding sources, such as AIP Eligible and Non-AIP Eligible projects. Focus was given to detailing estimated costs for the short-term.

TABLE 5-1
MidCoast Regional/WAAF
Proposed Airport Layout Plan Projects

	Quantity	*Federal*	*State*	*Airport/Other/Private*	*Total*
A. AIP ELIGIBLE - STAGE I (0-5 Years)					
1. Design - New 12-Unit T-Hangar and Taxilane	L.S.	*$99,000*	*$5,500*	*$5,500*	*$110,000*
Total		*$99,000*	*$5,500*	*$5,500*	*$110,000*
2. FY2021-2023 DBE Plan Update	L.S.	*$9,000*	*$500*	*$500*	*$10,000*
Total		*$9,000*	*$500*	*$500*	*$10,000*
3. Construct - New 12-Unit T-Hangar and Taxilane	L.S.	*$652,500*	*$36,250*	*$36,250*	*$725,000*
Total		*$652,500*	*$36,250*	*$36,250*	*$725,000*
4. Design Exclusive Use Lease Area	L.S.	*$72,000*	*$4,000*	*$4,000*	*$80,000*
Total		*$72,000*	*$4,000*	*$4,000*	*$80,000*
5. Construct Exclusive Use Lease Area	L.S.	*$540,000*	*$30,000*	*$30,000*	*$600,000*
Total		*$540,000*	*$30,000*	*$30,000*	*$600,000*
6. Design - Runway 06L/24R Rehab	L.S.	*$135,000*	*$7,500*	*$7,500*	*$150,000*
Total		*$135,000*	*$7,500*	*$7,500*	*$150,000*
7. Runway 06L Extension Reimbursement		*$36,000*	*$2,000*	*$2,000*	*$40,000*
Total		*$36,000*	*$2,000*	*$2,000*	*$40,000*
8. Construct Runway 6R/24L Rehab					
Total		*$3,878,280*	*$102,060*	*$102,060*	*$4,082,400*
9. Mill/Overlay Existing Apron (27,800 SY)					
Total		*$873,072*	*$48,504*	*$48,504*	*$970,080*
10. Install Security Fence	L.S.	*$304,560*	*$16,920*	*$16,920*	*$338,400*
Total		*$368,856*	*$18,612*	*$18,612*	*$406,080*
TOTAL - AIP ELIGIBLE - STAGE I		***$6,663,708***	***$254,926***	***$254,926***	***$7,173,560***
B. NON AIP ELIGIBLE - STAGE I					
1. Hangars					
a.1-Storage Hangar (50'x50')	L.S.	*$0*	*$0*	*$400,000*	*$400,000*
b.1-Storage Hangar (60'x60')	L.S.	*$0*	*$0*	*$450,000*	*$450,000*
Subtotal		*$0*	*$0*	*$850,000*	*$850,000*
Engineering/Contingencies	L.S.	*$0*	*$0*	*$170,000*	*$170,000*
Total		*$0*	*$0*	*$1,020,000*	*$1,020,000*
TOTAL NON-AIP ELIGIBLE - STAGE 1		***$0***	***$0***	***$1,020,000***	***$1,020,000***
TOTAL STAGE I		***$6,663,708***	***$254,926***	***$1,274,926***	***$8,193,560***

MidCoast Regional/WAAF
Proposed Airport Layout Plan Projects

	Quantity	*Federal*	*State*	*Airport/Other/Private*	*Total*
C. AIP ELIGIBLE - STAGE II (6-10 Years)					
1. Auto Parking Expansion (1,300 SY)					
Total		*$72,360*	*$4,020*	*$4,020*	*$80,400*
2. Apron Expansion (13,900 S.Y.)					
Total		*$808,830*	*$21,285*	*$21,285*	*$851,400*
3. Runway 15L/33R Overlay (4999'x100')/Replace HIRL					
Total		*$2,827,200*	*$74,400*	*$74,400*	*$2,976,000*
4. Overlay Taxiways "A", "B", "C"/Replace MITL					
Total		*$2,050,341*	*$53,956*	*$53,956*	*$2,158,254*
5. Parallel Taxiway R/W 06L/24R/New MITL					
Total		*$2,905,860*	*$76,470*	*$76,470*	*$3,058,800*
TOTAL - AIP ELIGIBLE - STAGE II		***$8,664,591***	***$230,131***	***$230,131***	***$9,124,854***
D. NON AIP ELIGIBLE - STAGE II					
1. Hangars					
a.1-12 Unit T-Hangars	L.S.	*$0*	*$0*	*$500,000*	*$500,000*
b.1-Storage Hangar (50'x50')	L.S.	*$0*	*$0*	*$400,000*	*$400,000*
c.1-Storage Hangar (60'x60')	L.S.	*$0*	*$0*	*$450,000*	*$450,000*
Subtotal		*$0*	*$0*	*$1,350,000*	*$1,350,000*
Engineering/Contingencies	L.S.	*$0*	*$0*	*$270,000*	*$270,000*
Total		*$0*	*$0*	*$1,620,000*	*$1,620,000*
TOTAL NON-AIP ELIGIBLE - STAGE II		***$0***	***$0***	***$1,620,000***	***$1,620,000***
TOTAL STAGE II		***$8,664,591***	***$230,131***	***$1,850,131***	***$10,744,854***

MidCoast Regional/WAAF
Proposed Airport Layout Plan Projects

	Quantity	*Federal*	*State*	*Airport/Other/Private*	*Total*
E. AIP ELIGIBLE - STAGE III (11-20 Years)					
1. Construct Parallel Taxiway - Runway 15L/33R					
Total		*$2,391,720*	*$62,940*	*$62,940*	*$2,517,600*
TOTAL - AIP ELIGIBLE - STAGE III		***$2,391,720***	***$62,940***	***$62,940***	***$2,517,600***
F. NON AIP ELIGIBLE - STAGE III					
1. Hangars					
a.1-12 Unit T-Hangars	L.S.	*$0*	*$0*	*$500,000*	*$500,000*
b.1-Storage Hangar (50'x50')	L.S.	*$0*	*$0*	*$400,000*	*$400,000*
c.1-Storage Hangar (60'x60')	L.S.	*$0*	*$0*	*$450,000*	*$450,000*
d.1-Storage Hangar (80'x80')	L.S.	*$0*	*$0*	*$600,000*	*$600,000*
Subtotal		*$0*	*$0*	*$1,950,000*	*$1,950,000*
Engineering/Contingencies	L.S.	*$0*	*$0*	*$390,000*	*$390,000*
Total		*$0*	*$0*	*$2,340,000*	*$2,340,000*
TOTAL - NON AIP ELIGIBLE - STAGE III		***$0***	***$0***	***$2,340,000***	***$2,340,000***
TOTAL STAGE III		***$2,391,720***	***$62,940***	***$2,402,940***	***$4,857,600***
TOTAL STAGES I, II, & III (AIP)		***$17,720,019***	***$547,997***	***$547,997***	***$18,816,014***
TOTAL STAGES I, II, & III (NON-AIP)		***$0***	***$0***	***$4,980,000***	***$4,980,000***
GRAND TOTAL STAGES I, II, & III		***$17,720,019***	***$547,997***	***$5,527,997***	***$23,796,014***

Chapter 7
Airport Layout Plans

7.1 Introduction

This chapter provides a graphic description of the recommended airport development program for both airfield and landside facilities which is recommended in the Airport Layout Plan Update. The airport plan drawings include the following components:

- Title Sheet
- Airport Layout Plan Drawing (ALP)
- Terminal Area Drawing
- Airport Airspace Drawings
- Inner Portion of Approach Surface Drawing – Runway 06L
- Inner Portion of Approach Surface Drawing – Runway 24R
- Inner Portion of Approach Surface Drawing – Runway 15L
- Inner Portion of Approach Surface Drawing – Runway 33R
- Departure Surface Drawings
- Land Use Drawing
- Airport Property Map Drawing

Drawings depicted in these plans are contained in the 11" x 17" set of airport plan sheets accompanying this Airport Layout Plan Update. Additionally, 24" x 36" plans are provided to the Airport sponsor, GDOT, and FAA as a part of the approval process as well.

7.2 Airfield Design Standards

The airfield planning and design standards depicted on this plan set are based upon the future role of the Airport and the critical aircraft expected to utilize the Airport. The FAA publishes advisory circulars containing airfield design standards that are intended to provide guidance, with flexibility in application, to insure the safety, economy, efficiency, and longevity of the Airport.

The FAA Advisory Circular that applies to design of airfield facilities at the Airport is FAA Advisory Circular 150/5300-13, Change 13 - *Airport Design*.

7.3 Airport Layout Plans

Title Sheet

The Title Sheet is shown in Figure 7-1 and depicts the Index of Drawings, Location and Vicinity Maps, and Airport Sponsor Approval Signature Block.

Airport Layout Plan Drawing

The Airport Layout Plan Drawing (ALP) is shown in Figure 7-2 and depicts the existing airport facilities as well as the recommended facilities required to accommodate forecast demand through the Year 2038.

Major airfield improvements incorporated in the ALP are summarized as follows:
1. Overlay/Rehabilitation Runway 06L/24R
2. Install MALSR

The ALP illustrates graphically the existing and proposed facilities identified for the airport.

Airport Data Sheet
The Airport Data Sheet is shown in Figure 7-3. This drawing provides the existing and ultimate data and design information for the airport and runways.

Terminal Area Drawing
The Terminal Area Drawing is shown in Figure 7-4. This drawing shows a higher level of detail regarding the existing and proposed terminal area facilities.

Airport Airspace Drawing
Ideally, airports should be located so that the surrounding airspace is free and clear of obstructions that could be hazardous to aircraft on takeoff or approach paths. It is therefore necessary to maintain the surrounding airspace free of obstacles, preventing the development and growth of obstructions to airspace that could cause the airport to become unusable. The regulations for the protection of airspace in the vicinity of airports are established by a set of imaginary obstacle limitation surfaces, penetration of which represents an obstacle to air navigation. The geometry of the imaginary surfaces is governed by the regulations set forth in Federal Aviation Regulations (FAR) Part 77. Protected airspace around airports is made up of five principal imaginary surfaces, which are shown on the FAR Part 77 Airspace Drawing:

- Primary Surface – A surface that is longitudinally centered on the runway, extending 200 feet beyond the threshold in each direction in the case of paved runways.
- Approach Surface – An inclined plane or combination of planes of varying width and slope running from the ends of the primary surface.
- Horizontal Surface – A horizontal plane 150 feet above the established airport elevation. Its dimensions are governed by the runway service category and approach procedure desired.
- Transitional Surface – An inclined plane with a slope of 7:1 extending upward and outward from the Primary Surface and Approach Surface, terminating at the horizontal surface where these two planes meet.
- Conical Surface – An inclined plant at a slope of 20:1 extending upward and outward from the periphery of the horizontal surface for a horizontal distance of 4,000 feet.

Figure 7-5 and 7-6 present the Airport Airspace Drawings, which depicts the proposed surfaces. The plan should be officially adopted and integrated into the planning and zoning ordinances for the county in order to prevent obstructions that could preclude future development.

Inner Portion of the Approach Surface Drawings – Runway 06/24R and 15L/33R
The Inner Portion of Approach Surface Drawing – Runway 06L/24R is depicted in Figure 7-7/7-10 and is based on Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace.* In order to protect the airspace and approaches to each runway end from hazards that

could affect the safe and efficient operation of the airport, Federal criteria has been established to control the height of objects in the vicinity of the airport.

The dimensional standards for the approach surfaces and runway protection zones (RPZ) are determined by the classification of runways for precision and non-precision approaches. The FAA requires the establishment of RPZ's at the ends of runways when federal funds are to be expended on new or existing airports. The airport owner should have positive control over development within the RPZ by either aviation easements or ownership in fee simple; thereby providing long-term positive assurance that there will be no encroachment within the critical portions of the inner approach surface.

The Inner Portion of Approach Surface Plan drawings show the runway end approach and RPZ profile in relation to any objects that fall with these surfaces.

Departure Surface Drawings – Runway 06/24R and 15L/33R
The Departure Surface Drawings – Runway 06L/24R and 15L/33R is depicted in Figure 7-11/7-14. The Departure Surface drawings shows the runway end departure plan and profile in relation to any objects that fall with these surfaces.

Land Use Drawing
The Land Use Drawing, shown in Figure 7-15, depicts general guidelines for development of functional land use areas on and around the Airport. The purpose of preparing an airport land use drawing is to achieve an arrangement of land uses which best utilizes property for present and future airport needs.

Dedication of airport land must be made first to airport operations and airport support facilities. Thus, the priorities are as follows:

- Allocating airport land for runways and taxiways
- Provide for aviation support facilities such as terminal, apron, and hangar areas
- Aviation-related businesses development that, for various reasons, wish to locate at the airport because of dependence upon air transportation of personnel and/ or goods
- Industrial and commercial uses which are non-aviation related
- Buffer areas occupying the balance of airport property

The Land Use Drawing shows the general allocation of airport property to each of these basic categories of land use.

Airport Property Map
The map of airport property, often referred to as the "Exhibit A", defines the existing and future airport boundary for MidCoast Regional Airport and Wright Army Airfield in a graphical and tabular form. The purpose of this drawing is to provide information necessary for analyzing the current and future aeronautical use of land acquired. Known existing metes and bounds data are depicted; however, these data have not been field verified as part of this study. The Airport Property Map is presented in Figure 7-16.

FIGURE 7-1
Title Sheet
(To Be Included in Final Report)

FIGURE 7-2
AIRPORT LAYOUT PLAN DRAWING
(To Be Included in Final Report)

FIGURE 7-3
AIRPORT DATA SHEET
(To Be Included in Final Report)

FIGURE 7-4
Terminal Area Drawing
(To Be Included in Final Report)

FIGURE 7-5
AIRPORT AIRSPACE DRAWINGS – RUNWAY 06l/24R
(To Be Included in Final Report)

FIGURE 7-6
AIRPORT AIRSPACE DRAWINGS – RUNWAY 15L/33R
(To Be Included in Final Report)

FIGURE 7-7
Inner Portion of the Approach Surface Drawing – Runway 06L
(To Be Included in Final Report)

FIGURE 7-8
Inner Portion of the Approach Surface Drawing – Runway 24R
(To Be Included in Final Report)

FIGURE 7-9
Inner Portion of the Approach Surface Drawing – Runway 15L
(To Be Included in Final Report)

FIGURE 7-10
Inner Portion of the Approach Surface Drawing – Runway 33R
(To Be Included in Final Report)

FIGURE 7-11
Departure Surface Drawing – Runway 06L
(To Be Included in Final Report)

FIGURE 7-12
Departure Surface Drawing – Runway 24R
(To Be Included in Final Report)

FIGURE 7-13
Departure Surface Drawing – Runway 15L
(To Be Included in Final Report)

FIGURE 7-14
Departure Surface Drawing – Runway 33R
(To Be Included in Final Report)

FIGURE 7-15
Land Use Drawing
(To Be Included in Final Report)

FIGURE 7-16
Airport Property Map
(To Be Included in Final Report)

APPENDIX A

APPENDIX A
GLOSSARY OF TERMS AND ABBREVIATIONS

Included in the following pages are definitions of commonly used airport planning terms to assist the reader in understanding the technical language included in this document.

Air Taxi: an operator which: 1) performs at least five round trips per week between two or more points and publishes flight schedules which specify times, days of the week and places between which such flights are performed; or 2) transports mail by pursuant through a current contract with the U.S. Postal Service.

Airport Traffic Control Tower (ATCT): a central operations facility in the terminal air traffic control system, consisting of a tower, including an associated IFR room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices, to provide safe and expeditious movement of terminal traffic.

Air Route Traffic Control Center (ARTCC): a facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

Approach Lighting System (ALS): an airport lighting facility which provides visual guidance to landing aircraft by radiating light beams by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach and landing.

Azimuth: horizontal direction or bearing; usually measured from the reference point of 0 degrees clockwise through 360 degrees.

Base Leg: a flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

Compass Locator: a low power low/medium frequency radio-beacon installed in conjunction with the instrument landing system at one of two of the marker sights.

Control Zone: airspace extending upward from the ground which may include one or more airports and is normally a circular area of five statute miles in radius with extensions where necessary to include instrument approach and departure paths.

Displaced Threshold: a threshold that is located at one point on the runway other than the designated beginning of the runway.

Distance Measuring Equipment (DME): equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

Day-Night Noise Level (DNL): the daily average noise metric in which that noise occurring between 10:00 p.m. and 7:00 a.m. is penalized by 10 decibels.

Downwind Leg: a flight path parallel to the landing runway, opposite of the landing direction. The down wind leg normally extends to a point at which the aircraft turns to base leg.

Duration: length of time, in seconds, a noise event such as an aircraft flyover is experienced. (May refer to the length of time a noise event exceeds a specified threshold level.)

Enplaned Passengers: the total number of revenue passengers boarding aircraft, including originating, stop-over, and transfer passengers, in scheduled and non-scheduled threshold level.

FBO (Fixed Base Operator): a provider of service to users of an airport. Such services include, but are not limited to, fueling, aircraft storage, flight training, repair and maintenance.

General Aviation (GA): that portion of civil aviation which encompasses all facets of aviation except air carriers holding a Certificate of Convenience and Necessity, and large aircraft commercial operators.

Glide Slope: electrical equipment that emits signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as an ILS, or visual ground aids, such as VASI, which provide vertical guidance for a VFR approach or for the visual portion of an instrument approach and landing.

Global Positioning System (GPS): an instrument approach and landing system that utilizes satellites to determine aircraft position when providing non –precision and precision approach capabilities.

Ground Effect: the excess attenuation attributed to absorption or reflection of noise by man-made or natural features on the ground surface.

Instrument Approach: a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

Instrument Flight Rules (IFR): rules governing the procedures for conducting instrument flight. Also, a term used by pilots and controllers to indicate type of flight plan.

Instrument Landing System (ILS): a precision instrument approach system which normally consists of the following electronic components and visual aids: localizer, glide slope, outer marker, middle market, and approach lights.

Localizer (LOC): providing horizontal guidance to the runway centerline for aircraft during approach and landing by radiating a directional pattern of radio waves modulated by two signals which, when received with equal intensity, are displayed by compatible airborne equipment as an

"on-course" indication, and when received in unequal intensity are displayed as an "off-course" indication.

Localizer Type Directional Aid (LDA): a facility of comparable utility and accuracy to a localizer but is not part of a complete ILS and is not aligned with the runway.

Microwave Landing System (MLS): an instrument approach and landing system that provides precision guidance in azimuth, elevation, and distance measurement.

Missed Approach: an instrument approach not completed by landing. This may be due to visual contact not established at authorized minimums or instructions from air traffic control, or other reasons.

Non-Directional Beacon (NDB): a radio beacon transmitting non-directional signals that a pilot of an aircraft equipped with direction finding equipment can determine his/her bearing to or from the radio beacon and "home" on or track to or from the station. When the radio beacon is installed in conjunction with the Instrument Landing System market, it is normally called a Compass Locator.

Non-precision Approach Procedure: a standard instrument approach procedure in which no electronic glide slope is provided, such as VOR, TACAN, NDB, or LOC.

Operation: a take-off or a landing.

Outer Marker (OM): an ILS navigation facility in the terminal area navigation system located four to seven miles from the runway edge on the extended centerline indicating to the pilot, that he/she is passing over the facility and can begin final approach.

Precision Approach Path Indicator (PAPI): an airport lighting facility in the terminal area navigation system used primarily under VFR conditions. It provides vertical guidance to the pilot during approach and landing, by radiating a pattern of high intensity red and white focused light beams which indicate whether the aircraft is above, on, or below the glide path.

Precision Approach Procedure: a standard instrument approach procedure in which an electronic glide slope is provided, such as ILS.

Precision Instrument Runway: a runway having an existing Instrument Landing System (ILS).

Reliever Airport: an airport to serve general aviation aircraft which might otherwise use a congested air-carrier served airport.

Vector: a heading issued to an aircraft to provide navigational guidance by radar.

Victor Airway: a control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids.

Visual Approach: an approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of an air traffic facility and having an air traffic control authorization, may proceed to the airport of destination in VFR conditions.

Visual Approach Slope Indicator (VASI): an airport lighting facility in the terminal area navigation system used primarily under VFR conditions. It provides vertical visual guidance to aircraft during approach and landing, by radiating a pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is above, on, or below the flight path.

Visual Flight Rules (VFR): rules that govern the procedures for conducting flight under visual conditions. The term VFR is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

Very High Frequency Omnidirectional Range Station (VOR): a ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the national airspace system. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature.

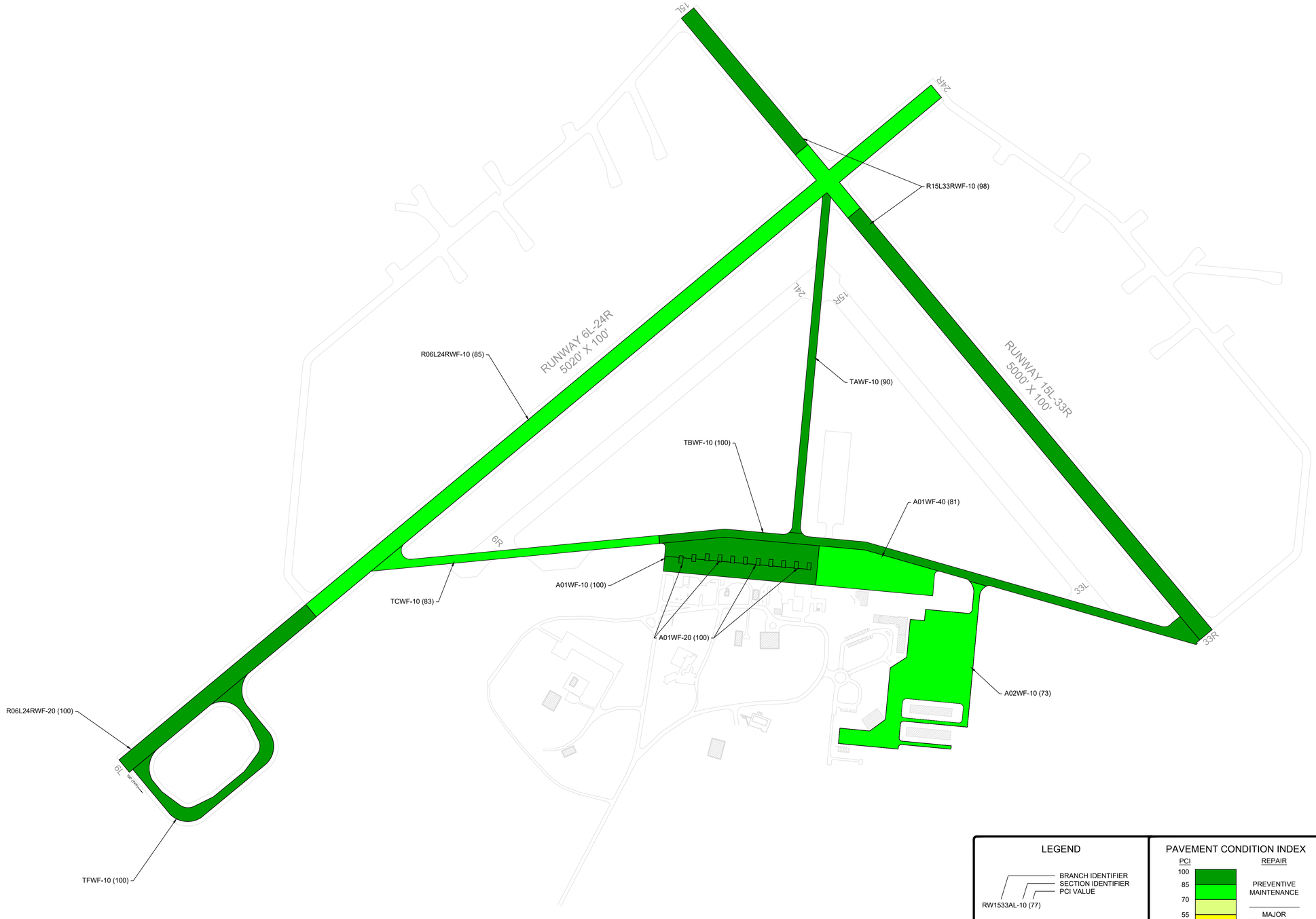
VORTAC/VHF Omnidirectional Range/Tactical Air Navigation: a navigation aid providing VOR azimuth, and TACAN distance-measuring equipment (DME) at one sight.

ABBREVIATIONS

AGL:	Above ground level
AIA:	Annual instrument approaches
AIP:	Airport Improvement Program
ARFF:	Aircraft rescue and firefighting
ARSA:	Airport radar surface area
ARTCC:	Air route traffic control center
ASOS:	Automated Surface Observing System
ASR:	Airport Surveillance Radar
ATCT:	Air traffic control tower
AWOS:	Automated Weather Observing System
CIP:	Capital Improvement Program (5 Year CIP)
DME:	Distance Measuring Equipment
DNL:	Day-night noise level
DWL:	Runway weight bearing capacity for aircraft with dual-wheel type landing gear
DTWL:	Runway weight bearing capacity for aircraft with dual-tandem type landing gear
FAA:	Federal Aviation Administration
F.A.R.:	Federal Aviation Regulations
FBO:	Fixed Base Operator
GDOT:	Georgia Department of Transportation Aviation Programs

GPS: Global Positioning System
GS: Glide Slope
HIRL: High Intensity Runway Lights
IFR: Instrument Flight Rules
ILS: Instrument Landing System
LMM: Compass Locator at Middle Marker
LOC: ILS Localizer
LOM: Compass Locator at Outer Marker
MIRL: Medium Intensity Runway Lights
MITL: Medium Intensity Taxiway Lights
MLS: Microwave Landing System
MM: Middle Marker
MSL: Mean Sea Level
NAVAID: Navigational Aid
NDB: Non-Directional Beacon
NM: Nautical Mile
OM: Outer Marker
PAPI: Precision Approach Path Indicator
RCO: Remote Communications Outlet
REILS: Runway End Identification Lighting System
RMP: Required Navigation Performance
SEL: Sound Exposure Level
SM: Statute Mile
SWL: Runway weight bearing capacity for aircraft with single-wheel type landing gear
TACAN: Tactical Air Navigation System
TCA: Terminal Control Area
TFR: Temporary Flight Restriction
TRACON: Terminal Radar Approach Control
VASI: Visual Approach Slope Indicator
VFR: Visual Flight Rules (F.A.R. Part 91)
VHF: Very High Frequency
VOR: Very High Frequency Omnidirectional Range
VORTAC: (see VOR and TACAN)

APPENDIX B



LEGEND

BRANCH IDENTIFIER
SECTION IDENTIFIER
PCI VALUE
RW1533AL-10 (77)

SECTION BREAK LINE

PAVEMENT CONDITION INDEX

PCI	REPAIR
100	
85	PREVENTIVE MAINTENANCE
70	
55	MAJOR REHABILITATION
40	
25	RECONSTRUCTION
10	
0	

applied pavement TECHNOLOGY
115 W. Main Street, Suite 400
Urbana, IL 61801
Tel: (217) 398-3977
Fax: (217) 398-4027

AGENCY: Georgia Department of Transportation
Aviation Programs

LOCATION: MidCoast Regional Airport at Wright Army Airfield
Hinesville, GA

PAGE TITLE: PAVEMENT CONDITION INDEX MAP

PROJECT DATE:	CREATION DATE:	PROJECT MANAGER:	JOB NUMBER:
MAY 2018	AUG. 2018	MRC	15-021-AM01
DRAWING SCALE:	LAST MODIFIED DATE:	REVISED BY:	DRAWN BY:
1"= 300'	MAR. 2019	TMM	TMM
FILENAME:		LAYOUT NAME/NUMBER:	FIGURE:
Hinesville.dwg		PCI	8

APPENDIX C

Table 3-5. Runway design standards matrix

Aircraft Approach Category (AAC) and Airplane Design Group (ADG): *(select from pull-down menu at right)*		C – II			
		Visibility Minimums			
ITEM	**DIM[1]**	Visual	Not Lower than 1 mile	Not Lower than 3/4 mile	Lower than 3/4 mile
Runway Design					
Runway Length	A	*Refer to paragraphs 302 and 304*			
Runway Width	B	100 ft	100 ft	100 ft	100 ft
Shoulder Width		10 ft	10 ft	10 ft	10 ft
Blast Pad Width		120 ft	120 ft	120 ft	120 ft
Blast Pad Length		150 ft	150 ft	150 ft	150 ft
Crosswind Component		16 knots	16 knots	16 knots	16 knots
Runway Protection					
Runway Safety Area (RSA)					
Length beyond departure end [9, 10]	R	1000 ft	1000 ft	1000 ft	1000 ft
Length prior to threshold [11]	P	600 ft	600 ft	600 ft	600 ft
Width [13]	C	500 ft	500 ft	500 ft	500 ft
Runway Object Free Area (ROFA)					
Length beyond runway end	R	1000 ft	1000 ft	1000 ft	1000 ft
Length prior to threshold [11]	P	600 ft	600 ft	600 ft	600 ft
Width	Q	800 ft	800 ft	800 ft	800 ft
Runway Obstacle Free Zone (ROFZ)					
Length		*Refer to paragraph 308*			
Width		*Refer to paragraph 308*			
Precision Obstacle Free Zone (POFZ)					
Length		N/A	N/A	N/A	200 ft
Width		N/A	N/A	N/A	800 ft
Approach Runway Protection Zone (RPZ)					
Length	L	1700 ft	1700 ft	1700 ft	2500 ft
Inner Width	U	500 ft	500 ft	1000 ft	1000 ft
Outer Width	V	1010 ft	1010 ft	1510 ft	1750 ft
Acres		29.465	29.465	48.978	78.914
Departure Runway Protection Zone (RPZ)					
Length	L	1700 ft	1700 ft	1700 ft	1700 ft
Inner Width	U	500 ft	500 ft	500 ft	500 ft
Outer Width	V	1010 ft	1010 ft	1010 ft	1010 ft
Acres		29.465	29.465	29.465	29.465
Runway Separation					
Runway centerline to:					
Parallel runway centerline	H	*Refer to paragraph 316*			
Holding position		250 ft	250 ft	250 ft	250 ft
Parallel Taxiway/Taxilane centerline [2]	D	300 ft	300 ft	300 ft	400 ft
Aircraft parking area	G	400 ft	400 ft	400 ft	500 ft
Helicopter touchdown pad		Refer to AC 150/5390-2			

Notes:

- Appendix 7 contains non-interactive tables for all RDCs.
- Values in the table are rounded to the nearest foot. 1 foot = 0.305 meters.

Interactive Form

Table 3-5. Runway design standards matrix

Aircraft Approach Category (AAC) and Airplane Design Group (ADG): *(select from pull-down menu at right)*		C – IV			
		Visibility Minimums			
ITEM	**DIM**[1]	Visual	Not Lower than 1 mile	Not Lower than 3/4 mile	Lower than 3/4 mile
Runway Design					
Runway Length	A	*Refer to paragraphs 302 and 304*			
Runway Width	B	150 ft	150 ft	150 ft	150 ft
Shoulder Width		25 ft	25 ft	25 ft	25 ft
Blast Pad Width		200 ft	200 ft	200 ft	200 ft
Blast Pad Length		200 ft	200 ft	200 ft	200 ft
Crosswind Component		20 knots	20 knots	20 knots	20 knots
Runway Protection					
Runway Safety Area (RSA)					
Length beyond departure end [9, 10]	R	1000 ft	1000 ft	1000 ft	1000 ft
Length prior to threshold [11]	P	600 ft	600 ft	600 ft	600 ft
Width	C	500 ft	500 ft	500 ft	500 ft
Runway Object Free Area (ROFA)					
Length beyond runway end	R	1000 ft	1000 ft	1000 ft	1000 ft
Length prior to threshold [11]	P	600 ft	600 ft	600 ft	600 ft
Width	Q	800 ft	800 ft	800 ft	800 ft
Runway Obstacle Free Zone (ROFZ)					
Length		*Refer to paragraph 308*			
Width		*Refer to paragraph 308*			
Precision Obstacle Free Zone (POFZ)					
Length		N/A	N/A	N/A	200 ft
Width		N/A	N/A	N/A	800 ft
Approach Runway Protection Zone (RPZ)					
Length	L	1700 ft	1700 ft	1700 ft	2500 ft
Inner Width	U	500 ft	500 ft	1000 ft	1000 ft
Outer Width	V	1010 ft	1010 ft	1510 ft	1750 ft
Acres		29.465	29.465	48.978	78.914
Departure Runway Protection Zone (RPZ)					
Length	L	1700 ft	1700 ft	1700 ft	1700 ft
Inner Width	U	500 ft	500 ft	500 ft	500 ft
Outer Width	V	1010 ft	1010 ft	1010 ft	1010 ft
Acres		29.465	29.465	29.465	29.465
Runway Separation					
Runway centerline to:					
Parallel runway centerline	H	*Refer to paragraph 316*			
Holding position [8]		250 ft	250 ft	250 ft	250 ft
Parallel Taxiway/Taxilane centerline [2]	D	400 ft	400 ft	400 ft	400 ft
Aircraft parking area	G	500 ft	500 ft	500 ft	500 ft
Helicopter touchdown pad		Refer to AC 150/5390-2			

Notes:

- Appendix 7 contains non-interactive tables for all RDCs.
- Values in the table are rounded to the nearest foot. 1 foot = 0.305 meters.

Interactive Form

Appendix C

Existing RECs

RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

This REC was prepared in accordance with the National Environmental Policy Act, 32CFR651, and AR 200-1. The analysis documented in Section 4 is based on the description of the proposed action in Section 2 and any deviation from this description will require re-evaluation by the Installation Environmental Office prior to this action's implementation.

1. **PROJECT TITLE:** Building and Facility Demolition on Fort Stewart/Hunter Army Airfield, Georgia (FSGA/HAAF).

2. **DESCRIPTION OF THE PROPOSED ACTION:** The U.S. Army proposes to conduct demolition of buildings/facilities on FS/HAAF to support future construction activities. The Army requires that as new facilities are constructed, older underutilized ones are demolished, in order to keep each Installation's infrastructure square footage totals consistent. See Site Maps (Tab 1) for buildings proposed for demolition; site disturbance is expected to total less than 0.75 acre per facility demolished. *Note: the following buildings, though listed on enclosures at Tab 3, have been covered via separate NEPA documents and are not addressed in this REC: 16, 17, 19, 23, 24, 25, 85, 701, and 7097 on FSGA; in addition, Buildings 8627 and 8631 on HAAF are not covered in this REC, as they are the subject of separate NEPA documentation.*

3. **ANTICIPATED DATE OF ACTION:** FY 2019-22

4. **CONSIDERATIONS OF THE PROPOSED ACTION:** Referred to as "Attachment A," the enclosure at Tab 2 contains standard environmental compliance measures which, where applicable, are added to Installation contracts. The applicable sections of Attachment A that must be included as part of the scope of work for this proposed action include: *Sections 1.0 (Compliance with Environmental Management Systems), 2.0 (Green Procurement), 3.0 (Mandatory Recycling, including disposal records), 4.1 (Asbestos Containing Materials), 4.2 (Lead-Based Paint). 6.0 (Removing Underground Storage Tanks on FSGA/HAAF), 7.0 (Removing Aboveground Storage Tanks on FSGA/HAAF), 8.0 (Potable Water Utility Environmental Compliance Requirements), 10.2 (Requirements for Sites with Soil Disturbance Less Than 0.75 Acre), 12.0 (HVAC/Refrigerant Requirements), and 13.0 (Boilers, Hot Water Heaters, Heating Units, and Burners).*

   a. **Toxic Substance Control Act (TSCA):** Surveys identified asbestos containing materials (ACM) in FSGA Buildings 702, 1077, 1079, 1129, 7708, 7711, 7712, 7730, 19211, 19201, 19207, 19217, 19220, and HAAF Buildings 100, 125, 610, 1160, and 7004. As such, the contract must include ACM abatement, containment, disposal and notification as specified in Section 4.1 of Attachment A (Tab 2). Surveys either did not identify ACM in any of the remaining buildings or they were constructed post-1978 and the presence of ACM is not anticipated. *Due to the size of the ACM surveys for all of these buildings, the TSCA Review Summary only (Tab 3) is provided in this REC; copies of all surveys will be provided to the project POC, who shall then ensure they are provided to each contractor working on these buildings/facilities.*

      The date of construction (pre-1978) makes the presence of lead based paint (LBP) likely within the majority of these buildings. Although abatement of LBP is not required prior to facility demolition, the demolition contractor is required to implement dust control measures, to include spraying a fine mist of water to prevent the spread of airborne particles throughout the work site. In accordance with a 2011 Georgia Department of Natural Resources Memorandum, structures with LBP that pass the Toxicity Characteristic Leaching Procedure Test may be disposed of in a Municipal Solid Waste Landfill or a permitted off-Post Construction and Demolition Landfill. To date, all facilities demolished on FSGA/HAAF have passed this test. See Section 4.2 of Attachment A (Tab 2) for additional information regarding LBP protocols on FS/HAAF. ***The TSCA POC is Craig Christopher, (912) 767-1234.***

   b. **Restoration:** FSGA Building 1129 and HAAF Buildings 100, 125, 844, 1160, and 1330 have underground storage tanks (USTs). There are also aboveground storage tanks (ASTs) at FSGA Building 1129 and HAAF Buildings 100, 125, 844, 8054, and 8454. Per DPW Planning and Engineering Division, removal of all USTs/ASTs will be conducted by the contractor performing the building demolition (as part of their scope of work) and shall be conducted in accordance with Sections 6.0 and

7.0, respectively, of Attachment a (Tab 2), to include all testing, cleaning, relocation, and/or recycling of the UST/AST. To ensure environmental compliance measures are appropriately implemented and documented accordingly, close coordination is required between DPW, the contractor, and the FSGA DPW Restoration Section POC.

There are active remediation sites associated with the demolition of FSGA Buildings 1161 and 1162, including 14 groundwater monitoring (GWM) wells. Note that an adjacent building (1160), although not proposed for demolition, has the potential for free product in the soil. An active remediation site is also associated with HAAF Building 1351, including 4 GWM wells. GWM wells must be abandoned or removed prior to demolition; to the extent possible, removal and abandonment shall be conducted by the demolition contractor, as part of their scope of work (details to be finalized during development of contract), and all work shall be conducted in coordination with the FSGA DPW Restoration Section POC. ***The Restoration Section POC is Algeana Stevenson (912) 315-5144.***

c. **Cultural Resources Management (CRM):** There are no CRM concerns with the demolition of the identified facilities as each (a) has been determined ineligible for listing on the National Register of Historic Places (NRHP) as a result of a FSGA/HAAF Building Survey or one of its codicils, (b) is an outbuilding of an ineligible building and is therefore ineligible for the NRHP by association (per the Installation's Programmatic Agreement with the Georgia State Historic Preservation Office), or (c) was constructed post-1990 and is therefore ineligible for the NRHP. ***The CRM POC is Brian Greer (912) 767-0992.***

d. **Recycling and Solid Waste Management:** The contractor must adhere to the Installation Recycling Clause and the Command Recycling SOP (Tab 4). All military construction, renovation and demolition (C&D) projects shall divert a minimum of 60% C&D waste by weight out of the waste stream, as directed by the SOP. Source Reduction is also required to reduce the initial input to the solid waste stream, and all Contractors shall ensure minimum packing and packaging materials are used for items shipped to the Installation.

Contractor shall prepare a C&D Waste Management Plan detailing their plans to achieve the minimum diversion and source reduction requirements as well as submission of weight tickets. All waste removed from the project site (recyclables and refuse) must be weighed and a quarterly scale ticket weight report must be provided by the contractor to the Environmental Division Waste Management Section. Contractor will provide all weight tickets in accordance with the Recycling Clause. ***The Recycling/Waste Management POC is Johnny Davis, (912) 767-8880.***

e. **Sustainability Management System (SMS):** Army Regulation 200-1, Environmental Protection and Enhancement, requires Contractors, lessees, Army Active, National Guard, and Reserve personnel, garrison organizations tenants, and agencies performing functions on real property under jurisdiction of the Department of the Army to adhere to and support the Installation's SMS. The Contractor's work under this contract shall conform with all operational controls identified in the FSGA/HAAF SMS and provide monitoring and measurement information necessary for the Government to address environmental performance relative to the goals of the Environmental Management Systems. Accordingly, Contract Clause 52.223-19, Compliance with Environmental Management Systems, is incorporated by reference. Contract/agreement requirements are also included beginning on page 4 in paragraph 5 of the Recycling Program SOP (Tab 4). In accordance with Army Regulation 70-1, Army Acquisition Policy, this contract shall meet federal Green and Sustainable Procurement requirements and source reduction strategies. Contractor shall purchase goods and services that use sustainable environmental practices, such as the acquisition of bio-based, environmentally preferable, energy-efficient, water-efficient, and recycled-content products to the greatest extent possible. Refer to https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program for the current EPA guidance.

The Installation's SMS is in place to ensure proper management of those areas where insufficient effort to adhere to regulations would cause significant negative impacts to the environment. All persons

working for / on the Installation must strive to conserve water and energy, reduce solid waste disposal (mostly through recycling), and properly manage threatened and endangered species. ***The Sustainability Management POC is Ronald King, (912) 767-0271/2010.***

5. **JUSTIFICATION FOR USING A REC:** The proposed action is categorically excluded under the provisions of Categorical Exclusions, Appendix B, of the 32 Code of Federal Regulations Part 651, "Environmental Analysis of Army Actions, Final Rule", dated 29 March 2002 and meets all the screening criteria as defined in Part 651.29.

   Categorical Exclusion C-2: (C) Construction and demolition: (2) Demolition of non-historic buildings, structures, or other improvements and disposal of debris there from, or removal of a part thereof for disposal, in accordance with applicable regulations, including those regulations applying to removal of asbestos, polychlorinated biphenyls, lead-based paint, and other special hazard items (REC required).

6. **POINT OF CONTACT:** The point of contact for this REC can be reached at (912) 767-2010.

SIGNED _____
For Kyle Wemett
Chief, Planning and
Engineering Division
Directorate of Public Works

Date 08/22/2019

CONCUR _____
Thomas C. Fry
Chief, Environmental Division
Directorate of Public Works

Date 08/16/2019

TAB 1

Redacted for Operation Security

RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

This REC was prepared in accordance with the National Environmental Policy Act, 32CFR651, and AR 200-1. The analysis documented in Section 4 is based on the description of the proposed action in Section 2 and any deviation from this description will require re-evaluation by the Installation Environmental Office prior to this action's implementation.

1. **PROJECT TITLE:** Airfield Lighting and Signage Upgrades at Wright Army Airfield (WAAF), Fort Stewart, Georgia (FSGA), IJO# 2U 00005-3J (Tab 1).

2. **DESCRIPTION OF THE PROPOSED ACTION:** The existing lighting and signage on the runways, taxiway, and apron at WAAF have exceeded their design life and require replacement in order to meet pertinent United Facilities Criteria (UFC) requirements. Accordingly, the U.S. Army proposes to replace them with modern, more efficient models to mitigate these deficiencies. The regulators located within the airfield electrical vault (Building 7725) must also be updated (as they must marry up with the lighting they service), as must the lighting system associated with the WAAF Air Traffic Control Tower, Building 7754, which is also out of compliance with UFC requirements (see Tab 2 for Drawings). Ground disturbance will occur alongside the runways, taxiway, and apron to remove old conduit and wiring and replace with new materials; however, ground disturbance will remain within existing disturbed areas as much as possible, and exposed soils will be recovered at the end of each work day in accordance with Installation guidance (see REC Section 4.a., below).

   This work will not impact endangered, threatened or protected species, cultural resources, wetlands, water/wastewater utility lines, heating, ventilation, and air conditioning systems, or underground/aboveground storage tanks. Tree removal is not required, and no groundwater withdrawal is proposed.

3. **ANTICIPATED DATE OF ACTION:** FY 2018

4. **CONSIDERATIONS OF THE PROPOSED ACTION:** Referred to as "Attachment A", the enclosure at Tab 3 contains standard environmental compliance measures where applicable sections are added to Installation contracts. The applicable sections of Attachment A that pertain to the proposed action include: *Sections 1.0 (Compliance with Environmental Management Systems), 2.0 (Federal Green Procurement), 3.0 (Mandatory Recycling, including disposal records), 4.1 (Asbestos Containing Materials), 4.2 (Lead Based Paint), and 11.0 (Requirements for Off-site Soils).*

   Where additional explanation of a standard environmental requirement is warranted or where unique site conditions exist and are not otherwise disclosed in Attachment A, the following evaluation is provided to the proposed action.

   a. **Stormwater/Erosion and Sedimentation (E&S):** This project qualifies for categorization as maintenance and repair; accordingly, a notice of intent (NOI) will not be required. However, **in order to be eligible for this exemption the project must comply with the following conditions:**

      (1) No mass grading shall occur on the project.

      (2) The project shall be stabilized by the end of each day with temporary or permanent stabilization measures.

      (3) The project shall have a duration of less than 120 calendar days.

      (4) Final stabilization must be implemented at the end of the maintenance project.

      If the project cannot/will not comply with all four noted conditions or if the project deviates from these conditions during implementation, the project is no longer exempt and NOI permitting requirements apply. As the design for this project develops, please ensure the total acres of land disturbing activities is provided to the Stormwater/E&S POC, as another step to ensure this qualification for an NOI exemption continues to apply. ***The Stormwater/E&S Point of Contact (POC) is Chris Montano, (912) 767-2171.***

   b. **Toxic Substances Control Act (TSCA): Surveys in Building 7754 identified asbestos containing materials (ACM) in some of the floor tiles and window caulk,** but were non-detect in the thermal pipe insulation and HVAC insulation. If these areas must be disturbed or require

removal during the work process, all actions must be conducted in accordance with Section 4.1 of Attachment A (Tab 3). Surveys for ACM in Building 7725 were non-detect. All surveys are in Tab 4.

Lead-based paint (LBP) was also identified by survey within the stairwell of Building 7754, (Tab 4). If these surfaces may be disturbed during the work process, all work must be conducted in accordance with Section 4.2 of Attachment A (Tab 3). Surveys for LBP were non-detect in Building 7725. All surveys are in Tab 4.

Old lamps/light bulbs removed during the course of this project may be classified as universal waste and must be managed in accordance with the FSGA Hazardous Waste Management Plan (available for use at http://www.stewart.army.mil/application/files/3615/2450/8733/Fort_Stewart-Hunter_Army_Airfield_Hazardous_Waste_Management_Plan.pdf). T***he TSCA POC is Craig Christopher, (912) 767-1234.***

c. **Wetlands:** All wetland areas present within the areas where work will be performed on the airfield have been mitigated or permitted for such actions (under the category of maintenance & upkeep). Accordingly, there are no concerns or potential issues with the proposed action as currently scoped. ***The Wetlands POC is Georgia Harris, (912) 767-1759.***

d. **Cultural Resources Management (CRM):** Buildings 7725 and 7754 are not eligible for the National Registry of Historic Places (NRHP) and the WAAF runway is not part of an NRHP-eligible district or area. As such, the replacement of airfield lighting and signage will not impact any historic resources/historic properties, and there are no CRM concerns the proposed action. ***The CRM POC is Brian Greer, (912) 767-0992.***

e. **Recycling: FSGA has a mandatory Recycling Standard Operating Procedure (SOP) with which the contractor performing this work must comply (Tab 5).** All recyclable materials (listed in the Recycling SOP) generated will be turned over to the FSGA Recycling Program. Contractors must contact the COR who will coordinate with the DPW Environmental Waste Management Section to arrange for turn-in of recyclable/salvageable materials. In areas where large amounts of scrap metal or cardboard will be generated, it is possible that a collection bin/container could be provided to the Contractor at no cost to deposit these materials. ***The Recycling POC is Johnny Davis, (912) 767-8880.***

f. **Sustainability Management System (SMS):** Army Regulation 200-1, Environmental Protection and Enhancement, requires Contractors, lessees, Army Active, National Guard, and Reserve personnel, garrison organizations tenants, and agencies performing functions on real property under jurisdiction of the Department of the Army to adhere to and support the Installation's SMS. Specific to the proposed action, Federal Acquisition Regulation (FAR) Subpart 23.9 (Contractor Compliance with Environmental Management Systems) applies, and obligates the contracting officer (KO) to insert clause 52.223-19, Compliance with Environmental Management Systems, into all solicitations and contracts. Clause 52.223-19 requires conformance with Army and local Fort Stewart/HAAF sustainability management and provide monitoring and measurement information necessary for the Government to address environmental performance relative to the goals of the Environmental Management Systems. Contract/agreement requirements are also included beginning on page 4 in paragraph 5 of the Recycling Program SOP (Tab 5). Additionally, in accordance with Army Regulation 70-1, Army Acquisition Policy, the KO shall ensure that construction and procurement contracts meet Federal Green Procurement requirements and source reduction strategies.

The Installation's SMS is in place to ensure proper management of those areas where insufficient effort to adhere to regulations would cause significant negative impacts to the environment. All persons working for / on the Installation must strive to conserve water and energy, reduce solid waste disposal (mostly through recycling), and properly manage threatened and endangered species. ***The SMS POC is Ronald King, (912) 767-0271/2010.***

5. **JUSTIFICATION FOR USING A REC:** The proposed action is categorically excluded under the provisions of Categorical Exclusions, Appendix B, of the 32 Code of Federal Regulations Part 651, “Environmental Analysis of Army Actions, Final Rule”, dated 29 March 2002 and meets all the screening criteria as defined in Part 651.29.

1. **PROJECT TITLE:** Airf Lighting and Signage Upgrades at Wright ıy Airfield, Fort Stewart, Georgia, IJO# 2U 00005-3J

Categorical Exclusion G-1: (g) Repair and maintenance activities (1) Routine repair and maintenance of buildings, airfields, grounds, equipment, and other facilities. Examples include, but are not limited to: Removal and disposal of asbestos containing material (for example, roof material and floor tile) or lead-based paint in accordance with applicable regulations; removal of dead, diseased, or damaged trees; and repair of roofs, doors, windows, or fixtures (REC required for removal and disposal of asbestos-containing material and lead-based paint or work on historic structures).

6. **POINT OF CONTACT:** The point of contact for this REC may be reached at (912) 767-2010.

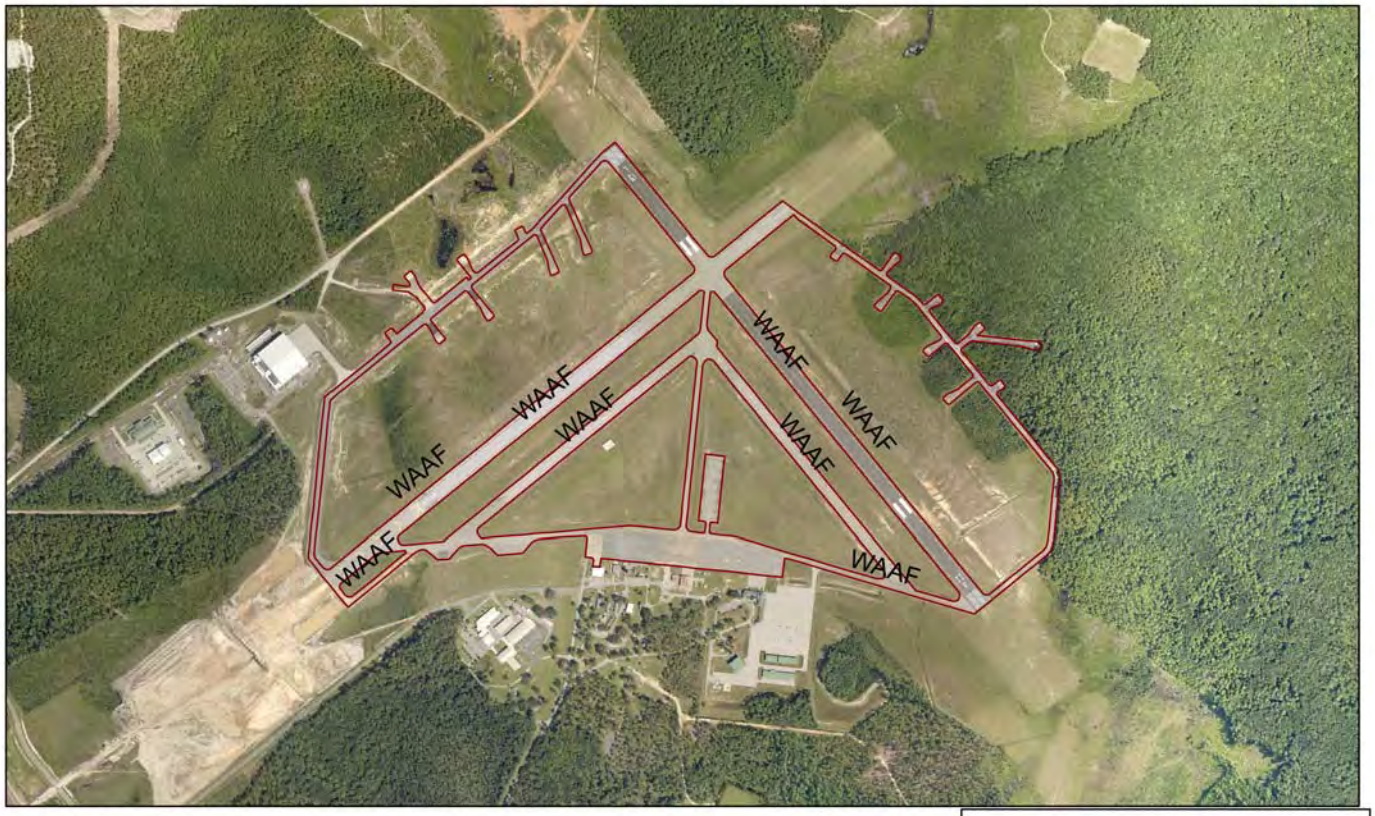
SIGNED _____
Jon E. Bairnsfather
Acting Chief, Engineering
Services Division
Directorate of Public Works
Fort Stewart, Georgia

Date 9/13/2018

CONCUR _____
Thomas C. Fry
Chief, Environmental Division
Directorate of Public Works
Fort Stewart, Georgia

Date 09/12/2018

TAB 1



0 0.125 0.25 0.5 Miles

N
W E
S

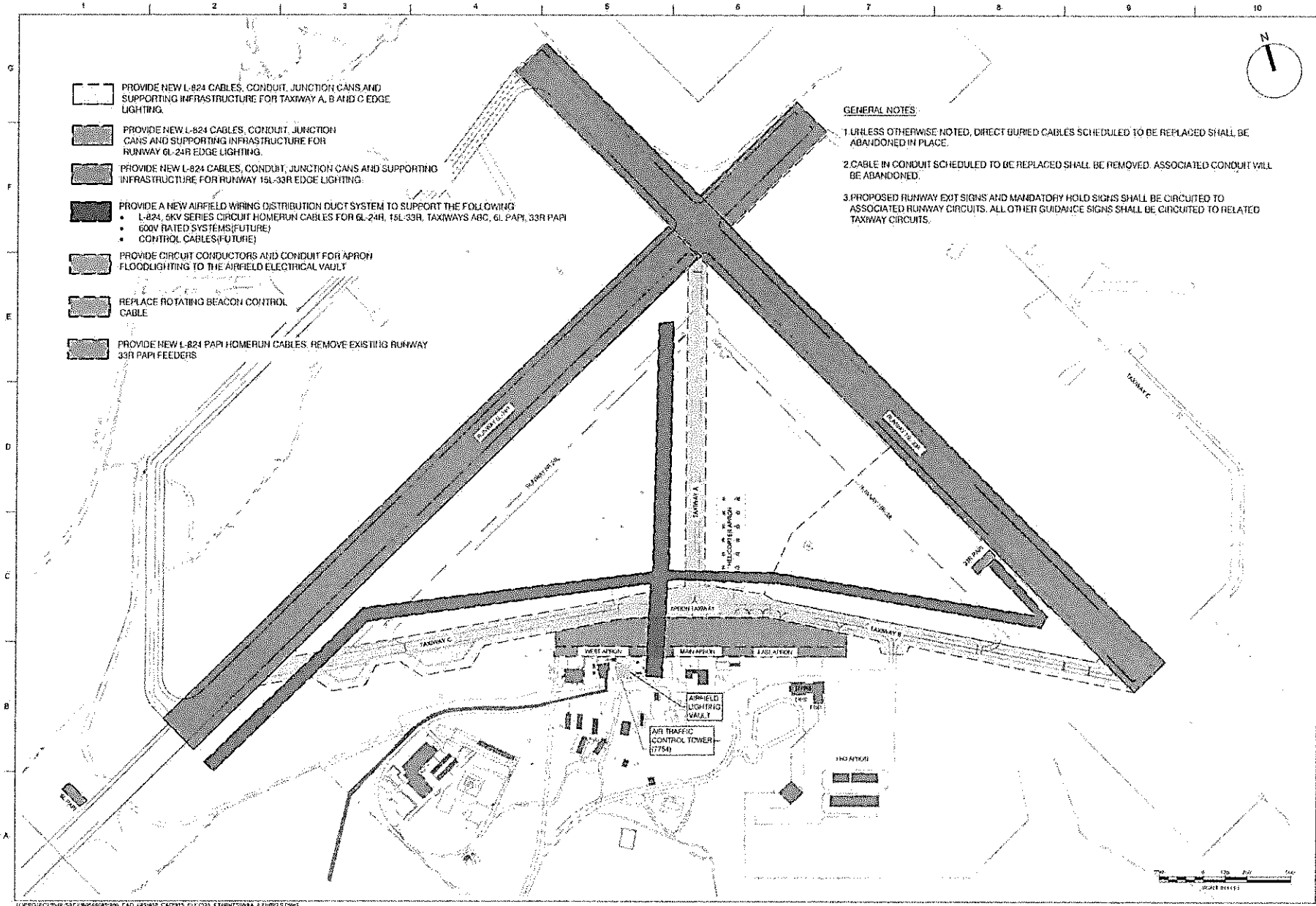
Legend

Airstrips

Installation Boundary



TAB 2



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: K.CRAY
DRAWN BY: K.CRAY
CHECKED BY: K.LEFFEW
QUALITY CONTROL BY: K.LEFFEW
ISSUE DATE: MAR 2017
SOLICITATION NO
CONTRACT NO
CATEGORY CODE
AS-BUILT REDLINES
SIZE: D
FILENAME

U.S. ARMY CORPS OF ENGINEERS
1590 WEST GWINNETT PARKWAY
SAVANNAH DISTRICT
SAVANNAH GEORGIA

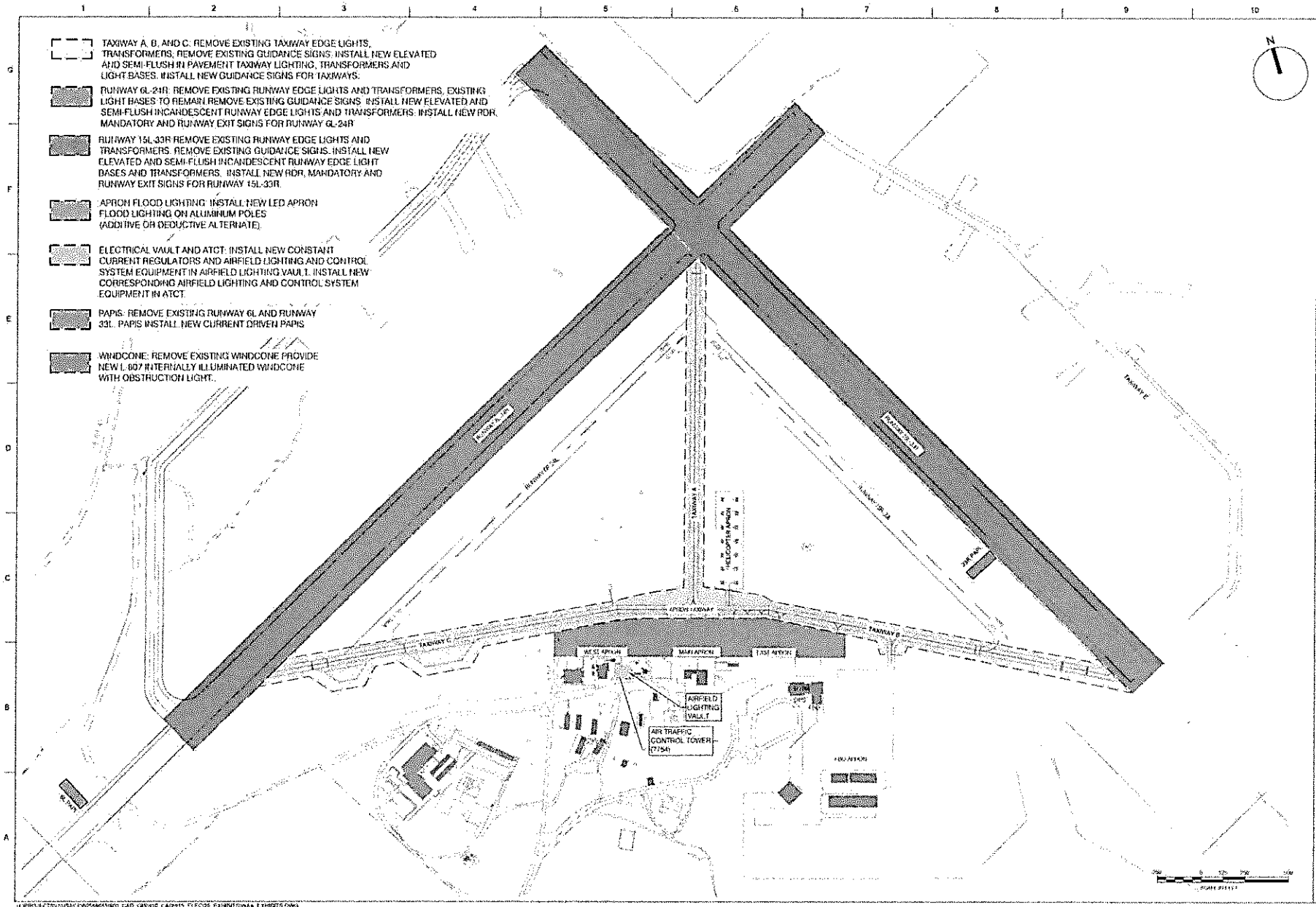
AECOM
715 PARK DR
MONT VALLEY, MD 21030

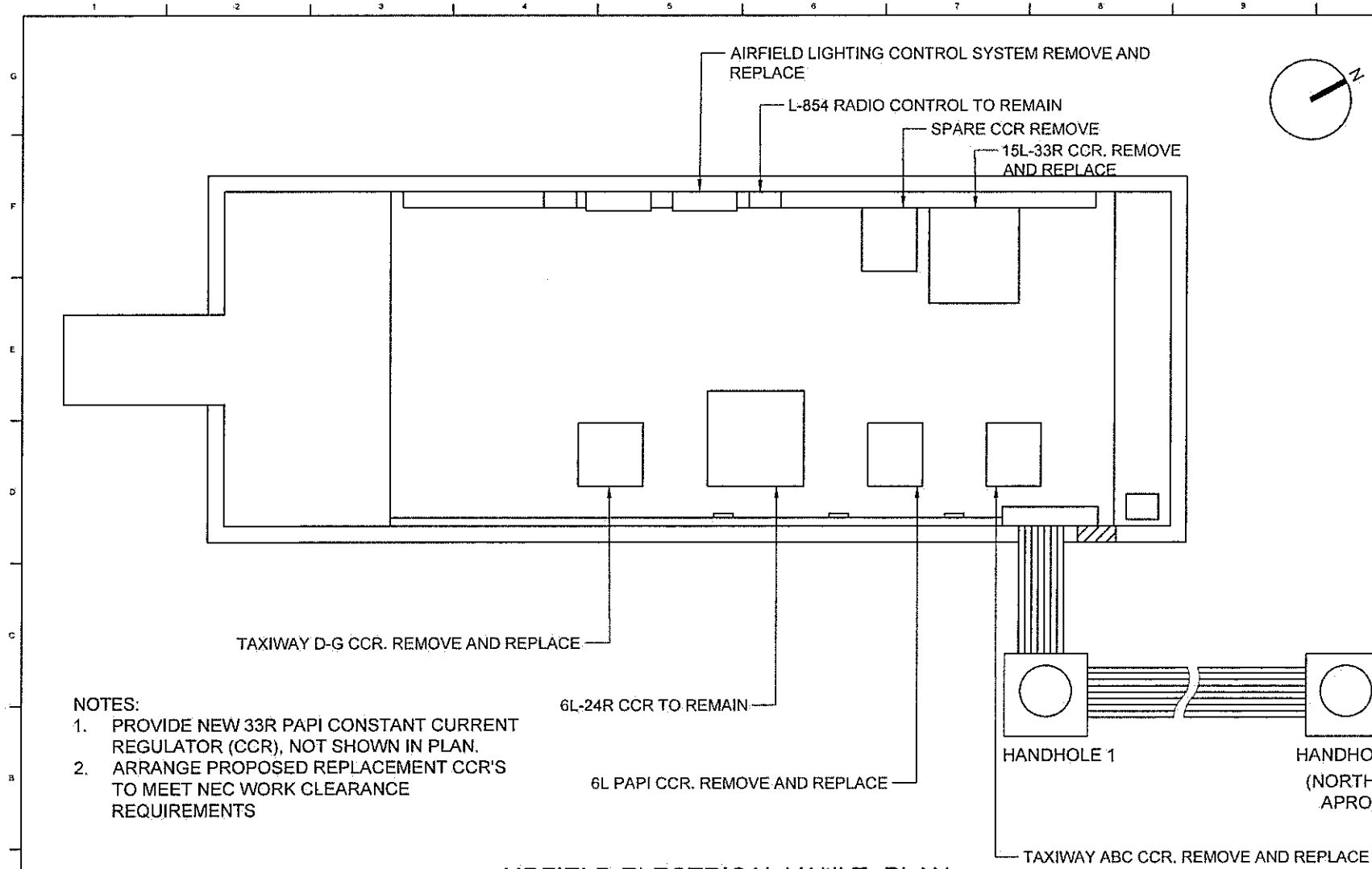
WRIGHT ARMY AIRFIELD FORT STEWART, GA

SCOPING REPORT
CIRCUIT & CONDUIT REPLACEMENT

EXHIBIT
1

U:\PROJECTS\60560300_SAGE\60560300_CAD_GIS\12_CADD\15_ELEC\03_EXHIBITS\WAA_EXHIBIT3.DWG
3/21/2017
AECOM GRAY


TAXIWAY A, B, AND C: REMOVE EXISTING TAXIWAY EDGE LIGHTS, TRANSFORMERS; REMOVE EXISTING GUIDANCE SIGNS; INSTALL NEW ELEVATED AND SEMI-FLUSH IN PAVEMENT TAXIWAY LIGHTING, TRANSFORMERS AND LIGHT BASES. INSTALL NEW GUIDANCE SIGNS FOR TAXIWAYS.
RUNWAY 6L-24R: REMOVE EXISTING RUNWAY EDGE LIGHTS AND TRANSFORMERS, EXISTING LIGHT BASES TO REMAIN; REMOVE EXISTING GUIDANCE SIGNS. INSTALL NEW ELEVATED AND SEMI-FLUSH INCANDESCENT RUNWAY EDGE LIGHTS AND TRANSFORMERS. INSTALL NEW RDR, MANDATORY AND RUNWAY EXIT SIGNS FOR RUNWAY 6L-24R
RUNWAY 15L-33R REMOVE EXISTING RUNWAY EDGE LIGHTS AND TRANSFORMERS. REMOVE EXISTING GUIDANCE SIGNS. INSTALL NEW ELEVATED AND SEMI-FLUSH INCANDESCENT RUNWAY EDGE LIGHT BASES AND TRANSFORMERS. INSTALL NEW RDR, MANDATORY AND RUNWAY EXIT SIGNS FOR RUNWAY 15L-33R.
APRON FLOOD LIGHTING: INSTALL NEW LED APRON FLOOD LIGHTING ON ALUMINUM POLES (ADDITIVE OR DEDUCTIVE ALTERNATE).
ELECTRICAL VAULT AND ATCT: INSTALL NEW CONSTANT CURRENT REGULATORS AND AIRFIELD LIGHTING AND CONTROL SYSTEM EQUIPMENT IN AIRFIELD LIGHTING VAULT. INSTALL NEW CORRESPONDING AIRFIELD LIGHTING AND CONTROL SYSTEM EQUIPMENT IN ATCT.
PAPIS: REMOVE EXISTING RUNWAY 6L AND RUNWAY 33L PAPIS INSTALL NEW CURRENT DRIVEN PAPIS
WINDCONE: REMOVE EXISTING WINDCONE PROVIDE NEW L-807 INTERNALLY ILLUMINATED WINDCONE WITH OBSTRUCTION LIGHT.
N
RUNWAY 6L-24R
RUNWAY 15L-33R
TAXIWAY A
TAXIWAY B
TAXIWAY C
TAXIWAY E
APRON TAXIWAY
WEST APRON
MAIN APRON
EAST APRON
HELICOPTER APRON
AIRFIELD LIGHTING VAULT
AIR TRAFFIC CONTROL TOWER (ATCT)
PAPI
US Army Corps of Engineers
SCOPING REPORT
AIRFIELD LIGHTING
WRIGHT ARMY AIRFIELD / FORT STEWART, GA
EXHIBIT
2



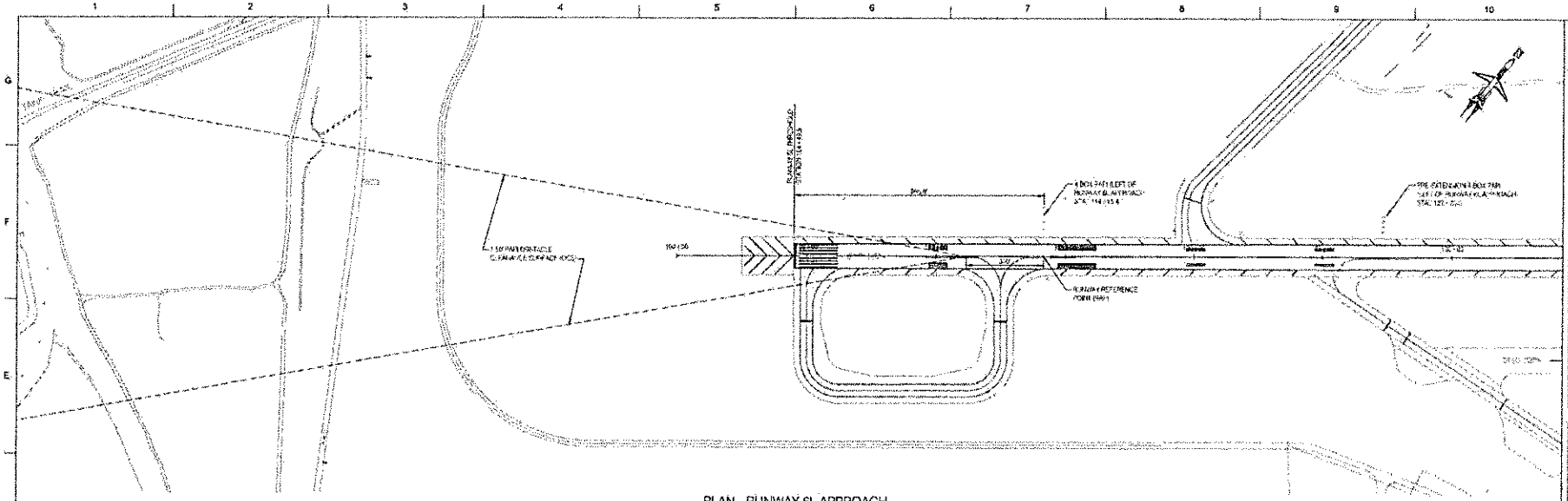
NOTES:
1. PROVIDE NEW 33R PAPI CONSTANT CURRENT REGULATOR (CCR), NOT SHOWN IN PLAN.
2. ARRANGE PROPOSED REPLACEMENT CCR'S TO MEET NEC WORK CLEARANCE REQUIREMENTS

AIRFIELD ELECTRICAL VAULT- PLAN
N.T.S.

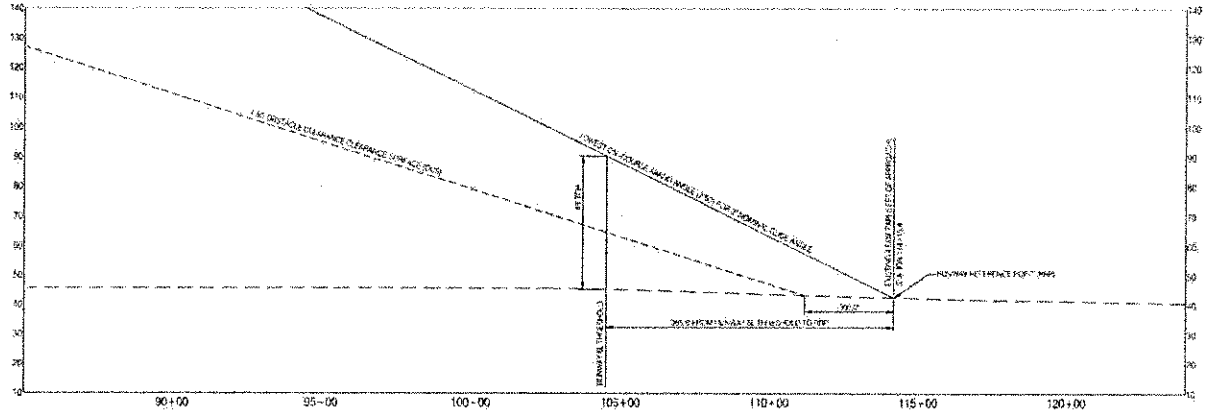
US Army Corps of Engineers

SCOPING REPORT
AIRFIELD ELECTRIC VAULT

EXHIBIT
3



PLAN - RUNWAY 6L APPROACH



PROFILE - RUNWAY 6L APPROACH

NOTES:
1. ALL RUNWAY ELEVATIONS BASED ON AN AECOM SURVEY DATED _____.
2. THE NOMINAL GLIDE ANGLE IS 3° WHICH EQUATES TO A LOWEST ON-COURSE ARMING ANGLE OF 2.50°.
3. THE PAPI OBSTACLE CLEARANCE ANGLE IS 1° (EQUAL TO THE LOWEST ON-COURSE ARMING ANGLE MINUS 1 DEGREE (1-3-0)).
4. BOTH RUNWAYS ARE REPRESENTED BY HEIGHT GROUP 1 AIRCRAFT WHICH REQUIRES A VISUAL THRESHOLD CROSSING HEIGHT OF 45 FEET – S- 20.
5. SITING IS BASED UPON REQUIREMENTS WITHIN FAA ORDER 6850.2B CHG 4, VISUAL GUIDANCE LIGHTING SYSTEMS.
6. THIS ANALYSIS ASSUMES THE APPROACHES ARE FREE OF OBSTRUCTIONS.

PROFILE - VERTICAL SCALE IN FEET

PLAN - HORIZONTAL SCALE IN FEET

MARK	DESCRIPTION	DATE

DESIGNED BY: SDA
DRAWN BY:
CHECKED BY:
SUBMITTED BY:
DATE: 4/2013
FILENAME:

CONTRACT NO.
WORK UNIT NUMBER
CAT. CODE / POLICY

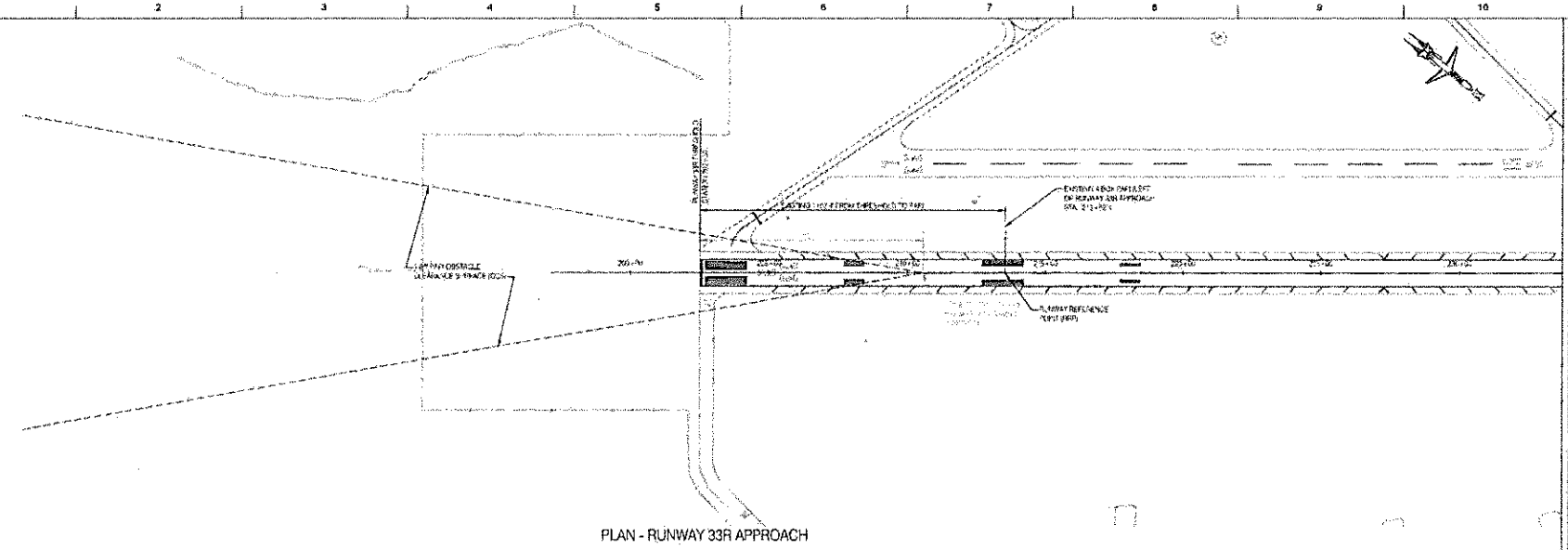
U.S. ARMY CORPS OF ENGINEERS
SOUTH ATLANTIC DIVISION
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

AECOM
421 PARK DR
HUNT VALLEY, MD 21030

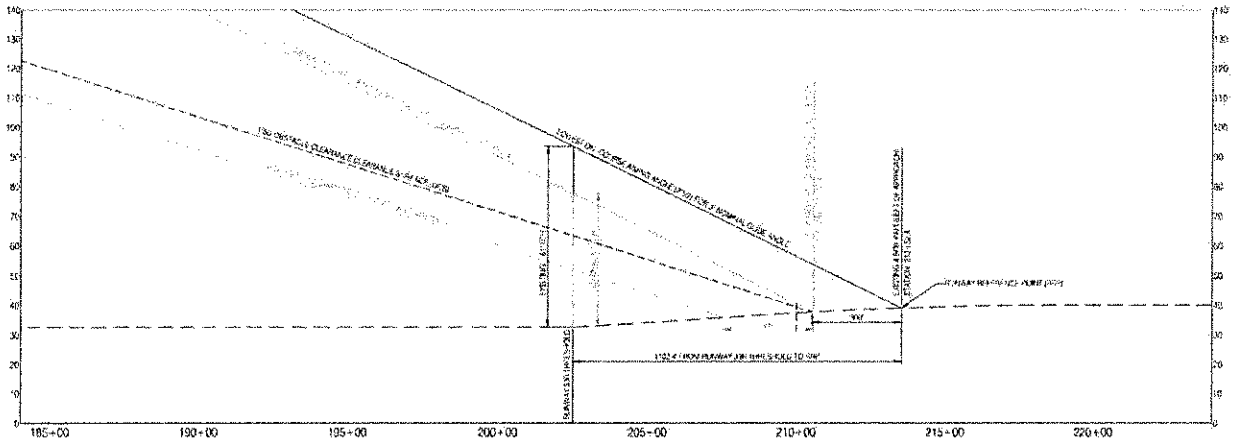
HILTON HEAD AIRPORT
HILTON HEAD ISLAND, SOUTH CAROLINA
AIRFIELD LIGHTING AND DISTANCE
PSMAAS

RUNWAY 6L APPROACH PAPI SITING ANALYSIS

SHEET ID



PLAN - RUNWAY 33R APPROACH



PROFILE - RUNWAY 33R APPROACH

NOTES:
1. ALL RUNWAY ELEVATIONS BASED ON AN AECOM SURVEY DATED _____.
2. THE NOMINAL GLIDE ANGLE IS 3° WHICH EQUATES TO A LOWEST ON-COURSE AIMING ANGLE OF 2.90°.
3. THE PAPI OBSTACLE CLEARANCE ANGLE IS EQUAL TO THE LOWEST ON-COURSE AIMING ANGLE MINUS 1 DEGREE (1.90°).
4. BOTH RUNWAYS ARE REPRESENTED BY HEIGHT GROUP 1 AIRCRAFT WHICH REQUIRES A VISUAL THRESHOLD CROSSING HEIGHT OF 43 FEET +5, -20.
5. SITING IS BASED UPON REQUIREMENTS WITHIN FAA ORDER 6850.33 VISUAL GUIDANCE LIGHTING SYSTEMS.
6. THIS ANALYSIS ASSUMES THE APPROACHES ARE FREE OF OBSTRUCTIONS.
7. THE [redacted] COLOR OBJECTS REPRESENT THE NOMINAL 43' THRESHOLD CROSSING HEIGHT PAPI SITING.

PROFILE - VERTICAL SCALE IN FEET

PLAN - HORIZONTAL SCALE IN FEET

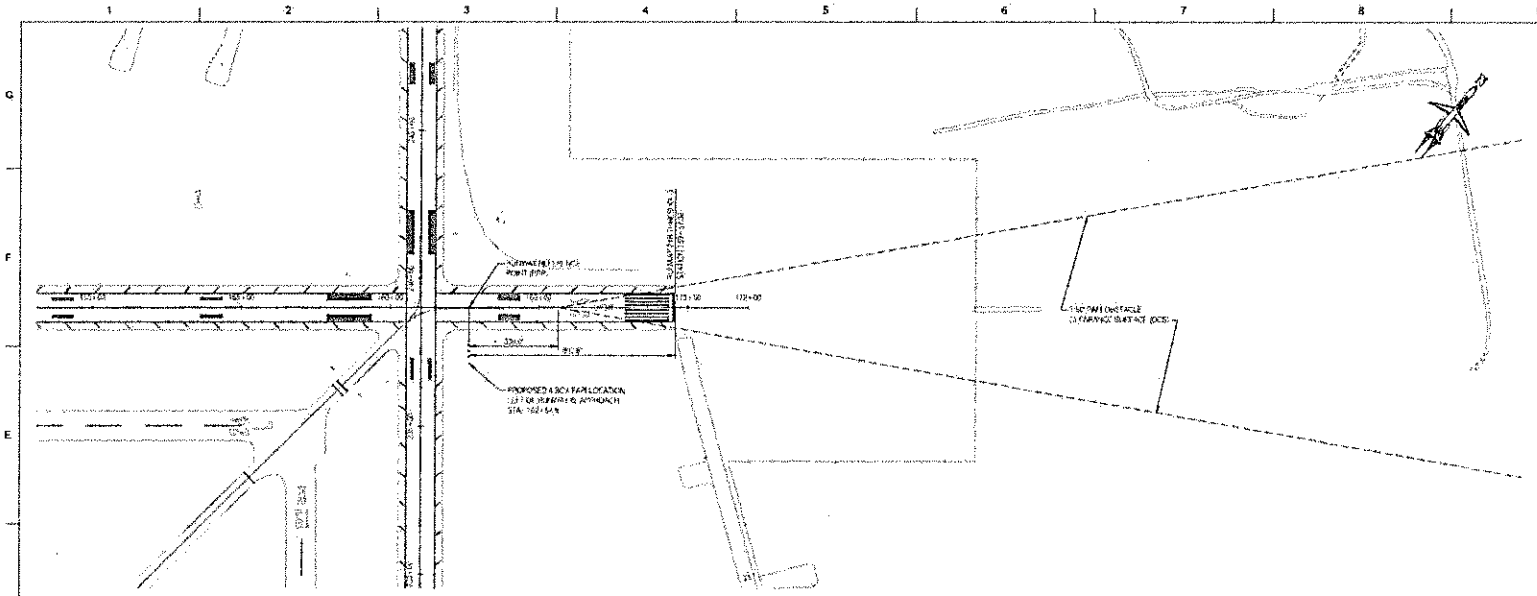
DESIGNED BY: DRAWN BY: CHECKED BY: SUBMITTED BY: DATE: FILENAME:

U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT

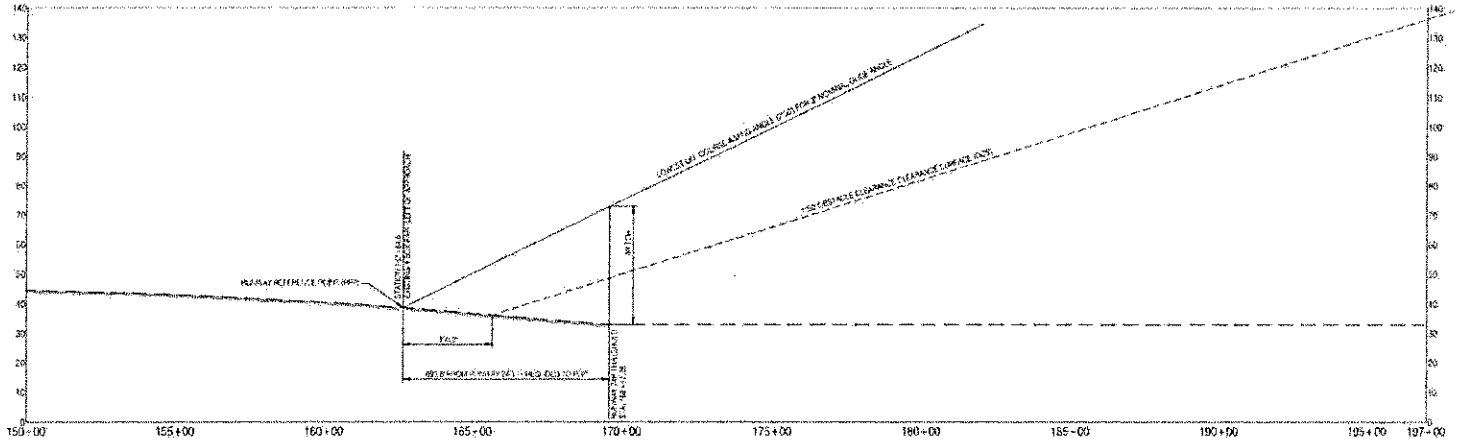
AECOM 4 N. PARK DR. HUNT VALLEY, MD 21030

RUNWAY 33R APPROACH PAPI SITING ANALYSIS

SHEET ID:



PLAN - RUNWAY 24R APPROACH



PROFILE - RUNWAY 24R APPROACH

NOTES:
1. ALL RUNWAY ELEVATIONS BASED ON AN AP-GDM SURVEY DATED
2. THE NOMINAL GLIDE ANGLE IS 3° WHICH EQUATES TO A LOWEST ON-COURSE AIMING ANGLE OF 2.50°.
3. THE PAPI OBSTACLE CLEARANCE ANGLE IS EQUAL TO THE LOWEST ON-COURSE AIMING ANGLE MINUS 1 DEGREE (1.50°).
4. BOTH RUNWAYS ARE REPRESENTED BY HEIGHT GROUP 1 AIRCRAFT WHICH REQUIRES A VISUAL THRESHOLD CROSSING HEIGHT OF 40 FEET +5, -20.
5. SITING IS BASED UPON REQUIREMENTS WITHIN FAA ORDER 8260.3D VISUAL GUIDANCE LIGHTING SYSTEMS.
6. THIS ANALYSIS ASSUMES THE APPROACHES ARE FREE OF OBSTRUCTIONS.

PROFILE - VERTICAL SCALE IN FEET

PLAN - HORIZONTAL SCALE IN FEET

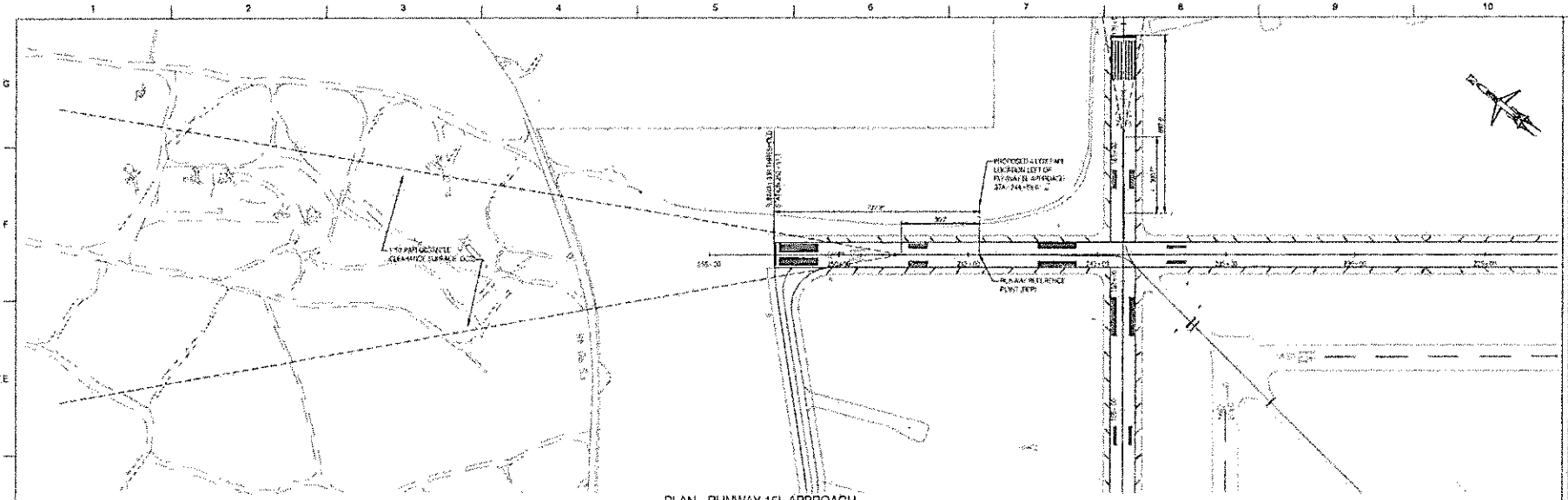
U.S. ARMY CORPS OF ENGINEERS
100 MEI ARMY ACTIVITY CENTER AVENUE
SAVANNAH, GEORGIA

AECOM
4 N PARK DR
HUNT VALLEY, MD 21030

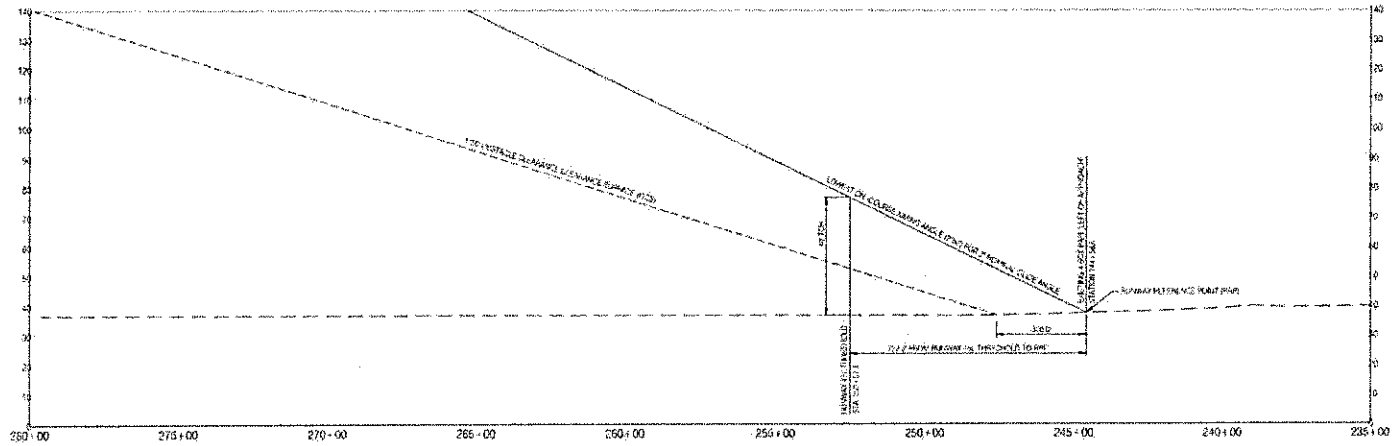
WRIGHT ARMY AIRFIELD, FORT STEWART, GA
AIRFIELD LIGHTING VAULT AND STORAGE
FY XXXX

RUNWAY 24R APPROACH
PAPI SITING ANALYSIS

SHEET ID



PLAN - RUNWAY 15L APPROACH



PROFILE - RUNWAY 15L APPROACH

NOTES:
1. ALL RUNWAY ELEVATIONS BASED ON AN AECOM SURVEY DATED
2. THE NOMINAL GLIDE ANGLE IS 3° WHICH EQUATES TO A LOWEST ON-COURSE ARMING ANGLE OF 2.5°.
3. THE FAR OBSTACLE CLEARANCE ARMING IS EQUAL TO THE LOWEST ON-COURSE ARMING ANGLE MINUS 1 DEGREE (1°30').
4. BOTH RUNWAYS ARE REPRESENTED BY HEIGHT GROUP 1 AIRCRAFT WHICH REQUIRES A VISUAL THRESHOLD CROSSING HEIGHT OF 40 FEET +5, -20.
5. OTWS IS BASED UPON REQUIREMENTS WITHIN FAA ORDER 6850.2D VISUAL GUIDANCE LIGHTING SYSTEMS.
6. THIS ANALYSIS ASSUMES THE APPROACHES ARE FREE OF OBSTRUCTIONS.

PROFILE - VERTICAL SCALE IN FEET

PLAN - HORIZONTAL SCALE IN FEET

U.S. ARMY CORPS OF ENGINEERS
SOUTHWEST DIVISION
FORT WORTH DISTRICT
SAVANNAH, GEORGIA

AECOM
4 N. PARK DR
HUNT VALLEY, MD 21030

DESIGNED BY
DRAWN BY
CHECKED BY
SUBMITTED BY
DATE
AS BUILT

CONTRACT NO.
CONTRACTOR
CAGE/DUNS CODE

DATE
DESCRIPTION

JENSEN ARMY AIRFIELD, FORT STEWART, GA.
AIRFIELD LIGHTING AND SIGNAGE
FSXAAA

RUNWAY 15L APPROACH PAPI SITING ANALYSIS

SHEET ID

TAB 3

ATTACHMENT (A)

ENVIRONMENTAL REQUIREMENTS

1.0 All contracts shall include Contract Clause 52.223-19, *Compliance with Environmental Management Systems*: "The Contractor's work under this contract shall conform with all operational controls identified in the applicable agency or facility Environmental Management Systems and provide monitoring and measurement information necessary for the Government to address environmental performance relative to the goals of the Environmental Management Systems."

The operational controls identified in FSGA/HAAF's Environmental Management System include the contractor's adherence to the Installation's Sustainability Policy (R.O.C.K. = Resources, Optimize, Compliance, Keep Improving) and support the Installation's Sustainability Management System (SMS). All persons working for / on the Installation must strive to conserve water and energy, reduce solid waste disposal (mostly through recycling), and properly manage threatened and endangered species. This system is in place to ensure proper management of those areas where insufficient efforts of adherence to regulations would cause significant negative impacts to the environment.

Complete the SMS General Awareness Training available on the internet at http://stewdpwa401/smsquiz/. Please generate a training roster to document this training.

1.1 REQUIRED SUBMITTAL ITEM: During contract kick-off meetings, the KO/COR must confirm the contractor and their on-site workers have completed the SMS General Awareness Training. The KO/COR shall submit a copy of the contractor's training roster to the SMS Coordinator.

2.0 In accordance with AR 70-1, the KO shall ensure that construction and procurement contracts meet Federal Green Procurement requirements and source reduction strategies.

2.1 REQUIRED SUBMITTAL ITEM: The KO shall report the number of contracts that include the FAR Part 23 clauses to the SMS Coordinator. These clauses include:

52.223-1, Bio based Product Certification

52.223-2, Affirmative Procurement of Bio based Products Under Service and Construction Contracts

52.223-3, Hazardous Material Identification and Material Safety Data

52.223-4, Recovered Material Certification

52.223-5, Pollution Prevention

52.223-9, Estimate of Percentage of Recovered Material Content for EPA-Designated Items

52.223-10, Waste Reduction Program

52.223-11, Ozone Depleting Substances

52.223-12, Refrigeration Equipment and Air Conditioners

52.223-15, Energy Efficiency in Energy-Consuming Products

52.223-16, IEEE 1680 Standard for Environmental Assessment of Personal Computer

52.223-17, Affirmative Procurement of EPA-designated Items in Service and Construction Contracts

52.223-19, Compliance with Environmental Management Systems

2.2 Contracts should specify the purchase of goods and services that use sustainable environmental practices (acquisition of bio-based, environmentally preferable, energy-efficient, water-efficient, and recycled-content products) with a minimum packing and packaging materials for items shipped. Printer Paper should be of at least a 30 percent post-consumer fiber content. Refer to www/epa.gov/cpg/products.html for the current EPA guidance.

2.3 REQUIRED SUBMITTAL ITEM: The KO shall provide the number of green procurement purchases to the SMS Coordinator.

3.0 FSGA/HAAF has a mandatory recycling program. Unless otherwise specified, the Government retains all salvage rights. Contractors shall recycle construction & demolition debris as required by the Installation's recycling clause, 52.000-4061: RECYCLING, SALVAGE, AND DISPOSAL OF MATERIALS FORT STEWART AND HUNTER ARMY AIRFIELD.

Source Reduction is required to reduce the initial input to the solid waste stream. Ensure minimum packing and packaging materials are used for items shipped to the Installation. Also, all military construction, renovation and demolition projects shall include performance requirements for a 60% minimum diversion of C&D waste by weight. Contractor must provide all weight tickets to demonstrate meeting the performance standard. Specifications must include submission of a contractor’s C&D Waste Management Plan.

Concrete and asphalt material shall be hauled and disposed of off of government property. Recycle materials will be broken down when delivered to the Recycling Center (to include metal equipment). Scrap metal will be cut down to no larger than 4 square feet in size.

3.1 REQUIRED SUBMITTAL ITEM: The Contractor shall (a) submit a C&D Waste Management Plan (b) submit copies of all disposal weight/landfill scale tickets to the COR as described in the Referenced Recycling Clause for any off-post disposal or approved Contractor-retained salvage items within 10 days of removal; and (c) turn in all recyclables generated during the entire term of the Contract (unless otherwise approved for off-site disposal/salvage). Contractor, through COR, will coordinate with the DPW Environmental Division (912-767-2010 or 767-8880) to arrange for turn-in of recyclable/salvageable materials.

3.2 Chillers, pumps, HVAC units, and similar equipment must be logged on an applicable inventory/certification document prior to turn-in to recycling yard (on DD Form 1348). The form will be used to track the removal of units from facilities, refrigerant removal certification (if applicable), and a chain of custody from removal technician thru supply manager to recycling technician. The serial number and facility number will be listed on each form and one form may contain more than one like item. Recycling Yard personnel will verify document to items

turned in, sign the document, and retain a file copy. Contractor shall submit this form to the KO. Additionally, damaged HVAC system may be accepted as scrap metal at the FSGA Recycling Scrap Metal Yard, Building 1143, or the HAAF Recycling Yard, Building 728, provided any and all freon has been certified as being removed from the system.

4.0 Toxic Substances Control Act (TSCA) Requirements

4.1 Asbestos Containing Materials (ACM)

4.1.1 If ACM will either be disturbed or removed, the contractor must perform asbestos abatement, containment, disposal and a 10-day notification to the Georgia Environmental Protection Division (GA EPD), as required by the Georgia Asbestos Safety Act, Official Code of Georgia Annotated Section 12-12-1. The disposal of ACM must be in accordance with both the GA EPD and Occupational Safety and Health Administration regulations.

4.1.2 REQUIRED SUBMITTAL ITEM: The Installation TSCA POC (Craig Christopher at 912-767-1234 / Craig.W.Christopher.civ@mail.mil) must be provided a copy of the 10-day notification at the time the contractor informs GA EPD of their intent to properly abate the ACM. A copy of the Georgia asbestos shipment record must also be provided to the TSCA POC.

4.2 Lead-Based Paint (LBP)

4.2.1 If survey results, as reviewed by the Installation TSCA POC (Craig Christopher at 912-767-1234 / Craig.W.Christopher.civ@mail.mil), indicate LBP removal is necessary, the contractor will be required to collect, contain, and dispose of the LBP off-Post in accordance with local, state, and Federal regulations. The contractor will be required to provide the disposal manifest to the TSCA POC.

4.2.2 REQUIRED SUBMITTAL ITEM: LBP survey must be provided to the TSCA POC, as applicable. The LBP disposal manifest must be provided to the TSCA POC if LBP removal was determined necessary by the TSCA POC.

5.0 Installing Storage Tanks on Fort Stewart and Hunter Army Airfield

5.1 Underground Storage Tank Moratorium.

5.1.1 The installation of any underground storage tank and associated piping for the purpose of containing regulated and/or hazardous substances is strictly prohibited in the case where at least 10% of the total volume (tank + piping) is below the surface of the ground. Similarly, tanks in vaults for the purpose of installing tanks below grade are not acceptable.

5.2 Design Requirements for Aboveground Storage Tanks

5.2.1 Provide appropriate secondary containment (40 CFR 112.8(c)(2)). All aboveground storage tanks used for the purpose of storing regulated and/or hazardous substances must be double-walled. In order for a tank to be considered double-walled, the interstitial space between the inner and outer wall must be able to be inspected visually or the interstitial space must be equipped with a sensor capable of alarming in case of liquid in the interstice (access to the interstice must also allow for the periodic removal of liquids).

5.2.2 Provide tertiary containment (in accordance with 40 CFR 112.8(c)(3)). All aboveground storage tanks must be placed on an impervious diked concrete housekeeping pad designed to catch spills caused from transferring substance to/from the tank. This housekeeping pad

must come with a valve that allows for the discharge of rainwater from the diked pad after a visual inspection has been done to determine that the water is clean.

5.2.3 Provide Instrumentation (Provide good engineering practices to avoid unwanted discharges, 40 CFR 112.8(c)(8)))

a) All aboveground storage tanks must come with a high liquid level alarm that emits both an audible and visual signal to alert operators that the tank must be emptied before further use.
b) The tank must also be equipped with a level gauge that allows for determining the level of liquid in the tank.
c) In the case of any tank equipped with a pump for the purpose of dispensing of a stored substance, the pump must have an automatic cutoff to prevent overfilling of a container.

5.2.4 Provide Labeling. All aboveground storage tanks should be labeled IAW all applicable local, state, federal laws, or industry standard. At a minimum, the tank should display an appropriate hazard warning, material ID, and storage capacity.

6.0 Removing Underground Storage Tanks (USTs) on Fort Stewart and Hunter Army Airfield

6.1 Tank Removal.

Note to ENGINEER - The Georgia Underground Storage Tank Management Program (GA USTMP) requires the removal of tanks after they have fulfilled their useful purpose and have been out of service for a period of twelve (12) months. Be aware that some tanks do NOT meet current tank standards but have an exemption from those standards based on their current use (e.g, heating oil tanks). If the use changes, those exemptions may no longer apply and the tank must be removed and if still needed will require replacement with an aboveground tank.

6.1.1 Removal must follow the standards for removal and closure of registered tanks as outlined in the Georgia Underground Storage Tank Management Program (GA USTMP) guidance document (ref GA Rules 391-3-15-.11). As a minimum soil samples must be taken and analyzed from the excavated pit's walls and floor. A groundwater sample must be taken if a soil sample is not possible from beneath the UST. Soil and groundwater samples must be tested for benzene, toluene, ethylbenzene and xylenes (BTEX), total petroleum hydrocarbons-diesel range organics (TPH-DRO), and polynuclear aromatic hydrocarbons (PAHs). The USTs and associated piping must be removed and triple rinsed with water. Rinse water must be containerized (in drums or a tank) and analytical testing conducted by a certified Georgia laboratory, so the product can be correctly coded/classified on a Non-hazardous Manifest signed by an authorized representative from the Installation DPW Environmental Division. Disposal of materials (soil/rinseate) must be coordinated with the Installation DPW Environmental Division.

6.1.2 REQURED SUBMITTAL ITEM: Contractor shall provide (a) 24- hour notice (and a POC/telephone number) prior to UST removal activities to allow time for Installation DPW Environmental Division representation at the site during the time thetank(s) is being removed from the ground. Installation DPW Environmental POC: Algeana Stevenson at 912-315-5144; (b) All lab tests and manifests for disposal of any contaminated soil/rinseate (pre-coordination with Installation DPW Environmental Division is required). Letter and photo documentation (hard copy and digital) of the UST removal process is required of the UST removal contractor; and (c) confirmation cut up tank was delivered to the Recycling Center.

7.0 Removing Aboveground Storage Tanks (ASTs) on Fort Stewart and Hunter Army Airfield

7.1 Tank Removal.

7.1.1 The AST(s) and associated piping must be removed and triple rinsed with water. Rinse water must be containerized (in drums or a tank) and analytical testing conducted by a certified Georgia laboratory, so the product can be correctly coded/classified on a Non-hazardous Manifest signed by an authorized representative from the Installation DPW Environmental Division. Disposal of materials (soil/rinseate) must be coordinated with the Installation DPW Environmental Division.

7.1.2 REQURED SUBMITTAL ITEM: Contractor shall provide (a) 24- hour notice (and a POC/telephone number) prior to AST removal activities to allow time for Installation DPW Environmental Division representation at the site during the time the tank(s) is being removed. Installation DPW Environmental Division POC: Veronica Frazier at 912-767-2400; (b) All lab tests and manifests for disposal of any contaminated soil/rinseate (pre-coordination with the Installation DPW Environmental Division is required); and (c) confirmation cut up tank was delivered to the Recycling Center.

8.0 Potable Water Utility Environmental Compliance Requirements

8.1 REQUIRED SUBMITTAL ITEM: Extending a water main: The contractor must submit applications for GA EPD's approval through the Installation DPW Environmental Division POC: Stanley Thomas at 912-767-4139.-. At least 100 days prior to construction, the contractor must submit the following items to the Installation DPW Environmental Division:

a) Three copies of the design plans and specifications for the proposed water main extension.
b) Every sheet of the drawings must be stamped by a GA certified P.E.; the cover page of the specifications must also be stamped with document bond.
c) Water Extension Submittal Forms will be required for any project that has more than one service connection or if the water line tapping off the main is at least 6 inches in diameter.
d) All water lines must be disinfected and sampled IAW the most current addition of AWWA's C651
e)

8.2 Wells and Water Storage Tanks

8.2.1 The contractor must follow the specific guidance as stated in the GA EPD's "Minimum Standards For Public Water Systems". This document can be found on the GA EPD's web site: http://www.gaepd.org/Files_PDF/techguide/wpb/standards.pdf .

8.2.3 Additional guidance can be found in the following documents:
a) Water Storage Tanks: The latest edition of the AWWA's D102 (Coating Steel Water-Storage Tanks) and M42 (Steel Water-Storage Tanks).
b) Wells: AWWA's C654 (Disinfections of Wells)
   i. A well permit application must be submitted prior to constructing a well.
   ii. Well drilling logs, source sampling data, and P.E. construction certification statement must be submitted upon completion of all wells.

8.3 Lead Requirements

8.3.1 Reference the Safe Drinking Water Act (as amended 4 JAN 2014) regarding standard for the lead content in plumbing materials. Lead content in solder and flux will not exceed 0.2% and lead content in the wetted surface of pipes, pipe fittings, plumbing fittings, and fixtures used in public potable water systems will not exceed 0.25%.

8.3.2 Prior to building turnover (as a minimum this is inclusive of all youth occupied facilities- Elementary Schools, Child Development Centers, and Youth Activity Centers), the potable

water system throughout the building shall be flushed IAW Technical Information Paper No. 31-010-0911, Guidance for Reducing Drinking Water Lead Levels in New Buildings.

8.4 Meters. All new water service connections must be metered. See specific water meter & meter data management system requirements below.

8.4.1 Electrical meters and instrument transformers shall meet or exceed the following minimum requirements:

a) Measure quantities. Electrical meter quantities measured are Power (kilowatt), average demand over 15 minute intervals and Energy (kilowatt-hours).
b) System Accuracy. System accuracy for the meter product devices including instrument transformers shall not exceed 1% as calculated using the Root Sum Square (RSS) method and assuming normal distribution.
c) Meter Accuracy:
    i. For facilities with connected 1oads equal to or greater than one (1) mega volt-ampere (MVA), meter certification shall be NEMA/ANSI C12.20, Accuracy class 0.2%.
    ii. For facilities with loads less than 1MVA, meter certification shall be IEEE/ANSI C12.16, Accuracy class 0.5%.

d) Communication Protocol. Meters shall communicate via either Modbus RTU or ANSI/CEA-709.1b (LonTalk) protocols or as otherwise specified.
e) Auxiliary data ports. Unless otherwise specified, electrical meters shall have a minimum of two pulse inputs for incorporation and transmission of other external meter data.
f) Surge Protection. IEEE/ANSI C37.90.1, Standard surge withstand capability (SWC) tests for relays and relay systems associated with electric power apparatus.
g) Current transformers (CTs) sized properly so that the meter secondary of the transformer shall output current to ensure at least a plus or minus 0.6% accuracy of current when measured between 10% and 90% of full amperage range.
    i. CTs shall not exceed 5 amps on the secondary side.
    ii. Burden on CTs shall not exceed rated burden for the accuracy class.
    iii. CTs shall be provided in split core configuration. 1.7.4 CTs shall be provided in the appropriate ranges to meet the service entrance amperage requirements.
    iv. For facilities with a connected load equal to or greater than 1MVA, CT certification shall be IEC 185 or ANSI/IEEE C57.13 for 0.3% accuracy class or better.
    v. For facilities with a connected load less than 1MVA, CTs shall revenue grade and certified per IEEE/ANSI C57.13 or IEC 185.
h) Current sensors shall be sized properly for the application and provide a voltage (normally 0-2 volts) to the meter that results in at least a plus or minus 0.6% accuracy of current when measured between 10% and 90% of full amperage range.
i) Voltage or Potential Transformers (PTs) sized properly so that the meter secondary of the transformer shall output voltage to ensure at least a plus or minus 0.6% accuracy of voltage when measured from zero to the IEEE/ANSI C57.13 or IEC 185 specified standard burden, at the specified standard burden power factor, and at any value from 90% to 110% of rated voltage.
    i. For facilities with a connected load equal to or greater than 1MVA, PT certification shall be IEC 185 or IEEE/ANSI C57.13 for 0.3% accuracy class or better.
    ii. For facilities with a connected load less than 1MVA, PTs shall be revenue grade and certified per IEEE/ANSI C57.13 or IEC 185.
    iii. 1.9.3) Burden on PTs shall not exceed rated burden for accuracy class.

j) Data Storage. Unless otherwise specified, the meter must be capable of providing and storing required interval data for a minimum of 30 days.
k) Environmental Tolerances of Metering Devices.
    i. Meters shall be installed in indoors/interior locations and rated for operation and storage from 0° - 50° C or better and 5 to 90% relative humidity (non- condensing). Interior meters shall be provided with or installed within a NEMA 12 enclosure.

8.4.2 Advanced Metering Data Management System front end computer requirements are:

a) Data encapsulation format shall be Extensible Markup Language (XML) and Simple Object Access Protocol (SOAP) for future output to a remote centralized meter data management system.
b) Storage of metered data for at least 2 years.
c) Display:
    i. Display of data upon request and selectable from 1 minute to 15 minutes for kW.
    ii. Final install of front end equipment shall, at minimum, display accurate data readings for each meter in a text format. Customization of the user interface is not required. Two hardcopies and two electric copies (DVD or CD) of detailed instructions shall be provided for customization and integration of additional display features that are not prepared at the time of final install.
    iii. Display capability shall include multiple graphical formats such as data vs. time (minutes, hours, days, weeks, months, and year) comparison between metered data from two or more meters and other standard meter data.
d) System expansion capability of 50 times for incremental future growth of metered data to include water, gas and steam.
e) Data Transmission Media is LAN, Radio Frequency, or Power Lines for interface of metered data to the Advanced Metering Data Management System, whichever is most economical for the site.

8.4.3 Backflow Prevention Device. REQUIRED SUBMITTAL ITEM: The Contractor shall submit through the COR to the Installation DPW Environmental Division (a) type of backflow device with make, model, manufacturer, serial number and GPS coordinates for the installed location of the device; and (b) certifications by a certified backflow prevention installer/tester of backflow testing performed for each testable backflow device. The certified installer/tester must be certified from an EPD-approved Georgia Backflow Prevention Training Program.

8.6 Water Conservation Requirements. IAW the Georgia Water Stewardship Act (GWSA), Section 8, water fixtures will meet the following minimum water conservation standards (note – Section 8 of the GWSA can be found on the bottom of the Georgia Environmental Protection Division's website: http://www.gaepd.org/Documents/outdoorwater.html):

a) Toilets will not exceed 1.28 gallons per flush.
b) Showerheads will not exceed an average of 2.5 gallons of water per minute at 60 pounds per square inch of pressure.
c) Urinals will not exceed 0.5 gallons per flush.
d) Lavatory faucets will not exceed 1.5 gallons per minute flow.
e) Kitchen faucets will not exceed 2.0 gallons per minute flow.

8.7 Sanitary Inspections

Prior to Government acceptance, the Contractor, through the COR, must coordinate with Installation Environmental Health, (912) 435-5721 or (912) 257-1220, for bacteriological testing to ensure drinking water lines (e.g. Drinking fountain, utility sink, etc.) have been super-chlorinated with positive chlorine residuals and are free of any bacteria.

8.8 Outdoor Sprinkler Systems

Sprinkler systems must be isolated from potable drinking water lines (no cross-connection) to allow for easy conversion to non-potable water sources in the future. If a non-potable water source is within 200 feet of the site at the time of construction, tying into the non-potable lines is required. If connected to a potable water source, a backflow preventer is required. The sprinkler system must include timers and rain gauges to ensure the system is not running while there is a rainstorm.

8.9 Fire Hydrants

8.9.1 Hydrants shall be disinfected IAW AWWA Standard C651-5. Prior to placing into service, the Contractor, through the COR, must coordinate with Installation Environmental Health, (912) 435-5721 or (912) 257-1220, for bacteriological testing to ensure potable water lines have been super-chlorinated with positive chlorine residuals and are free of any bacteria.

8.9.2 Hydrant models specified should be those equipped with an anti-terrorism device.

8.9.3 Fire hydrants should be equipped with a resilient seated check valve. Valve shall be manufactured to all testing and performance standards of AWWA C508 AND AWWA C550. Valves shall be rated for 250 psi water working pressure and tested at 500 psi hydrostatic pressure. Valve shall be a standalone unit able to be positively restrained to any mechanical joint fire hydrant shoe. Check valve shall be ductile iron ASTM Standard A536 (70-50-05), with NSF approved fusion bonded epoxy coating (interior and exterior). The valve shall incorporate a stainless steel spring that hastens positive closure and prevents water hammer. The valve shall be lead free, with no exposed lead bearing surface. The check valve shall have an unobstructed waterway. No reduction of port or redirection of flow will be allowed. Valve shall incorporate integral positive restraint connections to maintain a restrained connection between the fire hydrant and the gate valve. All fasteners to be Type 304 stainless steel.

8.10 Demolition

8.10.1 Ensure all water service connections with discontinued service due to abandonment or demolition are properly and permanently capped and sealed to prevent the escape of potable water or possible contamination.

8.10.2 Remove all asbestos lines that are abandoned as a result of a project.

9.0 Wastewater Requirements

9.1 REQUIRED SUBMITTAL ITEM: ***If a new sewer main, septic tank, and/or lift station will be installed, it is required that the contractor submit applications for GA EPD approval through the Installation DPW Environmental Division.*** At least 100 days prior to construction, the Contractor must submit the following through the COR to the DPW Environmental Division, Prevention and Compliance Branch to the attention of the Wastewater Program Manager (912-767-4937 or 767-2010).

a) The contractor must submit three copies of the sewer main extensions, septic tank, and/or lift station drawings and specifications.
b) All drawings and specification shall be stamped by a GA certified P.E.
c) Sanitary Sewer Extension Submittal Forms or Underground Injection Control Non-Domestic Septic System Forms will be submitted for any project that extends the sanitary sewer main, includes installation of a lift station or installation of septic tank/ leach field or septic system.

9.2 Lift Stations. The following are required:

a) High level alarm (visual & audible).
b) Perimeter fencing.
c) A Supervisory Control and Data Acquisition (SCADA) System compatible with the current system used on the Installation (thermostat controlled panel heaters will need to be included on transmitter units).
d) Emergency bypass.
e) Electric generator. The standby generator must be commissioned in accordance with applicable OSHA, EPA, NEC and NFPA 110 Section 16620 Sanitary Sewer Pump Station Emergency Pump Station Standards. If diesel fuel generators are used (rather than natural gas) the fuel storage tanks must be double walled ASTs.

9.3 Demolition

9.3.1 Ensure all sewer service connections are properly disconnected prior to demolition. Permanently cap and seal service connections to prevent the infiltration of groundwater or surface water into the sanitary collection system.

9.3.2 The contents of septic tanks will be pumped out and properly disposed of at a wastewater treatment plant. The septic tank will be removed from its current location and the tank must be either recycled or otherwise properly disposed. After removal, backfill will be placed and compacted. The leach field soil may remain in place to naturally attenuate after abandonment of the site.

10.0 Stormwater/Erosion and Sedimentation Control (E&S) Requirements

10.1 Requirements for Sites with Soil Disturbance Greater Than 0.75 Acres

10.1.1 A Notice of Intent (NOI) for coverage under the Georgia National Pollution Discharge Elimination System (NPDES) Permit must be applied for through the Fort Stewart / Hunter Army Airfield DPW Environmental Office. The land disturbance calculation must include project entrances / exits, material lay down areas, equipment storage areas, soil stockpile, fill, and muck out areas. The NOI package has a mandatory 14-day waiting period once mailed to the Georgia Environmental Protection Division (EPD). Land disturbing activities cannot occur until the 14-day waiting period has ended. The NOI package includes an Erosion & Sedimentation and Pollution Control (ESPC) Plan, fees in the amount of $80/acre, the fee form, and the NOI application. In addition to meeting those requirements under the Georgia Erosion and Sedimentation Control Act, the contractor must also follow Federal and local E&S control regulations. A summary of the applicable stormwater / E&S requirements are provided below:

a) E&S Control Best Management Practices (BMPs) will be identified in the ESPC Plan and must be utilized by the contractor. The ESPC Plan will include those requirements identified in the “Green Book” (*Manual for Erosion & Sedimentation Control for the State of Georgia*), the *Coastal Stormwater Supplement*, the Energy Independence and Security Act Section 438, the US Environmental Protection Agency (EPA) Technical Guidance (EPA 841-B-09-001 December 2009), the United Facilities Criteria (UFC) Manual for Low Impact Design, and those additional applicable Federal and local requirements found at

the following web link: http://www.stewart.army.mil/info/?id=443&p=1. Reference DPW Stormwater Management Policy Letter #11 and the USACE Hydrology and Low Impact Development site: https://mrsi.erdc.dren.mil/sustain/cx/lid is used to house official documents, planning and design tools for use in development of Army projects. Army LID implementation will be accomplished using Army LID guidance "Army Stormwater Management Using Low Impact Development" (this document), the Army Low Impact Development Technical User Guide (see Best Practices section of the mrsi site), and the Army's LID Planning Tool and LID Cost Planning Tool (see Design Tools section of Army Stormwater Management Using Low Impact Development the mrsi site).

b) The ESPC Plan must also include flow calculations demonstrating concentrated runoff flows from peak rain events will not impact (a) any existing stream, (b) upstream systems and (c) downstream systems of the site as required for Total Maximum Daily Loads to maintain water quality standards by the removal of any potential pollutants.

c) When preparing the ESPC Plan, refer to the following web link: http://www.stewart.army.mil/info/?id=443&p=1 for a copy of two Installation Policies (#10 and #11) that require engineers / proponents to take a more holistic approach to stormwater management of individual construction projects. Specifically, engineers must use Low Impact Development (LID) and Green Infrastructure (GI) stormwater control practices along with water quantity management practices found in the *Georgia Stormwater Management Manual and the Coastal Stormwater Supplement*. This is necessary to completely satisfy aquatic resource protection, overbank flood protection, and extreme flood protection which are criterion found in these documents for post-construction BMPs. In addition, it is required the utilization of the following guidance at the following site for DoD facilities: https://mrsi.erdc.dren.mil/sustain/cx/lid

10.1.2 Dry detention basins must be located downstream of other LID/GI structural controls. Hydraulic considerations are necessary to ensure dry detention basins are sized to store the entire water quality design volume or have adequate structural controls to meet the minimum criteria for a 1-year, 24-hour storm event. **PLEASE NOTE: Wet retention ponds are not a BMP option for FSGA/HAAF; reference DPW Policy Letter #10.**

10.1.3 ***Site dewatering requires prior approval from the Environmental Office.***

10.1.4 The site operator for the proposed action is required to continuously maintain all BMPs through the duration of site disturbing activities (regardless of NOI requirement). In order for the Army to accept the project as complete, the site must be stabilized to prevent silts and sediments from leaving the construction site. The Installation, through its Contracting Officer Representative, NRCS, and the DPW Environmental Office, must agree that the project site meets necessary site stabilization parameters as required by the State of Georgia prior to project acceptance by the Army.

10.1.5 At a minimum, a Level 1A E&S Control Certified individual must be on the site during any land disturbance activity in the State of Georgia.

10.1.6 Cross drainage facilities that transport stormwater runoff under roadways must meet the 25- to 100-year design storm, or be in accordance with GA Department of Transportation requirements, whichever is more stringent. The design must ensure that the structure/s will not impact any facilities upstream or downstream during heavy rain events. Culverts, bridges, and/or roadway drainage structures require bank stabilization to prevent erosion during rain events.

10.1.7 Equipment cleanout (brushes, rollers, spray guns/lines, etc.) must occur in designated areas (sink basins or washracks which discharge to sanitary or industrial wastewater treatment plants) and must not discharge to the stormwater conveyance system. Ensure all washouts of trucks and equipment is controlled and is discharged with adequate E&S control BMPs.

10.1.8 Ensure proper drip pans and secondary containment are utilized for staging, storing, loading, fueling, maintenance, repairs, etc.

10.1.9 Place all fuel storage tanks within plastic lined earthen berms, drive-on, or drive-over containment. The containment area must have a minimum capacity of 110% of the fuel storage tanks capacity for spill prevention, and to capture incidental spills.

10.2 Requirements for Sites with Soil Disturbance Less Than 0.75 Acres

10.2.1 An NOI for coverage under the Georgia NPDES will not be necessary. The following requirements still apply:

10.2.2 The site operator must utilize and implement Best Management Practices (BMPs) in accordance with the "Green Book" (Manual for Erosion & Sedimentation Control for the State of Georgia-most current edition).

10.2.3 ***Site dewatering requires prior approval from the Installation Environmental Office.***

10.2.4 The site operator is required to continuously maintain all BMPs through the duration of site disturbing activities (regardless of NOI requirement). In order for the Army to accept the project as complete, the site must be stabilized to prevent silts and sediments from leaving the construction site. The Installation, through its Contracting Officer Representative, NRCS, and the DPW Environmental Office, must agree that the project site meets necessary site stabilization parameters as required by the State of Georgia prior to project acceptance by the Army.

10.2.5 At a minimum, a Level 1A E&S Control Certified individual must be on the site during any land disturbance activity in the State of Georgia.

10.2.6 Cross drainage facilities that transport stormwater runoff under roadways must meet the 25- to 100-year design storm, or be in accordance with GA Department of Transportation requirements, whichever is more stringent. The design must ensure that the structure/s will not impact any facilities upstream or downstream during heavy rain events. Culverts, bridges, and/or roadway drainage structures require bank stabilization to prevent erosion during rain events.

10.2.7 Ensure all washouts of trucks and equipment is controlled and discharged with adequate E&S control BMPs. Waste material and/or debris must be disposed of properly (not into streams, ditches, or stormwater conveyance systems).

10.2.8 Ensure proper drip pans and secondary containment are utilized for staging, storing, loading, fueling, maintenance, repairs, etc.

10.2.9 Place all fuel storage tanks within plastic lined earthen berms, drive-on, or drive-over containment. The containment area must have a minimum capacity of 110% of the fuel storage tanks capacity for spill prevention, and to capture incidental spills.

10.3 The Army is required to report as-built conditions of low impact development features annually (end of Fiscal Year) on compliance with requirements under Section 438 of the 2007 Energy Independence and Security Act (EISA). Therefore, the Designer of Record shall provide the completed reporting form to the Installation DPW COR / Real Property Officer as part of the DD Form 1354 Transfer and Acceptance of DoD real property contract close-out process.

10.3.1 REQUIRED SUBMITTAL ITEM: The Designer of Record shall determine the Low Impact Development Volume required to be retained on site (difference between pre-project and post-project runoff, ft^3) and complete section A-E of the Maintaining Hydrology on Army Construction Projects reporting form.

11.0 Requirements for Offsite Soils:

11.1 Test offsite soils brought in for use as backfill for Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) and full Toxicity Characteristic Leaching Procedure (TCLP) including ignitability, corrosivity and reactivity. Backfill shall contain no more than 100 parts per million (ppm) of total petroleum hydrocarbons (TPH) and no more than 10 ppm of the sum of Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX), and shall pass the TCLP test. Determine TPH concentrations by using EPA 600/4-79/020 Method 418.1. Determine BTEX concentrations by using EPA SW-846.3-3 Method 5030/8020. Perform TCLP in accordance with EPA SW-846.3-3 Method 1311. Provide Borrow Site Testing for TPH, BTEX and TCLP from a composite sample of material from the borrow site, with at least one test from each borrow site.

11.1.1 REQUIRED SUBMITTAL ITEM: Within 24 hours of conclusion of physical tests, submit 2 copies of test results, including calibration curves and results of calibration tests. Do not bring material onsite until tests have been approved by the Contracting Officer.

12.0 HVAC/Refrigerant Requirements:

12.1 Only a certified refrigerant technician is authorized to perform work on a unit containing ozone depleting compounds (ODCs).

12.2 Prior to removal and disposal of an existing refrigerant containing unit, all liquid refrigerant must be evacuated using refrigerant recycling/recovery equipment that meets the requirement below.

12.2.1 Recovery Equipment: Refrigerant recycling or recovery equipment manufactured after 15 NOV 1993 must be tested, certified, and labeled: “THIS EQUIPMENT HAS BEEN CERTIFIED BY [LIST APPROVED EQUIPMENT TESTING ORGANIZATION] TO MEET EPA’S MINIMUM REQURIEMETNS FOR RECYCLING AND RECOVERY EQUIPMENT INTENDED FOR USE WITH [APPROVED CATEGORY OF APPLIANCE].

12.3 Replacement of Class I or II ODC containing units***. Note to Engineer - Phase out of Class I or II ODC refrigerant will increase lifecycle costs as refrigerant becomes harder to obtain. To that end, and to the maximum extent practicable,*** Class I and Class II substances shall be replaced with units that use non-ozone depleting compounds.

12.3.1 Containers used to store or transport Class I or Class II ODCs for any length of time, require this warning statement: “WARNING: Contains (list name of ODC), a substance which harms public health and environment by destroying ozone in the upper atmosphere.”

12.4 Disposition of Recovered Refrigerant: Refrigerant that will not be reused in the replacement unit must be handled as follows:

12.4.1 Usable refrigerant must be turned over to DPW O&M for re-use (cascading) in like units at this installation only (ie, cannot be transported between Fort Stewart and Hunter Army Airfield). Unusable refrigerant must be turned in to DPW Environmental for proper disposal.

12.4.2 REQUIRED SUBMITTAL ITEM: The following information shall be submitted to the DPW Environmental Air Program Manager (912-767-0250 or 767-2010) regarding removal or installation of a refrigerant containing unit within 7 days of removal or installation: Manufacturer name, model number, serial number, refrigerant used (R-11, R-22, etc.) and charge of refrigerant (in lbs). All service records and copies of leak rate calculations performed (as required by 40 CFR 82) for refrigerant containing units must be submitted to the DPW Environmental Air Program Manager within 7 days.

13.0 Boilers, Hot Water Heaters, Heating Units, and Burners

13.1 REQUIRED SUBMITTAL ITEM: The following information must be submitted to the DPW Environmental Air Program Manager (912-767-0250 or 767-2010) regarding removal or installation of any boiler, hot water heater, heating unit, or burner within 7 days of removal or installation: manufacturer, model number, serial number, BTU rating, fuel type to be used, if the unit produces steam, and size of the water tank (if any) associated with the unit.

13.1.1 The above information will be used to determine if the new boiler being installed will be subject to new boiler regulations (Boiler NESHAP) and/or permits. *Note, Clean Air Act permitting must be obtained prior to the installation of the following significant air emission sources: new boiler/hot water heater/heating unit which combust liquid fossil fuels with a maximum heat input rating equal to or greater than 10 MMBtu/hr and new boiler/hot water heater/heating unit which combusts solid fuel (biomass, coal, etc.) with a maximum heat input rating equal to or greater than 5 MMBtu/hr. Permitting is as lengthy process (6 months – 1.5 years).*

13.1.2 Any necessary permits must be obtained prior to construction/installation.

13.1.3 If the boiler is subject to the Boiler NESHAP, it will need to comply upon startup.

14.0 Generators

14.1 A stationary Reciprocating Internal Combustion Engine (RICE) with a rated horsepower of 500 or greater triggers National Emission Standards for Hazardous Air Pollutants (NESHAP) applicability for this source category. Therefore, a construction permit would be required for generators with a rated horsepower of 500 or greater and coordination with the Installation Environmental Office is required prior to installation of such equipment to ensure permitting requirements are properly documented and maintained up-to-date.

14.2 Emergency generators do not require permitting.

14.3 REQUIRED SUBMITTAL ITEM: For any generator to be installed or removed; provide the manufacturer, model #, serial #, kW rating, and type of fuel used.

15.0 Painting Operations

15.1 Surface coating of stationary structures (building, water towers, etc.) are exempt from permitting.

15.2 Surface coating of mobile sources (vehicles, portable generators, containers, etc.) are not exempt from Georgia EPD regulations. Surface coating must be conducted within a paint boot or an off-permit change notification must be submitted to the Georgia EPD if the operation will take place outdoors.

16.0 Fire Suppression

16.1 Fire suppression systems must not utilize Class 1 ODCs including Halon 1301. Any Halon removed from an existing fire suppression system must be shipped to the Army ODC Reserve.

17.0 Cultural Resources Management (CRM)

17.1 Should the Installation Environmental Office specify consultation with CRM, this consultation must happen prior to implementation of project.

17.2 Accidental Discovery of Remains and Artifacts

17.2.1 Ensure that the SOP for Accidental Discovery of Archaeological Deposits and/or Human Remains is followed (See attached SOP).

18.0 FS/HAAF is required to implement an Integrated Pest Management Program to comply with federal law and DOD regulation, requirements to include all pest management contractor provided services. Contracts requiring pest management services will require IPMC review and approval before solicitation. Contractors will be required to follow installation policy and meet DOD requirements during the application of pesticides. Coordination and approval by the Installation Pest Management Coordinator (IPMC) will be required for all pesticide application to ensure compliance prior to any application of pesticides. Applications for termite control and prevention for all construction projects requiring pesticide applications will follow the FS/HAAF Termiticide Pre-treat specifications.

TAB 4

TABLE I
SUMMARY OF ACM BULK SAMPLE RESULTS
FT. STEWART - ENVIRONMENTAL BRANCH
FT. STEWART - BUILDING 7725 - HINESVILLE, GA
AIR SAFE PROJECT #184-01

SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LOCATION	NON-ACM FIBROUS	NON-ACM NON-FIBROUS	ASBESTOS TYPE %
07/11/01	34	Window Caulk	Exterior window Building 7725	None Detected	97% other	**Chrysotile 3%**
07/11/01	35	Window Caulk	Exterior window Building 7725	None Detected	97% other	**Chrysotile 3%**

NOTE: Samples found to contain greater than one (1) percent by visual estimation are considered to be an asbestos containing material.

AIR SAFE ENVIRONMENTAL, INC.

Recording Form For Physical Assessment Data

Building: Ft. Stewart - Building 7725 Construction Date: 1900's

Functional Space: Exterior Location: Windows

Type of Suspect Material: _____ Surfacing: _____ TSI: X Misc.

Description: Window caulk

Approximate Amount of Material (Linear or Square Ft.): 2 windows

Condition:

Percent Damage: 25 % _____ Localized X Distributed

Type of Damage: X Deterioration _____ Water X Physical

Description: Everyday wear and tear

Overall Rating: _____ Good _____ Fair X Poor

Potential for Disturbance:

Frequency of potential contact: _____ High _____ Moderate X Low

Description: Material located on exterior of windows

Influence of Vibration: _____ High _____ Moderate X Low

Description: fibers bound in matrix

Potential for Air Erosion: _____ High _____ Moderate X Low

Description: Everyday air flow over deteriorated areas

Overall Rating:

_____	_____	X	
High Potential for Significant Damage & Exposure	Moderate Potential for Significant Damage & Exposure		Low Potential for Significant Damage & Exposure

Comments: Material should be addressed prior to any renovation or demolition activities.

Inspector Signature: _____ Date: July 19 , 2001

ASBESTOS INSPECTION
FT. STEWART - DIRECTORATE OF PUBLIC WORKS
FT. STEWART - BUILDING 7725 - SAVANNAH, GA
AIR SAFE PROJECT #184-01



SAMPLES
#34 WINDOW CAULK*
#35 WINDOW CAULK*

Results of Asbestos Inspection

Performed by DPW/Environmental Regulated Materials Team

- **Building Number:** *7754 (HVAC Insulation)*
- **Post/City/State:** *Fort Stewart*
- **Date of Inspection:** *5/16/2011*
- **Inspection conducted by Certified AHERA Building Inspector:** *Donald Lust*
- **Certification Number:** *12062*

1. Inspection consisted of visual survey of the area, bulk sampling of suspect asbestos containing materials, and a visual assessment of condition of suspected asbestos containing materials.
2. Samples are analysis for asbestos by Polarized Light Microscopy (PLM) in accordance with **40 CFR, Chapter 1, Part 736, Subpart F, Appendix A regulations.**
3. Samples containing greater than one percent by visual estimation are considered to be an asbestos containing material.

Green

EMLab P&K
6301 NW 5th Way, Suite 2850, Ft. Lauderdale, FL 33309
(877) 711-8400 Fax (954) 776-8485 www.emlab.com

Client: TestAmerica-Savannah
C/O: Ms. Sheila Hoffman
Re: 680-68167-1; 11-31-S

Date of Sampling: 05-09-2011
Date of Receipt: 05-10-2011
Date of Report: 05-12-2011

5

ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Total Samples Submitted:	1
Total Samples Analysed:	1
Total Samples with Layer Asbestos Content > 1%:	0

Location: SF [redacted]-7754-1, HVAC Insulation w/ Cover (680-68167-1) Lab ID-Version‡: 3463640-1

Sample Layers	Asbestos Content
Tan Insulation with Foil Cover	ND
Composite Non-Asbestos Fibrous Content:	80% Glass Fibers 15% Cellulose
Sample Composite Homogeneity:	Moderate

The results relate only to the items tested. Interpretation is left to the company and/or persons who conducted the field work. The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

All samples were received in acceptable condition unless otherwise noted. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Results of Asbestos Inspection

Performed by DPW/Environmental Regulated Materials Team

- **Building Number:** 7754
- **Post/City/State:** FSGA
- **Date of Inspection:** 14 JUN 2018
- **Inspection conducted by Certified AHERA Building Inspector:** Cemile Renaud
- **Certification Number:** 16390

1. **Inspection consisted of visual survey of the area, bulk sampling of suspect asbestos containing materials, and a visual assessment of condition of suspected asbestos containing materials.**
2. **Samples are analysis for asbestos by Polarized Light Microscopy (PLM) in accordance with 40 CFR, Chapter 1, Part 736, Subpart F, Appendix A regulations.**
3. **Samples containing greater than one percent by visual estimation are considered to be an asbestos containing material.**

NOTE: Visual inspection was performed using the 22 FEB 2007 report. Minor replacement of tiles have been performed over the years. Most of the ACM identified in the report is still present. Complete removal of #24-12"x12" brown floor tile had occurred recently due to water damage but unable to determine presence of associated black mastic, without being destructive.

AMBER

A+ ENVIRONMENTAL, INC.
P.O. Box 4011
Savannah, GA 31407
Telephone: 912.964.6121 - Fax: 912.964.4367



February 22, 2007

Mr. Craig Christopher
Environmental Branch
Directorate of Public Works
3rd In Div (Mech) (Ft. Stewart)
1557 Frank Cochran Drive
Ft. Stewart, GA 31314-4928

Subject: Results of Asbestos Re-Inspection
Building #7754 - Ft Stewart/ Hinesville, GA
A+ Environmental Project #001-014

Mr. Christopher,

A+ Environmental, Inc is pleased to provide Ft Stewart Environmental Branch with the results of the re-inspection performed on February 21, 2007.

A+ Environmental, Inc appreciates the opportunity to be of service to Ft Stewart Environmental Branch and looks forward to our continued association. If there are any questions concerning the report or if we can be of further service, please contact our office at 912-964-77541.

A+ Environmental, Inc

Marc Wilks
AHERA Building Inspector

Results of Asbestos Re – Inspection
Building #7754 - Ft Stewart / Hinesville, GA
A+ Environmental Project #001-014

PROJECT DESCRIPTION

On February 21, 2007, A+ Environmental, Inc conducted a re-inspection for asbestos containing materials in Building #7754 located at Ft Stewart in Hinesville, GA.

The re-inspection was conducted by Certified licensed AHERA Building Inspector, Marc Wilks, Certificate No. 06-772. The re-inspection consisted of a visual survey of the subject area by an accredited inspector, bulk sampling of suspect asbestos containing materials where necessary and a visual assessment of the condition of old and new material that contain or may contain asbestos.

Sample analysis for asbestos is conducted by Polarized Light Microscopy (PLM) **in accordance with the 40 CFR, Chapter 1, Part 763, Subpart F, Appendix A regulations.** Samples containing greater than one percent by visual estimation are considered to be an asbestos containing material.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the re-inspection at Building #7754 located at Ft Stewart in Hinesville, GA. The asbestos containing materials are as follows: **12x12 Brown Floor Tile and associated Black Mastic located on the 5th and 6th Floor Bathroom and Office Spaces. Black Mastic under 12x12 White Floor Tile located in the 5th Floor Office Space.** All other materials sampled previously were reported as non asbestos containing materials. Please see the following tables and drawings (not to scale) for detailed results. Building #7754 has not been renovated and should be updated in your ACM database and/or filing system.

Note: All ACM found in previous survey is still in place.

TABLE I
SUMMARY OF ACM BULK SAMPLE RESULTS
FT. STEWART - ENVIRONMENTAL BRANCH
FT. STEWART - BUILDING 7754 - HINESVILLE, GA
AIR SAFE PROJECT #184-99

SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LOCATION	NON-ACM FIBROUS	NON-ACM NON-FIBROUS	ASBESTOS TYPE %
02/17/00	22	12x12 Gray Floor Tile	2nd Floor Stairwell Building 7754	none detected	100% other	None Detected
02/17/00	23	Ceiling Tile	4th Floor Office Building 7754	20% cellulose 55% glass	25% other	None Detected
02/17/00	24	12x12 Brown Floor Tile	5th Floor Bathroom Building 7754	none detected	88% other	**Chrysotile 12%**
02/17/00	25	Black mastic	5th Floor Bathroom Building 7754	none detected	95% other	**Chrysotile 5%**
02/17/00	26	12x12 White Floor Tile	5th Floor Office Building 7754	none detected	100% other	None Detected
02/17/00	27	Black mastic	5th Floor Office Building 7754	none detected	93.8% other	**Chrysotile 6.2%**

NOTE: Samples found to contain greater than one (1) percent by visual estimation are considered to be an asbestos containing material.

AIR SAFE ENVIRONMENTAL, INC.

Recording Form For Physical Assessment Data

Building: Ft. Stewart - Building 7754 Construction Date: 1900's

Functional Space: Office Space and Bathroom 5th and 6th floor Location: Floor

Type of Suspect Material: _____ Surfacing: _____ TSI: X Misc.

Description: 12x12 Brown Floor Tile and Associated Black Mastic

Approximate Amount of Material (Linear or Square Ft.): 390 Square Feet

Condition:

Percent Damage: 10 % _____ Localized X Distributed

Type of Damage: X Deterioration _____ Water X Physical

Description: Everyday wear and tear

Overall Rating: _____ Good _____ Fair X Poor

Potential for Disturbance:

Frequency of potential contact: X High _____ Moderate _____ Low

Description: High traffic area

Influence of Vibration: _____ High _____ Moderate X Low

Description: fibers bound in matrix

Potential for Air Erosion: _____ High _____ Moderate X Low

Description: Everyday air flow over deteriorated areas - fibers bound in matrix

Overall Rating:

_____	_____	X	
High Potential for Significant Damage & Exposure	Moderate Potential for Significant Damage & Exposure	Low Potential for Significant Damage & Exposure	

Comments: Material should be addressed prior to any renovation or demolition activities.

Inspector Signature: David Edgely Date: February 17, 2000

AIR SAFE ENVIRONMENTAL, INC.

Recording Form For Physical Assessment Data

Building: Ft. Stewart - Building 7754 Construction Date: 1900's

Functional Space: 5th Floor Office Location: Under 12x12 White Floor Tile

Type of Suspect Material: _____ Surfacing: _____ TSI: X Misc. _____

Description: Black mastic

Approximate Amount of Material (Linear or Square Ft.): 380 Square Feet

Condition:

Percent Damage: <2 % _____ Localized X Distributed

Type of Damage: X Deterioration _____ Water X Physical

Description: Everyday wear & tear

Overall Rating: X Good _____ Fair _____ Poor

Potential for Disturbance:

Frequency of potential contact: _____ High _____ Moderate X Low

Description: Under 12x12 White Floor tile

Influence of Vibration: _____ High _____ Moderate X Low

Description: fibers bound in matrix

Potential for Air Erosion: _____ High _____ Moderate X Low

Description: fibers bound in matrix.

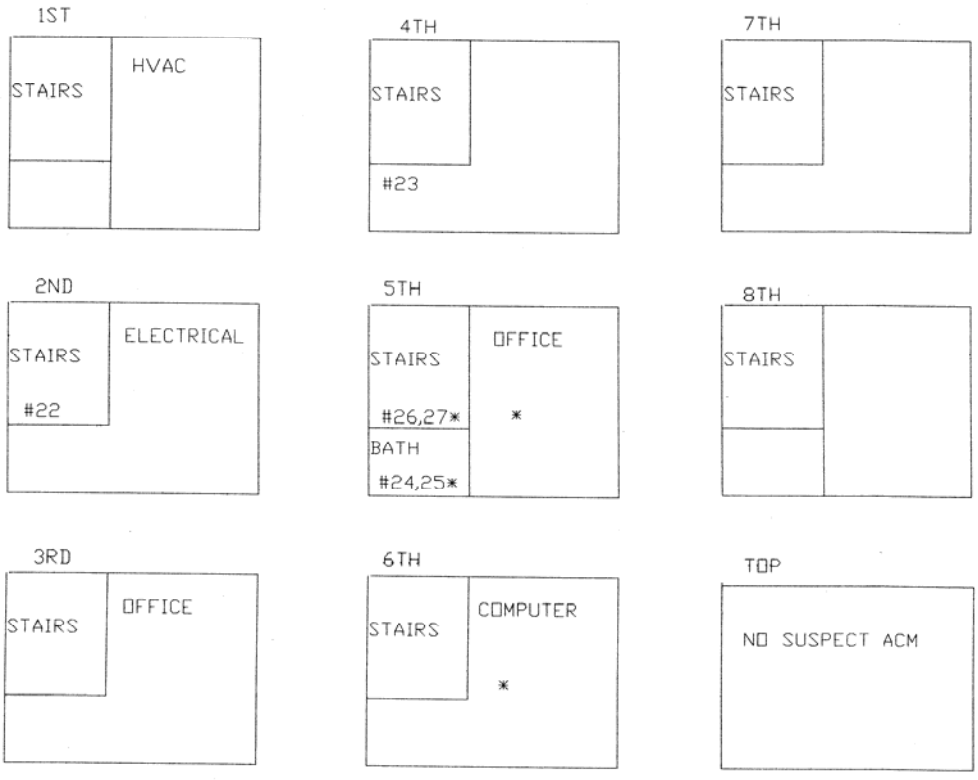
Overall Rating:

_____ High Potential for Significant Damage & Exposure	_____ Moderate Potential for Significant Damage & Exposure	X Low Potential for Significant Damage & Exposure

Comments: Material should be addressed prior to any renovation or demolition activities.

Inspector Signature: David Edgerly Date: February 17, 2000

ASBESTOS INSPECTION
FT. STEWART - DIRECTORATE OF PUBLIC WORKS
FT. STEWART - BUILDING 7754 - HINESVILLE, GA
AIR SAFE PROJECT #184-99



SAMPLES
#22 12X12 GRAY FLOOR TILE
#23 CEILING TILE
#24 12X12 BROWN FLOOR TILE *
#25 BLACK MASTIC *
#26 12X12 WHITE WITH GRAY FLOOR TILE *
#27 BLACK MASTIC *

EMLab P&K
A TestAmerica Company

Report for:

Mr. Brian Salvi
TSAY/Ferguson-Williams
1573 Frank Cochran Dr., Bldg 1120
Fort Stewart, GA 31313

Regarding: Project: Leaking Pipe
EML ID: 1442413

Approved by:



Approved Signatory
Balu Krishnan

Dates of Analysis:
Asbestos PLM: 10-22-2015

Service SOPs: Asbestos PLM (EPA Methods 600/R-93/116 & 600/M4-82-020, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

EMLab P&K
6301 NW 5th way, Suite#: 1410, Ft. Lauderdale, FL 33309
(877) 711-8400 Fax (954) 776-8485 www.emlab.com

Client: TSAY/Ferguson-Williams
C/O: Mr. Brian Salvi
Re: Leaking Pipe

Date of Sampling: 10-13-2015
Date of Receipt: 10-20-2015
Date of Report: 10-22-2015

ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Total Samples Submitted:	3
Total Samples Analyzed:	3
Total Samples with Layer Asbestos Content > 1%:	0

Location: #1, Insulation Bldg 7754 #1

Lab ID-Version‡: 6653517-1

Sample Layers	Asbestos Content
Brown Insulation /Foil/Paper	ND
Composite Non-Asbestos Content:	70% Mineral Wool 10% Cellulose 5% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: #2, Bldg 7754 Insulation #2

Lab ID-Version‡: 6653518-1

Sample Layers	Asbestos Content
Brown Insulation	ND
Composite Non-Asbestos Content:	80% Mineral Wool 10% Cellulose 4% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: #3, Bldg 7754 Elbow Insulation

Lab ID-Version‡: 6653519-1

Sample Layers	Asbestos Content
Gray Insulation	ND
Composite Non-Asbestos Content:	45% Cotton
Sample Composite Homogeneity:	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Flight Tower WAAF

Serial #XL700-U1279NR8451 Site: Date: 2/27/2009

XLNo	Site	Insp	Flr	Side	Room	Strc	Sub	Feat	Cnd	Clr	Note	Ssec	Date/Time	Cycle	DI	Result	Pbl ± Prec	Pbk ± Prec	Pbc ± Prec	RES ± Prec
1					Shutter Cal 1							95.2	2/27/2009 14:13:59	1 of 1	0.0	...	NA	NA	NA	NA
2	**1**	**1**			**Calibrate**							**9.7**	**2/27/2009 14:15:04**	**1 of 1**	**1.2**	**POS**	**1.93 ± 0.40**	**0.77 ± 0.61**	**1.93 ± 0.40**	**NA**
3	**1**	**1**			**Calibrate**							**9.7**	**2/27/2009 14:15:52**	**1 of 1**	**1.0**	**POS**	**1.59 ± 0.32**	**1.18 ± 0.61**	**1.59 ± 0.32**	**NA**
4	**1**	**1**			**Calibrate**							**9.7**	**2/27/2009 14:16:47**	**1 of 1**	**1.0**	**POS**	**1.62 ± 0.33**	**1.33 ± 0.61**	**1.62 ± 0.33**	**NA**
5	**1**	**1**			**Calibrate**							**9.7**	**2/27/2009 14:17:40**	**1 of 1**	**1.1**	**POS**	**1.89 ± 0.38**	**0.92 ± 0.62**	**1.89 ± 0.38**	**NA**
6	1	1	1			Stairs	Metal	Stringer	Fair	Black		10.3	2/27/2009 14:22:42	1 of 1	1.7	NEG	0.10 ± 0.15	-0.03 ± 0.67	-0.03 ± 0.67	NA
7	1	1	1			Stairs	Metal	Riser	Fair	Beige		8.0	2/27/2009 14:25:17	1 of 1	3.4	NEG	0.13 ± 0.49	0.56 ± 0.85	0.13 ± 0.49	NA
8	1	1	1			Stairs	Metal	Tread	Fair	Black		10.4	2/27/2009 14:27:17	1 of 1	2.3	NEG	0.15 ± 0.21	-0.19 ± 0.71	-0.19 ± 0.71	NA
9	**1**	**1**	**1**			**Stairs**	**Metal**	**Newal post**	**Fair**	**Brown**		**3.1**	**2/27/2009 14:28:34**	**1 of 1**	**1.7**	**POS**	**>>5.0**	**5.63 ± 2.49**	**5.10 ± 1.53**	**NA**
10	1	1	1			Stairs	Metal	Rail cap	Fair	Brown		3.3	2/27/2009 14:30:04	1 of 1	1.0	NEG	0.01 ± 0.02	0.28 ± 1.35	0.01 ± 0.02	NA
11	**1**	**1**	**2**			**Stairs**	**Metal**	**Newal post**	**Fair**	**Brown**		**3.1**	**2/27/2009 14:32:02**	**1 of 1**	**1.9**	**POS**	**>>5.0**	**5.73 ± 2.14**	**5.73 ± 2.14**	**NA**
12	**1**	**1**	**2**			**Stairs**	**Metal**	**Tread**	**Fair**	**Black**		**5.6**	**2/27/2009 14:32:50**	**1 of 1**	**3.7**	**POS**	**2.82 ± 1.65**	**4.70 ± 1.40**	**4.70 ± 1.40**	**NA**
13	1	1	2			Stairs	Metal	Riser	Fair	Beige		22.2	2/27/2009 14:33:53	1 of 1	5.9	NEG	0.30 ± 0.38	0.46 ± 0.49	0.30 ± 0.38	NA
14	**1**	**1**	**2**			**Stairs**	**Metal**	**Newal post**	**Fair**	**Brown**		**3.0**	**2/27/2009 14:35:49**	**1 of 1**	**1.7**	**POS**	**>>5.0**	**6.82 ± 2.16**	**6.82 ± 2.16**	**NA**
15	**1**	**1**	**3**			**Stairs**	**Metal**	**Tread**	**Fair**	**Black**		**3.2**	**2/27/2009 14:37:19**	**1 of 1**	**4.3**	**POS**	**>>5.0**	**9.25 ± 2.39**	**9.25 ± 2.39**	**NA**
16	**1**	**1**	**4**			**Stairs**	**Metal**	**Stringer**	**Fair**	**Yellow**		**3.0**	**2/27/2009 14:41:06**	**1 of 1**	**1.3**	**POS**	**>>5.0**	**6.17 ± 1.92**	**6.17 ± 1.92**	**NA**
17	**1**	**1**	**4**			**Stairs**	**Metal**	**Rail cap**	**Fair**	**Brown**		**3.2**	**2/27/2009 14:42:14**	**1 of 1**	**2.0**	**POS**	**3.72 ± 2.38**	**5.05 ± 1.94**	**5.05 ± 1.94**	**NA**
18	1	1	6			Stairs	Metal	Tread	Fair	Black		12.8	2/27/2009 14:44:19	1 of 1	2.2	NEG	0.14 ± 0.17	0.01 ± 0.61	0.01 ± 0.61	NA
19	**1**	**1**	**6**			**Stairs**	**Metal**	**Newal post**	**Fair**	**Brown**		**3.1**	**2/27/2009 14:45:23**	**1 of 1**	**1.6**	**POS**	**>>5.0**	**6.41 ± 2.26**	**6.41 ± 2.26**	**NA**
20	**1**	**1**	**6**		**Calibrate**				**Fair**			**9.8**	**2/27/2009 14:50:52**	**1 of 1**	**1.1**	**POS**	**1.70 ± 0.36**	**1.62 ± 0.65**	**1.70 ± 0.36**	**NA**
21	**1**	**1**	**6**		**Calibrate**				**Fair**			**9.7**	**2/27/2009 14:51:37**	**1 of 1**	**1.1**	**POS**	**1.72 ± 0.35**	**0.58 ± 0.59**	**1.72 ± 0.35**	**NA**
22	**1**	**1**	**6**		**Calibrate**				**Fair**			**9.7**	**2/27/2009 14:52:45**	**1 of 1**	**1.1**	**POS**	**1.71 ± 0.34**	**1.04 ± 0.60**	**1.71 ± 0.34**	**NA**

Quart 1

RESULTS OF LEAD BASED PAINT INSPECTION

PERFORMED BY DPW/ENVIRONMENTAL REGULATED MATERIALS TEAM

- **Building Number:** 7725 WAAF
- **Post & State:** FSGA
- **Date of Inspection:** 14 JUN 2018
- **Inspection Conducted By:** CEMILE RENAUD
- **Georgia Certification Number:** 1816

FEDERAL DIFINITION OF LEAD-BASED PAINT DEPENDS ON HOW TEST RESULTS ARE REPORTED
FEDERAL DEFINITION OF LEAD-BASED PAINT: In order for it to be considered lead-based paint, the paint must have greater than or equal to 0.5% (which is the same as 5,000 ug/g or 5,000 mg/kg or 5,000 ppm) lead. If reported as milligrams per square centimeter, then in order for it to be considered lead-based paint, the paint must have greater than or equal to 1 mg/cm2 lead.
Survey was performed using the Innov-X System XRF Model a-4000, serial number 11851

RESULTS ARE ATTACHED

REMARKS: NONE

GREEN

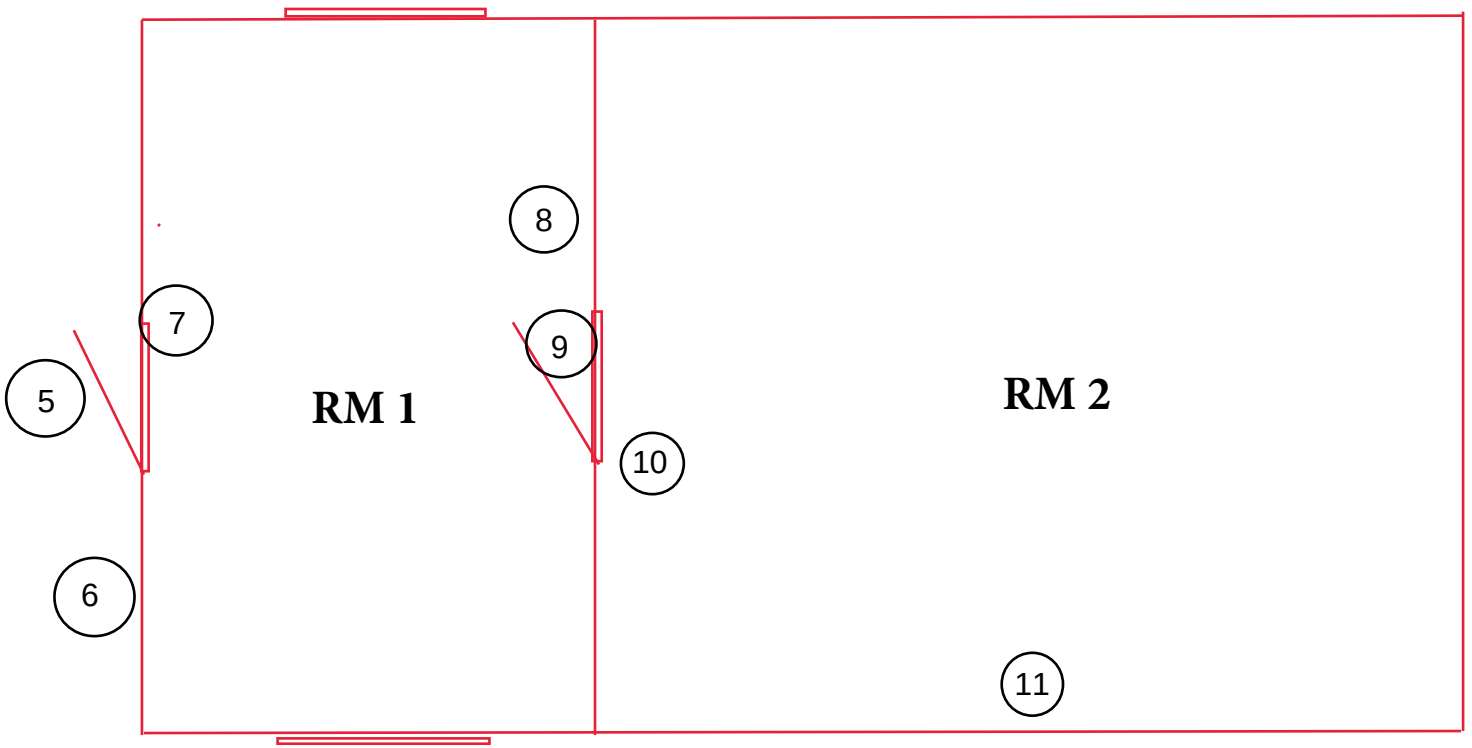
LEAD PAINT SURVEY

BLDG 7725 FSGA 31315

Date	#	Mode	Pos/Neg	Pb	Pb +/-	Room	Component	Substrate	Color	Notes
14-Jun-18	1	Standardization	PASS							
14-Jun-18	**2**	**Lead Paint Inspection**	**Positive**	**1**	**0.05**					**CALIBRATION**
14-Jun-18	**3**	**Lead Paint Inspection**	**Positive**	**1.1**	**0.06**					**CALIBRATION**
14-Jun-18	**4**	**Lead Paint Inspection**	**Positive**	**1.2**	**0.08**					**CALIBRATION**
14-Jun-18	5	Lead Paint Inspection	Negative	0.9	0.05	Outside	Door	Steel	Brown	
14-Jun-18	6	Lead Paint Inspection	Negative	0	0	Outside	Wall	block	White	
14-Jun-18	7	Lead Paint Inspection	Negative	0.1	0.02	Room 1	Door Jamb	Steel	White	
14-Jun-18	8	Lead Paint Inspection	Negative	0	0	Room 1	Wall	block	White	
14-Jun-18	9	Lead Paint Inspection	Negative	0	0.01	Room 2	Door	Steel	White	
14-Jun-18	10	Lead Paint Inspection	Negative	0.1	0.05	Room 2	Door Jamb	Steel	White	
14-Jun-18	11	Lead Paint Inspection	Negative	0	0	Room 2	Wall	block	White	
14-Jun-18	**12**	**Lead Paint Inspection**	**Positive**	**1.1**	**0.07**					**CALIBRATION**
14-Jun-18	**13**	**Lead Paint Inspection**	**Positive**	**1.1**	**0.05**					**CALIBRATION**
14-Jun-18	**14**	**Lead Paint Inspection**	**Positive**	**1.1**	**0.05**					**CALIBRATION**

GREEN

BLDG 7725 WAAF



TAB 5

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD
954 WILLIAM H. WILSON AVENUE
FORT STEWART, GEORGIA 31314

REPLY TO
ATTENTION OF

OCT 2 1 2015

IMSH-ZA

Fort Stewart/Hunter Army Airfield Recycling Program
Standard Operating Procedures

1. PURPOSE: To provide guidance, establish policy, and delineate responsibilities for the Recycling Program Fort Stewart/Hunter Army Airfield, Georgia IAW Command Policy Letter No. 30 Fort Stewart/Hunter Army Airfield Sustainability Management.

2. REFERENCES:

a. Executive Order 13693, Planning for Federal Sustainability in the Next Decade, 19 March 2015.

b. DoD Strategic Sustainability Performance Plans FY 2014, June 2014.

c. AR 200-1, Environmental Protection and Enhancement, 13 December 2007.

d. Installation Management Command 2025 and Beyond (IMCOM 2025) Campaign Plan, Version 1, November 2014.

e. Qualified Recycling Program Handbook, Department of the Army, November 2010.

f. Command Policy Letter No. 30 Fort Stewart/Hunter Army Airfield Sustainability Management, 18 September 2015.

g. Fort Stewart/Hunter Army Airfield Sustainability Management System Manual, 13 August 2015.

3. All military units, installation activities, tenant organizations and contractors (to include partnerships and other organizations operating on the installation) will adhere to the Fort Stewart/Hunter Army Airfield Integrated Solid Waste Management Plan (ISWMP) to reduce the waste stream volume, enhance pollution control, and conserve natural resources and:

a. Establish a Recycling Program Standard Operating Procedure (SOP)/ Environmental Management Plan tailored to their organizational operations for the management of recyclable materials. As a minimum, the SOP will adhere to requirements specified in this Garrison SOP. The SOP and the effectiveness of implementing the SOP will be randomly assessed by the Directorate of Public Works (DPW) Environmental Division for compliance with this SOP and the ISWMP.

b. Appoint a Recycling Compliance Person (RCP). The RCP must attend the Installation Environmental Compliance Officer (ECO) course or the RCP Certification Training. Contact the DPW Environmental Division for ECO Course and RCP Training dates/times and location. All appointed RCPs will work directly with the DPW Environmental Division to ensure program requirements are met. DPW Environmental Division personnel will be available for participation in contract site visits and kick-off meetings to clarify requirements as needed.

c. Provide a minimum of two clearly marked recycling containers available through Self Service Supply Center (SSSC) and establish collection points inside all buildings/facilities/work sites for the collection of (1) paper and (2) all other commingled recyclable materials. Place all recyclable materials in the blue dumpster or containers referenced above. All paper products should be segregated, placed in a transparent plastic bag, and tied closed prior to being placed in the blue dumpster/poly cart. Can liners are not required for recyclable materials other than paper. Recyclable materials include, but are not limited to cardboard, junk mail, magazines, writing paper, newspaper, glass bottles/containers, aluminum/bi-metal cans, and all plastic (e.g., water bottles, milk jugs, Styrofoam, food trays, plastic over wrap, bags, etc.). Cardboard boxes placed in the blue dumpsters shall be flattened to maximize collection capability. See the latest flyer of acceptable recyclable materials on the Environmental Division webpage http://www.stewart.army.mil/info/?id=443&p=1.

(1) Reduce the use of printing paper where possible. Ensure all "unclassified" Personally Identifiable Information (PII) documents/paper products are shredded prior to being placed in a transparent plastic bag and tied closed before placing in blue recycling dumpsters/poly cart. Bagging the shredded documents/paper and other paper products will minimize flyaway debris during collection and facilitates the separation process. Arrangements can also be made to deliver PII documents/paper to the Recycling Processing Station (Bldg. 1384) to be shredded. Hunter Army Airfield organizations may deliver PII documents/paper to the Recycling Yard at Bldg. 727, Hunter Army Airfield or collect and maintain in unit area until delivering to the designated collection point during an organized post-wide collection event (Recycling Roundup - "Shred It-Don't Share It").

(2) Ensure all plastic or Styrofoam dinnerware and containers are free of food particles which reduces the possibility of material contamination, reduces odors, and minimizes attracting pests, insect vectors, and vermin.

(3) Ensure that all commingled (mixed) recyclable materials from barracks, motor pools and administration buildings are placed in blue recycling dumpsters. Dumpster

lids shall remain closed unless placing items in the dumpsters in order to minimize rodent intrusion and rain infiltration. RCPs will monitor recycling cans and dumpsters in unit/organization area of responsibility (admin buildings/motor pools/barracks, etc.) for deficiencies and make corrections as needed.

If collections personnel discover trash in recycling dumpsters or recyclables in trash dumpsters, the containers will not be serviced/emptied and violations will be reported to the DPW Environmental Division for coordination with offending entity for corrective action.

(4) Do not place scrap metal, bulk cardboard and serviceable pallets in the blue dumpster. Deliver these items to the Installation recycling facility (Fort Stewart - Bldg. 1143 on Italy St. or on Hunter Army Airfield - Bldg. TR-727 on Westley Ave). Do not place these items in or beside the dumpsters. Organizations generating large amounts of bulk cardboard, scrap metal, and pallets on a temporary and/or continuous basis should contact the DPW Environmental Division for collection/delivery support.

d. Collect and deliver yard waste (limbs, leaves, pine straw, pine cones, grass clippings, etc.) to the landfill for proper disposal - do not deposit these items in or near any dumpster.

e. Purchase goods and services that use sustainable environmental practices (acquisition of bio-based, environmentally preferable, energy-efficient, water-efficient, and recycled-content products) with a minimum packing and packaging materials for items shipped. Printer Paper should be of at least a 30 percent post-consumer fiber content. Refer to www.epa.gov/cpg/products.html for the current EPA guidance.

f. Request recycling support during Unit Training Exercises. Continue to enforce this Recycling SOP and the ISWMP during unit field training exercises. Provide a means to collect recyclable materials and process these materials upon return IAW with this SOP and specific ECO training guidance regarding petroleum, oil, and lubricant containers. Recycling dumpster support will be provided at Forward Operating Base (FOB) areas and must be requested in advance of training exercises by contacting DPW Environmental.

g. Prohibit the dumping of all solid waste other than as authorized at the Fort Stewart Landfill.

4. Balfour Beatty Communities Management and Housing Residents (to include Marne Point)

a. Belfour Beatty Communities (BBC) Management is responsible for all solid waste and recycling collection, removal, and disposal activities for the Fort Stewart/Hunter Army Airfield Family housing areas. BBC will address bulk item pick up procedures in their Solid Waste and Recycling Implementation Plan SOP and inform residents, accordingly.

b. Housing Residents will coordinate directly with BBC Management for all solid waste and recycling collection, removal, and disposal support to include bulk items such as furniture and mattresses. Such bulk items will not be discarded adjacent to dumpster collection points.

c. BBC and Housing residents may use the Recycling Convenience Centers. Cardboard boxes and Household Movement/Packing Materials that have been flattened may be placed in the Convenience Centers' Cardboard Collection containers located in the Post Exchange (PX) parking lots on Fort Stewart and Hunter Army Airfield.

5. Installation and tenant organizations (e.g. AAFES, MEDDAC, NEC, AMCOM, DENTAC, ARMY NATIONAL GUARD, FMS, AIR NATIONAL GUARD, MARINE CORPS, ASOS, MI BN, CANOOCHEE ELECTRIC, LRC, DECA, DoDEA, DLA Disposition Services (DRMO), MICC, SSSC, US Coast Guard) will adhere to requirements stipulated in paragraph 3. Those organizations performing contracting actions will also ensure that executing agencies:

a. Complete the Sustainability Management System Awareness Training available on the internet at http://stewdpwa401/smsquiz and provide proof of completion to the COR prior to or at contract kickoff.

b. Execute applicable Federal Acquisition Regulation Part 23 contract clauses and provide the number of contracts that include the appropriate FAR clauses to the DPW Qualified Recycling Program (QRP) Manager on a quarterly basis for tracking Green Procurement. Clauses include: 52.223-15: Energy Efficiency in Energy Consuming Products, 52.223-1: Bio based Product Certification, 52.223-2: Affirmative Procurement of Bio based Products Under Service and Construction Contracts, 52.223-4: Recovered Material Certification, 52.223-9: Estimate of Percentage of Recovered Material Content for EPA-Designated Items, 52.223-17: Affirmative Procurement of EPA-designated Items in Service and Construction Contracts, 52.223-10: Waste Reduction Program,

52.223-16: IEEE 1680 Standard for Environmental Assessment of Personal Computer, 52.223-11: Ozone Depleting Substances, and 52.223-12: Refrigeration Equipment and Air Conditioners.

c. Include the requirement for contractors to adhere to the Fort Stewart/Hunter Army Airfield Recycling SOP and Recycling Clause 52.000-4061 (Recycling, Salvage, and Disposal of Materials Fort Stewart and Hunter Army Airfield, See Attachment 1). All military construction, renovation and demolition projects shall include performance requirements for a 60% minimum diversion of C&D waste by weight and specifications will include submission of a contractor's C&D Waste Management Plan. Ensure Quality Assurance Surveillance Plans include provisions for inspecting these requirements.

d. Include the requirement for contractors/sub-contractors to separate, collect and deliver recyclable material generated during the life of the contract to the Installation's recycling facility or other approved collection point as coordinated with the DPW Environmental Office.

(1) This includes contracts that involve adding or replacing furniture, fixtures, mattresses, and other such items that might generate large amounts of cardboard. Include provisions to collect and transport the cardboard to the Installation recycling facility.

(2) All recyclables from construction, renovation and demolition sites will be separate from other waste containers. Refer to Recycling Clause for procedures to coordinate for cardboard and scrap metal container support. Containers will be delivered to the project site and serviced at no cost to the contractor after coordination with DPW Environmental Division.

e. Custodial service contracts will include the requirement to use transparent bags for paper collection points (as noted in 3.c.) and deposit the contents collected from serviced facilities in the nearest blue dumpster. Provisions will also be included in the contracts to not service trash receptacles when recyclables are not segregated from the waste stream, and to notifying the COR of the discrepancy. The COR will perform random inspections to ensure these requirements are being met and coordinate with the DPW Environmental Division upon notification.

f. Per the Recycling Clause, the contractors will provide a copy of landfill or recovery facility scale tickets (clearly differentiating) of all waste and recyclables disposed of off the Installation to their COR. The COR will ensure that the copy of the

landfill scale tickets are provided to the DPW Environmental Division within two weeks of disposal/delivery activity.

g. Coordinate with DPW Environmental Division personnel for participation in contract site visits and kick-off meetings to clarify requirements and/or support, as needed.

6. LRC-SSA/DLA Disposition Services (DRMO)

a. SSA will:

(1) Contact the local DLA Disposition Services to review and make serviceability determination on the excess materials turned in by units/activities. Obtain guidance on how to properly dispose of the excess materials. Those items deemed non-serviceable will be properly annotated on turn-in documents as noted below.

(2) Prior to delivery of material to DLA Disposition Services (DRMO), ensure turn-in documents (DD Form 1348-1A) for non-serviceable (QRP reimbursement qualified) recyclable materials are properly annotated with the QRP DODAAC (W33DL4) in block 2 (SHIP FROM) and the following 'Reimbursement Statement and Fund Codes'.

"This property is eligible for QRP reimbursement to Fort Stewart/ Hunter Army Airfield, QRP Fund Cite 21 F3875.11112AS12064APC7XAD FSN 021001, QRP DODAAC W33DLA, POC QRP Manager, PH: 912-767-2010." (See Example in Attachment 2).

b. DLA Disposition Services (DRMO) will:

(1) Accept qualified recyclable material and reimburse to the QRP the proceeds from their sale.

(2) Report recyclable material sales data quarterly to the QRP Manager for inclusion in the Solid Waste Annual Reporting System (SWARS) update.

(3) Ensure turn-in procedure changes and updates are distributed to the QRP Manager. The Recycling Program will assist with publicizing these procedures by updating briefing/training slides used during ECO, RCP, and unit/activity assessments and training sessions.

7. The Directorate of Public Works will:

IMSH-ZA
SUBJECT: To provide guidance, establish policy, and delineate responsibilities for the Recycling Program Fort Stewart/Hunter Army Airfield, Georgia IAW Command Policy Letter No. 30 Fort Stewart/Hunter Army Airfield Sustainability Management.

a. Implement a training, surveillance/inspection, and enforcement program to support and assess compliance with this SOP. Compliment the program with incentives and a rigorous awareness campaign coordinated with PAO. Track solid waste diversion, and complete periodic SWARS data submissions and command updates.

b. Operate a QRP in accordance with IMCOM QRP Approval of Direct Sales Authority memorandums (April & May 2015) and QRP Handbook (November 2015). The Environmental Quality Control Committee (EQCC) will be the platform for the QRP Oversight Committee (QOC) to update/brief the GC on recycling program changes and improvements that support increased recycling of marketable materials and minimizing solid waste disposal. The quarterly EQCC Chairperson is the Garrison Commander (GC) or his designated representative. The QOC consists of the GC, QRP Manager, DPW, LRC, RMO, MICC, DRMO, ISO, DFMWR, SJA, and Fire Dept.

c. Ensure that property purchased by the Federal government with appropriated funds is not accepted by the QRP. These items are considered "surplus property" and must be properly disposed of in accordance with DoD 7000.14-R, DoD Financial Management Regulation, Volume 11A, Chapter 5.

d. Ensure refuse and recycle collection drivers do not service any trash dumpsters with recyclable materials present, or any recycle dumpsters with trash present. If either of these conditions exists, the driver will notify the DPW Environmental Division for corrective action.

8. AAFES, DECA, and SSSC will stock clear plastic bags, office paper with a minimum of 30% recycled content, and items made from recycled material. In addition, SSSC will stock blue recycling containers. Items that are recyclable, manufactured with or from recycle materials, or are otherwise deemed "environmentally friendly" will be clearly identifiable with labeling and posted signage advising customers of these environmentally preferred products. Procure items with minimum packaging material.

9. PROPONENT: DPW Environmental Division is the proponent for this SOP at commercial (912) 767-2010 or DSN 870-2010.

TOWNLEY R. HEDRICK
COL, IN
Commanding

IMSH-ZA
Subject: To provide guidance, establish policy, and delineate responsibilities for the Recycling Program for Fort Stewart/Hunter Army Airfield, Georgia, IAW Command Policy Letter No. 30 Fort Stewart/Hunter Army Airfield Sustainability Management.

Attachment 1

52.000-4061 RECYCLING, SALVAGE, AND DISPOSAL OF MATERIALS
FORT STEWART AND HUNTER ARMY AIRFIELD

Disposal: All waste generated from construction, demolition, and renovation contracts must be disposed of off the installation in a permitted disposal facility and in accordance with all Federal, State, and Local rules and regulations unless otherwise stated in the contract. At the end of each month, the contactor will provide copies of all disposal weight/scale tickets to the Contracting Officer's Representative (COR) showing the in, out, and tare weights of each load taken from the installation. The COR will provide copies of these tickets to the DPW Environmental Division, Solid Waste Management Section for tracking and regulatory reporting requirements.

Recycling/Salvage: Fort Stewart and Hunter Army Air Field has a mandatory recycling program. The Installation Command Policy Letter #30 and Command Recycling SOP can be accessed at http://www.stewart.army.mil/info/?id=443&p=1. All recyclable materials (listed in the recycling SOP) generated during the entire term of any construction, demolition, or renovation contract will be turned over to the Fort Stewart or HAAF Recycling Program. Contractors must contact the COR who will coordinate with the DPW Environmental Waste Management Section (912-767-2010) to arrange for turn-in of recyclable/salvageable materials. In areas where large amounts of scrap metal or cardboard will be generated, it is possible that a collection bin/container could be provided to the Contractor at no cost to deposit these materials. Salvage materials, unless otherwise specified, become the property of the contractor upon removal from the job site and should be taken into consideration in formulating bids.

Hauling/Transport Requirements: All vehicles and containers used to transport waste or recyclables on or off the Installations will meet all Federal and State DOT requirements. All waste or recyclable materials being transported will be loaded, tied, and covered in such a manner that will prevent any of the materials from leaking, spilling, falling or blowing from/off the vehicle or container. It is the contractor's responsibility to ensure immediate pick-up/clean-up of any material that is accidentally dropped, spilled or blown from a vehicle or container while in transit on and off the Installation.

Custodial Contract: If this contract is for custodial services or will include a custodial service requirement, the Contractor shall empty or otherwise transfer the contents from the blue recycling containers located inside buildings/facilities to the nearest blue recycling dumpster located outside. The contactor will ensure that all recycled paper products are first placed

inside a clear plastic bag and the top is tied closed before it too is placed inside the nearest blue recycle dumpster.

Payment/Funding: If any of the conditions listed under the Recycling, Salvage, and Disposal section are not met, it will be considered a failure to comply with the terms of the contract as discussed in the inspection clause herein.

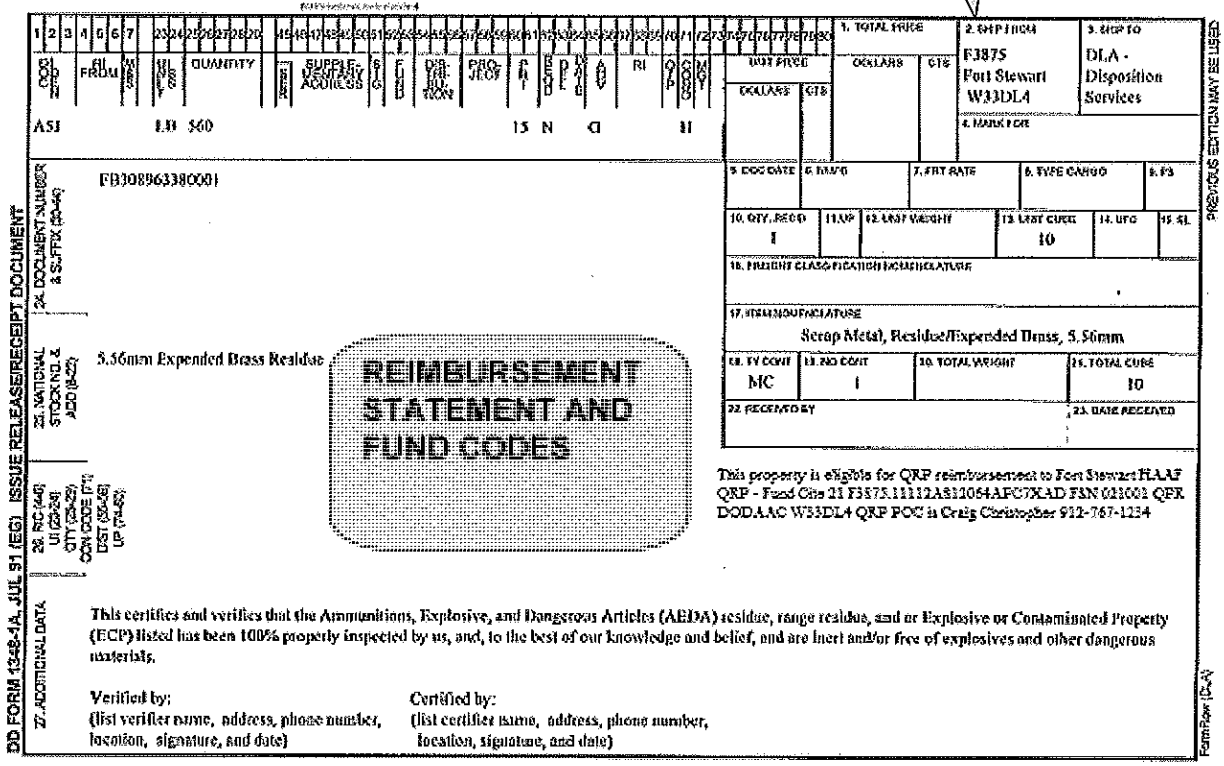
Guidance/Question: Anyone requiring further guidance, recycling training for contractors, or has additional questions on this section should contact the DPW Environmental Division, Solid Waste Management Section at 912-767-2010.

IMSH-ZA
SUBJECT: To provide guidance, establish policy, and delineate responsibilities for the Recycling Program Fort Stewart/Hunter Army Airfield, Georgia IAW Command Policy Letter No. 30 Fort Stewart/Hunter Army Airfield Sustainability Management.

ATTACHMENT 2

EXAMPLE (DD Form 1348) BRASS

QRP



Appendix D

RPMP EA

Final

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR REAL PROPERTY MASTER PLANS ON ARMY INSTALLATION MANAGEMENT COMMAND GARRISONS

Prepared for and Managed By:

U.S. Army Installation Management Command
Joint Base San Antonio–Fort Sam Houston, TX

Prepared by:

Tetra Tech, Inc., Fairfax, VA

Under Contract To:

U.S. Army Corps of Engineers, Mobile District, Mobile, AL

December 2019

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PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR
REAL PROPERTY MASTER PLANS ON
ARMY INSTALLATION MANAGEMENT COMMAND GARRISONS

APPROVAL

Gregory S. Kuhr
Director, G4 Facilities and Logistics
U.S. Army Installation Management Command
Joint Base San Antonio
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//original signed 14 Feb 2020//
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Appendices

Appendix A Environmental Checklist
Appendix B Examples of Key Elements of Real Property Master Plans

ACRONYMS AND ABBREVIATIONS

§	Section
ACHP	Advisory Council on Historic Preservation
ACP	access control point
ACUB	Army Compatible Use Buffer
ADP	Area Development Plan
AIRFA	American Indian Religious Freedom Act
AR	Army Regulation
ARPA	Archaeological Resources Protection Act
AT/FP	Antiterrorism/Force Protection
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
C.F.R.	Code of Federal Regulations
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CO_2e	carbon dioxide equivalent
CUP	Compatible Use Plan
CWA	Clean Water Act
CX	Categorical Exclusion
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted decibel
DoD	Department of Defense
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ESMP	Endangered Species Management Plan
ESQD	explosives safety quantity distance
FONSI	Finding of No Significant Impact
FY	fiscal year

GHG	greenhouse gas
GIS	Geographical Information System
HAP	hazardous air pollutant
HQDA	Headquarters, Department of the Army
HQ IMCOM	Headquarters, United States Army Installation Management Command
HVAC	heating, ventilation, and air conditioning
ICRMP	Integrated Cultural Resources Management Plan
IMCOM	United States Army Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IPMP	Integrated Pest Management Plan
ISMP	Invasive Species Management Plan
JLUS	Joint Land Use Study
LEED	Leadership in Energy and Environmental Design
MBTA	Migratory Bird Treaty Act
MEC	munitions and explosives of concern
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standard
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PEA	Programmatic Environmental Assessment
RCMP	Range Complex Master Plan
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
ROI	region of influence
RONA	record of non-applicability
RPMP	Real Property Master Plan
RPPB	Real Property Planning Board
SHPO	State Historic Preservation Officer

SIP	State Implementation Plan
SOP	standard operating procedure
SPCC	Spill Prevention, Control, and Countermeasures
SWPPP	Stormwater Pollution Prevention Plan
TCP	traditional cultural property
TMDL	total maximum daily load
Tribe	federally recognized Native American Tribe, including Native Hawaiians and Native Alaskans
U.S.	United States
U.S.C.	United States Code
UFC	Unified Facilities Criteria
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WASH	Wildlife Aircraft Strike Hazard

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1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

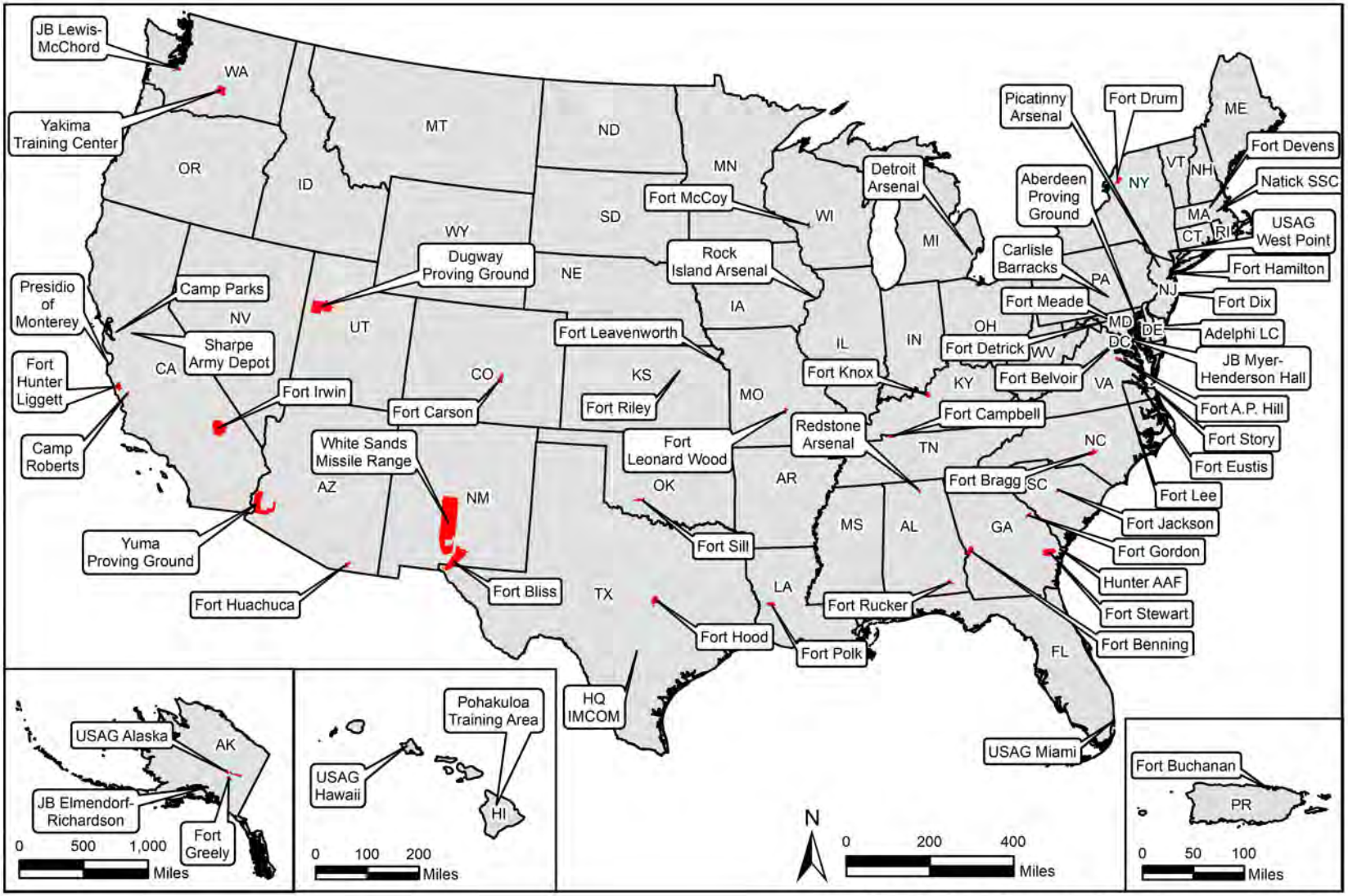
1.1 INTRODUCTION

This Programmatic Environmental Assessment (PEA) has been prepared under the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* [U.S.C.] Section [§] 4321), the Council on Environmental Quality (CEQ) NEPA regulations (Title 40 of the *Code of Federal Regulations* [C.F.R.] Parts 1500–1508), and the Army's NEPA implementing regulation (32 C.F.R. Part 651), *Environmental Analysis of Army Actions*. In general, these regulations require that, prior to implementing any major action, the federal agency must evaluate the proposal's potential impacts on the human and natural environments and involve the public in the agency's decision-making process. In particular, 32 C.F.R. § 651.33(g) identifies the "development and approval of installation master plans" as an action normally requiring the preparation of an Environmental Assessment (EA) under NEPA.

The Proposed Action being evaluated is for United States Army Installation Management Command (IMCOM) garrisons to develop, adopt, implement, and update Real Property Master Plans (RPMPs) and component documents using a standardized process in accordance with Department of Defense (DoD) and Army guidance, and to encourage community partner participation in this process. The PEA evaluates the Proposed Action, which is the Army's preferred alternative, and the No Action Alternative.

The term "IMCOM garrisons" applies only to Army installations or joint bases managed by Headquarters, IMCOM (HQ IMCOM), with all henceforth referred to as "IMCOM garrisons," "IMCOM installations," "garrisons," or "installations". IMCOM installations in the United States and its territories are shown in Figure 1. IMCOM installations located outside the United States and its territories are not subject to NEPA and, therefore, are not addressed in this PEA.

IMCOM manages a global real property portfolio that comprises millions of acres of land and billions of dollars' worth of buildings, facilities, and infrastructure. Real property assets at IMCOM garrisons include houses, training facilities, offices, schools, commissaries (grocery stores), dining facilities (cafeterias), post exchanges (stores), roads, and utilities. These assets combine to form Army communities that are similar to off-post communities found throughout the world. Real property master planning is the continuous process through which planning for long-term management and development of land and real property are comprehensively and thoughtfully analyzed to provide a continuous, sustainable platform for effective and efficient real property decision-making in support of the military mission.



IMCOM Installations in the United States and Its Territories

Figure 1

1.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is for IMCOM garrisons to plan for and manage their real property assets comprehensively and sustainably to permit installation expansion, reduction, and changes in mission over a 20-year planning horizon.

The Proposed Action is needed to provide a standard process to guide sustainable and energy-efficient development across IMCOM installations that supports mission requirements. It is also needed to provide a continuous analytical process to evaluate factors affecting the present and future physical development and operation of an installation. Standardizing the process of developing RPMPs and component documents at IMCOM garrisons is expected to result in each garrison producing a thoughtful and deliberative plan that contains comparable categories of information and is similarly organized across all installations.

The need to develop, adopt, implement, and update RPMPs and their component documents using a standardized process also is driven by multiple regulations, policies, and guidances, as detailed in Section 1.5. This PEA will serve to more efficiently integrate the NEPA process with the master planning process, avoid unnecessary duplicative NEPA analyses (see Section 1.4), better inform decision makers, and encourage active public involvement.

1.3 DECISION-MAKING

A PEA serves to inform the Army decision maker and the public of the potential environmental consequences of the Proposed Action and alternatives. If the analysis in the PEA indicates that implementing the Proposed Action would result in significant adverse environmental impacts, the decision maker would publish a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS). If the analysis in the PEA indicates that the impacts of implementing the Proposed Action or alternatives would normally be less than significant, after consideration of any comments submitted during the public review period (see Section 1.6), the decision maker could sign a Finding of No Significant Impact (FONSI). The NEPA process would then be concluded, and the action could proceed. The Army decision maker for this PEA is the Director, G4 Facilities and Logistics, HQ IMCOM.

1.3.1 Decision-Making Based on this PEA

This PEA and the public and stakeholder comments received during the public review period provide the Army decision maker with the information necessary to evaluate the potential environmental and socioeconomic impacts associated with the Proposed Action. The decision maker will consider technical, economic, environmental, and social issues as well as the ability of the Proposed Action to meet the purpose of and need for the action prior to determining the outcome of this NEPA process: either signing a FONSI or publishing an NOI to prepare an EIS.

1.3.2 Decision-Making for Analyses Tiered from this PEA

Each IMCOM garrison will be responsible for considering installation-specific conditions when developing, adopting, updating, or implementing an installation RPMP and component documents. This PEA, assuming it results in a FONSI, will provide information and analysis that can be incorporated by reference into future NEPA reviews. If this PEA covers a proposed action or adjustment to an RPMP component document, the garrison would prepare a Record of Environmental Consideration (REC) that explains why no further NEPA analysis is necessary. If an IMCOM garrison determines that a specific installation RPMP, RPMP component document, or project requires further analysis tiered from this PEA, the garrison would be required to complete the appropriate NEPA documentation prior to implementing any decisions. When completing tiered NEPA documents, installations should ensure that the significance criteria align with those in the document(s) from which they are tiering; however, specific phrasing can be edited as applicable to reflect project-specific context and intensity. The Army decision maker for any subsequent installation-specific NEPA analysis tiered from this PEA would be per IMCOM's NEPA guidance, based on whether the analysis level is an EA or EIS.

1.4 SCOPE OF THE ANALYSIS

This PEA provides a programmatic-level evaluation of the likely direct, indirect, and cumulative effects of implementing the Proposed Action or No Action Alternative. In accordance with 32 C.F.R. Part 651, "Army agencies are encouraged to analyze actions at a programmatic level for those programs that are similar in nature or broad in scope." CEQ regulations encourage the use of programmatic documents, when appropriate, accompanied by "tiered" NEPA documents that focus on site-specific issues, eliminating unnecessary duplication of effort.

Currently, IMCOM garrisons are completing NEPA analyses for RPMPs, component documents, and projects on an ad hoc basis, resulting in multiple, duplicative NEPA documents and the inefficient use of installation time and resources. For example, as a result of updates in master planning processes and component documents specified by DoD and further explained in Section 1.5, without the potential ability to tier from this PEA, a garrison might need to complete numerous EAs for a garrison RPMP. Separate EAs, with the associated public comment periods, would likely be needed for each component of the RPMP: the Vision Plan, various Installation Planning Standards, and each Area Development Plan (ADP), of which larger garrisons may have five to ten. Multiple EAs would also be needed for projects in the Capital Investment Strategy because some of the projects would not be ready for site-specific analysis until years after other projects. This PEA provides a programmatic level of analysis to avoid unnecessary duplicative analyses; in this case, the similar environmental impacts for most resource areas at most garrisons of developing and implementing RPMPs.

This PEA provides IMCOM garrisons with a starting point for complying with NEPA requirements when developing, adopting, implementing, and updating RPMPs and component documents. When considering these actions, installations must determine whether it would be appropriate to tier from this PEA. The PEA provides an Environmental Checklist to help garrisons determine what type of additional site-specific NEPA documentation, if any, is required (Appendix A). For tiering from this PEA, each IMCOM garrison should complete the Environmental Checklist in Appendix A prior to (1) adopting a new or updated RPMP or any of its component documents or (2) implementing a proposed project. When completing the Environmental Checklist, garrison personnel might need to consult subject matter experts to ensure careful and informed consideration of all potential impacts.

Depending on the responses in the Environmental Checklist, a garrison would then complete additional NEPA documentation as follows:

- If the garrison responds “no” to each checklist item, no further NEPA analysis would appear to be required and the action would qualify for a REC indicating that the proposed action is adequately addressed by the analysis in this PEA. If any categorical exclusions (CXs) apply, the REC should cite them.
- If the garrison responds “yes” or “maybe” to any checklist item, the garrison can reconsider the proposed action to see if it can be altered so the impact on the resource can be avoided and the answer changed to “no.”
- If the garrison responds “yes” or “maybe” to any checklist item and the impact(s) cannot be avoided, additional environmental analysis might be required as part of an installation-level NEPA process. The garrison should consider any previous NEPA documentation prepared for the garrison and whether EAs for RPMPs at other garrisons have addressed the same issue(s). If the garrison concludes that additional NEPA analysis is necessary, it is required under 32 C.F.R. Part 651 to prepare the documentation before any irreversible and irretrievable commitments of resources occur for the Proposed Action. The installation-specific NEPA document can focus on resource areas for which “yes” was checked and tier from this PEA for resource areas for which the response was “no.”

If the garrison determines that no further NEPA analysis is required, it should prepare a REC reflecting that determination. If it is relying on this PEA, or any other NEPA analyses, the REC should cite 32 C.F.R. § 651.12(a)(2)—“action is adequately covered within an existing EA or EIS,” name the applicable analyses (e.g., this PEA) and associated FONSI or Record of Decision, and state where the cited NEPA document(s) can be accessed. If the garrison is relying on this PEA, at least in part, the completed Environmental Checklist from this PEA should be attached. If any CXs apply, the REC should also include those citations. Lastly, the REC should discuss any specific issues

that prompted modification of the proposed action or special consideration (e.g., where the initial response was “yes” or “maybe”).

1.5 REGULATORY FRAMEWORK

Military installations are required to have master plans by 10 U.S.C. § 2864, *Master plans for major military installations*. According to this statute, each installation master plan is required to consider planning for compact and infill development; horizontal and vertical mixed-use development; the full life-cycle costs of real property planning decisions; capacity planning through establishment of growth boundaries around cantonment areas to focus development towards the core and preserve range and training space; and energy and climate resilience efforts.

DoD Instruction 4165.70, *Real Property Management*, (August 31, 2018), requires all DoD installations, including IMCOM garrisons, to have RPMPs. The master plans must cover at least a ten-year period, be updated at least every five years, and include a specific annual listing of all construction and major repair and sustainment projects.

DoD Unified Facilities Criteria (UFC) 2-100-01, *Installation Master Planning* (November 28, 2018), specifies minimum requirements for master planning processes and component documents to increase consistency between DoD agencies. UFC 2-100-01 emphasizes ten strategies that, when integrated into master planning processes and component documents, support DoD’s planning philosophy to “develop a sustainable platform to support the effective execution of assigned military missions as efficiently as possible.” The ten strategies are: sustainable planning, natural and cultural resource planning, defensible planning, healthy community planning, area development planning, network planning, form-based planning, capacity planning, facility standardization, and plan-based programming. IMCOM garrisons have been directed by Headquarters, Department of the Army to update Army real property master planning to reflect this DoD guidance (ACSIM 2013). UFC 2-100-01 also states that a master plan must consist of a minimum of five components, which are described in Section 2.2.2: Vision Plan, Installation Planning Standards, Installation Development Plan, Development Program, and RPMP Digest.

Army master planning activities are addressed in Army Regulation (AR) 210-20, *Real Property Master Planning for Army Installations* (May 16, 2005). Once the Army completes the update of its master planning regulations to align with UFC 2-100-01, AR 210-20 will be revised and published in 2020. Army communities should follow AR 210-20, which establishes policies, requirements, and responsibilities for the Army’s current real property master planning process.

1.6 PUBLIC INVOLVEMENT

The Army encourages public, agency, and Tribal participation in the NEPA process. Considering the views of and information provided by all interested persons promotes

open communication and enables better decision-making. All agencies, organizations, and members of the public having a potential interest in the Proposed Action are urged to participate in the decision-making process.

This PEA and Draft FONSI are available for a 30-day public review and comment period starting on the day the Notice of Availability is published in the *Federal Register*. The documents are available for download from the U.S. Army Environmental Command website at https://aec.army.mil/index.php?cID=352. Submit comments to U.S. Army Environmental Command, ATTN: Public Comments, 2455 Reynolds Road, Bldg. 2266, Joint Base San Antonio-Fort Sam Houston, TX 78234-7664, or via email to usarmy.jbsa.aec.nepa@mail.mil. Members of the public also may make inquiries by telephone by calling (210) 466-1590 or toll-free (855) 846-3940. Comments submitted within the 30-day public review period will be made part of the Administrative Record and the decision maker will give them full consideration before making a final decision.

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2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 OVERVIEW OF GARRISON REAL PROPERTY

As stated in Section 1.1, IMCOM's real property assets (e.g., land, buildings, and infrastructure) form garrisons that are similar to off-post communities in many ways. IMCOM currently manages more than 50 U.S.-based installations across the country, in 30 states, including Alaska and Hawaii, and in Puerto Rico. They range in size from 120 acres to more than two million acres. Nearly 60 percent of the current installations have at least one airfield and some have two or three airfields. Installations are set in urban areas, suburban areas, and rural/remote areas. IMCOM's portfolio is not static; the number of installations and amount of land managed by IMCOM vary over time as the result of internal restructuring, land withdrawals, and other actions.

The current real property inventory is reflected in the annual DoD Base Structure Report (DoD 2018). Typically, buildings on IMCOM installations are clustered in cantonment and operational areas, while relatively few buildings are located in training and other areas. Averaged over total land area, overall building density is low, with one to two buildings for every 10 acres of land. Some installations—generally larger ones—have a large amount of undeveloped land while others—generally smaller ones—may be at or near build-out capacity. Undeveloped areas include training areas, airfield clear zones, surface water and wetlands, restoration sites, and areas managed for natural or cultural resources. Training areas make up less than 30 percent of total land area at some installations, while at other installations, training areas occupy as much as 90 percent of total land area.

IMCOM installations have a variety of natural and cultural resources management programs and needs. Some have many historic buildings and a historic district. Others have critical habitat for federally listed threatened or endangered species. Some are in coastal zones or have lakes, rivers, or wetlands within their borders. Other installations provide public recreational opportunities like hunting and fishing or have golf courses open to the public.

The wide variety of terrains and climates in which IMCOM installations are located pose a range of resiliency challenges, which include severe weather events such as high winds, tornadoes, hurricanes, and hail. Many contain 100- and 500-year flood zones or are near coasts where sea level rise could threaten infrastructure. Others are vulnerable to wildfires or extreme temperatures.

2.2 PROPOSED ACTION

The Proposed Action is for IMCOM garrisons to develop, adopt, implement, and update RPMPs and their component documents using a standardized process in accordance with DoD and Army guidance, and to encourage community partner participation in this process.

The RPMP serves as an installation's road map for short- and long-term development of its real property assets, including land, facilities, and infrastructure. It provides guidelines for sustainable installation development that support mission and environmental requirements and establishes planning standards for the installation. Essentially, the RPMP regulates project siting and ensures sustainable and orderly development that supports the installation's mission.

The Army's NEPA implementing regulation, 32 C.F.R. Part 651, requires that the NEPA process be completed (1) whenever an RPMP component document is adopted or updated and (2) prior to implementing any project.

The remainder of this section describes:

- The master planning process (Section 2.2.1),
- The RPMP component documents (Section 2.2.2), and
- Types of projects common to many RPMPs (Section 2.2.3).

2.2.1 Master Planning Process

Every IMCOM garrison is engaged in an ongoing master planning process. This process is meant to be comprehensive and analytical, involve relevant stakeholders, and be flexible enough to respond to changing conditions and requirements.

2.2.1.1 Phases of the Master Planning Process

The master planning process is executed in the following four primary phases, which are not necessarily linear:

- **Identification**—The identification phase results in a long-term real property vision for the installation, specific goals that support that vision, and measurable planning objectives that support one or more of those goals. The Vision Plan component of the RPMP is produced during this phase.
- **Evaluation and Development**—In the evaluation and development phase, multiple stakeholders prepare and evaluate alternative plans (whether installation-wide or for one specific area) and select the preferred plan as the RPMP. The remaining components of the plan—the Installation Planning Standards, Long-Range Component (including ADPs), and Capital Investment Strategy—are produced during this phase.

- **Implementation**—In the implementation phase, the RPMP is implemented through the execution of specific projects that align with the plan.
- **Monitoring and Amending**—Because change is inevitable, the monitoring and amending phase allows the RPMP, including RPMP components, to be revised and updated as needed to maintain its relevance as a useful planning and management tool.

2.2.1.2 Recent Changes to the Master Planning Process

IMCOM garrisons have had RPMPs for decades, but the promulgation of UFC 2-100-01 has resulted in changes in the master planning process and the format and content of RPMPs. The most significant change is the introduction of ADPs, which go into more detail than previous RPMPs.

Another change is in the relative timing of developing and updating RPMPs and their component documents. In the past, except for actions related to individual projects, most IMCOM garrisons prepared or updated one RPMP every five years. Now the RPMP and its component documents are being developed as multiple documents that are not necessarily prepared or updated at the same time (although each document must still be updated at least once every five years). For example, an installation might first prepare or update a Vision Plan that identifies one or more districts on the installation. Later, an ADP might be developed or updated for each district. For installations with multiple districts, several years might pass before an ADP is completed or updated for all districts.

Another change is in the process of developing RPMPs and component documents, which has become more standardized through the promulgation of UFC 2-100-01. In the past, the process varied widely across IMCOM garrisons. Standardizing this process is needed to ensure the development of a quality RPMP, which, in turn, enables each garrison to be prepared to support military mission requirements. Although UFC 2-100-01 introduces more standardization into the master planning process, including ADPs, it still affords installations the flexibility to develop RPMPs that reflect their unique needs.

Another change that is occurring not only within IMCOM but throughout DoD is a shift in the emphasis of the master plan from cataloguing specific projects to defining development standards that inform the design of specific projects. This change provides flexibility at the project level while ensuring that projects are consistent with the installation's planning standards and long-term vision of development.

2.2.1.3 Stakeholder Involvement

RPMPs and component documents are developed and updated using a collaborative process to ensure relevant stakeholders have a voice in shaping the installation's future development.

Within the installation, stakeholders include the Senior Installation Command, Garrison Command, all other mission commands on the garrison, all directorates of the garrison, the divisions of the garrison's Directorate of Public Works, Army and Air Force Exchange Services, Defense Commissary Agency, Residential Communities Initiative developers, representatives of clubs and other private organizations on the garrison, and garrison tenants. Beyond the installation, garrisons seek input from state, county, and local governments surrounding the installation and federally recognized Native American Tribes, including Native Hawaiians and Native Alaskans, (Tribes) in the area, although the level of involvement of these stakeholders varies between installations.

Because some components of the RPMP entail specialist knowledge (e.g., architecture, transportation engineering, or botany), garrison personnel involve appropriate subject matter experts, as needed, to ensure the proposed plans and projects comply with applicable regulations and standards, to include building and safety codes. Installation natural and cultural resources subject matter experts typically provide input so that current and potential environmental constraints are identified. Sometimes the master planning process triggers the need for new or updated environmental studies to inform identification of environmental constraints.

2.2.1.4 Approvals

The RPMP component documents must be approved by the installation's Real Property Planning Board (RPPB), Senior Installation Commander, and applicable IMCOM Directorate (i.e., IMCOM-Readiness, IMCOM-Sustainment, and IMCOM-Pacific). AR 210-20 requires installations to establish an RPPB, which functions as a "city planning council." According to the regulation, the RPPB oversees the development and update of the RPMP and "ensures the orderly development and management of installation real property."

Additionally, all proposed projects with new footprints, regardless of funding type, must have the proposed site location approved by the installation's RPPB prior to any work being initiated on preliminary designs.

2.2.1.5 Relationship of RPMPs to Other Plans

IMCOM garrisons also prepare other plans to guide the management of installation resources. For example, the Range Complex Master Plan (RCMP) provides guidance for the orderly development of an installation's range complex over time. Other examples include the Integrated Natural Resources Management Plan (INRMP), which guides management of the installation's natural resources, and the Integrated Cultural Resources Management Plan (ICRMP), which guides management of the installation's cultural resources. The garrison must ensure that the RPMP and component documents align with its other management plans.

2.2.1.6 Consideration of the Environment and Resiliency in the Master Planning Process

In general, the trend in master planning at IMCOM and throughout DoD is towards increased consideration of environmental issues and resilient development early in the planning process. By identifying environmental constraints early and planning development to avoid or minimize impacts on the human and natural environments, the installation avoids spending valuable time and resources planning for projects that are ultimately found to have unacceptable environmental impacts. By planning for energy and climate resiliency, the installation protects its real property investments and minimizes operational disruptions.

To be compliant with UFC 2-100-01, an RPMP must address planning for the environment and sustainability in multiple ways. The UFC's ten key strategies for development (listed in Section 1.5) help planners apply many of the latest techniques for integrating environmental sustainability into development. These include the following:

- Land preservation through establishing growth boundaries and planning for compact, infill, and multistory development to reduce the footprint of the built environment and provide a buffer between the installation and off-post civilian communities
- Efficient and multimodal transportation networks through transit-oriented development, mixed-use development, and connected transportation networks that reduce fossil fuel use and air emissions
- Sustainable landscaping that helps control erosion, aids in carbon sequestration, and improves aesthetics
- Stormwater control through low-impact development techniques such as permeable pavers and bioretention
- Energy conservation through measures that reduce demand such as configuring and orienting buildings to incorporate passive lighting, heating, and cooling
- Energy conservation through producing a sustainable supply of energy through wind, solar, geothermal, and other sources
- Water conservation measures such as low-maintenance landscaping and greywater use
- Waste management through adaptive reuse of facilities versus demolition
- Flood protection by siting facilities outside floodplains whenever possible
- Conservation of natural resources to protect federally listed threatened and endangered species and their habitats and sensitive resources such as wetlands

- Conservation of historic properties; archaeological sites; and sites, views, and other resources that are culturally important to Tribes

Environmental considerations are integrated into many components of the RPMP. For example, the Installation Planning Standards (Section 2.2.2.2) incorporate many of the strategies and principles stated above and apply to all development installation-wide. The Green Infrastructure Plan (Section 2.2.2.3) includes areas set aside for outdoor recreation and natural areas that are to remain undeveloped, and the Street and Transit and Sidewalk and Bikeway Plans (Figure 2) inform development of efficient multimodal transportation networks.

1. DEVELOP VISION PLAN		
Vision, Goals, Objectives	Framework Plan	Summary Future Development Plan

2. PREPARE INSTALLATION PLANNING STANDARDS		
Building Standards	Street Standards	Landscape Standards

3. UPDATE LONG-RANGE COMPONENT
Area Development Plans (for each district in the Framework Plan)
Constraints and Opportunities Maps
Network Plans (Illustrative Plan, Regulating Plan, Street and Transit Plan, Green Infrastructure Plan, Sidewalk and Bikeway Plan, and Primary Utility Plan)

4. DOCUMENT CAPITAL INVESTMENT STRATEGY		
Project Lists	Analysis of Requirements	Future Development Plan

5. CREATE RPMP DIGEST			
Vision Plan	Area Development Plans Executive Summaries	Network Plans	Capital Investment Strategy Executive Summary

Figure 2. Real Property Master Plan Process and Components

In addition, the Constraints and Opportunities Maps (Section 2.2.2.3) depict areas with limits on development (constraints) and areas with development potential (opportunities). Constraints include existing infrastructure, surface water and wetlands, contaminated sites, leased areas, areas with steep topography, areas where threatened and endangered species or their habitat occur, antiterrorism/force protection (AT/FP) setbacks, airfield clear zones, and buffer zones around areas that store explosives or other hazardous materials (known as "explosives safety quantity distance [ESQD] arcs"). These maps help the installation avoid spending limited resources proposing development that could have unacceptable environmental impacts.

The master planning process is similar to the NEPA process in several ways. For example, the master planning process includes developing and screening multiple alternatives to arrive at the preferred plan of action, involves multiple stakeholders in identifying critical issues, and identifies environmental constraints and plans to avoid and protect sensitive resources, as does the NEPA process. The master planning process also includes analysis of many resource areas, including biological resources, cultural resources, land use, traffic and transportation, and utilities and infrastructure. While the master planning process does not substitute for or fulfill all the requirements of NEPA analysis, many of its aspects align with NEPA's goal to take a hard look at potential impacts on the human and natural environments.

Energy and climate resilience is an emerging area for IMCOM master planning. Title 10 U.S.C. § 2864 was amended in August 2018 to require that master plans address energy and climate resilience. UFC 2-100-01 was amended in November 2018 to require that anticipated changes in environmental conditions be considered and incorporated into military construction designs and modifications. To meet these requirements, IMCOM installations will first need to identify the degree to which they face various energy and climate risks, such as from extreme weather events, sea level rise, and wildfires, and then update their Installation Planning Standards and other components of their RPMPs as necessary to facilitate development that incorporates an appropriate level of energy and climate resilience. By anticipating future conditions, IMCOM can protect its real property investments by reducing asset vulnerability.

2.2.2 Master Plan Components

In accordance with UFC 2-100-01, the master planning process results in five standard components: Vision Plan, Installation Development Plan, Installation Planning Standards, Development Program, and Plan Summary.

Within IMCOM, some garrisons use the names for the five RPMP components specified in UFC 2-100-01 and others use alternate names. Alternate names recommended by HQ IMCOM are provided in Table 1. Table 1 presents a crosswalk of the five RPMP component names used by HQ IMCOM and within UFC 2-100-01.

Table 1. Real Property Master Plan Components

Component name used by HQ IMCOM	Component name in UFC 2-100-01
Vision Plan	Vision Plan
Installation Planning Standards	Installation Planning Standards
Long-Range Component (including ADPs, Illustrative Plans, and Regulating Plans)	Installation Development Plan (including ADPs, Illustrative Plans, and Regulating Plans)
Capital Investment Strategy	Development Program
RPMP Digest (optional)	Plan Summary

Figure 2 provides a process chart that shows how RPMP component documents are developed and related. The following sections provide further detail on each component document. Appendix B presents examples of some key elements of the documents.

2.2.2.1 Vision Plan

The Vision Plan (#1 in Figure 2) is a decision-support document that details the overall vision, goals, and objectives for the long-term management and development of the installation's real property assets. For an IMCOM garrison, the Vision Plan also contains a Framework Plan and a Summary Future Development Plan.

The vision statement identifies what the installation, as related to real property assets, should look like in 20 years. Once the vision is defined, planning goals that support the vision are established. Next, specific measurable objectives are identified for each of the goals. Although each installation's vision, goals, and objectives are unique, many include themes of sustainability, adaptability, resiliency, support for the mission, preservation of natural and cultural resources, and optimized transportation and utility systems.

The Framework Plan is a high-level plan that serves as a guide for identifying districts within the installation. Districts are portions of the installation where similar functions are clustered, such as in a training district or a community services district. A district can include multiple land uses or activities, but typically has features that distinguish it from neighboring districts. Installations typically identify one to five districts, although some larger installations have identified up to 20 districts. An ADP is then prepared for each district. The Summary Future Development Plan locates known projects on an installation map to identify areas targeted for known requirements and deconflict project siting.

2.2.2.2 Installation Planning Standards

Another component of an RPMP, developed after the Vision Plan, is the Installation Planning Standards component (#2 in Figure 2), called the Installation Design Guide in AR 210-20. These standards define consistency in building types and the spatial

relationships of development and include detailed building, street, and landscape standards. Projects must comply with the Installation Planning Standards just like they must comply with the National Fire Protection Code and the National Electrical Code.

Installation Planning Standards promote visual order, consistent architectural themes and standards, appropriate landscaping, and a well-functioning transportation system that supports alternative modes of transportation. Where applicable, Installation Planning Standards include standards for historic buildings and districts. Each type of standard can be further refined for a given district.

Building standards address exterior and interior design parameters to shape public space and create a sense of security and architectural continuity. They address building design elements, green building and sustainable design, and site planning (i.e., screening of equipment, AT/FP measures, lighting, and gathering spaces). Exterior lighting standards address issues such as minimizing glare, shielding exterior lighting, providing safety and security lighting, and using energy-efficient lighting. Green building and sustainable design standards address passive heating and cooling, incorporating the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) measures into construction, and other similar issues. New construction projects are more easily made to comply with these standards than projects involving renovations of or additions to existing buildings.

Street standards address road configuration, sidewalks and walkways, bicycle trails, bus stops, parking lots, and other transportation features. They address issues such as transit-oriented development, the width of street lanes and sidewalks, parking, amenities such as trash cans and bicycle racks, pavement markings, and signage. Sidewalks and walkways must be accessible in accordance with the requirements of the Americans with Disabilities Act Accessibility Guidelines and the Uniform Federal Accessibility Standards.

Landscape standards address the type and location of landscape features, maintenance parameters for landscaping, the design of walls and fences, screening of equipment and refuse areas, and landscape amenities. Landscape amenities can include outdoor seating, trash and recycling receptacles, bicycle racks, lighting, information kiosks, and play equipment. The landscape standards also define a plant palette appropriate to each garrison that typically emphasizes native, drought-tolerant species.

To address situations in which extenuating circumstances may make compliance with the Installation Planning Standards unreasonable, IMCOM includes a process by which variances can be granted. Site conditions, terrain sensitivity, height requirements, and limited land are four of the general areas in which a variance may be requested. If the project proponent and the garrison master planners cannot reach an agreement on the requested variance, the RPPB decides whether it is granted or not.

2.2.2.3 Long-Range Component

Using the parameters identified in their Vision Plan and Installation Planning Standards, installations update the Long-Range Component of their RPMP (#3 in Figure 2), called the Installation Development Plan in UFC 2-100-01. The Long-Range Component comprises several plans. An ADP is included for each of the districts identified in the Vision Plan and contains the district's vision, goals, and objectives. These generally reflect the installation-wide vision; however, they focus on specific issues relevant to that district. Each ADP also includes an analysis of existing conditions, Constraints and Opportunities Maps, Illustrative Plan, and Regulating Plan.

The analysis of existing conditions informs an ADP by identifying problem areas and constraints. Constraints related to environmental conditions, utilities, and infrastructure should be identified and mapped. Building condition, utilization, type (i.e., permanent, semi-permanent, and temporary), and functionality should be documented. Transportation features should be analyzed to assess the condition of surfaces meant for driving, parking, walking, and bicycling and to identify areas of congestion, confusion, or conflict.

The Constraints and Opportunities Maps depict areas with limits on development and are used to identify areas with development potential (i.e., developable areas). Constraints include existing infrastructure, surface water and wetlands, contaminated sites, leased areas, areas with steep topography, areas where threatened and endangered species and/or associated habitat are known to occur, AT/FP setbacks, airfield clear zones, and ESQD arcs. Areas with minor or no constraints are the installation's developable areas.

The Illustrative Plan is a conceptual view of what the build-out of the district could look like in 20 or more years. Stakeholders develop multiple alternatives for future development within the district and then select one or combine two or more of them to create the preferred plan. Although only conceptual, elements such as buildings can be identified and located on the Illustrative Plan; however, they could change before the project is ready for implementation. The Illustrative Plan includes phasing, indicating for each project whether it is planned for implementation in the short term (0–5 years), mid-term (6–10 years), or long term (more than 10 years in the future). It also depicts a district's capacity to accommodate additional development (i.e., to accommodate having new buildings added if the existing buildings remain for 25 years or more).

The Regulating Plan serves as the installation's "zoning code" for development, although it provides more flexibility than traditional land-use plans. It identifies "regulating zones" and establishes the allowable uses within each zone. HQ IMCOM does not prescribe specific regulating zones; they are identified by each installation. Examples of regulating zone uses include mission operations, administrative,

residential, commercial, medical, industrial, training, mixed-use, community, open space, recreational, and utilities.

An installation's Regulating Plan might designate a regulating zone that is different from its land-use type in the previous RPMP. For example, the plan might designate a family housing area as mixed-use to allow facilities such as schools and community centers to be located within walking distance of residences. Or it might designate an area that was previously undeveloped open space as industrial or training to accommodate new facilities and mission operations.

Garrisons also consider the compatibility of adjacent regulating zones when developing their Regulating Plan. For example, locating a residential zone next to an administrative zone would be acceptable while locating it next to an industrial zone would generally be avoided.

The Green Infrastructure Plan identifies areas set aside for recreation and parks, open areas, natural resource areas that should remain undeveloped because of constraints such as the presence of wetlands or endangered species, and off-street paths and trails. The Transportation Network Plan classifies streets by function and configuration (e.g., number of lanes, medians, bicycle trails, and parking areas) and identifies locations of sidewalks and shuttle/transit stops. Other Network Plans are described in UFC 2-100-01, Section 3-6.4.

2.2.2.4 Capital Investment Strategy

Execution of an RPMP relies on the Capital Investment Strategy component (#4 in Figure 2), called the Development Program in UFC 2-100-01. The Capital Investment Strategy should be updated annually at a minimum to reflect current project prioritization and funding.

The Capital Investment Strategy is a bridge between project ideas and an executable funding program. It integrates Senior Commander-approved priorities and recommendations in the ADPs with tenant projects to illustrate all planned and programmed major repair and construction projects for the next 20 or more years. All proposed projects go through a process of requirements validation, filtering, evaluation, and scoring prior to being included in the Capital Investment Strategy. The resulting project list is divided into short-term (0–5 years), mid-term (6–10 years), and long-term (more than 10 years in the future) projects and appropriate funding requests are submitted. With the completion of the appropriate project-specific NEPA documentation, projects are then executed when funds become available.

The Capital Investment Strategy includes a Future Development Plan, which shows all proposed projects at the installation in both map and table formats. The projects are organized by anticipated year of implementation and priority. The funding source and estimated cost for each project are also identified.

Typically, each project's status is identified as "budgeted," meaning it is funded in the current fiscal year; "programmed," meaning it is included in the Future Year Defense Program but not yet budgeted; or "planned," meaning it is not yet budgeted or programmed but is sited in the relevant ADP. Because Congress approves military funding annually, projects listed as "budgeted" are highly likely to be executed, although various issues could potentially result in a budgeted project being canceled or delayed. Projects listed as "programmed" are reasonably likely to be executed but have a higher probability of being canceled or affected by changes in prioritization, scope, and timing. Longer term "planned" projects have the highest probability of being changed or canceled. The timing of project-specific NEPA documentation should consider the project's status and the likely timing of its execution.

2.2.2.5 RPMP Digest

The final component of the RPMP is the RPMP Digest (#5 in Figure 2), which includes the Vision Plan and executive summaries of the ADPs, Network Plans, and Capital Investment Strategy. The RPMP Digest does not require NEPA analysis because it is simply a compilation and summary of other RPMP component documents that have undergone NEPA analysis.

2.2.3 Projects

The purpose of the planning process and the RPMP is to guide installation development, and the projects implemented as a result will shape the installation's future. As mentioned in Sections 2.2.2.3 and 2.2.2.4, proposed projects are identified in the Illustrative Plan for each district and in the Capital Investment Strategy. The Army expends a considerable amount of resources developing projects that will be consistent with the RPMP. On average, more projects are proposed for short-term (0-5 years) implementation than for mid- and long-term implementation. No project can be implemented, however, until it undergoes the appropriate NEPA review.

2.2.3.1 Project Implementation

Proposals for the projects in the Capital Investment Strategy range from being highly detailed to being conceptual with few specifics. Specific project sites or building footprints might be identified in some proposals while only general project locations are identified in others. Typically, less detail is developed or available for projects not yet requiring architectural or engineering services.

Over time, projects included in the Capital Investment Strategy can be completed, shifted from one timeframe to another, or removed from consideration. New proposed projects might also be added to the Capital Investment Strategy. Proposed projects that were once only conceptual can become more specific in design, especially as a garrison develops a proposed project to the point at which it is ready for implementation.

Final project specifications, however, will remain in compliance with the Regulating Plan, the Installation Planning Standards, and other relevant components of an RPMP.

Some projects proposed in the RPMP are never implemented because they become obsolete as time passes or the installation's needs evolve. Therefore, installations should ensure that expending funds to identify alternative locations for, analyze potential environmental impacts of, or develop preliminary designs for proposed projects is carefully timed to minimize resources being applied against projects that are never executed, while simultaneously recognizing the timelines needed to complete advanced planning efforts to be able to execute approved budgets.

2.2.3.2 Types of Projects

Although project specifics vary widely, certain types of projects commonly proposed in RPMPs can be broadly categorized. For purposes of this analysis, they have been grouped into the following categories: facility renovation, construction, and demolition; transportation; utility; outdoor recreation and open space; energy and climate resilience; and other.

Facility Renovation, Construction, and Demolition: Facility renovation projects include a variety of maintenance and upgrade efforts. Examples include general maintenance and repair, replacing roofs, upgrading facility utility systems, and converting buildings to new uses.

Facility construction projects vary substantially. A construction project may involve an addition to an existing building, building a single new building, or building multiple new buildings (e.g., a family housing project). Facilities can range in size from a few hundred square feet to hundreds of thousands of square feet and the acreage of land disturbed would be similarly variable. Facilities are constructed to meet a wide range of mission requirements, including training, housing, lodging, administrative, operational, educational, maintenance, storage, medical, retail, recreational, and industrial.

Facilities slated for demolition are often inefficiently designed, excess to mission requirements, and expensive to maintain or have renovation costs that are prohibitively expensive. Like construction projects, demolition projects can involve a wide range of square footages and acreages of disturbance. Many demolitions are "paired" with new construction projects, meaning that one facility is demolished and a new facility of similar function is constructed. The old facility could be demolished before or after the new facility is built, depending on installation needs and the location of the new facility in relation to the old one. The CXs in 32 C.F.R. Part 651 apply to demolition of nonhistoric buildings as long as applicable regulations for managing wastes are followed. Historic structures would be subject to additional requirements prior to demolition.

Facility renovation, construction, and demolition projects include constructing not only buildings, but associated infrastructure and amenities such as access roads, parking,

utilities, landscaping, sidewalks, courtyards, and outdoor lighting. Therefore, these projects may include components that could also be classified as transportation, utility, or outdoor projects. They may also include energy- and climate-resilience features such as installing rooftop solar panels on a building.

Generally, facility renovation, construction, and demolition activities make up 60 to 90 percent of the proposed projects in the Capital Investment Strategy of an RPMP. One or more CXs under 32 C.F.R. Part 651 can be applied to some of these proposed projects, especially those affecting a limited land area, to meet a proposed project's NEPA requirement.

Transportation: Transportation projects include repair, maintenance, expansion, and new construction of transportation features and amenities. Transportation projects typically compose up to 20 percent of proposed projects. One or more CXs under 32 C.F.R. Part 651 can be applied to some of these proposed projects, especially those affecting a limited land area or within existing rights-of-way, to meet a proposed project's NEPA requirement. Examples of transportation projects include the following:

- Construct, expand, replace, relocate, reconfigure, or remove transportation features such as roads, parking lots, runways, taxiways, intersections, bridges, and aircraft parking aprons
- Construct, replace, relocate, reconfigure, or remove transportation amenities such as lighting, transit stops, and signage
- Construct, replace, relocate, reconfigure, or remove an access control point (ACP) (i.e., entry gate)
- Pave unpaved surfaces; repave or resurface features such as roads, parking lots, runways, taxiways, and aircraft parking aprons
- Install, replace, relocate, reconfigure, or remove airfield equipment such as runway lighting

Utility: Utility projects include utility maintenance, upgrades, expansion, and new construction. These types of projects typically compose up to 15 percent of proposed projects. One or more CXs under 32 C.F.R. Part 651, including some CXs specific to utilities, can be applied to some of these proposed projects to meet a proposed project's NEPA requirement. Examples of utility projects include the following:

- Construct, expand, replace, relocate, reconfigure, decommission, or remove utility infrastructure such as water lines, electric lines, sewage lines, communications networks, fire hydrants, pump stations, transformers, generators, or wastewater treatment plants
- Relocate an aboveground electrical line underground

- Install, upgrade, relocate, reconfigure, or remove stormwater drainage features such as gutters, retention ponds, and swales

Outdoor Recreation and Open Space: Outdoor recreation and open space projects typically compose up to 5 percent of proposed projects. One or more CXs under 32 C.F.R. Part 651 can be applied to some of these proposed projects, especially those affecting a limited land area, to meet a proposed project's NEPA requirement. Examples of outdoor recreation and open space projects include the following:

- Construct, upgrade, relocate, reconfigure, or remove paths and trails or recreational areas such as golf courses, swimming pools, sports fields, and campgrounds
- Designate, expand, reconfigure, or decommission primarily undeveloped outdoor spaces such as open spaces, parks, and parade fields
- Install, replace, upgrade, reconfigure, or remove landscaping elements such as ornamental trees, plants, courtyards, signs, irrigation systems, benches, and fences
- Install, replace, upgrade, relocate, reconfigure, or remove outdoor fitness courts (e.g., tennis or basketball courts), exercise equipment (e.g., chin-up bars), or playgrounds
- Create, upgrade, reconfigure, or relocate outdoor memorials or other public spaces

Energy and Climate Resilience: The term *energy and climate resilience* is defined in 10 U.S.C. § 2864 as:

> …anticipation [of], preparation for, and adaptation to utility disruptions and changing environmental conditions and the ability to withstand, respond to, and recover rapidly from utility disruptions while ensuring the sustainment of mission-critical operations.

Installation Planning Standards, and often one or more of the goals or objectives of the RPMP, provide guidance for energy and climate resilience measures that should be incorporated into RPMP projects. The resulting energy- and climate-resilience projects could be stand-alone projects or components of other projects.

The real property investments IMCOM makes now should anticipate future conditions to reduce the vulnerability of and achieve the projected longevity of its real property assets. Projects or project components that enhance energy and climate resilience would result in real property assets better able to withstand extremes or potential disruptions, thereby enhancing continuity of operations. Aspects of these projects include the following:

- Construct on-post energy generation facilities such as a solar array
- Modernize or introduce back-up capacity into a utility system such as through emergency generators
- Provide on-site storage for fuel, electricity, or potable water
- Enhance or introduce transportation system redundancy (e.g., by providing multiple access routes)
- Avoid building in flood zones or use raised and reinforced foundations so buildings can withstand flood events
- Design buildings to facilitate passive heating and cooling
- Design buildings and transportation features such as bridges to withstand flooding or high winds
- Design building ventilation systems to accommodate extreme temperatures or compromised air quality (e.g., from wildfire smoke)
- Provide indoor storage areas to protect aircraft and other assets from storm damage
- At coastal facilities, locate buildings, transportation features, or utility systems away from areas of potential sea level rise or tsunami inundation or protect them from storm surges using barriers such as a sea wall, levee, marsh, or wetlands
- Design on-site stormwater features such as swales not only to balance out impervious surfaces but also to accommodate extreme precipitation events
- Manage landscaping to minimize the presence of wildfire fuels near structures

As with all proposed projects, each energy and climate resilience project requires appropriate NEPA documentation before the project is implemented. One or more CXs under 32 C.F.R. Part 651 can be applied to some of these proposed projects, especially those affecting a limited land area, to meet a proposed project's NEPA requirement, even if a CX is not specifically labeled as energy or climate resilience. IMCOM installations considering solar photovoltaic projects might also be able to streamline their NEPA requirements by tiering, if appropriate, from the 2016 *PEA for Construction and Operation of Solar Photovoltaic Renewable Energy Projects on Army Installations* (AEC and PNNL 2016). If an installation wishes to tier from that PEA, they should follow the instructions in that PEA for tiering.

Other: Projects that do not fall into any of the previous categories are typically installation-specific, and thus are not analyzed further in this PEA. Projects of this type cannot tier from this PEA to meet NEPA requirements.

2.3 NO ACTION ALTERNATIVE

The CEQ regulations in 40 C.F.R. § 1502.14(d), and reflected in 32 C.F.R. Part 651, require analysis of a No Action Alternative in all NEPA documents. The No Action Alternative serves as the baseline against which the impacts of implementing the Proposed Action are measured.

Under the No Action Alternative, RPMPs would not be developed, adopted, implemented, or updated using a standardized process across all IMCOM garrisons in the United States and its territories in accordance with DoD and Army guidance. The existing RPMP process would remain in effect, so ad hoc master planning and associated NEPA analysis would continue.

Selection of the No Action Alternative would mean that IMCOM installations would be unable to tier from the PEA analysis and would have to continue to conduct repetitive analyses for each installation RPMP component.

2.4 SCREENING CRITERIA

The Army's NEPA regulation requires reasonable alternatives to be evaluated. HQ IMCOM established the following screening criteria to identify alternatives that would meet the purpose of and need for the Proposed Action (Section 1.2). To be considered a reasonable alternative, alternatives must meet the screening criteria below. As the goal of this programmatic approach is to eliminate repetitive, duplicative NEPA analyses for IMCOM RPMPs, all but the last of the following screening criteria also apply to proposed actions whose NEPA documentation tiers from this PEA. The screening criteria are:

- **Mission Compatibility**—The alternative must appropriately incorporate and support the military missions, to include training, occurring at the IMCOM garrison.
- **Short- and Long-Range Considerations**—The alternative must provide a 20 or more year focus for real estate assets, enabling installations to maintain the desired path forward while also enabling anticipation of and response to current and short-term (0–5 years) missions and requirements.
- **Safety**—The alternative must enable consideration of safety and installation security factors in plan development and site planning.
- **Environmental Factors**—The alternative must enable consideration of environmental factors so that development decisions appropriately minimize impacts to sensitive natural and cultural resources. The alternative must reflect the principles of low-impact development and sustainable planning.
- **Financial Stewardship**—The alternative must enable a holistic perspective of installation development such that master planners can recognize and take

advantage, as appropriate, of options that will enable reduced life-cycle costs of real estate assets, to include reduced utility costs (e.g., energy, water, waste). The alternative must reflect the principle of energy efficiency and sustainable planning.

- **Aesthetic Compatibility**—The alternative must enable consideration of aesthetics into plan development and site planning, especially for residential and historic areas.
- **Compliance with Federal Mandates and DoD or Army Goals**—The alternative must enhance compliance with government mandates and DoD and Army goals and objectives regarding master plans for IMCOM garrisons.
- **Master Planning Efficiency**—The alternative must provide for efficiencies within IMCOM, enabling reduced costs and efforts associated with the development of master planning documents or associated requirements, such as NEPA for master plans.

2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

As part of the NEPA process, potential alternatives to the Proposed Action must be evaluated. For alternatives to be considered reasonable and warrant further detailed analysis, they must meet the purpose of and need for the action (Section 1.2) and the screening criteria (Section 2.4) and be affordable and implementable.

A reasonable alternative to the Proposed Action would be to analyze only the development, adoption, and updating of RPMP component documents and not analyze the implementation of any projects proposed in the RPMP. That alternative is essentially a subset of the Proposed Action and addressed by the analysis in this PEA. The Army determined that limiting the PEA in this way would not do as much as the Proposed Action to minimize the preparation of multiple, duplicative NEPA documents and reduce the inefficient use of installation time and resources and thus determined it was appropriate to expand the Proposed Action to include analysis of the implementation of projects proposed in the RPMP.

IMCOM did not identify any other alternatives that meet the criteria for detailed analysis, and, therefore, no other alternatives are analyzed in this PEA.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 APPROACH TO ANALYZING IMPACTS AND IDENTIFYING MITIGATIONS

This section presents the impacts of implementing the Proposed Action and alternatives. The resource areas analyzed are air quality and greenhouse gases (GHGs), biological resources, cultural resources, hazardous materials and waste, human health and safety, land use, noise, socioeconomics, transportation and traffic, utilities, and water resources. Topics discussed for some resource areas are more expansive than their titles indicate.

A region of influence (ROI) is defined for each resource area based on the region potentially influencing or influenced by the resource. The ROI is generally IMCOM garrisons, unless otherwise noted.

For each resource area, the potential significance of impacts has been evaluated based on context and intensity as defined in 40 C.F.R. § 1508.27. Impacts have been distinguished as beneficial or adverse. The severity, duration, and directness of impacts have been characterized as follows:

- **Severity**—*Negligible, minor, moderate*, or *significant*. *Negligible* impacts are barely perceptible. A *minor* impact would be detectable but slight or otherwise limited. A *moderate* impact would be readily apparent but clearly not as severe as a significant impact. *Significant* impacts meet or exceed the significance thresholds defined for the resource area.
- **Duration**—*Short-term* impacts would occur for a limited amount of time, and *long-term* impacts would be persistent.
- **Directness**—*Direct* impacts are caused by the action and occur at the same place and time as the action. *Indirect* impacts are caused by the action and occur at a different place or later time.

Mitigation measures are those measures that reduce the severity of impacts anticipated to result from implementing the Proposed Action and alternatives. If a significant impact is able to be mitigated to a less-than-significant impact, the measures necessary to reduce the impact are clearly defined and must be implemented to support a FONSI determination, if such a determination is made by the decision maker. Best management practices (BMPs) are standard business practices to reduce adverse impacts. The development of a specific BMP may have been initiated to address workforce safety or protect the health of the humans and the environment, with some BMPs identified as requirements under a regulatory permit or Army regulation. As

implementation of many BMPs is routine within IMCOM, with those BMPs considered part of the Proposed Action and not a mitigation to reduce the impacts of the Proposed Action, BMPs are generally not classified as mitigations within this PEA. BMPs are discussed in resource areas' Environmental Consequences sections.

3.2 AIR QUALITY AND GREENHOUSE GASES

3.2.1 Definition of the Resource

Air quality describes the levels of air pollutants in an area. Air pollutants are chemicals or particles that are harmful to human health or the environment. Airborne dust, often called "fugitive dust," is also an air pollutant. GHGs are gases that trap heat in the atmosphere, contributing to the greenhouse effect and climate change. The primary GHGs are carbon dioxide, methane, nitrous oxide, and fluorinated gases (EPA 2019). Many GHGs occur naturally in the atmosphere, but human activities such as burning fossil fuels and clearing trees and other vegetation also contribute to GHGs. Tree removal reduces the environment's ability to naturally remove carbon dioxide from the atmosphere through photosynthesis. The ROI for air quality and climate change comprises the counties and Air Quality Control Regions in which IMCOM installations are located.

3.2.2 Regulatory Framework

EPA and state governments regulate air quality. The Clean Air Act (CAA) (42 U.S.C. §§ 7401–7671q) requires the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) (40 C.F.R. Part 50) that specify acceptable concentrations of air pollutants harmful to human health and the environment. EPA has established NAAQS for six criteria pollutants: particulate matter (measured as both particulate matter less than 10 microns in diameter [PM10] and particulate matter less than 2.5 microns in diameter [PM2.5]), sulfur dioxide, carbon monoxide, oxides of nitrogen, ozone, and lead. Most states accept the federal NAAQS, but some states have adopted stricter standards for some criteria pollutants and/or set standards for pollutants that do not have a federal standard.

Areas with levels of all criteria pollutants below the NAAQS are designated as "attainment areas," those with a concentration of one or more criteria pollutants in excess of the NAAQS are designated as "nonattainment areas," and those that were classified as nonattainment areas but have reduced the concentration of the pollutant(s) that had been in excess to below NAAQS are "maintenance areas." IMCOM installations are located in all three types of areas.

The CAA requires that federal agencies do not adopt, approve, or fund activities that are inconsistent with state air quality goals as set forth in an approved State Implementation Plan. The General Conformity Rule (40 C.F.R. Part 93) provides the framework for meeting that CAA requirement. An air conformity applicability analysis, and possibly a

formal air Conformity Determination, are required for federal actions in nonattainment and maintenance areas unless the projected emissions would be below thresholds considered to be *de minimis*, or of minimal importance.

Section 112 of the CAA lists other air pollutants referred to as “hazardous air pollutants” (HAPs) that are regulated by EPA through the National Emission Standards for Hazardous Air Pollutants.

Chapter 4 of AR 200-1, *Environmental Protection and Enhancement* (December 13, 2007) specifies the Army’s air resources program requirements. It requires installations to comply with those and all other applicable regulations and permit requirements related to air resources.

Climate change is expected to have potential effects such as more frequent and intense temperature extremes and extreme weather events (e.g., more frequent storms of increasing intensity), longer fire seasons and more frequent and severe wildfires, higher sea levels, reduced snowpack and lower stream flows, and longer and more severe droughts. Executive Order (EO) 13834, *Efficient Federal Operations*, directs the federal government to enhance the resiliency of its infrastructure and operations. While EO 13834 does not require a formal planning process for evaluating and managing climate change, federal agencies are nonetheless directly involved in addressing climate resilience and adapting to its implications across their services, programs, and assets (FedCenter 2019). For example, DoD identifies climate change as a national security concern and reduced its GHG emissions by approximately 12 percent between fiscal year (FY) 08 and FY 15 (DOE 2016).

3.2.3 Planning Considerations

UFC 2-100-01 includes the following planning strategies relevant to air quality and climate change:

- *Compact, infill, mixed-use, and transit-oriented development (Sections 2-2.1, 2-2.2, and 2-2.3)*, *connected transportation networks (Section 2-2.6)*, and *healthy community planning (Section 2-4)*, which encourage development that reduces the number of vehicle trips.
- *Sustainable landscape elements (Section 2-2.7),* which directs planners to incorporate vegetation into installation landscaping to (among other things) improve air quality and reduce energy consumption.
- *Building orientation and configuration (Section 2-2.10),* which directs planners to locate and design buildings to leverage natural ventilation to reduce energy consumption.

- *Energy conservation (Section 2-2.11),* which directs planners to make energy conservation—including producing more renewable energy and enhancing energy efficiency—part of the installation's planning goals.

AR 210-20, Appendix C directs installations to consider the following factors relevant to air quality and climate change when developing an RPMP:

- Reduce negative impacts on air quality, including reducing ozone-depleting chemicals in heating, ventilation, and air conditioning (HVAC) and refrigeration equipment
- Increase energy efficiency
- Increase production and use of renewable energy
- Reduce automobile use
- Conserve and restore natural areas

In accordance with the Army's Sustainable Design and Development Policy (DA 2017a), all new vertical construction projects and comprehensive building renovations meeting the thresholds in UFC 1-200-02, *High Performance and Sustainable Building Requirements*, (September 7, 2018), shall be certified at the LEED Silver level at a minimum.

3.2.4 Affected Environment

All IMCOM installations generate air emissions from everyday operations. Typical sources of air emissions include fuel dispensing, facility heating and cooling equipment, vehicle and aircraft operation and maintenance, generators, storage tanks, degreasing operations, surface-coating operations, welding, refrigeration, construction and demolition, and smoke generation from prescribed burns or military training activities. All IMCOM installations maintain an air program that reviews actual and potential sources of air contaminants and is required to be in compliance with all applicable federal, state, and local regulations related to air emissions and permitting.

Many IMCOM installations are considered major sources of air pollutants as defined by Title V of the CAA. Those installations are required to obtain and operate under an installation-wide Title V permit, which lists the permitted emission sources at the installation and specifies applicable limits on their operation and emissions. The installation is required to inventory its emissions from those sources and report them to the state regulatory agency annually to demonstrate compliance with the permit.

State air regulations may require permits for sources that emit smaller amounts of air pollutants than those defined as major sources. Multiple states also regulate other activities such as fugitive dust from construction activities or smoke from burning.

Some IMCOM installations fall under the GHG Reporting Program (40 C.F.R. Part 98), which requires that certain types of facilities that generally emit 25,000 metric tons of carbon dioxide equivalent (CO_2e) (a common measurement for GHG emissions) or more per year report their GHG emissions to EPA.

3.2.5 Environmental Consequences

3.2.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact if it would (1) result in a NAAQS attainment area becoming a nonattainment area, (2) produce emissions within a nonattainment or maintenance area that exceed the General Conformity Rule *de minimis* threshold values, or (3) generate nationally substantial GHG emissions by producing more than 75,000 tons of CO_2e from non-exempt sources per year.

3.2.5.2 Impacts of the Proposed Action

Implementing the Proposed Action would have short-term minor-to-moderate adverse impacts and long-term impacts ranging from minor beneficial to moderate adverse as described in this section.

3.2.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would not generate air emissions and thus would have no direct impacts on air quality or climate change. Careful consideration of air quality and climate change during the planning process, however, would aid in minimizing adverse impacts on the installation's future air emissions.

By incorporating the UFC 2-100-01 and AR 210-20 planning strategies presented in Section 3.2.3, the RPMP would plan for development that would reduce automobile use, in turn reducing emissions from automobile exhaust. It would plan for development that would increase energy efficiency and reduce consumption of conventionally sourced energy, lowering the emissions associated with producing that energy. UFC 2-100-01 also directs planners to conserve undeveloped land and natural areas and incorporate vegetation into landscaping plans. Through the photosynthesis process, vegetation removes carbon dioxide—the most abundant GHG—from the atmosphere, improving air quality. As a result of implementing these planning strategies, developing, adopting, or updating an RPMP component document would result in long-term minor beneficial impacts on air quality and climate change.

3.2.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would result in short-term minor-to-moderate adverse impacts and long-term impacts ranging from minor beneficial to moderate adverse.

Project Construction. All RPMP projects would produce emissions during construction activities (including renovation and demolition), with adverse impacts ranging from minor to moderate adverse. Construction, renovation, and demolition activities would produce emissions of criteria pollutants, HAPs, and GHGs from ground disturbance, use of on- and off-road construction equipment and vehicles, worker trips, paving, and surface coating (e.g., painting). Activities that would disturb asbestos or lead-based paint would comply with applicable regulations for controlling emissions from those activities.

Individual projects that would have short construction periods or few pieces of equipment operating simultaneously, or disturb smaller areas of ground would have short-term minor adverse impacts. Individual projects that would have long construction periods or many pieces of equipment operating simultaneously, or disturb larger areas of ground would have short-term moderate adverse impacts.

The General Conformity Rule is distinct and separate from NEPA and must be addressed for RPMP projects regardless of the level of NEPA analysis conducted (i.e., CX, EA, or EIS). Construction emissions for RPMP projects within nonattainment or maintenance areas require an applicability analysis to compare their total direct and indirect emissions to the *de minimis* thresholds outlined in the General Conformity Rule. If emissions would not exceed the *de minimis* thresholds, the rule would not apply and a record of non-applicability (RONA) would be prepared. If emissions would exceed the *de minimis* thresholds, a formal conformity determination would be prepared, the RPMP project would have the potential for significant adverse effects, and additional NEPA analysis might be required.

Industry-standard BMPs—which in some areas are required by applicable state or local law or are already standard practice at many IMCOM garrisons—would be implemented to reduce emissions from construction vehicles and equipment and limit fugitive dust. The following construction BMPs would be implemented, as applicable:

- During ground-disturbing activities, apply water or soil stabilizers to or cover exposed soil to suppress dust. Limit or halt soil-disturbing activities during high-wind conditions when work is in soil classified as highly erodible.
- Limit driving on unpaved surfaces to necessary vehicles only and drive slowly on unpaved surfaces.
- Cover soil stockpiles and trucks transporting soil or other materials that could cause airborne dust.
- Use electricity from established power sources rather than generators whenever possible.
- Service equipment in accordance with the manufacturer’s recommendations and repair equipment promptly to prevent excess emissions.

- Minimize vehicle and equipment idling times.
- Clean excess soil from heavy equipment and trucks leaving the work zone to prevent off-site transport.

Project Operation and Maintenance. Once construction is complete, some RPMP projects would have no or negligible impacts on air quality and climate change. For example, projects such as sidewalks, trails, stormwater drainage features, outdoor courtyards and memorials, and parks would not produce ongoing emissions, so there would be no long-term impact.

Some RPMP projects would reduce air emissions compared to the baseline, resulting in a long-term minor beneficial impact. For example, demolishing a facility and removing its HVAC system, back-up generator, or other emissions-producing equipment would reduce air emissions. Renovating a facility and replacing its equipment with lower emission equipment would also reduce air emissions. Projects that would provide mass transit or walking and bicycling facilities would reduce automobile use, thereby reducing air emissions.

Implementing energy and climate resilience measures—both as standalone projects or as components of other projects—would reduce the installation's contribution to climate change by minimizing GHG emissions and prepare it to withstand the effects of climate change through resilient siting and design of buildings and infrastructure, resulting in long-term minor beneficial impacts. Section 2.2.3.2 provides examples of energy and climate resilience measures.

Some RPMP projects—specifically most new buildings and some utility infrastructure projects—would increase emissions; for example, by introducing new emissions sources to the installation such as HVAC systems, back-up generators, transformers, and refrigeration units or increasing vehicle emissions. Any new stationary sources of air emissions would be reviewed by the installation's air program staff to determine if they would be subject to air permitting regulations, and any required permits would be obtained or modified accordingly prior to installation and operation. In accordance with AR 210-20, planners would consider low-emission options for all emissions-producing equipment. Vehicle emissions are unlikely to increase substantially due to implementing UFC 2-100-01 development strategies to reduce the number and length of vehicle trips. Therefore, long-term impacts would not exceed moderate adverse.

Under the General Conformity Rule, a proposed RPMP project in a nonattainment or maintenance area that would introduce new emission sources would require an applicability analysis to ensure that its total direct and indirect emissions would not exceed the *de minimis* thresholds. If emissions would not exceed the *de minimis* thresholds, the rule would not apply and a RONA would be prepared. If emissions would exceed the *de minimis* thresholds, a formal conformity determination would be

prepared, the RPMP project would have the potential for significant adverse effects, and additional NEPA analysis might be required.

As described above, some RPMP projects would increase emissions somewhat while others would decrease them. As the RPMP is implemented over time, the installation's portfolio of pollutant-generating equipment and operations would change. Whether future overall level of emissions would be higher or lower than baseline emissions would vary from installation to installation depending on the exact mix of projects implemented; however, guided by DoD's policies to increase energy efficiency, energy conservation, and energy and climate resilience and reduce automobile use, many garrisons' future overall emissions would likely be less than current baseline levels, resulting in a long-term minor beneficial impact.

3.2.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. Under the Proposed Action, IMCOM installations would implement the following BMPs, as applicable, many of which are already standard practice at IMCOM installations, to manage air emissions:

- Consider low-emission options for all emissions-producing equipment (e.g., HVAC systems, generators, transformers, and refrigeration units).
- To suppress dust during ground-disturbing activities, cover or apply water or soil stabilizers to soil. Limit or halt soil-disturbing activities during high-wind conditions.
- Limit driving on unpaved surfaces to necessary vehicles only and drive slowly on unpaved surfaces.
- Cover soil stockpiles and trucks transporting soil or other materials that could cause airborne dust.
- Use electricity from established power sources rather than generators whenever possible.
- Service equipment in accordance with the manufacturer's recommendations and repair equipment promptly to prevent excess emissions.
- Minimize vehicle and equipment idling times.
- Clean excess soil from heavy equipment and trucks leaving the work zone to prevent off-site transport.

3.2.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Individual garrisons' processes, although not standardized, would be conducted in accordance with UFC 2-100-01 and AR 210-20,

and installation RPMPs would be in compliance with NEPA. Furthermore, each garrison's RPMP would identify and implement projects in compliance with all applicable laws and regulations, including the CAA and NEPA. Therefore, the impacts on air quality and climate change from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short-term minor-to-moderate adverse impacts and long-term impacts ranging from minor beneficial to moderate adverse.

3.3 BIOLOGICAL RESOURCES

3.3.1 Definition of the Resource

Biological resources include plants, animals (including insects), and microorganisms and the habitats in which they reside. They include both common and rare species and habitats and vary widely depending on location. Certain plants, animals, and habitats are less common or more sensitive to disturbance than others. Species can be present at a location year-round or only during certain times such as during migration or breeding periods.

Military installations restrict human access due to safety and security concerns and many of them have large areas of undeveloped land. Because they are relatively undisturbed, many IMCOM garrisons and other military installations have become important locations for plants and animals and their habitats and host endangered, threatened, or otherwise unique or sensitive species and their habitats (DoD 2017b; NatureServe 2011). IMCOM garrisons are the ROI for biological resources.

3.3.2 Regulatory Framework

Federal regulations applicable to biological resources include, but are not limited to, the Endangered Species Act (ESA) (16 U.S.C. § 1531 *et seq.*), Marine Mammal Protection Act (MMPA) (16 U.S.C. § 1361 *et seq.*), Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 703 *et seq.*), Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. § 668 *et seq.*), Magnuson–Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 *et seq*.), Coastal Zone Management Act (CZMA) (16 U.S.C. § 1451 *et seq*.), and Sikes Act (16 U.S.C. § 670 *et seq.*). The ESA, MMPA, MBTA, and BGEPA make it illegal to kill or harm (i.e., "take") species that they protect except under the terms of a permit issued by the applicable federal agency. The ESA protects about 1,400 species of plants and animals. The MMPA protects all marine mammal species, including cetaceans (whales, dolphins, and porpoises), all sirenians (manatees and dugongs), and several marine carnivores (seals, otters, walrus, and polar bears). The MBTA protects more than 1,000 species of migratory birds, and the BGEPA protects two species of birds (bald and golden eagles).

In accordance with Section 7 of the ESA, IMCOM garrisons are required to determine if protected species might be present in the area of a proposed action and might be

affected by that action. IMCOM garrisons comply with Section 7 of the ESA through coordinating or consulting with the U.S. Fish and Wildlife Service (USFWS) during project planning. For potential impacts on marine and anadromous species protected by the ESA and/or MMPA, IMCOM coordinates or consults with the National Oceanic and Atmospheric Administration (NOAA) Fisheries (previously known as the National Marine Fisheries Service).

The Sikes Act and DoD Instruction (DoDI) 4715.03, *Natural Resources Conservation Program* (August 31, 2018) require all DoD installations with substantial natural resources to prepare and implement an INRMP that describes the installation's biological resources and how they will be managed to comply with applicable regulations. To support preparation and update of the INRMP, each IMCOM garrison conducts appropriate surveys to document biological resources on their installation.

AR 200-1 is the primary Army regulation related to biological resources. It provides guidance on ensuring the sustainability, conservation, and protection of biological resources on Army installations to enable compliance with applicable federal regulations.

3.3.3 Planning Considerations

UFC 2-100-01 includes the following planning strategies that support the conservation and preservation of biological resources:

- *Conservation of natural resources (Section 2-3)*, which directs planners to consider natural resources in the planning process, including protection of federally listed threatened and endangered species and their habitats and sensitive resources such as wetlands, forests, and undisturbed land.
- *Land preservation (Section 2-3.1)*, which directs planners to preserve undeveloped and minimally developed land to the maximum extent possible.
- *Growth boundary (Section 2-6.2)*, which directs planners to define a growth boundary around the cantonment area and focus development within it, preserving areas outside it for ecological functions, training, and other appropriate uses.
- *Sustainable landscape elements (Section 2-2.7)*, which directs planners to incorporate planted areas into project designs and select species appropriate to that ecoregion.
- *Low-impact development and stormwater management (Section 2-2.8)*, which directs planners to minimize runoff that can adversely affect aquatic habitats.
- *Compact, infill, and multistory development (Sections 2-2.1, 2-2.2, and 2-2.9)*, which directs planners to develop land efficiently for human convenience and land preservation purposes.

UFC 2-100-01 and AR 210-20 require that data on biological resources be collected and used to inform the master planning process. Both documents direct planners to coordinate with installation natural resource managers early in the planning process to identify biological resource constraints (e.g., critical habitat, threatened or endangered species habitat, and wetlands) and avoid proposing projects that would be detrimental to those resources.

IMCOM installations might also have one or more planning documents related to biological resources, including INRMPs, Endangered Species Management Plans (ESMPs), Wildlife Aircraft Strike Hazard (WASH) plans, Invasive Species Management Plans (ISMPs), Integrated Wildland Fire Management Plans, and Integrated Pest Management Plans (IPMPs). These plans should inform and be informed by the RPMP.

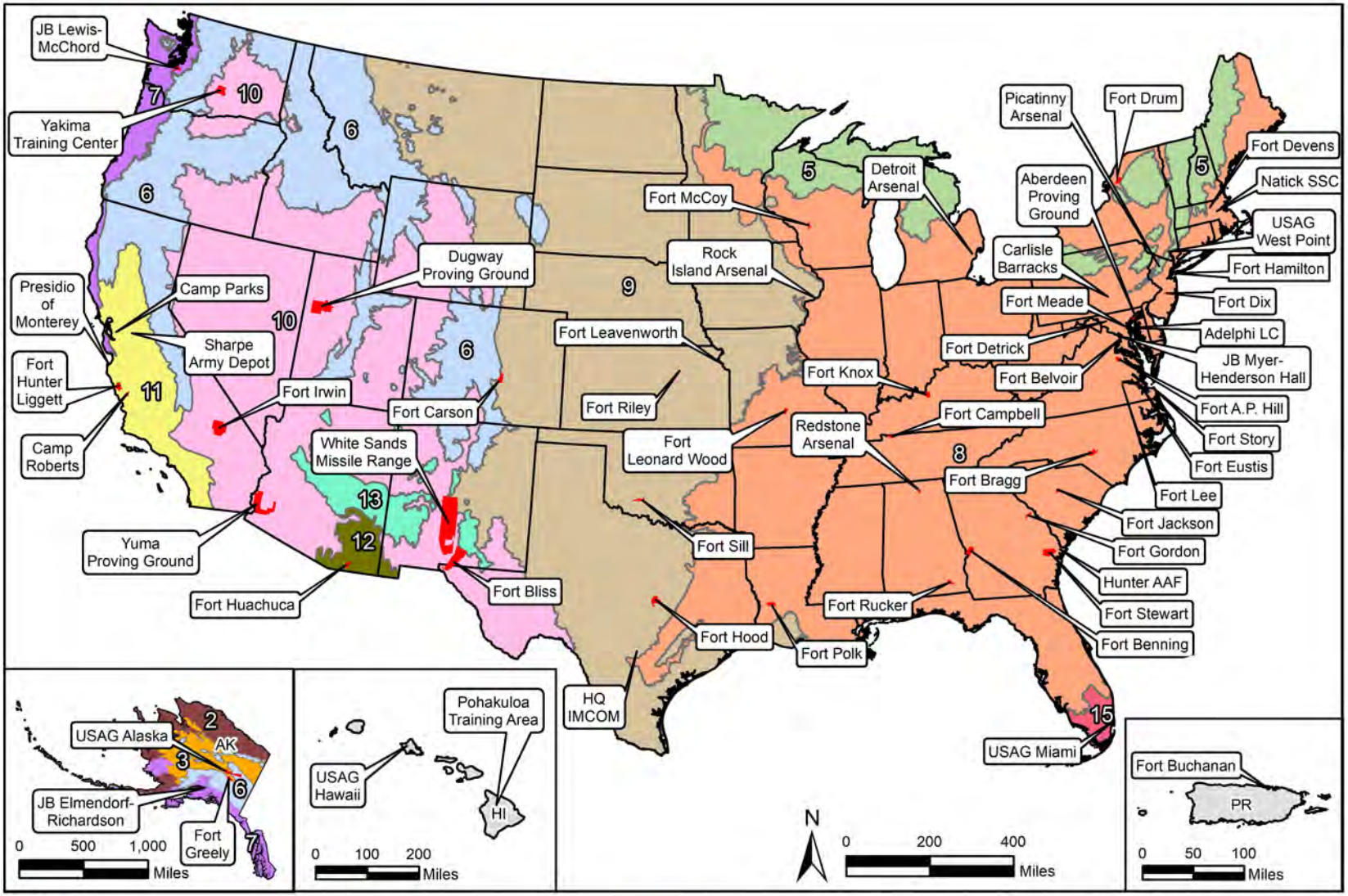
3.3.4 Affected Environment

Biological resources vary by location, as shown in Figure 3, which depicts ecoregions in the United States. Each ecoregion is an area in which ecosystems are generally similar. As shown in Figure 3, IMCOM installations are located in a variety of ecoregions ranging from deserts to temperate forests. In addition, localized variations in biological resources occur within a single IMCOM installation. For example, a single installation might have forests, aquatic habitats, and grasslands, with different species of plants and animals inhabiting each area.

Although the native vegetation and wildlife can vary greatly across and within IMCOM garrisons, the developed cantonment areas of all the installations are similar in that each one has been converted to a landscape of managed vegetation, characterized by lawns and ornamental trees and shrubs, some of which are not native to the location.

The cantonment areas provide limited habitat value for wildlife, attracting mostly common species that tolerate human activity.

ESA-listed species are found on some IMCOM installations, and a few installations contain ESA-designated critical habitat. Marine mammals such as whales and seals, which are protected by the MMPA, occur in the waters off some IMCOM installations with coastal areas. IMCOM is required to consult with the USFWS or NOAA Fisheries if a proposed action at any of its installations could adversely affect species or habitats protected by the ESA or MMPA. Per DoDI 4715.03, procedures for complying with federally listed threatened and endangered species management and recovery efforts on garrisons with ESA-listed species are included in a garrison's INRMP and emphasize military mission requirements and interagency cooperation during consultation, species recovery planning, and management activities.



LEGEND

- 2 - Tundra
- 3 - Taiga
- 5 - Northern Forests
- 6 - Northwestern Forested Mountains
- 7 - Marine West Coast Forest
- 8 - Eastern Temperate Forests
- 9 - Great Plains
- 10 - North American Deserts
- 11 - Mediterranean California
- 12 - Southern Semi-Arid Highlands
- 13 - Temperate Sierras
- 15 - Tropical Wet Forests

Level I Ecoregions of the United States

Figure 3

Source: USEPA 2019. Note: Hawaii and Puerto Rico are not included in Level 1 Ecoregion classifications.

Migratory birds, which are protected by the MBTA, are found at all IMCOM installations and bald and golden eagles, which also are protected by the MBTA as well as the BGEPA, are found at some. The MBTA also protects nests occupied by eggs or young birds and the BGEPA protects both active and inactive nests from disturbance. Under the BGEPA, nest avoidance zones must be sized as indicated in the *National Bald Eagle Management Guidelines* (USFWS 2007) or through consultation with the USFWS. In a 2014 Memorandum of Understanding (MOU) between the DoD and USFWS, the agencies agreed to promote the conservation of migratory bird populations while sustaining the use of military lands and airspace (DoD and USFWS 2014). In the MOU, DoD agreed to review best practices outlined in USFWS guidance and to consult with USFWS, as needed, when conducting development on military lands.

Birds nest in trees, shrubs, and on the ground. To avoid adversely impacting nesting birds protected by the MBTA, most garrisons make it standard practice to avoid removing vegetation during the bird breeding season and, if vegetation must be removed during that time, to have a qualified biologist conduct a survey no more than a few days prior to vegetation removal to determine if any active nests (i.e., nests with eggs or young) are in the affected area. If a nest is found, an appropriate buffer would be established and the nest would not be disturbed until the young have fledged or the nest is no longer in use.

Most IMCOM garrisons host species that are not protected by federal law but that research indicates warrant active conservation. These include candidates for listing on the ESA, species protected by state laws, and Birds of Conservation Concern identified by the USFWS pursuant to the Fish and Wildlife Conservation Act (16 U.S.C. §§ 2901-2911). IMCOM installations take steps to conserve these species to the maximum extent possible without compromising the military mission through procedures established in an installation's INRMP in accordance with DoDI 4715.03.

Noxious, invasive, and nuisance plants and animals also occur at IMCOM garrisons. These species can harm the environment by degrading habitat and outcompeting native species and can harm human health by causing injury or disease. They are managed in accordance with EO 13112, *Invasive Species*, which includes federal agency responsibilities for preventing the introduction of invasive species and controlling populations of the species in a cost-effective and environmentally sound manner. As applicable, IMCOM installations prepare ISMPs and/or IPMPs to document species of concern and the methods that will be used to address them.

3.3.5 Environmental Consequences

3.3.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on biological resources if it would result in (1) an unpermitted take of a federally protected species (e.g., under the ESA, MBTA, MMPA, or BGEPA); (2) detrimental alteration of USFWS-

designated critical habitat; (3) local extirpation of a sensitive nonfederally listed species; (4) substantial detrimental effect on the amount or diversity of common native wildlife or plant communities; or (5) high probability of increasing the spread of nonnative or invasive species.

3.3.5.2 Impacts of the Proposed Action

The Proposed Action would have short-term impacts ranging from minor to moderate adverse and long-term impacts ranging from minor beneficial to minor adverse on biological resources as described in this section.

3.3.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no direct impact on biological resources. Careful consideration of biological resources during the planning process, however, would aid in minimizing adverse impacts on them in the future. Viewed in this light, the impacts of developing, adopting, or updating an RPMP component document would range from minor beneficial to minor adverse.

Driven by compliance with UFC 2-100-01, AR 210-20, and DoDI 4715.03, IMCOM garrisons would fully consider measures to protect biological resources during the master planning process, and implement appropriate measures to the extent practicable in relation to the military mission. Master planners would be required to gather and analyze data about protected species, their habitats, and other important biological resources and locate projects to avoid them to the maximum extent practicable. To identify biological resource-related constraints, planners would refer to the garrison's Geographical Information System (GIS) data, INRMP (prepared in compliance with DoDI 4715.03), ESMP, floodplain maps, other biological survey data, and any previously agreed-upon mitigation actions for guidance on protecting biological resources (e.g., actions agreed upon through consultation or coordination with USFWS or NOAA Fisheries and/or included in a Biological Opinion).

Developing or updating an RPMP component document might trigger the need for a new or updated study of biological resources to more accurately understand the presence or absence of a protected species, the extent and condition of specific types of habitat (e.g., critical habitat, wetlands, floodplains), or the health of a population. Studies that might need to be conducted or updated include a threatened and endangered species survey or a wetland delineation.

By following the UFC's guidance on low-impact development, RPMPs would plan to minimize stormwater runoff, which would reduce soil erosion and protect water quality in surface waters, minimizing impacts on aquatic biota and habitat. Sustainable landscape elements would result in landscaped areas, even in areas with high human presence,

that are more similar to local native habitats than traditional ornamental landscaping, resulting in a long-term minor beneficial impact on vegetation and wildlife habitat.

Developing, adopting, and updating an RPMP component document would have long-term minor beneficial impacts on biological resources. These impacts would result from implementing UFC 2-100-01 Section 2-3.1, *Land Preservation*, which directs planners to preserve undeveloped and minimally developed land in order to have land to meet future mission requirements critical to training, sustaining, and deploying our forces. Land preservation would support IMCOM military missions by providing for training and security, serving as a visual and noise buffer with surrounding areas, and conserving biological resources. Establishing growth boundaries and planning for compact, infill, and multistory development would minimize the footprint of the built environment and concentrate development in the installation core, which is already impacted by development and human presence to the extent that it provides low-value habitat for plants and animals. Identifying facilities for demolition and planning for redevelopment on previously disturbed land would minimize impacts to undisturbed land whose functioning ecological processes are unaltered by human activity.

3.3.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would result in short-term impacts ranging from minor to moderate adverse impacts and long-term impacts ranging from minor adverse to minor beneficial impacts on biological resources.

Project Construction. Short- and long-term impacts from construction activities (including renovation and demolition) would range from no impact to moderate adverse.

Construction activities would involve ground disturbance, sometimes disturbance of aquatic habitats such as wetlands, and vegetation removal unless the construction is on a developed or previously-developed site where vegetation is predominantly absent. In vegetated areas in which construction occurs, it would reduce the amount of vegetation and available habitat for wildlife. Construction would be expected to be focused toward the garrison's core, much of which has already been transformed to an ornamental landscape with frequent human activity that consequently provides low-value habitat for most species. Common species of plants and animals would be displaced; however, areas around facilities would be revegetated following construction, so the impact would be short term and would not have a substantial detrimental effect on the amount or diversity of common plant and animal species. Depending on the mix of projects to be implemented, construction in one location could be offset by demolition and habitat restoration in other parts of the garrison. New construction may also take place on the site of a recent demolition activity, thereby avoiding impacts to vegetation and natural habitat. Therefore, the overall short- and long-term impacts of construction would range from minor to moderate adverse.

IMCOM installations that have protected species have specific procedures in their INRMP and ESMP to avoid unpermitted takes of these species or detrimental alteration of their designated critical habitat. For example, most garrisons make it standard practice to conduct a preconstruction survey to determine if protected species or their nests, roosts, or dens are in the area prior to conducting vegetation removal, ground disturbance, or renovation or demolition activities. Implementing those practices would minimize the potential for an unpermitted take of a protected species or local extirpation of a sensitive nonfederally listed species. Therefore, short- and long-term impacts on these species would range from no impact to moderate adverse.

If the project has the potential to adversely impact protected species, formal or informal project-specific consultation with the USFWS or NOAA Fisheries would be initiated and any required take permit would be obtained prior to construction. Any additional conservation measures identified through consultation or included as conditions of the permit would be implemented to minimize impacts on protected species or their critical habitat. By implementing the measures agreed upon through the consultation, short- and long-term adverse impacts would not exceed moderate.

Ground-disturbing activities associated with construction would also increase the potential for establishment of noxious, invasive, or pest plants (e.g., weeds). Construction vehicles and equipment might bring in or spread noxious, invasive, or pest plants. Also, those types of species are often the first to establish themselves in disturbed areas. Most garrisons have standard practices to wash construction vehicles when they enter or exit bare soil areas and to revegetate areas with species from the garrison's approved plant list promptly after construction is complete. These BMPs would minimize the potential for the spread of noxious, invasive, or pest plants, so short- and long-term adverse impacts would be minor.

Some garrisons have policies that prevent designated trees from being removed and/or require that new trees be planted to replace any trees that are removed. Contracts would require construction contractors to obtain garrison approval prior to removing any trees, so no trees that the garrison wishes to preserve would be removed without approval. Contracts would also require construction contractors to plant replacement trees using species from the garrison's approved plant list when necessary, so the long-term adverse impact of tree removal would be minor.

Aquatic habitats in surface waters (e.g., ponds, streams, and wetlands) are vulnerable to sedimentation, which could be exacerbated by ground-disturbing activities near watercourses if adequate protections are not implemented. Construction contractors would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for construction projects near surface waters that would disturb one acre or more. The SWPPP would contain appropriate BMPs to protect surface waters. For projects near surface waters that would disturb less than one acre, most garrisons still require that construction contractors implement BMPs similar to those found in an

SWPPP, which could include silt fences and revegetation (see earth resources [Section 3.5] and water resources [Section 3.13]). The BMPs would minimize the potential to adversely impact aquatic habitats, including wetlands, so short- and long-term adverse impacts would be minor.

Project Operation and Maintenance. Long-term impacts would result from habitat modification in areas in which new or additional development would occur and facility maintenance activities would be periodically conducted, with impacts ranging from minor adverse to minor beneficial.

Project operations and maintenance would be conducted in compliance with the ESA, MBTA, and other laws protecting biological resources. For example, personnel responsible for project operations would avoid take of migratory birds, protected bat species, or other protected species by scheduling maintenance activities such as painting or making minor repairs to avoid migratory birds or protected bat species nesting or roosting on or in facilities. Operations and maintenance activities in and around airfields and helipads are also guided by installation WASH plans, plans that adhere to compliance requirements while ensuring aviation safety. Therefore, operations and maintenance would not result in the unpermitted take of a protected species.

Activities such as mowing or other vegetation maintenance can displace or kill small wildlife species. Garrisons with property requiring those activities implement seasonal mowing or vegetation maintenance restrictions to reduce potential impacts on protected species such as ground-nesting migratory birds. Installations with those restrictions would continue their practices when conducting grounds maintenance activities; therefore, impacts would be minor.

Activities involving pest control—such as spraying weeds—could impact biological resources. All pest control would be conducted in accordance with the installation's IPMP and ISMP, as applicable. By following those plans, applicable regulations, and manufacturers' instructions for applying pesticides, adverse effects on nontarget species would be minimal, so adverse impacts would be minor.

Long-term minor beneficial impacts would result from incorporating UFC 2-100-01 guidance on sustainable landscaping into projects. Sustainable landscaping elements would offset vegetation removed during construction or even increase the amount and/or diversity of native vegetation at a project site. For example, an area that was a lawn with a mix of native and nonnative grasses prior to construction, but after construction, contained real property improvements that included a variety of native grasses, shrubs, and trees arranged to resemble local native conditions would represent improved habitat conditions compared to the baseline, resulting in a minor beneficial impact.

The primary purpose of some RPMP projects would be to have a long-term minor beneficial impact on biological resources. For example, a project to restore a stream would enhance the aquatic and riparian habitat along the stream. Projects to designate or expand open space and parks, and projects to improve wildlife habitat would conserve or enhance biological resources in those areas.

RPMP operation and maintenance activities would have no impact on biological resources on undisturbed land, which includes designated buffer areas created to meet safety requirements or to minimize military noise impacts to neighboring communities. In areas not slated for near-term redevelopment, in which existing facilities or activities would be removed or relocated, native vegetation would be restored, resulting in a minor beneficial impact.

IMCOM garrisons would be responsible for ensuring project operations comply with all applicable laws, ordinances, and regulations, including the ESA, MBTA, BGEPA, and, when applicable, the related state requirement. They also would be responsible for ensuring compliance with any previously agreed-upon conservation measures intended to protect biological resources (e.g., those included in a Biological Opinion) as well as with applicable garrison plans, including the INRMP, ESMP, ISMP, and IPMP.

Real property operations and maintenance projects would implement BMPs for other resources areas such as earth resources (Section 3.5), noise (Section 3.9), and water resources (Section 3.13). Those BMPs would also benefit biological resources by protecting aquatic habitats, preventing sediments and other contaminants from being released into water or soil, and limiting outdoor noise levels so long-term adverse impacts on biological resources would be minor.

3.3.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. Under the Proposed Action, IMCOM garrisons would manage impacts on biological resources by implementing the following BMPs, most of which are already standard practice at IMCOM garrisons, as applicable:

- Avoid vegetation removal (e.g., tree removal, tree trimming, brush removal, or disturbance of vegetated ground) during the migratory bird breeding season and protected bat roosting season (typically spring to late summer). Specific dates would depend upon the species present locally and would be specified in the garrison's INRMP. If vegetation must be removed during that time, have a qualified biologist conduct a preconstruction survey to identify nests, maternity roosts, burrows, and other wildlife shelters of concern and determine the most appropriate action to take to comply with species protection requirements (e.g., establishing buffers around nests or rescheduling construction activities). The preconstruction survey would be conducted close enough to the start of

construction activities that no substantial changes in the interim period would be likely.

- Inspect and/or wash vehicle tires prior to vehicles entering and exiting construction areas with disturbed ground to reduce the potential spread of invasive species.
- Promptly revegetate disturbed areas with native plant species from the garrison's approved plant list.
- Comply with any installation tree removal and replacement policies.
- For construction projects, implement an approved SWPPP and/or appropriate erosion and sedimentation control BMPs such as silt fences, straw bale dikes, diversion ditches, limiting total area of disturbance, and sedimentation ponds.

3.3.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect biological resources would continue to be evaluated through project- and site-specific NEPA analysis and would comply with UFC 2-100-01; AR 210-20, AR 200-1, the ESA, MBTA, MMPA, BGEPA, and other applicable laws, EOs, and regulations; consultation outcome requirements (e.g., Biological Opinions); permitting requirements; and BMPs of any garrison-specific plans such as an INRMP, ESMP, ISMP, or IPMP. Garrisons' existing master planning processes would plan for real property development to avoid an unpermitted take of a federally protected species or detrimental alteration of its designated critical habitat, avoid local extirpation of a sensitive nonfederally listed species, avoid a substantial detrimental effect on the amount or diversity of common wildlife or plant communities, and prevent increasing the spread of nonnative or invasive species. Biological resources would continue to be managed in compliance with garrison-specific management plans and applicable federal, state, and local laws and regulations. Therefore, the impacts on biological resources from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short-term impacts ranging from minor to moderate adverse and long-term impacts ranging from minor beneficial to minor adverse.

3.4 CULTURAL RESOURCES

3.4.1 Definition of the Resource

Cultural resources are physical manifestations of human culture and history such as archaeological sites, historic properties and districts, traditional cultural properties (TCPs), and sacred sites. They include physical structures and objects, locations of important historic events, and aspects of the natural environment such as natural features of the land or biota that are part of traditional ways of life. The ROI for cultural

resources is IMCOM installations and off-post properties to the extent that on-post undertakings have the potential to effect the integrity of off-post cultural resources.

3.4.2 Regulatory Framework

Cultural resources include historic properties as defined by the National Historic Preservation Act (NHPA) (54 U.S.C. § 300101 *et seq.*); cultural items as defined by the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. § 3001 *et seq.*); archaeological resources as defined by the Archaeological Resources Protection Act (ARPA) (16 U.S.C. §§ 470aa–mm); sacred sites as defined in EO 13007, *Indian Sacred Sites*, to which access is provided under the American Indian Religious Freedom Act (AIRFA) (42 U.S.C. § 1996); and collections as defined in 36 C.F.R. Part 79, *Curation of Federally Owned and Administrated Archaeological Collections*. Cemeteries are included in this analysis, although they are not necessarily cultural resources as defined in the NHPA.

DoD is required to take into account the potential effects of its actions on historic properties eligible for or listed on the National Register of Historic Places (NRHP) and areas that are considered sacred sites by Tribes. Historic properties include buildings, structures, archaeological and historic sites, districts, and objects. Generally, resources evaluated for eligibility are 50 years old or more, although there are exceptions, particularly for resources associated with the Cold War era. Resources of undetermined eligibility are treated as historic properties until a determination is made.

In accordance with Section 106 of the NHPA, codified in 36 C.F.R. Part 800, federal agencies must take into account the potential effects of their proposed actions on historic properties. The NHPA does not mandate preservation of historic properties, but it does ensure that federal agencies' decisions concerning the treatment of those properties result from meaningful consideration of cultural and historical values, and identification of options available to protect the properties. As part of the Section 106 process, agencies are required to consult with the State Historic Preservation Officer (SHPO), Tribes, and other relevant consulting parties (e.g., state and local historic preservation commissions or local historical societies).

Programmatic Agreements (PAs) and Program Comments allow IMCOM installations to proceed with actions addressed in them without further action to comply with Section 106 of the NHPA. Examples of these include the following:

- World War II Temporary Buildings Demolition Programmatic Agreement
- Program Comment for Cold War Era (1946–1974) Unaccompanied Personnel Housing
- Program Comments for World War II and Cold War (1939–1974) Ammunition Storage Facilities, Production Facilities, and Plants

As a federal agency, DoD has a trust responsibility to Tribes to protect tribal cultural resources and to consult with Tribes on a government-to-government basis regarding those resources. The regulations mandate that federal agencies consult with any Native American Tribe or Native Hawaiian or Alaskan organization that attaches religious and cultural significance to historic properties that may be affected by an undertaking (36 C.F.R. § 800.2(ii)). DoD Instruction 4710.02, *Department of Defense Interactions with Federally Recognized Tribes*, outlines tribal consultation protocols and actions to respect the significance that Tribes ascribe to resources of traditional cultural or religious importance.

3.4.3 Planning Considerations

UFC 2-100-01 includes the following planning strategies relevant to cultural resources:

- *Infill development* and *multistory construction (Sections 2-2.2 and 2-2.9)* direct planners to consider impacts on historic properties and districts when planning infill and multistory construction.
- *Natural, historic, and cultural resource management (Section 2-3)* directs planners to coordinate with the installation Cultural Resources Manager early in the planning process, identify the location of known cultural resources (e.g., historic districts, historic properties, and archaeological sites), and take into account the potential impacts of the Proposed Action on historic properties eligible for or listed on the NRHP and on sacred sites. When historic properties or districts have the potential to be affected, planning will comply with the NHPA and avoid, minimize, reduce, or mitigate any adverse effects on historic properties or districts in consultation with the SHPO, Tribes, and other relevant consulting parties.

UFC 2-100-01 and AR 210-20 require that historic properties and districts be preserved to the maximum extent possible and that, when these resources have the potential to be affected, planning must comply with Section 106 of the NHPA and avoid, minimize, reduce, or mitigate any adverse effects on historic properties or districts in consultation with the SHPO, Tribes, and other relevant consulting parties.

The Army is authorized to use the Army Alternate Procedures, a streamlined process Army installations can elect to follow to satisfy NHPA consultation requirements. The Army Alternate Procedures approaches the installation's management of historic properties programmatically, instead of on a project-by-project review basis. It allows installations whose Historic Properties Component plans have been certified by the Advisory Council on Historic Preservation (ACHP) to operate under standard operating procedures (SOPs) that were developed in consultation with their stakeholders. A few Army installations have received their ACHP certifications and use the Army Alternate Procedures.

Cultural resources on IMCOM installations are managed through an ICRMP that includes SOPs to enable the installation to meet its legal responsibilities pertaining to cultural resources. The RPMP should inform and be informed by the ICRMP.

3.4.4 Affected Environment

Cultural resources vary from installation to installation depending on the cultural history of the installation. As of the end of FY 2017, Army installations (a broader category that includes IMCOM installations) collectively had the following known cultural resources:

- 88,371 archaeological sites with 50 percent of lands surveyed
- 58,120 buildings subject to the NHPA, approximately 12,000 of which are officially designated as historic properties
- 21 national historic landmarks
- 120 sacred sites and 18 TCPs (DA 2017b)

Areas of installations that remain relatively undisturbed might contain archaeological sites and resources (e.g., natural features or biota) that have traditional cultural or sacred significance that have not yet been identified. Intact and previously unidentified archaeological deposits might also be found in areas of the built environment, depending on the types and location of ground disturbance that have occurred.

TCPs are eligible for inclusion in the NRHP if they are rooted in a living community's history and are important to maintaining the continuing cultural identity of that community (NPS 1998). In such cases, they are considered historic properties and are subject to Section 106 consultation. In addition, culturally sensitive sites that pertain to Tribes' distinct values, beliefs, and ways of living, even if they do not meet the criteria for historic properties, might be protected by other cultural resources laws and EOs, such as AIRFA and EO 13007. These properties can be assessed only through consultation with Tribes and/or Native Hawaiian or Alaskan organizations.

3.4.5 Environmental Consequences

3.4.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on cultural resources if it would (1) result in adverse effects, as defined by the NHPA, on a historic property listed or eligible for listing on the NRHP that are not resolved through a Memorandum of Agreement (MOA) with the SHPO, and possibly with the ACHP or (2) create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes, without discussions on a government-to-government level with the affected Tribe(s).

3.4.5.2 Impacts of the Proposed Action

The Proposed Action would have short-term minor adverse impacts and long-term impacts ranging from none to moderate adverse as described in this section.

3.4.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no direct impact on cultural resources. When developed in accordance with UFC 2-100-01 and AR 210-20, RPMPs would carefully consider development constraints related to cultural resources. As required by UFC 2-100-01, master planners would coordinate with the garrison Cultural Resources Manager early in the planning process to ensure that proposed development would be sited appropriately given those constraints.

Master planners would refer to the garrison's ICRMP and related GIS data to gather data about cultural resources and develop the RPMP to avoid them to the maximum extent possible. The RPMP would also reflect any previously agreed-upon mitigation actions for cultural resources (e.g., actions agreed upon through consultation or coordination with the SHPO, ACHP, and Tribes).

Developing or updating an RPMP component document might trigger the need for a new or updated study of cultural resources to determine if archaeological sites are present in an area, a building or other object is a historic property, an area is a historic district, or a resource has cultural significance to a Tribe. If such a study is needed, it would be conducted in a timely manner to inform the development or updating of an RPMP.

When historic properties or districts have the potential to be affected, planning would comply with the NHPA and avoid, minimize, reduce, or mitigate any adverse impacts on historic properties or districts in consultation with the SHPO, Tribes, or other relevant consulting parties. By following the UFC's guidance on infill and multistory construction, the RPMP would avoid or mitigate potential impacts of those types of development on historic properties and districts. Through appropriate coordination of Installation Planning Standards' developments and updates, master planning activities could address applicable elements of historic properties and districts. Although some RPMPs would propose changes with the potential to affect a historic property or district, because those impacts would be avoided or appropriately mitigated through compliance with NHPA and consultation with the SHPO, Tribes, or other relevant consulting parties, the long-term adverse impacts of developing, adopting, and updating RPMP component documents would not exceed moderate.

3.4.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would have short-term minor adverse impacts and long-term impacts ranging from none to moderate adverse.

Project Construction. The potential for project construction activities (i.e., construction, demolition, and renovation) to affect cultural resources would depend primarily on their proposed location in relation to those resources. Construction activities on sites containing cultural resources would primarily impact those resources by physically altering the building characteristics or damaging archaeological sites through ground disturbance. Similarly, construction activities near cultural resources would primarily impact the setting of those resources. Construction could also impact cultural resources by preventing access to them (e.g., by preventing Tribes from accessing ceremonial sites).

Avoidance of impacts—both to the resource itself and its setting—is the preferred action for construction activities. Avoidance would be accomplished through site selection and design and engineering. Physically impacting cultural resources would be avoided to the maximum extent possible by siting projects as a whole and ground disturbance associated with project construction to avoid cultural resources. For example, a project that would develop a site on which an archaeological site is present could prevent impacts by avoiding that area and an appropriate buffer around it. Impacting the setting of a cultural resource would be avoided to the maximum extent possible by designing projects so they would not impact the integrity of the cultural resource. For example, a new or renovated building in a historic district would be designed so the cultural integrity of the historic district would be maintained. Where avoidance is not feasible or reasonable, impacts would be reduced through measures that can be related to project siting, size, and design.

Construction could also impact cultural resources by preventing access to them (e.g., by preventing Tribes from accessing sacred or ceremonial sites). That adverse impact would usually be temporary and thus would be minor. Construction would also introduce temporary noise and visual elements that would affect the setting of nearby cultural resources; however, those adverse impacts would be temporary and thus would be minor.

For projects near a cemetery, site design would ensure that substantive direct impacts on the cemetery would be avoided. An appropriate buffer around the cemetery would be established prior to project construction. Additionally, access to the cemetery for visitation and maintenance would be maintained during the construction period to the maximum extent possible.

Many installations have installation-specific PAs covering one or more types of activities, which reduces the number of occurrences for which project-specific consultation is required. When project construction has the potential to have an adverse impact on a historic property, the garrison would follow the procedures contained in any relevant PA or ACHP Program Comment that applies to the type of undertaking or type of historic property involved. If no PA or Program Comment applies, then undertaking-specific consultation would be conducted with the SHPO, Tribes, and other relevant

consulting parties to identify and mitigate the impact as required by Section 106 of the NHPA. Through the Section 106 process, the consulting parties would develop an MOA to document agreed-upon measures to reduce adverse impacts to a less-than-significant level. The Section 106 process would be completed prior to approving the expenditure of funds on the undertaking.

When project construction has the potential to result in an adverse impact on cultural resources, construction practices that would minimize the potential for impacts would be implemented. They would include minimizing areas of ground disturbance and establishing buffer zones around existing cultural resources to avoid impacts. Proposed projects requiring ground disturbance in areas not yet surveyed for cultural resources would require surveys prior to construction. Projects that include changes or additions to historic buildings or structures would minimize adverse effects through project design and use of historically appropriate materials and construction methods.

Cultural resources might be inadvertently discovered during construction. For all projects involving ground disturbance, the installation's ICRMP policy on inadvertent discovery of cultural resources would apply. If an inadvertent discovery of human remains or other cultural resources occurs during construction, work would stop, the garrison Cultural Resource Manager would be notified, and project personnel would comply with the applicable legal and regulatory requirements governing such a finding. For construction in an area of high cultural sensitivity, the garrison Cultural Resource Manager might require or a Tribe might request the presence of an archaeologist to monitor ground-disturbing activities.

Programmatically, the impacts of construction on cultural resources would range from none to moderate adverse. No impacts would occur if the project site contains no cultural resources and is not a culturally sensitive location. Impacts up to long-term moderate adverse would occur when cultural resources are present on or near the site, even though mitigation measures to avoid and minimize impacts would be implemented.

Project Operation and Maintenance. Most adverse impacts on cultural resources would be the result of altering a cultural resource or its setting. Those impacts would occur during the construction phase but would be long-term since they would endure during the project's operation and maintenance phase. Any potential impacts from project operation and maintenance would be addressed through the NHPA Section 106 process, which would be completed prior to implementing the project and would include agreed-upon measures to reduce adverse impacts to a less-than-significant level. For installations with PAs in place to address real property operations and maintenance, and for which NHPA Section 106 consultation is therefore complete, PA-specified measures to reduce adverse impacts would be implemented and adverse impacts would be less than significant. Therefore, long-term adverse impacts would not exceed moderate.

3.4.5.2.3 Mitigation Measures and Best Management Practices

For projects that would not impact an NRHP-listed or -eligible historic property or district, no mitigation measures would be necessary to reduce adverse impacts to below significant levels.

For projects that would impact an NRHP-listed or -eligible historic property or district, the installation Cultural Resources Manager would follow the procedures contained in any relevant PAs or Program Comments applicable to the undertaking or resource to mitigate the impact. If no relevant PA or Program Comment exists, then the garrison would consult with the SHPO and other relevant consulting parties through the NHPA Section 106 process to identify possible adverse impacts on historic properties, modifications to the project to avoid or minimize those impacts, and appropriate measures to mitigate the adverse impacts. The specific mitigation measures would be determined on a case-by-case basis and implementing them would be sufficient to reduce adverse impacts to below significant levels.

No BMPs other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans would be necessary, including those in the ICRMP such as its procedure for inadvertent discovery of archaeological resources.

3.4.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect cultural resources would continue to be evaluated through project- and site-specific NEPA analysis and would comply with UFC 2-100-01, AR 210-20, AR 200-1, NHPA, NAGPRA, ARPA, EO 13007, AIRFA, other applicable laws and regulations, and the SOPs in each garrison's ICRMP. Garrisons' existing master planning processes and compliance with applicable laws and regulations—including consultation with SHPO, ACHP, and Tribes, as necessary—would be sufficient to plan for real property development and management that appropriately protects and preserves cultural resources. Therefore, impacts on cultural resources from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short-term minor adverse impacts and long-term impacts ranging from none to moderate adverse.

3.5 EARTH RESOURCES

3.5.1 Definition of the Resource

Earth resources include geology, soils, topography, geologic hazards, mineral resources, paleontological resources, and unique landforms. The geology of an area is its rocks, land, and processes of land formation. Soils are a mixture of organic materials, clay, rock, and other minerals that form the Earth's upper layer. Topography

is the shape of the land's surface, including its relief and the position of its natural and man-made features. Geologic hazards include earthquakes and subsidence (i.e., sinkholes) and can endanger human lives and threaten property. Mineral resources are substances formed naturally in the ground that can be extracted for a useful purpose such as iron ore or gravel. Paleontological resources are the fossilized remains of plants and animals. Unique landforms such as rock outcroppings can be valuable aesthetic or cultural resources. The ROI for earth resources is IMCOM installations.

3.5.2 Regulatory Framework

Relevant regulations for earth resources include those that regulate soil erosion to limit its impact on air and water quality. The National Pollutant Discharge Elimination System (NPDES) program requires that construction site operators obtain a construction site stormwater runoff permit for projects that disturb one or more acres of land. The permit requires an Erosion and Sedimentation Control Plan as part of a site-specific SWPPP to limit soil loss from construction-related stormwater runoff.

Section 438 of the Energy Independence and Security Act of 2007 (EISA) (42 U.S.C. § 17001 *et seq*.) requires any federal development or redevelopment project exceeding 5,000 square feet to maintain the site's predevelopment hydrology and prevent a net increase in stormwater runoff. On IMCOM installations, low-impact development techniques are applied in accordance with UFC 3-210-10, *Low Impact Development*. UFC 2-100-01 also requires low-impact development techniques to manage stormwater.

Scientifically significant paleontological resources are regulated by the Antiquities Act of 1906 (16 U.S.C. § 431–433).

Building codes (the International Building Code, and state and local modifications) set minimum standards for building design and intended use relative to the topography, soils, and geologic hazards of an area.

3.5.3 Planning Considerations

UFC 2-100-01 includes the following planning strategies relevant to earth resources:

- *Low-impact development and stormwater management (Section 2-2.8)* directs planners to minimize impervious surfaces and manage stormwater on-site to minimize runoff and soil erosion.
- *Sustainable landscape elements (Section 2-2.7)* directs planners to incorporate vegetation into project designs. Vegetative cover slows and absorbs stormwater, limiting erosion.
- *Compact and infill development (Sections 2-2.1 and 2-2.2)* direct planners to focus development toward the installation core and on-site projects on previously developed land when possible.

- *Building orientation and configuration (Section 2-2.10)* directs planners to consider topography to preserve solar access and natural ventilation.
- *Land preservation (Section 2-3.1)* and *growth boundaries (Section 2-6.2)* direct planners to preserve undeveloped and minimally developed land to the maximum extent possible.

UFC 2-100-01 and AR 210-20 state that data for earth resources should be collected during the planning process so installation personnel can properly consider related constraints on land use and development during the RPMP process.

Information about earth resources, including hazards such as earthquakes and geological formation shifts resulting from earthquakes, and standard BMPs for soil erosion are documented in a garrison's INRMP, and information about paleontological resources and unique landforms with cultural significance is documented in the garrison's ICRMP. The RPMP should inform and be informed by those plans.

3.5.4 Affected Environment

Earth resources vary from installation to installation, and from place to place within a single installation. As previously stated, installation-specific information about earth resources is documented in the installation's INRMP and ICRMP as well as in the installation's geographic information system data. Some installations have conducted specific surveys for earth resources, particularly if they have identified or have a high potential for unique earth resources. Data about earth resources are also publicly available from the U.S. Geological Survey and Natural Resources Conservation Service Web Soil Survey. This section provides general information about earth resources at IMCOM installations.

Geology, Geologic Hazards, and Unique Landforms. The geology of an area—including geologic hazards and unique landforms—can influence the area's development potential, contaminant distribution and migration, groundwater occurrence and movement, and what vegetation and habitats are viable there. Some installations have very steep slopes and unique landforms such as rock outcroppings or sand dunes that constrain development while others do not. Likewise, some installations have moderate or high potential for geologic hazards such as earthquakes or subsidence while others have little or none.

Earthquake potential is estimated based on the location of fault lines and seismic hazard zones. Alaska is the most earthquake-prone state, followed by Oklahoma, California, Nevada, Wyoming, and Hawaii (USGS 2019a, 2019b). From 2010 to 2015, only 10 states had no recorded earthquakes of magnitude 3 or higher: Delaware, Florida, Georgia, Iowa, Massachusetts, New Jersey, Pennsylvania, Rhode Island, Vermont, and Wisconsin (USGS 2019b). In areas with high seismicity, building codes

provide guidance on how to design and construct structures to limit seismic risk (FEMA 2014).

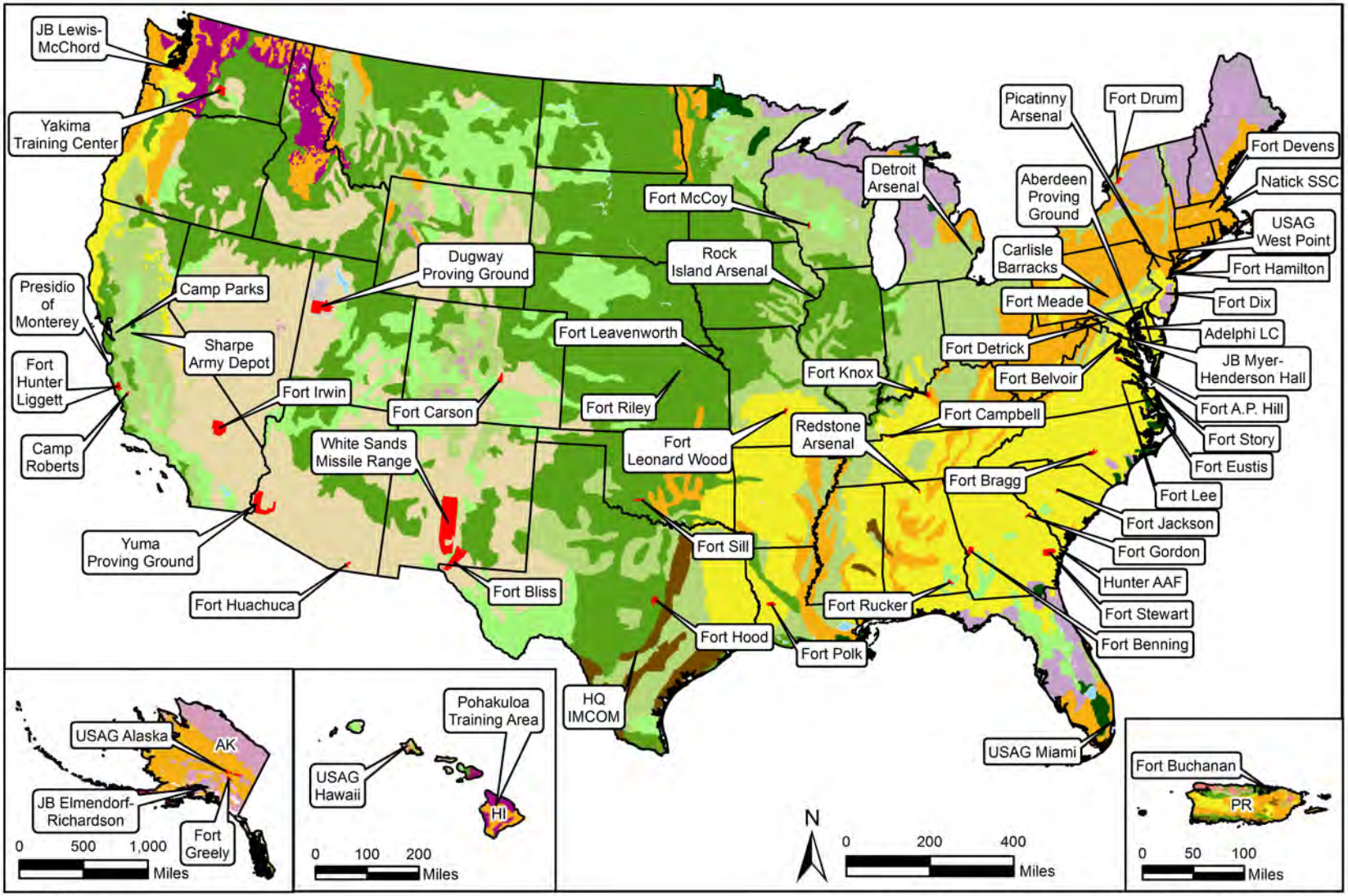
Subsidence in the form of sinkholes is most common in karst terrain, where underground rock can naturally be dissolved by water, creating underground spaces. The most damage from sinkholes tends to occur in Alabama, Florida, Kentucky, Missouri, Pennsylvania, Tennessee, and Texas (AGI 2019; USGS 2019c). IMCOM installations in karst terrain or with high subsidence potential for other reasons have established measures for designing and building structures to limit the risk of subsidence.

When necessary, IMCOM installations conduct geotechnical studies to assess subsurface geology and geologic hazards. The results of the studies provide the basis for design and construction recommendations specific to a site's geology and soil conditions and to limit risk when geologic hazards are identified.

Soils. Soils at IMCOM installations represent a wide variety of types, from sand to loam to clay, as well as combinations of those types. Figure 4 depicts soil types across the United States. Each type of soil has different physical characteristics such as texture, permeability, and erosion potential that affect its ability to support certain applications or uses, including building construction and agriculture. Different soil types also support different types of vegetation, with soils containing more nutrients (i.e., topsoil) generally supporting more vigorous plant growth.

When soil erosion occurs, it not only can adversely impact surface waters and air quality, it can reduce the soil's ability to support vegetation and, in severe cases, affect structural foundations. Although natural processes such as wind and rain cause erosion, human development can accelerate it by increasing soil exposure to those processes.

Soils that have the best combination of physical and chemical characteristics to support agriculture are called prime farmland (including unique farmland and farmland of statewide or local importance). The Farmland Protection Policy Act (7 U.S.C. § 4201–4209) was established to minimize the contribution of federal programs to the unnecessary and irreversible conversion of farmland to nonagricultural uses. In general, restrictions on development because of the presence of prime farmland are not applicable to DoD lands per 7 U.S.C. § 4208(b) and 7 C.F.R. § 658.3(b). Some IMCOM garrisons, however, have agricultural and grazing leases and use a portion of their lands for those purposes.



LEGEND

Dominant Soil Order

Alfisols	Entisols	Inceptisols	Spodosols
Andisols	Gelisols	Mollisols	Ultisols
Aridisols	Histosols	Oxisols	Vertisols

Soils of the United States

Figure 4

Source: USDA NRCS 2019.

Topography. Topography at the IMCOM installations is variable and ranges from coastal lowlands and flat plateaus to rolling hills and steeply sloped terrain. The topography of an area—primarily slope and aspect—can influence the area's development potential and stormwater runoff patterns. IMCOM installations make it standard practice to assess topographic suitability and identify topographic constraints when planning and designing proposed projects. Garrisons avoid building on steep or unstable slopes to the maximum extent possible and, if building in those areas is necessary, ensure that projects are designed to minimize impacts and risk.

Mineral and Paleontological Resources. Although mineral deposits are present on some IMCOM installations and can be economically valuable, mining of mineral resources on installations is typically limited. The predominant mining operations that do occur are in support of on-post gravel and fill requirements. Some IMCOM installations have identified paleontological resources or the potential for the existence of these resources, which are valuable for scientific study. Those garrisons have documented measures to manage and preserve those resources and procedures for inadvertent discovery of them in their ICRMP.

3.5.5 Environmental Consequences

3.5.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on earth resources if it would (1) induce waterborne soil erosion resulting in sedimentation that would violate federal or state water quality laws; (2) induce windborne soil erosion that would violate federal or state air quality laws; or (3) expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse.

3.5.5.2 Impacts of the Proposed Action

The Proposed Action would have short- and long-term impacts on earth resources ranging from minor beneficial to minor adverse as described in this section.

3.5.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no direct impacts on earth resources. When developed in accordance with UFC 2-100-01 and AR 210-20, RPMPs would carefully consider constraints and opportunities related to earth resources including geology, topography, soil, and earth-related hazards (such as sinkholes and earthquakes). Master planners would coordinate with environmental personnel to site proposed development to avoid constraints and take advantage of opportunities. Earth resource management measures in the garrison's INRMP and ICRMP would continue to be protective of earth resources. Therefore,

developing, adopting, and updating RPMP component documents would have no adverse impacts on earth resources.

Incorporating guidance on low-impact development techniques would minimize stormwater runoff, which would reduce soil erosion, protecting the soils themselves and water quality in nearby surface waters. Sustainable landscape elements would be planned for vegetated areas that would further stabilize soils. These planning strategies would result in RPMPs that would realize minor beneficial impacts on earth resources.

By incorporating guidance on land preservation, establishing growth boundaries, and planning for compact and infill development, the RPMP would result in minimizing the footprint of the built environment and preserving undeveloped land, which would aid in conserving earth resources. That approach would minimize impacts on previously undisturbed soils and limit creation of new impervious surfaces. These planning strategies would result in no or negligible impacts on earth resources.

By incorporating guidance on building orientation and configuration, the RPMP would site new facilities, particularly buildings, to take advantage of existing topography for natural lighting and ventilation and, when applicable, for solar arrays. Leveraging existing topography in this way would not adversely impact topography, so no adverse impacts on earth resources would result.

Developing, adopting, and updating RPMP component documents would have no adverse planning-level impacts on the remaining earth resources—geology, mineral and paleontological resources, and unique landforms. The RPMP would identify relevant features and propose development that would not significantly impact those resources.

3.5.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would have short- and long-term minor adverse impacts on earth resources.

Project Construction. Nearly all RPMP projects would include construction activities (including demolition and renovation) that would disturb soils through vegetation removal, excavation, grading, trenching, drilling, and/or soil compaction. The soil disturbance would increase the potential for erosion by removing topsoil or other native soil types, mixing native and nonnative soil types, and exposing soil to wind and water.

Some applicable state and local laws require construction site operators to control windborne erosion (e.g., fugitive dust). Even in areas without such laws, it is standard practice at IMCOM installations to implement BMPs to control or minimize fugitive dust. Examples of those BMPs include applying water or other stabilizers to exposed soils, limiting vehicle speeds on unpaved surfaces, minimizing or temporarily stopping ground-disturbing activities during periods of high wind speeds, and training staff on fugitive dust control practices. In some cases, construction contractors would be

required to prepare and implement a Fugitive Dust Control Plan. RPMP projects would not induce windborne soil erosion that would violate federal or state air quality laws; therefore, short-term adverse impacts would be minor.

For each RPMP project of one acre or more, the construction site operator would be required to obtain a NPDES permit and prepare a site-specific SWPPP specifying BMPs to minimize erosion caused by stormwater runoff. Examples of those BMPs include silt fences, inlet protection, diversion ditches, and training staff on erosion and sediment control practices. In some cases, construction contractors would also be required to prepare and implement an Erosion and Sedimentation Control Plan. RPMP projects would not induce soil erosion that would result in sedimentation that would violate federal or state water quality laws; therefore, short-term adverse impacts would be minor.

It is standard practice at IMCOM installations to require construction site operators to promptly establish permanent ground cover using native vegetation, mulch, or other appropriate cover materials after ground-disturbing activities are complete. It is also a common construction practice to minimize the amount of grading a project would require and to use soil excavated from higher areas as fill for lower areas (referred to as "balanced cut-and-fill") to minimize the need to import or export earthen material. Those practices would limit impacts on soils, topography, and geology, so short- and long-term adverse impacts on these resources would be minor.

Ground-disturbing activities would be sited to avoid known scientifically significant paleontological resources; however, they could inadvertently uncover such resources. In accordance with standard practice at IMCOM installations, if a construction contractor inadvertently discovers scientifically significant paleontological resources, work would stop, and the installation's Cultural Resource Manager would be notified and would assess the discovery before work could proceed. Therefore, long-term adverse impacts on scientifically significant paleontological resources would be minor.

Construction would not significantly impact geology, mineral resources, or unique landforms, as RPMP projects would be sited to avoid those resources or would not penetrate the earth deeply enough over a large enough area to have a substantial impact.

Project Operation and Maintenance. New, expanded, or reconfigured facilities such as buildings, roads, and parking lots built on undeveloped land would introduce impervious surfaces to areas where they did not previously exist. Examples of those projects include construction of new buildings, roads, sidewalks, and hard-surface courtyards. This action would change stormwater runoff patterns in those areas.

As required by the EISA, DoD policy, UFC 2-100-01, and UFC 3-210-10 (see Section 3.5.2), RPMP projects would incorporate low-impact development techniques to

maintain the predevelopment hydrologic conditions through infiltrating, filtering, storing, evaporating, and detaining stormwater runoff close to its source. These techniques would allow for on-site stormwater retention and management, offsetting the impact of impervious surfaces and limiting the potential for erosion and sedimentation. For some projects, implementing low-impact development techniques for stormwater management would represent improved conditions compared to the baseline. Therefore, long-term impacts from these types of projects would range from minor beneficial to minor adverse.

Some IMCOM installations are in areas with earth-related hazards such as karst terrain or other areas where subsidence could occur, areas with steep or unstable slopes, or seismically active areas. It is standard practice at IMCOM installations to conduct a geotechnical survey when a site has or may have these or other earth-related hazards. The results of the studies provide the basis for recommendations of appropriate design and engineering parameters to minimize risk or indicate that the site was unsuitable for the proposed project. Because IMCOM installations would conduct a geotechnical survey when earth-related hazards exist or need further study and implement the survey's recommendations, RPMP projects would not expose people or structures to substantial earth-related hazards, and short- and long-term adverse impacts would not exceed moderate.

Operation and maintenance of some RPMP projects would involve ground disturbance; for example, repairs of parking lots, roads, sidewalks, airfield surfaces, and underground utility infrastructure. When applicable, these activities would require plans and permits to comply with applicable regulations. For example, some activities would require dig permits, NPDES permits, SWPPPs, Fugitive Dust Control Plans, and/or Erosion and Sedimentation Control Plans. Those permits and plans would specify the control measures and BMPs required to be implemented to avoid or minimize adverse impacts, and impacts would be limited to the duration of the activity. Therefore, short-term adverse impacts would be minor.

Projects that would remove or reduce the footprint of existing facilities would reduce the amount of impervious surface in an area, minimizing the potential for erosion by allowing stormwater to percolate into the ground and resulting in a long-term minor beneficial impact. As a BMP, soils in areas where impervious surfaces are removed should be "scarified" (broken up) to reduce soil compaction and allow precipitation to naturally infiltrate. Vegetation should be established promptly to prevent erosion.

RPMP operation and maintenance activities would have no impact to geological resources on undisturbed land, which includes land deemed unsuitable for development (e.g., steep slopes, geological hazards) and designated buffer areas created to meet safety requirements or to minimize military noise impacts to neighboring communities.

3.5.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. IMCOM garrisons would implement the following BMPs, as applicable, most of which are already standard practice at IMCOM installations, to manage impacts on earth resources:

- Minimize soil erosion that could result in fugitive dust by implementing appropriate control measures such as applying water or other stabilizers to exposed soils, limiting vehicle speeds on unpaved surfaces, minimizing or temporarily stopping ground-disturbing activities during high-wind conditions, and training staff on fugitive dust control practices.
- Minimize soil erosion that could result in sedimentation of surface water during ground-disturbing activities by implementing appropriate control measures such as silt fences, inlet protection, diversion ditches, and training staff on erosion and sediment control practices.
- After finishing ground-disturbing activities, promptly establish permanent ground cover using native species from the garrison's approved plant list, mulch, and/or other appropriate cover materials (e.g., rock, gravel).
- Scarify soils in areas where impervious surfaces have been removed to reduce soil compaction and allow precipitation to infiltrate naturally.
- To the extent possible, limit construction in areas with earth-related hazards such as karst terrain or other areas where subsidence could occur, areas with steep or unstable slopes, or seismically active areas. When construction in such areas is necessary, conduct a geotechnical study and implement its recommended measures to limit risk.

3.5.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect earth resources would continue to be evaluated through project- and site-specific NEPA analysis and would need to comply with AR 200-1, AR 210-20, UFC 2-100-01, garrison-specific management plans and standard BMPs, and other applicable regulations and permitting requirements. Construction site operators would need to obtain NPDES permits and prepare erosion and sediment control plans, fugitive dust control plans, and SWPPPs when required by applicable federal, state, and local regulations. Therefore, impacts on earth resources from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short- and long-term minor adverse impacts.

3.6 HAZARDOUS MATERIALS AND WASTE

3.6.1 Definition of the Resource

Hazardous materials and waste are substances that could present substantial danger to public health or the environment if released or improperly managed. They can be solid, semi-solid, liquid, or gas. Military munitions, explosives, and petroleum products are addressed in this section. The ROI for hazardous materials and waste is IMCOM garrisons and their surrounding communities to the extent that hazardous materials and waste might affect those communities.

3.6.2 Regulatory Framework

Hazardous materials and waste are regulated by the following federal laws: CAA; Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. § 9601), also known as Superfund; Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. § 136 *et seq.*); Occupational Safety and Health Act (29 U.S.C. § 651 *et seq.*); Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901 *et seq.*); Solid Waste Disposal Act (42 U.S.C. § 82), as amended by RCRA; and Toxic Substances Control Act (15 U.S.C. § 2601 *et seq.*). Businesses and agencies are required to adhere to these and other applicable federal, state, and local laws and regulations to minimize the possibility of harm to humans and the environment from the use, transport, and disposal of these materials.

The primary Army regulation for hazardous materials and waste on IMCOM installations is AR 200-1. AR 200-1 implements applicable federal, state, and local laws and DoD policies guiding the use, storage, transport, and disposal of these materials.

3.6.3 Planning Considerations

As required by UFC 2-100-01, AR 210-20, and AR 200-1, the master planning process must identify constraints posed by hazardous materials and waste and plan real property development accordingly. Proposed projects in or close to restoration sites, in areas with land-use controls, or in or near explosive safety arcs (e.g., ESQD arcs) must recognize the limitations placed on land use in those areas and plan accordingly. Planning must be coordinated with installation environmental and safety personnel to determine which projects are suitable for those areas.

IMCOM installations have multiple management plans related to hazardous materials and waste, including Hazardous Materials and Waste Management Plans; Restoration Site Cleanup and Monitoring Plans; Spill Prevention, Control, and Countermeasures (SPCC) Plans; Asbestos and Lead-Based Paint Management Plans; and Integrated Solid Waste Management Plans. The RPMP should inform and be informed by these plans.

3.6.4 Affected Environment

IMCOM garrisons use hazardous materials and generate hazardous waste daily in support of mission operations and readiness. Typical hazardous materials used on IMCOM installations include cleaning supplies, antifreeze, gasoline, diesel fuel, oil, lubricants, degreasers, solvents, batteries, pesticides, and explosive and pyrotechnic devices. The installations manage hazardous materials and waste and the facilities in which they are used or generated in accordance with applicable regulations and DoD and Army policies.

As a result of past practices and activities, hazardous materials and waste have been released to soil and groundwater in certain areas at many IMCOM installations. Those sites, called “restoration sites,” have been or are being investigated and remediated in accordance with CERCLA and RCRA and are included in the DoD’s Defense Environmental Restoration Program, which includes the Army’s Installation Restoration Program and Military Munitions Response Program. Examples of restoration sites include liquid disposal sites, unregulated dumps, soil contamination areas, closed firing ranges, industrial facilities, and landfills.

In some cases, restoration sites are not restored to their original condition and are managed through land-use controls. Land-use controls are any physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health, safety, and the environment. Common land-use controls include restricting the property’s future use to nonresidential use, not allowing digging, and not allowing groundwater to be used for drinking.

Older facilities at IMCOM installations might contain hazardous building materials such as asbestos and lead-based paint that require special management and disposal.

3.6.5 Environmental Consequences

3.6.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on hazardous materials and waste if it would (1) expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection; (2) substantially increase the risk of spills or releases of hazardous substances; (3) disturb restoration sites or the progress of cleanup activities at those sites so that adverse effects on human health or the environment could result; (4) conflict with established land-use controls; or (5) result in noncompliance with applicable federal, state, or local laws and regulations; or with permits related to hazardous materials and waste.

3.6.5.2 Impacts of the Proposed Action

The Proposed Action would have short- and long-term minor adverse and minor beneficial impacts on hazardous materials and waste as described in this section.

3.6.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no direct impact on hazardous materials and waste. When developed in accordance with UFC 2-100-01 and AR 210-20, RPMPs would carefully consider constraints on land use because of restoration sites, land-use controls, explosive safety arcs, and operations involving hazardous materials and waste. Master planners would coordinate with environmental personnel to ensure that proposed development would be sited and implemented appropriately within those constraints. Therefore, developing, adopting, and updating RPMP component documents would have no adverse impacts on hazardous materials and waste.

3.6.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would result in short- and long-term minor adverse impacts and long-term minor beneficial impacts on hazardous materials and waste.

Project Construction. Short-term minor adverse impacts would result from the use of hazardous materials and the generation of hazardous waste during project construction (including renovation and demolition). Use of hazardous materials and management of hazardous waste would entail some risk of spills and human exposure. Those risks would be managed by complying with established installation management plans for hazardous materials and waste management; spill prevention and response; and applicable federal, state, and local laws and regulations.

Short-term minor adverse impacts would also result from RPMP projects in which renovation or demolition of structures could expose materials that require special handling such as asbestos-containing materials, lead-based paint, and polychlorinated biphenyls. Those structures for which the presence or absence of hazardous materials is not already documented in installation asbestos, lead-based paint, or other management plans would be surveyed for potentially hazardous building materials prior to disturbance or, in lieu of a survey, be treated as if those materials were present. RPMP projects during which hazardous building materials are removed and disposed of would result in long-term minor beneficial impacts because those materials would no longer pose a threat to human health or the environment.

Installation environmental and safety personnel would be consulted during project planning to ensure that proposed construction, renovation, or demolition projects would not disturb known subsurface contamination, interfere with remedies to address contamination, conflict with established land-use controls, or expose people to risks

from explosives. Should contaminated soils or groundwater be encountered during construction, installation or contractor personnel would manage it in accordance with established installation procedures and applicable federal, state, and local laws and regulations. Therefore, there would be no adverse impacts associated with those risks.

Project Operations and Maintenance. Some RPMP operations and maintenance activities would involve the ongoing use and management of hazardous materials and waste generation. For example, industrial facilities and vehicle and equipment maintenance shops would use a variety of hazardous materials and petroleum products and generate hazardous waste. Swimming pools would store and use chlorine. Utility infrastructure such as electrical substations, generators, and wastewater treatment plants would use and store hazardous materials and petroleum products. Pesticides would be applied when needed to manage undesirable vegetation or nuisance animals.

Long-term minor adverse impacts would result from those RPMP operations and maintenance activities because of the inherent risks of spill and exposure associated with those hazardous materials and waste. However, compliance with established installation management plans and BMPs; applicable federal, state, and local laws and regulations; and permit requirements would manage those risks at an acceptable level; therefore, long-term adverse impacts would be minor.

3.6.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. No BMPs other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans would be necessary. In particular, each garrison has established BMPs for spill prevention and response contained in its SPCC or other management plans. All contractors working on the garrison must also implement these and other BMPs.

3.6.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect hazardous materials and waste would continue to be evaluated through project- and site-specific NEPA analysis and would comply with UFC 2-100-01, AR 210-20, AR 200-1, applicable laws and regulations and permitting requirements, and any garrison-specific hazardous materials and waste management plans. Garrisons' existing master planning processes would plan for real property development so as not to increase risks or result in incompatibilities with hazardous material and waste management. Hazardous materials and waste would continue to be managed in compliance with installation management plans and programs; and with applicable federal, state, and local laws and regulations. Therefore, the impacts on hazardous materials and waste from implementing the No Action Alternative would be similar to those expected under

the Proposed Action and would include short- and long-term minor adverse and long-term minor beneficial impacts.

3.7 HUMAN HEALTH AND SAFETY

3.7.1 Definition of the Resource

Human health and safety involve managing and protecting people. It encompasses occupational hazards to workers, risks associated with military activities, and risks to the general public of exposure to unsafe or unhealthful environments. Although many activities involve some degree of risk, there are numerous ways to enhance safety and minimize risk. This section focuses on those risks and risks associated with planning constraints such as AT/FP restrictions, surface danger zones, airfield clear zones, ESQD arcs, areas where munitions and explosives of concern (MEC) might be present, and restoration sites. Other aspects of human health and safety are addressed in other resource sections including air quality and GHGs (Section 3.2), hazardous materials and waste (Section 3.6), noise (Section 3.9), and transportation and traffic (Section 3.11). The ROI for human health and safety is IMCOM garrisons.

3.7.2 Regulatory Framework

The Occupational Safety and Health Act of 1970 is the primary federal law concerning health and safety. The Occupational Safety and Health Administration (OSHA) is the federal agency that implements that law.

IMCOM Regulation 385-10, *IMCOM Safety Program*, prescribes IMCOM-specific safety policies, procedures, and responsibilities that are implemented to meet Army and OSHA requirements for human health and safety. The objective of the IMCOM Safety Program is to institutionalize safety and risk management processes in garrison operations to protect the force, protect against accidental loss, conserve resources, and establish a proactive safety culture.

3.7.3 Planning Considerations

UFC 2-100-01 addresses *defensible planning (Section 2-5)*, which directs planners to implement planning strategies that ensure military installations and the people on them are safe and secure. UFC 2-100-01 also requires that data related to human health and safety be considered when preparing RPMPs and their component documents. Data that would assist master planners in defining development constraints related to human health and safety include information about AT/FP restrictions, surface danger zones, airfield clear zones, safety barriers, ESQD arcs, areas where MEC might be present, and restoration sites.

AR 210-20 requires that conditions that can affect human health and safety on the installation, contributing to safety and health, be identified and existing land-use patterns be analyzed to identify constraints.

3.7.4 Affected Environment

Conditions that can affect human health and safety on IMCOM garrisons include unidentified or unmanaged risks associated with a wide range of occupational and military activities. In relation to real property planning, construction and operation of buildings and infrastructure must adhere to applicable UFC, OSHA, Army, and IMCOM regulations and policies. Master planning and project implementation must be compatible with existing land uses such as surface danger zones, airfield clear zones, and restoration sites and avoid or comply with health and safety constraints such as AT/FP restrictions, safety barriers, ESQD arcs, and areas where MEC might be present.

IMCOM installations define surface danger zones and ESQD arcs to keep personnel and/or equipment a safe distance from military activities such as weapons firing, demilitarization, and explosives storage that could endanger them. MEC could be present on closed training ranges and other portions of IMCOM installations. Entry to and ground-disturbing activities within areas where MEC might be present are limited and subject to specific procedures that help minimize safety hazards.

All new construction and major renovations of inhabited DoD buildings must meet appropriate AT/FP standards to provide minimum levels of protection against terrorist attacks for DoD buildings. Measures include appropriate standoff distances from buildings to parking, roads, and other infrastructure and protective design and construction considerations for buildings and other structures. UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, and UFC 4-020-01, *DoD Security Engineering Facilities Planning Manual*, provide the primary standards to be implemented.

3.7.5 Environmental Consequences

3.7.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on human health and safety if it would (1) substantially increase human exposure to a health hazard or safety risk, or (2) result in noncompliance with or a violation of laws and regulations governing human health and safety.

3.7.5.2 Impacts of the Proposed Action

The Proposed Action would have short-term minor adverse and long-term minor beneficial impacts on human health and safety as described in this section.

3.7.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no impact on human health and safety. When developed in accordance with UFC 2-100-01 and AR 210-20, RPMPs would carefully consider constraints on land use

necessary to protect health and safety, including AT/FP restrictions, surface danger zones, airfield clear zones, safety barriers, ESQD arcs, areas where MEC might be present, and restoration sites. Master planners would coordinate with security, air operations, and environmental personnel to ensure that proposed development would be sited and implemented appropriately with those constraints. Therefore, developing, adopting, and updating RPMP component documents would have no adverse impacts on human health and safety.

3.7.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would result in short-term minor adverse impacts and long-term minor beneficial impacts on human health and safety.

Project Construction. Short-term minor adverse impacts would be expected because of workplace hazards associated with construction, renovation, and demolition activities. To manage those hazards, contractors would be required to comply with OSHA and IMCOM safety regulations and conduct activities in a manner that does not pose any undue risk to human health and the environment. Contractors would be required to prepare project-specific Health and Safety Plans that analyze the risks and hazards associated with their activities and identify how they would be controlled for the duration of the construction period. Although some risk would remain, it would be no greater than the risks normally associated with construction, renovation, or demolition activities and would cease when construction activities were complete, so adverse impacts would be short term and minor.

Project Operations and Maintenance. Long-term minor beneficial impacts would be expected during RPMP operations and maintenance activities. Activities would be located on a secure military installation and would include AT/FP measures. Workforce personnel would adhere to applicable SOPs, Health and Safety Plans, and other safety requirements to eliminate or minimize occupational hazards and risks. Projects such as adding outdoor lighting or enhancing vehicular or pedestrian safety would increase safety and security.

3.7.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. No BMPs other than compliance with applicable codes such as National Fire Protection Association, National Electric Code, etc.; laws and regulations; permits; and Army and installation programs, policies, plans, and SOPs would be necessary.

3.7.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect human health and safety would continue to be evaluated through project- and site-specific

NEPA analysis and would comply with UFC 2-100-01, AR 210-20, AR 200-1, IMCOM Regulation 385-10, applicable federal and state laws and regulations, the garrison's safety program, and project health and safety plans. Garrisons' existing master planning processes would be sufficient to plan for real property development so as not to result in undue risks to human health and safety. Therefore, the impacts on human health and safety from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short-term minor adverse and long-term minor beneficial impacts.

3.8 LAND USE

3.8.1 Definition of the Resource

Land use refers to the ways in which land is used or might be developed. Examples of categories of land use include residential, commercial, industrial, military, agricultural, natural, recreational, and mixed-use. In addition to land use, this section also addresses land ownership. Owners and managers of land in the United States include federal, tribal, state, and local governments and private organizations or individuals. The ROI for land use is IMCOM garrisons and adjacent off-post land that might affect or be affected by on-post activities.

3.8.2 Regulatory Framework

To ensure compatible land use and orderly development, communities limit allowable land uses in certain areas by implementing zoning codes and general plans. IMCOM installations use the RPMP to guide land use and development.

AR 210-20 requires Army installations to document environmental factors that could constrain allowable land use such as the location of contaminated sites, natural and cultural natural resources, floodplains, coastal management areas, or noise zones and proximity to high-risk areas (e.g., runways or explosives storage).

3.8.3 Planning Considerations

One of the purposes of the master planning process and the resulting RPMP is to define the conceptual and spatial layout and standards that will guide efficient and compatible land use and development at an IMCOM garrison. The planning process helps installation personnel determine if there is sufficient area for proposed development and identify applicable constraints on development (e.g., sensitive natural or cultural resources or incompatibilities with existing land uses).

With the alignment to UFC 2-100-01, DoD master planning is moving away from applying traditional land-use categories to land areas. Instead, master planners are looking at an installation as a whole and dividing it into districts of compatible use based on geographical features, land-use patterns, building types, and transportation networks. Each district's Regulating Plan addresses acceptable uses and building form

(e.g., height, entry locations, and parking and roadway configurations) together, providing specific information on permitted development within that district.

UFC 2-100-01 includes the following planning strategies relevant to land use:

- *Compact and infill development (Sections 2-2.1 and 2-2.2)*, which directs planners to focus development toward the installation core and site projects on previously developed land when possible.
- *Horizontal and vertical mixed-use development (Sections 2-2.4 and 2-2.5),* which places compatible land uses near each other (e.g., housing and shopping).
- *Transit-oriented development (Section 2-2.3), connected transportation networks (Section 2-2.6),* and *planning for walking, running, and biking (Section 2-4.1),* which require planners to plan for well-connected transportation infrastructure that promotes alternative modes of transportation such as walking, bicycling, and shared ride transit options.
- *Land preservation (Section 2-3.1)* and *growth boundaries (Section 2-6.2)*, which direct planners to preserve undeveloped and minimally developed land to the maximum extent possible.
- *Capacity planning (Section 2-6.1)*, which directs planners to define and not to exceed the development capacity of the installation.
- *Defensible planning (Section 2-5)*, which directs planners to consider security of critical infrastructure and address AT/FP requirements.

Other installation planning documents identify conditions that would constrain allowable land use. For example, the INRMP and ICRMP contain information about the presence of natural and cultural resources and the Installation Action Plan contains information about contaminated sites. Those plans should inform and be informed by the RPMP.

A Preconstruction Environmental Survey and Characterization Report must be completed prior to site approval for applicable projects. This document assesses environmental conditions that could affect the suitability of a site for a proposed project.

3.8.4 Affected Environment

On-Post Land Use. Land at IMCOM installations is under Army management and has a variety of land uses. Land uses that support the day-to-day functions of working and living on the installation are usually concentrated in the cantonment area. Cantonment areas can include administrative buildings, troop housing (barracks) and family housing, retail and commercial businesses (e.g., the commissary, bank, and gas station), medical centers, schools for children living on-post, recreation areas (e.g., playgrounds, ballfields, and fitness centers), airfields, heliports, motor pools, and other mission

support facilities. The density of development is typically higher in the cantonment area than elsewhere on the installation.

Outside of the cantonment are lands used to support the installation's military mission and can include training grounds, airfields, heliports, firing ranges, industrial areas, and storage areas. Undeveloped or minimally developed lands might be used for training, have restricted access for natural or cultural resources protection, and/or serve as buffer zones between military operations and the off-post communities.

Many installations have outgrants in the form of rights-of-way, easements, leases, or permits. Examples include a right-of-way easement for a utility line that grants the utility service provider access to the line for maintenance, or an enhanced use lease under which a property is leased to a private developer who can make improvements to it (e.g., privatized housing or lodging) and lease them to tenants. In addition, some installations lease lands for agriculture or grazing in accordance with AR 405-80, *Management of Title and Granting Use of Real Property*.

Off-Post Land Use. Land use in communities around IMCOM installations varies as does the density of development. Lands adjacent to IMCOM installations include residential areas; commercial retail and office buildings; industrial facilities; local, state, or interstate roads; railroads; agricultural or grazing land; city or state parks; state game lands; and undeveloped public lands managed by the Bureau of Land Management or U.S. Forest Service. Development density ranges from undeveloped to densely developed urban areas.

Most installations were originally established in minimally developed areas; however, land around many of them has and continues to undergo development, leading to potential conflicts. IMCOM installations work with their neighboring communities to identify and resolve encroachment issues that could compromise military training, testing, and readiness.

To address encroachment issues and limit incompatible land use, an installation can prepare a Compatible Use Plan (CUP) (formerly known as a Joint Land Use Study [JLUS]) or implement an Army Compatible Use Buffer (ACUB) program. A CUP identifies encroachment and land-use issues and identifies measures agreeable to all parties to enhance current and future compatibility with no net loss to the military mission. Under the ACUB program, an IMCOM installation can enter into agreements with and provide funds to partners with mutual conservation objectives to establish buffer lands. About 351,400 acres of off-post land are in the ACUB program (DA 2017b).

3.8.5 Environmental Consequences

3.8.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on land use if it would (1) substantially conflict with established land uses in the area or create a major land-use incompatibility, (2) physically divide an established community, or (3) be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species.

3.8.5.2 Impacts of the Proposed Action

The Proposed Action would have no short-term impacts on land use and long-term impacts ranging from none to minor beneficial as described in this section.

3.8.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no direct impacts on land use. The process of developing and updating RPMPs that conform with UFC 2-100-01 and AR 210-20 is designed to result in adopting an RPMP that has already identified land-use constraints, made plans to reduce or resolve existing land-use conflicts, and established a framework for siting new projects to avoid creating land-use incompatibilities. Therefore, developing, adopting, and updating RPMP component documents would have no adverse impacts on land use and would have long-term minor beneficial impacts where existing land-use conflicts are reduced or resolved.

When developed in accordance with UFC 2-100-01 and AR 210-20, RPMPs would carefully consider constraints and opportunities related to land use and coordinate with relevant stakeholders to plan for future land use that would be efficient, site compatible land uses together, and ensure that the Army has land to meet future mission requirements critical to training, sustaining, and deploying our forces. They would identify areas where off-post land use is encroaching or could encroach on the execution of the military mission, and plan to minimize the effects of encroachment with no net loss to the military mission. Planning for on-post land use along installation boundaries would also consider adjoining off-post land uses to avoid creating new conflicts.

By following the UFC's guidance on compact and infill development; horizontal and vertical mixed-use development; transit-oriented development; connected transportation networks; planning for walking, running, and bicycling; and defensible planning, the RPMP would use land efficiently and site compatible uses in proximity to each other while implementing AT/FP measures. Those planning strategies would have no adverse

impacts on land use and would have long-term minor beneficial impacts where existing land-use conflicts are reduced or resolved.

By following the UFC's guidance on land preservation, growth boundaries, and capacity planning, the RPMP would preserve undeveloped and minimally developed land to provide buffers, protect natural and cultural resources, support military training, and allow the installation to meet its future needs. Those planning strategies would have no adverse impacts on land use.

3.8.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would have no short-term impacts and would have long-term impacts ranging from none to minor beneficial on land use.

Project Construction. No impacts would be expected. Project construction (including renovation and demolition) would, by its nature, be a temporary activity, not an enduring land use. Therefore, construction would have no impact on land use.

Project Operation and Maintenance. Long-term impacts ranging from none to minor beneficial impacts would be expected. Some RPMP projects would not change a site's land use, although structures built on the site might change. Since there would be no change to the baseline land use, operation and maintenance activities for those projects would have no impact.

Other RPMP projects would change the land use at a site. For example, a commercial area might become a mixed-use area where commercial, residential, and community facilities are co-located or a road might be constructed in an undeveloped area to enhance the connectivity of the installation's transportation network. The impact of those changes is assessed based on whether they would conflict with established land uses in the area; one type of land use is not considered better or worse than another. Where the land use does change as a result of siting and construction of an RPMP project, RPMP operation and maintenance activities would differ from pre-project operation and maintenance activities, but operation and maintenance, in and of itself, does not change a site's land use.

An RPMP is designed to avoid land use conflicts, integrate compatible land uses, and conserve an installation's limited land resources. As specified in UFC 2-100-01, all implemented projects must be sited in accordance with an approved Master Plan, must meet all guidelines and objectives in the RPMP Regulating Plan and Installation Planning Standards component documents, and must have their sites approved before project design can begin. Because land use, development density, and building form (e.g., size and height) would conform to UFC 2-100-01 and the RPMP, RPMP projects would not create land-use conflicts, would integrate compatible land uses, and would help conserve the installation's limited land resources. Therefore, changing a site's land use would have no long-term adverse impacts.

Some RPMP projects would reduce or resolve existing land-use incompatibilities, resulting in a minor beneficial impact. For example, a project that relocated a noisy facility that is near housing to a part of the installation where such facilities are appropriate would have a beneficial impact by resolving this land-use incompatibility. In addition, RPMP projects that implement the recommendations of a JLUS or CUP or implement an ACUB program would reduce or avoid encroachment issues, resulting in a minor beneficial impact.

In accordance with the CZMA, applicable garrisons would be required to complete a Federal Coastal Zone Consistency Determination prior to implementing a proposed project in a coastal zone. The determination would be submitted to the appropriate state agency for review and approval. Project planners would comply with federal coastal programs before implementing projects, so there would be no significant impact on land use.

3.8.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. No BMPs other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans would be necessary.

3.8.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect land use would continue to be evaluated through project- and site-specific NEPA analysis and would comply with UFC 2-100-01, AR 210-20, AR 200-1, other applicable laws and policies, and any installation-specific management plans. Garrisons' existing master planning processes would plan for real property development so that no significant adverse impacts on land use would result. In addition, long-term minor beneficial impacts would result from planning for development that would address existing land-use incompatibilities or conflicts. Therefore, the impacts on and use from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include long-term minor beneficial impacts.

3.9 NOISE

3.9.1 Definition of the Resource

Noise is defined as unwanted sound. Whether a sound is perceived as noise varies depending on factors that include the time of day, source of the sound, distance between the sound source and the receiver, and sensitivity of the receiver. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human responses to environmental noise are annoyance and stress.

Sound is measured in decibels (dB) on a logarithmic scale. It also can be expressed as A-weighted decibels (dBA), which approximates how the human ear responds to different frequencies of sound by giving lower weights to low frequency sounds to which humans are less sensitive. A change in sound level of 3 dB or less is barely perceptible by the human ear, while a 10-dB increase or decrease in sound level is perceived as a doubling or halving of sound level. Sound travels differently depending on conditions such as climate, topography, vegetation, and the built environment, but in general sound lessens, or "attenuates," by approximately 6 dB with each doubling of the distance from the source (FTA 2006).

The ROI for noise is the distance from the source at which the noise would attenuate to levels similar to ambient noise levels.

3.9.2 Regulatory Framework

The Noise Control Act of 1972 (42 U.S.C. § 4901 *et seq.*) and the subsequent Quiet Communities Act of 1978 direct federal agencies to comply with state and local noise control regulations in off-post areas. State and local noise ordinances commonly address topics such as noise from construction activities and maximum permissible ambient noise levels for different land-use types (e.g., residential, commercial, and industrial). Noise from construction activities is often exempt from maximum permissible ambient noise levels during certain hours, typically daylight hours on weekdays.

Chapter 14 of AR 200-1 contains the Army's operational noise policy. The regulation defines acceptable noise levels associated with aircraft and small arms and directs installations to prepare noise maps showing contours of the four noise zones to assist in land-use compatibility decisions. Table 2 lists the four noise zones defined in AR 200-1 and their compatibility with noise-sensitive land uses.

Table 2. Army Noise Zones and their Compatibility with Noise-Sensitive Land Uses

Army noise zone	Perceived noise level	Recommended uses
Land-Use Planning Zone	Low	Noise-sensitive land uses acceptable
Zone I	Low	Noise-sensitive land uses acceptable
Zone II	Moderate	Noise-sensitive land uses normally not recommended
Zone III	High	Noise-sensitive land uses not recommended

Source: AR 200-1, Chapter 14.

3.9.3 Planning Considerations

The only direct reference UFC 2-100-01 makes to noise or sound is in Appendix G, which lists an installation's noise contours as one of the typical data layers planners

should use when preparing a constraints map. UFC 2-100-01 includes the following planning strategies relevant to the noise environment:

- *Compact, infill, and horizontal and vertical mixed-use development (Sections 2-2.1, 2-2.2, 2-2.4, and 2-2.5)*, which encourages relatively dense development in some areas, facilitating walking, bicycling, and other alternative modes of transportation.
- *Transit-oriented development (Section 2-2.3), connected transportation networks (Section 2-2.6),* and *planning for walking, running, and biking (Section 2-4.1)*, which encourage development that facilitates alternative modes of transportation such as walking, bicycling, and transit.
- *Capacity planning (Section 2-6.1)*, which directs planners to define and not to exceed the development capacity of the installation.

AR 210-20 states that noise-related data should be collected during the planning process so installation personnel can properly consider noise-related constraints on land use and development as part of the RPMP process.

Many IMCOM installations have Installation Operational Noise Management Plans, which provide a methodology for the installation to apply when analyzing exposure to noise associated with military operations and land-use guidelines for achieving compatibility between the Army and surrounding communities. The plans discuss noise and vibration, mitigation techniques, noise abatement procedures, encroachment/training issues, recommendations for working with local communities, and noise modeling.

The ACUB program is a tool used by some IMCOM installations to prevent or reduce conflicts with off-post land users. The ACUB program enables an installation to work with surrounding landowners to conserve land adjacent to the fenceline so that it will not be developed in ways that would limit the Army's ability to conduct the training and testing operations necessary to fulfill its mission. Noise from aircraft, military training, and other activities often extend off-post, and the ACUB program helps reduce the potential for development of off-post land uses that might be incompatible with noise from military operations.

3.9.4 Affected Environment

Table 3 lists expected background noise levels at IMCOM garrisons by land use type. These levels are typical of the maximum permissible ambient noise levels found in local noise ordinances. Background noise levels vary across installations and are generally reflective of the type of land use in an area. Background noise levels also are higher in busy, highly developed areas and in industrial areas where more machinery is operating, and lower in residential and open space areas where there is less activity. Training areas, airfields, and the areas around them experience periodic increases in

noise levels when training activities such as firing or aircraft flights occur. Construction activities also generate temporary noise, primarily during daylight hours on weekdays.

Table 3. Typical Background Noise Levels at IMCOM Installations

Land use	Maximum sound level (dBA)	
	Daytime	Nighttime
Residential or rural	50–60	45–55
Commercial, administrative, or suburban	60–65	55–60
Industrial or urban	70–75	70–75

Noise-sensitive receptors—areas where occupants are more sensitive to noise—such as homes, schools, childcare facilities, and hospitals exist on IMCOM installations and in the communities around them. In some areas, off-post residences or other sensitive receptors are just outside the installation's boundary. Wildlife species protected from disturbance by law may also be considered noise-sensitive receptors and also might be disturbed by noise.

3.9.5 Environmental Consequences

3.9.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on the noise environment if it would result in (1) a violation of an applicable noise ordinance, (2) site incompatible land uses near existing on- or off-post noise-sensitive receptors, or (3) the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zone II or III).

3.9.5.2 Impacts of the Proposed Action

The Proposed Action would have short-term minor-to-moderate adverse and long-term minor beneficial to minor adverse impacts on noise as described in this section.

3.9.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would not generate any noise and thus would have no direct impact on the noise environment. Careful consideration of noise during the planning process, however, would aid in minimizing adverse impacts on the installation's future noise environment. Viewed in this light, the long-term indirect impacts of developing, adopting, or updating an RPMP component document would range from minor beneficial to minor adverse.

To comply with the Army's operational noise policy as presented in AR 200-1, master planners, in coordination with other stakeholders, would craft the RPMP so that noisier

facilities and operations are not placed too close to on- or off-post noise-sensitive receptors and new noise-sensitive receptors are not located in incompatible noise environments (i.e., noise zone II or III), so there would be no adverse impact.

When developing or updating RPMP component documents, master planners and other subject matter experts would refer to the installation's noise map and/or Operational Noise Management Plan and craft the RPMP to ensure land-use compatibility and appropriate consideration of noise-sensitive receptors. For installations that have an ACUB program, Operational Noise Management Plan, or other plans or programs that address noise, master planners would ensure that the RPMP does not conflict with those plans or programs.

By following the UFC 2-100-01 guidance on capacity planning, development proposed in the RPMP would not exceed the capacity of the installation and that overall noise levels resulting from real property changes would not increase substantially. Whether noise levels increase, decrease, or stay the same in specific areas would depend on the specific projects proposed in those areas.

UFC 2-100-01 also promotes compact, infill, and mixed-use development, which would support the RPMP envisioning relatively dense development in certain parts of an installation. That level of development would correspond to increases in ambient noise levels in those areas. Noise levels, however, would remain typical of suburban or urban areas. People in those areas would not perceive the noise levels as unusual or inappropriate for a developed area, so the long-term adverse impact would be minor. As a BMP, in densely developed and/or mixed-used areas, engineers should incorporate appropriate levels of sound-dampening construction materials into the design of buildings in which a quiet interior is important such as homes, hospitals, lodging, schools, childcare facilities, offices, and classrooms.

In accordance with UFC 2-100-01, the RPMP would promote transit-oriented development, connected transportation networks, and planning for walking, running, and bicycling. Developing an installation in accordance with these planning strategies would correspond to fewer trips by privately owned vehicles, reducing the overall amount of noise from vehicle traffic, resulting in a minor beneficial impact.

3.9.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would result in short-term minor-to-moderate adverse impacts and long-term minor beneficial to minor adverse impacts. Short-term impacts would be caused by noise associated with construction, and long-term impacts would be caused by additional vehicle traffic, human activity, and noise-producing equipment such as HVAC systems.

Project Construction. All RPMP projects would produce noise during construction activities (including renovation and demolition), with impacts ranging from minor to

moderate adverse. Individual projects that would have shorter construction periods or few pieces of equipment operating simultaneously, or would be located more than 800 feet from sensitive receptors would have minor adverse impacts. Individual projects that would have longer construction periods and many pieces of equipment operating simultaneously, or would be located less than 800 feet from sensitive receptors would have moderate adverse impacts.

Table 4 presents typical noise levels that EPA has estimated for the main phases of outdoor construction activity at distances of 50 feet and 800 feet. The zone of relatively high construction noise would extend up to 800 feet from the site of major equipment operations. Because noise attenuates by approximately 6 dB with each doubling of distance from the noise source, locations farther than 800 feet from construction sites would not experience noteworthy levels of construction noise (FTA 2006).

Table 4. Noise Levels Associated with Outdoor Construction

Construction phase	Sound level (dBA at 50 feet)	Sound level (dBA at 800 feet)
Ground clearing	84	60
Excavation, grading	89	65
Foundations	78	54
Structural	85	61
Finishing	89	65

Source: EPA 1971.

All construction activities would comply with applicable local noise ordinances, including limiting hours of construction to those allowed by the ordinance. If no ordinance exists, as a BMP, construction would still primarily occur during daylight hours on weekdays. All construction activities would implement the industry standard practice of operating construction equipment in accordance with the manufacturer's specifications and with standard mufflers and other noise-reducing equipment in proper operating condition.

On- and off-post sensitive receptors and others more than 800 feet from construction site would not experience noise levels any higher than typical community sounds such as traffic and the operation of landscaping equipment (e.g., lawn mowers) and thus would have no adverse impact. Although on- and off-post sensitive receptors and others within 800 feet of construction sites would experience appreciable noise, because construction would be temporary in duration, audible in a limited area, and primarily done during daylight hours on weekdays when higher sound levels are more tolerable, adverse impacts would not exceed moderate.

For construction activities within 800 feet of on- or off-post noise-sensitive receptors, the following BMPs would be implemented:

- Use equipment mufflers and/or other sound-shielding devices as appropriate.
- Shut down noise-generating equipment when not in use.
- If complaints about noise are received, increase sound-reducing measures appropriately.

Construction traffic would also generate noise while traveling to and from the site; however, it would not add substantially to existing traffic volumes or noise levels, so that adverse impact would be minor.

Noise levels in areas where little or no development occurs would remain similar to baseline levels, so there would be no impact in those areas. Noise levels would decrease in areas where existing facilities or activities are removed or relocated, resulting in a minor beneficial impact.

Project Operation and Maintenance. Long-term impacts would range from minor beneficial to minor adverse impacts and would result from additional vehicle traffic, human activity, and noise-producing equipment (e.g., HVAC systems and generators) in areas where new or additional development occurs.

Noise levels would remain similar to baseline conditions in areas where no RPMP projects would occur, so there would be no impact in those areas. Noise levels would decrease in areas where existing facilities or activities are removed or relocated, resulting in a minor beneficial impact.

Once construction was complete, many RPMP projects would have no perceptible impact on noise levels. For example, use or operation of projects such as sidewalks, trails, stormwater drainage features, outdoor courtyards and memorials, and underground utility lines would have no perceptible impact on noise levels, so there would be no impact. Maintenance activities associated with RPMP projects would be similar to existing maintenance activities (e.g., mowing, snow removal, painting, repair), with noise impacts ranging from no impacts to short-term minor adverse impacts.

Most RPMP projects that would reconfigure an existing feature—such as widening a road, increasing the size of a parking lot, or adding onto a building—would not appreciably change the baseline noise level, so this long-term adverse impact would be minor.

Most new buildings and some utility infrastructure projects would introduce new noise sources such as HVAC systems, back-up generators, and transformers. The noise output of the equipment would vary by size and manufacturer but typically would not exceed 74 dB at 100 feet (Daikin 2019; EPA 1971; Schneider 2019). As a BMP, noise-producing equipment would be positioned away from areas where quiet is important and shielded with walls or other enclosures as appropriate to reduce noise transmission. With appropriate positioning and shielding, noise levels from operation activities would

not appreciably exceed background levels (see Table 3), so this long-term adverse impact would be minor. Maintenance activities for these types of RPMP projects, depending on the machinery needed to conduct maintenance and its associated noise levels, would range from no impacts to short-term minor adverse impacts.

New or relocated infrastructure for vehicle travel (e.g., roads, intersections, parking lots, and ACPs) would introduce noise from vehicle traffic in new places. Noise from a freeway is approximately 70 dB at 50 feet (CHC 2019) and would be substantially less on garrison roads where traffic volumes are much lower. Therefore, noise from vehicle traffic would not appreciably increase baseline levels (see Table 3), so this long-term adverse impact would be minor.

3.9.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. IMCOM garrisons would implement the following BMPs as applicable, most of which are already standard practice at IMCOM garrisons, to manage noise impacts:

- In densely developed, mixed-use areas, incorporate appropriate levels of sound-dampening construction materials into the design of buildings where a quiet interior is important such as homes, hospitals, lodging, schools, childcare facilities, offices, and classrooms.
- Where no local noise ordinance applies, limit construction to daytime hours on weekdays to the maximum extent practicable.
- For all construction activities, implement the industry standard practice of operating construction equipment in accordance with the manufacturer's specifications and with standard mufflers and other noise-reducing equipment in proper operating condition.
- For construction activities within 800 feet of on- or off-post noise-sensitive receptors, use equipment mufflers and/or other sound-shielding devices as appropriate. Shut down noise-generating equipment when not in use. If complaints about noise are received, increase sound-reducing measures appropriately.
- Position HVAC systems, generators, transformers, and other noise-producing equipment away from areas where quiet is important and shield it with walls or other enclosures as appropriate to reduce sound transmission.

3.9.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect an installation's noise environment would continue to be evaluated through project- and

site-specific NEPA analysis and would comply with UFC 2-100-01, AR 210-20, and AR 200-1, applicable noise ordinances, and the garrison's Operational Noise Management Plan (where applicable). Therefore, the adverse impacts on noise from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short-term minor-to-moderate adverse and long-term minor beneficial to minor adverse impacts.

3.10 SOCIOECONOMICS

3.10.1 Definition of the Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Demographics can be used to describe attributes such as age, gender, income level, and race within a population. Economics includes employment, personal income, and business activity. Changes in population and economic activity might be accompanied by changes in other socioeconomic components such as the availability of housing and public services (e.g., fire protection, healthcare, law enforcement, recreational facilities, and schools). This section also addresses environmental justice, the protection of children, and recreation (e.g., leisure activities).

The ROI for socioeconomics is the geographic area where installation personnel and their dependents live, work, shop, and recreate, and where installations procure goods and services. The ROI includes the county or counties that encompass each installation and sometimes adjacent counties, if they are closely associated with economic activity at the installation.

3.10.2 Regulatory Framework

Although there are no federal regulations specific to socioeconomics, AR 200-1 lists socioeconomics as one of the elements of the man-made environment to be considered when Army agencies and organizations address their environmental responsibilities.

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides that, to the extent practicable, each federal agency shall make achieving environmental justice part of its mission by identifying and addressing any disproportionately high and adverse human health or environmental impacts its actions might have on minority populations in the United States. The purpose of the EO is to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, meaning that no group of people should bear a disproportionate share of the negative environmental consequences of federal actions.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, recognizes that children might suffer disproportionately from environmental health and

safety risks because their bodily systems are not fully developed and their behavior patterns can make them more susceptible to accidents. This EO directs federal agencies to assess environmental health and safety risks resulting from their actions that might disproportionately affect children and ensure that they address any that do.

3.10.3 Planning Considerations

UFC 2-100-01 recommends that planners collect data on socioeconomic conditions, demographic patterns, and community services to inform the master planning process. It also directs planners to consider the needs of the various populations that live, work, shop, and recreate on- and off-post. Master planners must involve stakeholders with relevant socioeconomic knowledge and interests in the planning process, including off-post communities, when feasible.

3.10.4 Affected Environment

Socioeconomic Conditions. As of 2019, IMCOM employed more than 55,000 military, civilian, and contract personnel worldwide (IMCOM 2019a). Military installations have a positive economic impact on their local economy, providing jobs and income to the regional workforce and supporting the economy by purchasing goods and services from local businesses.

The number of personnel at IMCOM installations ranges from a few hundred at the smallest installations to over 100,000 at the largest, with a median of 11,500 persons. Total population in the ROI of IMCOM installations ranges from about 7,000 in the most rural ROIs to more than 4 million in the most populous. The percent of the population within an ROI that is employed ranges from less than 10 percent to over 50 percent, compared to 48 percent of people in the United States as a whole (U.S. Census Bureau 2019a, 2019b).

Business volume, which is defined as the annual total of all business activity and sales within an ROI, ranges from less than $1 billion to more than $200 billion, with greater business volumes generally corresponding to areas with higher populations, compared to a business volume of more than $16 trillion for the United States as a whole (U.S. Census Bureau 2019a, 2019b).

Environmental Justice. In accordance with EO 12898, consideration of environmental justice includes identifying minority and low-income populations that could be affected by a proposed action. The term “minority population” includes individuals who identify themselves as American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian and Other Pacific Islander, and persons of two or more races (as identified by the U.S. Census Bureau).

Per CEQ environmental justice guidance, minority populations are present where either:

- The minority population of the affected area exceeds 50 percent, or

- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate geographic area of comparison (CEQ 1997).

Using the first criterion, minority populations are within the ROI of least one IMCOM installation in the following states and territories: Arkansas, California, Florida, Georgia, Hawaii, Maryland, New Mexico, New York, Puerto Rico, Texas, and Virginia (U.S. Census Bureau 2019a, 2019b).

Using the second criterion and the state or territory as the geographic area of comparison, minority populations are within the ROI of least one IMCOM installation in the following states: Arkansas, Florida, Kentucky, Maryland, North Carolina, New York, Texas, and Virginia (U.S. Census Bureau 2019a, 2019b).

Per CEQ guidance, poverty thresholds established by the U.S. Census Bureau are used to identify low-income populations (CEQ 1997). The U.S. Census Bureau defined the 2018 poverty threshold as a maximum annual income of $12,793 for an individual and $25,707 for a family of four (U.S. Census Bureau 2019c). The U.S. Census Bureau defines a “poverty area” as a census tract (which is a subdivision of a county) where 20 percent or more of the residents have incomes below the poverty threshold, and an “extreme poverty area” as a census tract with 40 percent or more of the population below the poverty threshold (U.S. Census Bureau 1995). IMCOM installations in Arkansas, Georgia, Puerto Rico, and Texas are in ROIs that have poverty rates above 20 percent; none is above 40 percent. Note that for this programmatic level analysis, the ROI data used were at the county level, not the census tract level; however, this indicator is appropriate for the scope of this analysis.

Protection of Children. IMCOM complies with EO 13045 by incorporating analysis of environmental health and safety risks that might disproportionately affect children into its decision-making processes. This ensures that the IMCOM would identify, disclose, and respond to potential adverse health and safety impacts on children on their installations.

Children can be present on IMCOM installations as residents or visitors during special events. IMCOM garrisons take precautions for child safety through locating community facilities (e.g., housing, schools, retail, and recreation facilities) away from incompatible land uses (e.g., training ranges and impact areas), limiting access to certain areas, and requiring adult supervision of children.

Recreation. Recreation is any activity done for leisure. Examples of recreational facilities found on IMCOM installations include gyms, parks, sports fields, golf courses, and swimming pools; recreational activities can also include boating, fishing, and hunting. Similar facilities and activities are found in the communities around IMCOM garrisons. Small garrisons may have few, if any, recreational facilities on post.

3.10.5 Environmental Consequences

3.10.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on socioeconomics if it would result in (1) substantial gains or losses in population that would exceed historic rates of growth or decline; (2) a decrease in jobs that substantially raises the regional unemployment rate; (3) a substantial change in the housing market such as severe housing shortages or surpluses; (4) a substantial increase in need for public services (e.g., fire protection, law enforcement, or schools); (5) a substantial long-term loss or displacement of recreational opportunities and resources; (6) disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population per EO 12898; or (7) a disproportionately high and adverse environmental health or safety risk to an identified population of children per EO 13045, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm of children.

Under NEPA, socioeconomic impacts by themselves do not require that an EIS be prepared unless the action also would have natural or physical environmental impacts (40 C.F.R. § 1508.14).

3.10.5.2 Impacts of the Proposed Action

The Proposed Action would have short-term minor beneficial impacts and long-term impacts ranging from minor beneficial to moderate adverse as described in this section.

3.10.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, or updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no direct socioeconomic impacts. When developed in accordance with UFC 2-100-01 and AR 210-20, RPMPs would collect data on socioeconomic conditions, demographic patterns, and recreation and would use them to assess potential impacts on the population, economy, recreation, and sensitive populations (children and environmental justice communities) in the ROI. Master planners would coordinate with appropriate stakeholders to ensure that socioeconomic constraints are identified and proposed development is sited appropriately. Master planning would help to ensure that appropriate levels of housing, community and recreational facilities, infrastructure, and public services would be provided to meet anticipated needs based on socioeconomic projections. Therefore, developing, adopting, and updating RPMP component documents would have no adverse impacts on the socioeconomic environment, including environmental justice and the protection of children.

3.10.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would have short-term minor beneficial impacts and long-term impacts ranging from minor beneficial to moderate adverse on socioeconomics. There would be no disproportionate adverse impacts on environmental justice populations or the protection of children. Impacts on recreation would include long-term minor-to-moderate beneficial and adverse impacts.

Socioeconomic Impacts. Implementing RPMP projects would have short-term minor beneficial impacts and long-term impacts ranging from minor beneficial to negligible adverse on socioeconomics.

Project Construction. Short-term minor beneficial economic impacts would result from economic activity of limited duration from construction, demolition, and renovation of facilities. The expenditures associated with RPMP project construction (including renovation and demolition) would temporarily increase regional employment, income, and business sales for goods and services in an IMCOM installation's ROI. Those economic benefits would include purchasing project materials and supplies, hiring people in construction-related industries, wages earned by those employees, and expenditure of these wages on goods and services.

The economic impact of constructing RPMP projects would vary depending on the scope and budget of the project. Projects would range from several thousand dollars with completion in less than one year, to millions of dollars implemented in phases over several years. RPMPs from about a dozen IMCOM installations were reviewed to compile data on proposed projects and their costs. Table 5 presents project costs from a sampling of RPMPs. Small projects are defined as less than $1 million; medium projects range from $1 million to $15 million; and large projects are more than $15 million. Example projects from the RPMPs ranged from small, minimal cost projects (e.g., $2,500 for minor building renovation of new paint and $3,000 for improvements to a fitness trail) to large projects (e.g., $88 million for new building construction and $40 million for stormwater system repair and upgrade).

The cost of RPMP projects (Table 5) would not be substantial in comparison to total economic activity in an ROI (e.g., sales by local businesses, size of the labor force, number of persons employed in the region, income earnings of persons employed) (U.S. Census Bureau 2019a, 2019b). The average cost of small-to-medium projects would generally be less than one percent of ROI business sales.[1] The average cost of large projects would be less than one percent to a few percent. Project labor would be supplied from the regional workforce. Workers would commute from within the ROI or from surrounding communities (if needed) without moving place of residence.

[1] Business sales volume is defined as business activity or sales within the ROI. It is the sum of total accommodation and food service sales, total retail and wholesaler sales, total selected service (healthcare and social assistance) receipts, and total manufacturer shipments (value-added by manufacturing) (USACERL 1994).

Therefore, implementing RPMP projects would not result in substantial changes to an ROI's population, job availability, or demand for housing or public services.

Therefore, the impacts from construction of RPMP projects would be beneficial, providing regional economic benefits in the form of jobs and income and business sales from construction spending for equipment, materials, and supplies in the ROI.

Table 5. Example Average RPMP Project Costs

Project type	Small projects	Medium projects	Large projects	Overall average for project type
Facility construction, renovation, or demolition project	$264,000	$5,195,000	$41,727,000	$13,040,000
Transportation project	$224,000	$5,984,000	$16,300,000	$1,970,000
Utility project	$373,000	$2,780,000	$27,730,000	$3,290,000
Outdoor recreation and open space project	$314,000	$2,307,000	None found	$621,000
Energy and climate resilience project	$372,400	$1,300,000	None found	$600,000
Overall average for project size	$278,200	$4,672,000	$39,806,500	Not applicable

Project Operation and Maintenance. Long-term economic impacts would range from minor beneficial to negligible adverse. RPMP projects that introduce new or expanded existing facilities would require ongoing expenditures and additional permanent employees to operate and maintain the facilities. Economic benefits would include purchasing goods and services for operation and maintenance, wages earned by employees, and expenditure of these wages on goods and services. Jobs would be filled by local residents or people who move into the area for the jobs; however, any increase in population would be negligible. Therefore, long-term minor beneficial impacts on job availability, employment, and income would occur in the ROI.

RPMP projects that removed or reduced facilities would reduce ongoing expenditures associated with operation and maintenance of the facilities and might make some jobs unnecessary. Any affected employees would be moved to other jobs, potentially in other locations, slightly reducing overall economic activity in the area. The scope of any reductions in economic activity would be very small compared to overall business volume in the ROI, and adverse impacts on job availability, population, housing, and demand for public services in the ROI would be negligible.

Environmental Justice. Implementing RPMP projects would result in no disproportionate adverse environmental or health impacts on low-income or minority populations. Master planners would follow UFC 2-100-01 guidance, collecting and analyzing data on socioeconomic conditions and demographic patterns and involving stakeholders. In accordance with EO 12898 and in conformance with CEQ guidance, they would identify minority and low-income communities during the planning process and avoid implementing projects that would result in adverse impacts on environmental justice; therefore, there would be no environmental justice impacts.

Protection of Children. Implementing RPMP projects would have no disproportionate adverse impacts on children because the Proposed Action would not increase the risks described in EO 13045; therefore, there would be no impacts on the protection of children. As a BMP, which most garrisons already consider a standard practice, construction sites should be fenced and appropriate signage posted to deter unauthorized persons, including children, from accessing them.

Recreation. RPMP projects would propose increasing, decreasing, or reconfiguring recreational opportunities depending on each installation's needs, and impacts on recreation would range from minor beneficial to moderate adverse. If RPMP projects added or expanded recreational facilities and opportunities, a minor beneficial impact would result because more recreational opportunities would be created.

If RPMP projects removed or decreased recreational facilities or opportunities, adverse impacts would occur. However, recreational facilities would likely be available elsewhere on the installation and/or in the surrounding communities in proportion to the installation or community's demand for such facilities, so a substantial long-term loss or displacement of recreational opportunities and resources would be unlikely. Therefore, long-term adverse impacts would range from minor to moderate adverse.

3.10.5.2.3 Mitigation Measures and Best Management Practices

No adverse socioeconomic impacts would be expected; therefore, no mitigation measures would be necessary to reduce adverse impacts to below significant levels. Under the Proposed Action, IMCOM garrisons would implement the following BMP, which is already standard practice at most garrisons, as applicable:

- Fence construction sites and post appropriate signage to deter unauthorized people, including children, from accessing them.

3.10.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect socioeconomic resources (including environmental justice and protection of children) would continue to be evaluated through project- and site-specific NEPA analysis and would comply with UFC 2-100-01, AR 210-20, AR 200-1, EO 12898, and EO 13045.

Through their existing master planning processes, garrisons would plan and implement real property development so it would not substantially affect socioeconomics or recreational opportunities or increase health and safety risks under EO 12898 or EO 13045. Therefore, impacts on socioeconomic resources from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short- and long-term minor beneficial impacts.

3.11 TRANSPORTATION AND TRAFFIC

3.11.1 Definition of the Resource

Transportation is the movement of people and goods by land, air, or water. Common transportation systems include vehicular systems (e.g., roads and parking lots); aviation systems (e.g., airports and heliports), waterway and maritime systems, public transportation systems (e.g., buses, ferries, and passenger rail); and rail systems (e.g., railroads). Other modes of transportation include walking, bicycling, and scooters. The ROI for transportation and traffic is IMCOM garrisons and their surrounding communities to the extent that on-post changes in transportation, circulation, and traffic might affect those communities.

3.11.2 Regulatory Framework

Transportation infrastructure must be designed, built, and operated in accordance with applicable federal, state, and local laws and regulations. AR 420-1 implements applicable laws by providing policies and procedures for on-post transportation infrastructure, including paved roads, airfields, and other surfaced areas; railroads; and bridges.

3.11.3 Planning Considerations

One of the purposes of the master planning process and the resulting RPMP is to define the conceptual and spatial layout and standards that will guide efficient development of the garrison's transportation infrastructure. In particular, the RPMP's transportation-related Network Plans, which present the preferred end state of an installation's transportation network, and Street Envelope Standards, which present allowable configurations for each street type, define how transportation infrastructure should be developed.

UFC 2-100-01 includes the following planning strategies relevant to transportation and traffic:

- *Connected transportation networks (Section 2-2.6)*, which directs planners to ensure that uses are thoroughly connected and afford multiple route options for vehicles, bicyclists, and pedestrians.
- *Transit-oriented development (Section 2-2.3)*, which directs planners to focus on compact, mixed-use development around transit corridors to promote walking, bicycling, and the use of mass transit.

- *Planning for walking, running, and biking (Section 2-4.1)* and *pedestrian and cycling plans (Section 2-4.2)*, which direct planners to provide safe, continuous pathways for walking, running, and bicycling between key destinations.

Some IMCOM garrisons have a Transportation Plan or other plans that relate to transportation infrastructure. The RPMP should inform and be informed by those plans.

3.11.4 Affected Environment

The primary features of transportation infrastructure at IMCOM garrisons include roads, ACP gates, bridges, sidewalks, bicycle trails, parking areas, railways, recreational trails, tank trails, airfields, and heliports. Associated transportation amenities include traffic signals, signage, lighting, and landscaping. The transportation network is a key part of IMCOM's real property portfolio. IMCOM garrisons collectively have approximately 193,000 acres of paved roads, 94,000 acres of other paved areas (e.g., parking lots, and vehicle and equipment storage and staging areas), 106,000 acres of unpaved roads, more than 2,200 miles of railroads, 40 airfields, and six heliports (IMCOM 2019b).

Roadways are the primary means of transportation to, from, and within most IMCOM garrisons. Road networks are relatively dense in cantonments and other high-use areas and relatively sparse in training areas and other undeveloped or minimally developed areas, where many roads are unpaved. Roads in cantonment areas and near entry gates can experience traffic congestion, especially during peak commute hours. Roads in training areas and other less developed parts of an installation typically experience little to no traffic congestion.

Access to all IMCOM garrisons is controlled. Anyone wishing to be admitted to one of the installations must obtain the appropriate clearances and enter through one of the designated gates, or ACPs. All goods being delivered must have the appropriate paperwork accompanying them. Larger installations generally have more ACPs than smaller installations. The function of ACPs is to restrict traffic so that access to the installation can be securely monitored; however, at some ACPs, this results in traffic congestion that can impact off-post roadways, primarily during peak commute hours. Most ACPs, however, experience minimal vehicle wait times.

IMCOM garrisons also have multimodal transportation infrastructure, including sidewalks and other pedestrian pathways, bicycle lanes and dedicated bicycle paths, soft surface trails used for transportation and recreation, and transit facilities such as bus stops. The extent and level of development of the multimodal transportation infrastructure varies by installation.

Many IMCOM garrisons support rail transportation and have one or more airfields or heliports. Rail is typically used to transport goods, vehicles, and equipment rather than passengers. Airfields and helipads support training of military aircraft crews and

transportation of Soldiers and equipment. Some coastal installations or those located on a navigable waterway have water-based transportation infrastructure such as boat launches and piers.

At numerous IMCOM garrisons, many of the principal features of the transportation network were constructed decades ago, resulting in increased repair frequency and cost to maintain the aging infrastructure. Existing transportation infrastructure might also need modernizing to meet today's standards for design, safety, access for people with disabilities, alternative modes, and aesthetic appeal.

Because access to IMCOM garrisons is controlled by ACPs, the interconnection between the on- and off-post transportation networks is limited to the roads around ACPs. On-post transportation networks are typically characterized by infrastructure similar to that of off-post networks, with a hierarchy of paved roads built to accommodate various volumes and types of traffic, sidewalks, bicycle trails, paths, parking areas, transit networks, airports, and railways.

3.11.5 Environmental Consequences

3.11.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact if it would (1) substantially increase traffic congestion or delays for an extended period of time; (2) substantially increase transportation safety hazards due to an RPMP project design feature; or (3) overwhelm existing parking capacity.

3.11.5.2 Impacts of the Proposed Action

Impacts on transportation and traffic from the Proposed Action would include short-term impacts ranging from negligible to moderate adverse and long-term impacts ranging from moderate adverse to moderate beneficial as described in this section.

3.11.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no direct impact on transportation and traffic. Careful consideration of transportation and traffic during the planning process would aid in avoiding or minimizing adverse impacts on those resources in the future. When developed in accordance with UFC 2-100-01 and AR 210-20, especially those sections of UFC 2-100-01 that relate specifically to transportation (see Section 3.11.3), RPMPs would identify the needs and deficiencies of the existing transportation system and plan for future development that would reduce traffic congestion where it exists and increase the safety, efficiency, and multimodal diversity of the garrison's transportation network, resulting in long-term minor beneficial impacts.

3.11.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would result in short-term impacts ranging from negligible to moderate adverse and long-term impacts ranging from moderate adverse to moderate beneficial.

Project Construction. Construction activities (including renovation and demolition) would result in short-term impacts ranging from negligible to moderate adverse. Some construction activities would disrupt existing transportation infrastructure by closing lanes, roads, parking areas, sidewalks, or other transportation features. As a result, personnel might experience longer travel times to their destinations, have to use alternate routes, or have to park further from their destinations. Depending on the project, any part of the circulation system could be affected, including vehicular traffic, air traffic, rail traffic, bicyclists, and pedestrians. For example, repaving a runway could mean air operations would have to be reduced or suspended or temporarily use an alternate airfield. Adding a new lane to a road could mean that traffic has to temporarily use a detour route to avoid the affected section of road.

During construction, the number of vehicle trips on roads to and from the construction site would increase because of trucks delivering equipment and supplies and workers traveling to and from those sites. The additional trips would be a small fraction of the current volume of traffic; therefore, the increase would not result in a noticeable change in traffic. As a BMP, construction vehicle trips would be routed and scheduled to minimize conflicts with other traffic to the maximum extent practical.

The impacts of constructing small RPMP projects would be negligible to minor, lasting a few days or weeks, affecting a limited area, and having minimal effect on user movements. For example, reconfiguring a sidewalk might require pedestrians to use an alternate walking route until the project was completed. The impacts of constructing large projects would be more substantial, with some lasting several months and having a moderate adverse impact on user movements. For example, widening a primary road could require that substantial volumes of traffic use alternate routes, including secondary or tertiary roads, increasing travel times and congestion in a moderately large portion of the garrison.

Installations would implement temporary traffic control BMPs to safely and efficiently manage traffic flow around construction sites. They would select applicable measures from the *Manual on Uniform Traffic Control Devices for Streets and Highways*, Part 6, Temporary Traffic Control (DOT and FHWA 2012), or other applicable standards or guidance documents. Part 6 details how to provide for “continuity of movement of motor vehicle, bicycle, and pedestrian traffic (including accessible passage); transit operations; and access (and accessibility) to property and utilities” while promoting the safety of users, workers, and emergency responders. Temporary traffic controls might include public notification, signage, barriers, and flaggers.

For larger RPMP projects, installations should consider preparing a written temporary Traffic Control Plan—either as a stand-alone document or as a section of the project's Health and Safety Plan—to ensure that the traffic control BMPs to be implemented during construction are clear and easy to communicate to all parties involved.

The impacts of most construction would be limited to on-post areas and installation personnel would be informed in advance of any adjustment measures and prepared to deal with the traffic pattern changes for any temporary inconveniences associated with construction. Construction of new ACPs or at existing ACPs would be one of the few types of projects that might affect transportation and traffic off-post. For ACP projects, the garrison would coordinate with the jurisdictional agency or agencies of nearby off-post areas (e.g., the local community department of public works and/or state Department of Transportation [DOT]) on appropriate BMPs for traffic management during construction (e.g., signage, flaggers, and public notification), as applicable.

Project Operation and Maintenance. Most RPMP projects that would affect transportation and traffic would have long-term minor-to-moderate beneficial impacts because they would improve the safety, efficiency, and circulation of the transportation network compared to existing baseline conditions. For example, widening a road would reduce traffic congestion, changing the traffic controls at an intersection would enhance safety, and building a parking garage would enhance parking efficiency by providing a large number of new parking spaces conveniently located near key destinations.

New ACPs would result in impacts ranging from minor beneficial to moderate adverse and would be one of the few types of projects that could impact off-post traffic. Beneficial impacts would result from reducing congestion at existing ACPs and providing alternative locations to access the garrison. Although vehicle queuing at ACPs is a normal part of operations, adverse impacts to traffic flow and air quality (see section 3.2.5.2) would result from vehicle queuing if it introduced or increased congestion on nearby off-post roads. New ACPs would be designed so traffic would not routinely back up on off-post roads by providing sufficient queueing space on Army property away from local roads, therefore, impacts on traffic flow would not exceed moderate adverse. In addition, as a BMP, the garrison would coordinate with the jurisdictional agency or agencies of nearby off-post areas (e.g., the local community and/or state DOT) during the design of the ACP.

Projects that would demolish real property (e.g., buildings and related transportation infrastructure such as access roads and parking areas), would have no long-term impact on transportation and traffic. The RPMP would identify those features for removal after performing internal analyses that demonstrate they are no longer needed; therefore, removing them would have no long-term adverse impacts.

UFC 2-100-01 promotes compact, infill development, which could result in certain areas becoming less convenient to access by vehicle but more convenient to access on foot

or by bicycle over time, representing the installation's deliberate choice to promote alternative modes of transportation. Because the circulation system would evolve to more accurately represent each garrison's vision of an ideal connected transportation network, the long-term impacts of those changes would be moderately beneficial.

3.11.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. Garrisons would implement the following BMPs to manage impacts:

- Route and schedule construction vehicles to minimize conflicts with other traffic to the maximum extent practical.
- To safely and efficiently manage traffic around construction sites, implement appropriate measures from Part 6 of the *Manual on Uniform Traffic Control Devices for Streets and Highways* (DOT and FHWA 2012), or other applicable standards or guidance document, as applicable. For larger projects, consider preparing a written temporary traffic control plan—either as a stand-alone document or as a portion of the project's health and safety plan—to ensure that BMPs are clear and easy to communicate to all parties involved in the work.
- For ACP projects, coordinate with the jurisdictional agency or agencies of nearby off-post areas (e.g., the local community and/or state DOT) on using signage, flaggers, public notification, and other appropriate BMPs for traffic management during construction, as applicable.

3.11.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Individual garrisons' processes, although not standardized, would be conducted in accordance with UFC 2-100-01 and AR 210-20, and in compliance with all applicable laws and regulations, including NEPA; therefore, the impacts on transportation and traffic from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short-term impacts ranging from negligible to moderate adverse and long-term impacts ranging from moderate adverse to moderate beneficial.

3.12 UTILITIES

3.12.1 Definition of the Resource

Utilities are man-made systems that provide essential services such as water conveyance and treatment systems (e.g., drinking water and wastewater management), energy systems (e.g., electricity, steam, and natural gas), communications (e.g., telephone, television, and Internet), and nonhazardous solid waste disposal (e.g., trash removal and landfills). Stormwater conveyance systems are addressed in Section 3.13, *Water Resources*. The ROI for utilities is IMCOM garrisons and their surrounding

communities to the extent that garrisons interconnect with or use off-post utility systems and services.

3.12.2 Regulatory Framework

Utility systems must be designed, built, and operated in accordance with applicable federal, state, and local laws and regulations. AR 420-1 is the primary Army regulation guiding utilities management and compliance with other applicable regulations, with environmentally related components such as waste management also addressed in AR 200-1. These regulations include many conservation measures such as the requirement in AR 420-1 that all military construction, renovation, and demolition projects divert a minimum of 50 percent of construction and demolition waste by weight from landfill disposal.

3.12.3 Planning Considerations

Planning for utilities is a crucial component of installation development. UFC 2-100-01 includes the following planning strategies relevant to utilities:

- *Energy and water conservation (Sections 2-2.11 and 2-2.12)*, which directs planners to incorporate practices that can reduce energy and water consumption at the planning level (e.g., by designing low-water landscaping or incorporating energy efficiency or renewable energy production into projects).
- *Waste management (Section 2-2.13),* which directs planners to incorporate practices that can reduce waste at the planning level (e.g., by adaptively reusing a building instead of demolishing it).
- *Multistory buildings (Section 2-2.8),* which the UFC asserts can provide a cost saving over providing utilities to multiple one-story buildings.
- *District and nodal energy plants (Section 2-2.11.2),* which encourages planners to choose local energy plants over central or building-specific plants because the local plants provide better load leveling and economies of scale and can make renewable energy systems more cost effective.
- *Compact and infill development (Sections 2-2.1 and 2-2.2)*, which reduces the number and length of utility runs and makes nodal energy more cost effective.
- *Capacity planning (Section 2-6)*, which directs planners to define and not to exceed the capacity of its utility systems and to plan to augment these systems as needed to support additional development.
- *Network planning (Section 2-8)*, which directs planners to consider utility systems and their interconnections at the broadest level, including connections between installation districts and to off-post utilities. The document acknowledges that, in the past, adverse impacts resulted from poor network planning for utilities and aims to avoid this in the future. It states that planners should be aware that, in

some instances, redundant utility systems might be advantageous in providing continuity of operations. Privatized utility partners should be involved in network planning. This portion of the document also directs planners to place power lines underground when possible for practical and aesthetic purposes.

In accordance with UFC 2-100-01, the RPMP should include a Primary Utility Plan among its Network Plans. That plan should identify all current and proposed primary utility lines and infrastructure, utility easements and rights-of-way, and renewable energy sites on the installation as well as present the preferred end state for the installation's primary utility network.

Both UFC 2-100-01 and AR 210-20 state that utility-related data—including locations and capacities—should be collected and analyzed during the planning process. Both documents also state that multiple alternatives for utility system development should be considered during the planning process and a preferred plan ultimately selected.

IMCOM installations have multiple management plans related to utilities, including Utility Capacity Plans, Energy Management Plans, Water Resource Management Plans, and Integrated Solid Waste Management Plans. The RPMP should inform and be informed by those plans.

3.12.4 Affected Environment

Utility infrastructure at IMCOM garrisons includes aboveground and underground pipes, lines, plants, and other infrastructure to provide and manage water, wastewater, energy, communications, and waste. Utility infrastructure can be owned and operated by the garrison, privatized utility operators, public and private utility companies, or a combination of those entities. Most garrisons rely at least in part on utility providers in the nearby community. In addition to distribution and collection systems, some garrisons have on-post generation and treatment facilities such as energy plants and substations for generating electricity, wells that supply drinking water, wastewater treatment plants that treat wastewater, and landfills for disposal of waste.

At many garrisons, portions of the utility system were constructed decades ago and utility infrastructure is in need of major repairs or upgrades. Partially driven by Army Directive 2014-02, *Net Zero Installations Policy*, many garrisons are making great strides in constructing on-post renewable energy facilities, conserving water and energy, and reducing waste, lessening demand and realizing cost savings and environmental benefits.

3.12.5 Environmental Consequences

3.12.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on utilities if it would result in (1) exceeding the available capacity of existing utilities and supporting

infrastructure without an appropriate plan to provide the additional needed capacity, (2) causing long-term or frequent disruption of utility service on- or off-post, or (3) violating regulatory or permit limits related to utilities (e.g., by creating a wastewater discharge greater than an existing permit allowed).

3.12.5.2 Impacts of the Proposed Action

The Proposed Action would have short- and long-term minor adverse and minor beneficial impacts on utilities as described in this section.

3.12.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no impact on utilities. Utility systems would be carefully considered during the planning process, including demand, capacity, infrastructure design and location, and conservation measures. Therefore, long-term impacts on utilities would be minor beneficial.

When developed in accordance with UFC 2-100-01 and AR 210-20, RPMPs and component documents would evaluate the capacity of existing utility infrastructure and plan for any additional capacity needed to support implementation of the RPMP. When applicable, privatized utility system operators and public and private utility providers would be included in this process. Therefore, developing, adopting, and updating RPMP component documents would plan for any additional needed capacity and position the installation to avoid exceeding the available capacity of existing utilities, so there would be no adverse impact on utilities.

In accordance with UFC 2-100-01 guidance on energy and water conservation and waste management and other DoD and Army initiatives, the RPMP would incorporate strategies to reduce energy and water consumption and waste generation at the planning level. Those measures would result in less demand on the installation's existing utility capacity, resulting in a minor beneficial impact on utility infrastructure. It would also have a long-term minor beneficial impact on the natural environment by conserving resources.

Other UFC 2-100-01 planning strategies such as network planning, district and nodal energy plants, compact and infill development, and multistory buildings would aid the garrison in planning efficient, effective, and resilient utility infrastructure. Through high-level planning, new utility infrastructure would be compact and rightsized and its installation would be coordinated to minimize the number of times ground-disturbing utility projects would occur. The result would be short- and long-term minor beneficial impacts because it would provide needed utility capacity with minimal disruption.

3.12.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would result in short- and long-term impacts on utilities ranging from minor beneficial to minor adverse.

Project Construction. Short-term minor adverse and long-term minor beneficial impacts on utilities would occur during project construction (including renovation and demolition). Some projects would require relocation of existing utilities, resulting in temporary localized service interruptions. Those interruptions would also occur when utilities for a particular facility were connected to or disconnected from utility infrastructure. Service disruptions would be short, affect a localized area, and be timed to avoid or minimize impact on users; therefore, this short-term adverse impact would be minor.

Construction, renovation, and demolition projects would also result in short-term increases in demand for utility services, using additional energy to power equipment, requiring additional water (e.g., to wash equipment or keep down dust), and generating additional waste, primarily in the form of construction and demolition debris. As required by AR 420-1, all military construction, renovation, and demolition projects would be required to divert a minimum of 50 percent of construction and demolition waste by weight from landfill disposal. Additional demand for utilities during construction, renovation, and demolition activities would be minor compared to suppliers' total available capacity and would be for a limited duration; therefore, this short-term adverse impact would be minor.

Projects to demolish inefficient underutilized facilities would result in long-term minor beneficial impacts because those facilities would no longer consume utilities such as energy or potable water or require wastewater treatment capacity, reducing demand on utility systems.

Project Operations and Maintenance. Long-term impacts would range from minor beneficial to minor adverse. Projects that require utility services such as new buildings, lighting, landscaped vegetation, swimming pools, and golf courses would increase the long-term demand on utility supply and capacity once they became operational. Proper planning and compliance with applicable regulations and policies, however, would ensure that demand would not exceed the available supply and capacity of existing utilities and supporting infrastructure; therefore, this long-term adverse impact would be minor.

Garrisons are generally expected to include in their RPMPs renewable energy projects, water and energy conservation measures, and waste reduction measures. Those projects and measures would lessen demand relative to the garrison's existing utility capacity, offsetting some or all of the demand from projects that require utility services, and potentially lowering the garrison's overall demand for utility services, resulting in a minor beneficial impact. The overall increase or decrease in demand would vary from

garrison to garrison, so long-term impacts would range from minor beneficial to minor adverse.

3.12.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. No BMPs other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans would be necessary.

3.12.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Actions with a potential to adversely affect utilities would continue to be evaluated through project- and site-specific NEPA analysis and would comply with UFC 2-100-01, AR 210-20, AR 420-1, AR 200-1, applicable utility regulations and permitting requirements, and any garrison-specific utility or energy management plans. Garrisons' existing master planning processes would plan for real property development so as not to exceed available utility capacity, cause long-term or frequent service disruptions, or violate regulatory or permit limits. Therefore, the impacts on utilities from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short- and long-term moderate adverse and minor beneficial impacts.

3.13 WATER RESOURCES

3.13.1 Definition of the Resource

Water resources include surface water, groundwater, coastal waters, wetlands, stormwater, and floodplains. Surface waters include ponds, lakes, streams, rivers, and wetlands. Groundwater is any source of water beneath the ground that can be used for drinking water, irrigation, or industrial applications. Coastal waters include near-shore ocean waters protected by the CZMA. Wetlands are permanently or periodically saturated areas such as marshes and swamps. Stormwater includes natural surface flow regimes and man-made conveyances to control runoff and minimize soil erosion that could cause sedimentation in streams and other water bodies, affecting water quality. Floodplains are low-lying areas adjacent to water bodies that are subject to periodic inundation.

Water resources also address water quality, which is the chemical and physical composition of water as affected by natural conditions and human activities. The ROI for water resources is surface water features, groundwater resources, and the watersheds within which IMCOM garrisons are located, which can also include off-post land areas.

3.13.2 Regulatory Framework

The CWA is the primary federal law governing surface water quality. CWA Section 303(d) requires states to list impaired waters and develop total maximum daily loads

(TMDLs) for those water bodies. A TMDL establishes the maximum amount of a pollutant allowed in a water body without exceeding its water quality standard for that pollutant and serves as the starting point for restoring water quality.

CWA Section 404 requires a discharger to obtain a federal permit to legally discharge dredge or fill material into waters of the United States, including wetlands. CWA Section 401 requires a discharger to obtain a state certification before a Section 404 permit can be issued. CWA Section 404 permits also trigger the consultation requirements of the Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-667e).

CWA Section 402 established the NPDES program, which requires the discharger to obtain a permit issued by EPA or the state to legally discharge pollutants from a point source to a water of the United States, including wetlands. Stormwater discharges from construction activities that disturb one acre or more of land require a NPDES permit. This permit requires a construction site operation to prepare a SWPPP that describes site activities to be implemented to prevent stormwater contamination, control sedimentation and erosion, and comply with the CWA. Stormwater practices must also comply with Section 438 of the EISA, which requires development or redevelopment projects affecting more than 5,000 square feet to maintain or restore the predevelopment hydrology of the property to the maximum extent that is technically feasible.

EO 11990, *Protection of Wetlands*, requires federal agencies to minimize impacts on wetlands. EO 11988, *Floodplain Management*, requires federal agencies to avoid development in floodplains when there is a practicable alternative and to minimize potential harm to people, property, and the floodplains themselves if development must be located in a floodplain. A Finding of No Practicable Alternative would be developed if floodplain impacts are anticipated.

AR 200-1 provides guidance to ensure the availability, conservation, and protection of water resources, including potable water, and enables Army compliance with the CWA, Safe Drinking Water Act, and applicable state and local regulations implementing those federal laws.

3.13.3 Planning Considerations

UFC 2-100-01 includes the following planning strategies relevant to water resources:

- *Low-impact development and stormwater management (Section 2-2.8)*, which involves the use of on-site natural and man-made features to control stormwater runoff quantity and quality. Low-impact development strategies focus on minimizing impervious surfaces when siting new facilities and structures. Low-impact development is required by law (i.e., EISA Section 438) and DoD policy. Low-impact development design requirements are defined in UFC 3-210-10.

- *Water conservation (Section 2-2.12)*, which directs planners to reduce water consumption by designing landscaping features that are low maintenance and by incorporating other strategies such using grey water for irrigation.
- *Flood protection (Section 2-2.16)*, which directs planners to identify flood hazard areas and avoid siting facilities in those areas if other alternatives are available.
- *Sustainable landscape elements (Section 2-2.7)*, which requires planners to incorporate vegetation to absorb stormwater and help conserve water resources.
- *Environmental conditions (Section 3-5.6.2.3)*, which requires planners to plan for changing climatic conditions that can affect water levels and precipitation.

AR 210-20 states that reducing negative impacts on water quality through erosion and pollutant control should be considered when developing an RPMP.

Each installation has plans such as an INRMP or Water Resources Management Plan that document the installation's water resources and identify management measures for preserving them. Those plans should inform and be informed by the RPMP.

3.13.4 Affected Environment

Surface Water. Many IMCOM installations have one or more surface water bodies such as ponds, lakes, streams, rivers, and wetlands. They are classified as "perennial" if they contain water year-round or "intermittent" or "ephemeral" if they contain water less often. Surface waters are a source of drinking water and/or a recreational resource at some installations. Other installation surface waters are on the CWA Section 303(d) list of impaired waters.

Groundwater. All IMCOM installations have groundwater beneath them. Many have on-post wells that access groundwater to use for drinking water, irrigation, or industrial purposes. Groundwater beneath an installation also can supply water to communities around the installation. Some installations contain aquifer recharge areas, where percolation of surface water is important to replenishing the aquifer.

Coastal Waters. Installation lands that border the Atlantic, Pacific, and Arctic oceans; Gulf of Mexico; Long Island Sound; and Great Lakes are subject to the CZMA, which aims to prevent degradation of coastal waters through the establishment of coastal management plans and programs.

Wetlands. IMCOM installations in wetter climates may have many acres of wetlands, while installations in drier climates may have very few wetland areas. Not all wetlands on IMCOM installations have been identified and mapped. When needed, installation personnel conduct wetland delineation surveys and submit them to the U.S. Army Corps of Engineers (USACE), who determines if a wetland is jurisdictional and thus subject to CWA Section 404 permitting requirements.

Stormwater. Stormwater drainage systems on IMCOM installations include a variety of gutters, ditches, channels, pipes, culverts, drain inlets, and other features that contain and convey stormwater until it percolates into the ground or outfalls into a receiving water body. The municipal separate storm sewer system and industrial NPDES programs are a source of stormwater management measures available to garrisons. Garrisons also implement a variety of standard BMPs to control stormwater runoff from construction sites such as minimizing exposed soils, protecting storm drain inlets, and installing silt fences.

Floodplains. Most IMCOM installations have floodplains. They are typically in low-lying areas adjacent to surface water bodies and, if the topography is flat, may extend well beyond the surface water body.

3.13.5 Environmental Consequences

3.13.5.1 Significance Criteria

An alternative would be expected to have a significant adverse impact on water resources if it would (1) cause an exceedance of a TMDL, (2) cause a detrimental change in the impairment status of a surface water, (3) result in unpermitted direct impact on a water of the United States, (4) result in the unpermitted loss or destruction of more than one acre of jurisdictional wetlands, or (5) cause erosion and sedimentation that would violate water quality laws or the terms of a NPDES permit.

3.13.5.2 Impacts of the Proposed Action

Impacts on water resources from the Proposed Action would include short-term impacts ranging from minor to moderate adverse and long-term impacts ranging from moderate adverse to moderate beneficial as described in this section.

3.13.5.2.1 Developing, Adopting, and Updating RPMP Component Documents

Developing, adopting, and updating RPMP component documents involve the establishment of goals and procedures for real property management that would have no direct impact on water resources. Careful consideration of water resources during the planning process would aid in minimizing adverse impacts on those resources in the future. Therefore, the long-term impacts of developing, adopting, or updating an RPMP component document would be beneficial.

By following the UFC's guidance on low-impact development and stormwater management, RPMPs would incorporate small-scale, on-site hydrologic controls such as bioswales and permeable pavers to maintain pre-project hydrologic conditions. Low-impact development would minimize the introduction of new impervious surfaces and offset the impact of new impervious surfaces by planning for on-site stormwater retention and infiltration. That would reduce or avoid surface water quality impacts from erosion and sedimentation, resulting in a long-term moderate beneficial impact.

By following the UFC's guidance on water conservation and sustainable landscape elements, RPMPs would plan for reduced water consumption through techniques such as low maintenance landscaping and irrigation with gray water, resulting in a long-term minor-to-moderate beneficial impact.

Also by following the UFC's guidance on sustainable landscape elements, RPMPs would incorporate vegetation to absorb stormwater (complementing low-impact development techniques) and conserve water by using native plants with little need for supplemental water (complementing water conservation techniques).

By following the UFC's guidance on flood protection, RPMPs would avoid siting new projects in flood hazard areas when other practical alternatives are available; therefore, there would be no adverse impact on floodplains.

By following the UFC's guidance on environmental conditions, RPMPs would plan for resiliency to anticipated changes in climatic conditions that would affect water resources. They would include changes in the timing and amount of precipitation and flooding and the frequency and intensity of storms and droughts. More frequent and longer droughts would reduce potable water supplies, increasing the installation's reliance on groundwater and the need for water conservation. Changes in precipitation, storms, and flooding would increase the importance of managing stormwater to avoid water quality degradation and avoiding development in floodplains. Planning for changing climatic conditions would protect water resources, resulting in a long-term minor beneficial impact.

3.13.5.2.2 Implementing RPMP Projects

Implementing RPMP projects would result in short-term impacts ranging from minor to moderate adverse and long-term impacts ranging from moderate adverse to moderate beneficial.

Project Construction. Ground disturbance during construction would result in some soil erosion and sediment-laden stormwater runoff. The runoff might contain minor amounts of pollutants from paved surfaces and minor drips from construction equipment and vehicles. IMCOM or its contractor would minimize impacts by implementing BMPs outlined in the SWPPP developed for the project and by stabilizing all disturbed areas upon completion of site preparation activities (e.g., vegetation removal, excavation, and grading). Those actions would ensure that the project would not cause an exceedance of a TMDL, cause a detrimental change in the impairment status of a surface water, or cause erosion and sedimentation that would violate water quality laws. Therefore, short- and long-term adverse impacts on surface water would not exceed moderate.

If any project was proposed in a floodplain, the installation would comply with EO 11988, which requires federal agencies to avoid to the maximum extent possible adverse

impacts associated with occupying or modifying the 100-year floodplain. Therefore, short- and long-term adverse impacts on floodplains would not exceed moderate.

If any project would adversely affect any jurisdictional wetland or other waters of the United States in a manner exceeding the limits of a general permit, the installation would obtain a CWA Section 404 individual permit from USACE—and a CWA Section 401 permit or waiver, as applicable—and abide by any conservation measures specified in the permit(s). Doing so would ensure that projects would not result in unpermitted direct impact on a water of the United States or result in the unpermitted loss or destruction of more than one acre of jurisdictional wetlands. Therefore, short- and long-term adverse impacts on wetlands and surface waters would not exceed moderate.

For projects that border the Atlantic, Pacific, and Arctic oceans; Gulf of Mexico; Long Island Sound; and Great Lakes, the installation would prepare a federal Coastal Consistency Determination as required by the CZMA, receive approval from the regulatory agency prior to implementing the project, and abide by any agreed-upon conservation measures. Doing so would ensure that projects would not substantially degrade those water bodies. Therefore, short- and long-term adverse impacts would be minor.

Project Operation and Maintenance. Upon completion of RPMP construction projects, RPMP projects that implemented low-impact development techniques to increase the amount of stormwater to be retained on-site and percolate into the ground instead of being conveyed to an outfall at a receiving surface water body would result in long-term minor-to-moderate beneficial impacts on surface water and groundwater. Because less stormwater would enter surface waters, less sediment and other pollutants would enter them. Because more stormwater would percolate into the ground, aquifer recharge rates would increase, albeit slightly. Examples of those RPMP projects include buildings of all types; transportation infrastructure such as roads, parking lots, and airfield surfaces (e.g., runways, taxiways, and parking aprons); sports fields and courts; and utility projects implemented specifically to improve stormwater drainage features.

Some RPMP projects would have no perceptible impact on water resources. These projects would each have a limited footprint that would not substantially alter the topography, hydrology, and amount of impervious surface at a site. Examples include trails, fences, utility lines, and other utility features with a small footprint; outdoor memorials; and exercise equipment. In addition, projects that designate land for open space, parks, and other functions where it would remain in its current state with minimal modification would not alter water features or site hydrology and thus would have no or negligible long-term adverse impacts on water resources.

3.13.5.2.3 Mitigation Measures and Best Management Practices

No mitigation measures would be necessary to reduce adverse impacts to below significant levels. No BMPs other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans would be necessary.

This would include compliance with CWA, UFC 2-100-01, AR 210-20, AR 200-1, and the installation's INRMP and Water Resources Management Plan. If a CWA individual permit is required, wetland mitigations may be required.

3.13.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, each garrison would continue to use its existing process to conduct master planning. Individual garrisons' processes, although not standardized, would be conducted in accordance with UFC 2-100-01 and AR 210-20, and installation RPMPs would be in compliance with NEPA. Furthermore, each garrison's RPMP would identify and implement projects in compliance with all applicable laws and regulations, including NEPA; therefore, the impacts on water resources from implementing the No Action Alternative would be similar to those expected under the Proposed Action and would include short-term impacts ranging from minor to moderate adverse and long-term impacts ranging from moderate adverse to moderate beneficial.

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4.0 CUMULATIVE EFFECTS

Cumulative effects result when the effect of a proposed action on the environment is added to separate past, present, and reasonably foreseeable future actions, regardless of the agency or person who undertakes those actions. Cumulative effects can accrue from individually minor but collectively significant actions being taken over an extended period of time. Taken individually, environmental impacts might be incremental, occurring one action at a time; however, determining the significance of those actions collectively requires an analysis of their larger effect on the environment. Cumulative effects would be significant if the total effects of separate past, present, and reasonably foreseeable future actions would be greater than the identified significance criteria for a resource.

The scope of this analysis of cumulative effects includes the impact of the Proposed Action—developing, adopting, updating, and implementing RPMPs—in combination with other past, present, and future actions occurring within each IMCOM installation's planning region. The ROI for the cumulative effects analysis is IMCOM garrisons and their adjacent communities.

When considering the implementation of a specific proposed action on an installation, installations would use the Environmental Checklist in Appendix A of this PEA to determine whether tiering from this PEA is appropriate and whether additional NEPA analysis—including additional cumulative analysis—is necessary. The installation must consider whether other on- and off-post actions are underway or proposed that, when combined with the potential effects of the Proposed Action, could have a significant cumulative effect on the human or natural environment on- or off-post.

4.1 CUMULATIVE SETTING

The juxtaposition of military operations with the surrounding communities has been the baseline in each IMCOM installation's ROI for as long as that installation has been in operation. Military installations and their surrounding communities have a symbiotic relationship, with each relying on the other. IMCOM installations are located in rural, suburban, and urban environments. They are located in areas in which the surrounding population is decreasing, relatively stable, or increasing. Both large and small construction, renovation, and demolition projects of buildings, utilities, and transportation infrastructure occur almost continuously on- and off-post.

Over the years, development has occurred as necessary on installations to meet current mission requirements and in the surrounding communities to meet the needs of the area's population and changing community characteristics. Past, present, and reasonably foreseeable future on- and off-post projects vary widely in number and scope depending on the setting within each ROI and the amount of development

occurring there. Projects include construction, demolition, and renovation of buildings, utilities, transportation infrastructure, and natural infrastructure (e.g., parks and trails).

On- and off-post planners develop management plans for orderly growth and development of a region. In addition to the RPMP, IMCOM garrison management plans and programs that influence conditions on the installation and in the surrounding communities are discussed in the resource sections and include the ACUB program, Air Installation Compatible Use Zone, ICRMPs, INRMPs, JLUSs or CUPs, and RCMPs. Those plans are updated periodically to respond to changing conditions, and the RPMP is coordinated with them so they do not conflict.

Off-post, the primary planning document is the general plan. Analogous to an RPMP, cities and counties use those plans to prepare for anticipated population growth, demands on utility and transportation infrastructure, and development of commercial, industrial, recreational, and residential areas. In addition, cities and counties might prepare other plans to address topics of special relevance to their community such as transportation or sustainability plans.

4.2 CUMULATIVE EFFECTS UNDER THE PROPOSED ACTION

Cumulative beneficial effects would result from planning efforts in which on- and off-post stakeholders coordinate with each other. Although some plans do not require the involvement of off-post stakeholders, the RPMP, JLUS or CUP, INRMP, and ICRMP require coordination with government agencies or the local community. Coordinating with off-post stakeholders during the planning process can aid an IMCOM installation in identifying potential conflicts that might occur as a result of air, land use, noise, socioeconomic, utilities, or transportation impacts. Planners could then develop plans that would avoid or mitigate adverse impacts on the human and natural environments on- and off-post, resulting in a minor beneficial cumulative effect.

This section discusses the cumulative effects on each resource area of the Proposed Action and the No Action Alternative.

4.2.1 Air Quality and Greenhouse Gases

Any project that would produce emissions would have an adverse effect on air quality. The primary sources of air emissions would include construction, demolition, or renovation; operating emission-producing equipment; and vehicle traffic. The states and territories take into account the effects of all past, present, and reasonably foreseeable future projects, activities, and associated emissions when they develop their State Implementation Plans (SIPs) under the CAA. Estimated emissions from each proposed action are required by law to conform to the applicable SIP, regulations or rules regulating fugitive dust, and any required operating permit. In addition, federal projects in nonattainment or maintenance areas must not exceed the General Conformity thresholds. The purpose of those regulations, plans, and permits is to maintain or

achieve conformance with the NAAQS; therefore, compliance with them would limit cumulative air quality effects to less than significant.

Although GHG emissions are increasing nationwide and currently no numeric threshold limiting GHG emissions exists, DoD and many state and commercial initiatives are being implemented to reduce GHG emissions; therefore, cumulative effects on GHGs would be less than significant.

4.2.2 Biological Resources

Implementing more than one project at a time or multiple projects over a period of time could have cumulative effects on biological resources. The installations have INRMPs for managing biological resources while maintaining mission readiness. If there was the potential for protected species to be affected, garrison personnel would be required to consult with the appropriate federal and state agencies and implement measures as necessary to minimize and mitigate adverse impacts. Cumulative long-term impacts on biological resources would also occur from increasing human disturbance and loss of habitat. IMCOM garrisons would be responsible for complying with applicable laws, ordinances, and regulations, including the ESA, MBTA, and BGEPA, and, when applicable, the related state requirement, and any previously agreed-upon conservation measures (e.g., those included in a Biological Opinion) to protect biological resources. Therefore, cumulative effects on biological resources would be less than significant.

4.2.3 Cultural Resources

Cultural resources are protected by a body of legislation requiring consultation with appropriate consulting parties. IMCOM installations have ICRMPs for managing cultural resources while maintaining mission readiness. If there was the potential for cultural resources to be affected, garrison personnel would identify mitigation measures through project-specific consultation with the SHPO (and other consulting parties as appropriate) and implement them to mitigate any adverse impacts. Present and reasonably foreseeable future actions that might affect cultural resources include any ground-disturbing activities, demolition or renovation of NRHP-eligible or -listed properties, and projects that would be in or within the viewshed of an NRHP-eligible or -listed historic district. Such actions also would include those with the potential to introduce incremental changes in the character of use or introduction of visible, atmospheric, or audible elements. Whether on- or off-post, these actions would need to be compliant with regulations relevant to cultural resources, including the ARPA, NAGPRA, and NHPA. Therefore, cumulative effects on cultural resources would be less than significant.

4.2.4 Earth Resources

Many past, present, and reasonably foreseeable future projects would involve ground disturbance. Multiple ground-disturbing projects occurring at the same time would contribute to cumulative effects on earth resources, primarily by causing soil erosion. To

limit soil erosion during construction, garrison personnel would be required to obtain and comply with NPDES permits for project proponents and develop and implement Erosion and Sediment Control Plans, SWPPPs, and Fugitive Dust Control Plans when required by law. All construction projects, whether private or government, would be required to comply with applicable laws and regulations, which would limit soil erosion during construction.

In areas where population is growing, past, present, and reasonably foreseeable future projects would introduce new buildings and infrastructure that would increase the amount of impervious surfaces in the ROI. Although IMCOM mandates the use of low-impact development to manage stormwater and prevent erosion and sedimentation, off-post projects in many areas would not be required by law or policy to use those techniques and many would not. Therefore, although the Proposed Action would have a beneficial contribution to cumulative effects by implementing low-impact development techniques that reduce soil erosion, cumulative effects on earth resources would be adverse but less than significant.

4.2.5 Hazardous Materials and Waste

Cumulative effects on hazardous materials and waste would occur from the cumulative risk of inadvertent or unintentional spills or releases of hazardous materials or waste. That risk would be managed through compliance with applicable federal, state, and local regulations that guide the safe use, handling, storage, and disposal of regulated materials.

Pesticide application would be part of on- and off-post projects as a component of vegetation management and to control weeds and nuisance species. The use of pesticides has the potential to result in cumulative adverse impacts on vegetation, wildlife, water quality, and public health. Those cumulative effects would be limited by the fact that all pesticide applications must comply with the EPA- and state-approved application instructions and that pesticides can be applied by someone who is a DoD- or state-certified pesticide applicator. Therefore, cumulative effects on hazardous materials and waste would be less than significant.

4.2.6 Human Health and Safety

Cumulative effects on human health and safety would occur from the cumulative risk of human exposure to health hazards and safety risks. Most construction projects would involve those risks and the operation and maintenance of other projects might involve ongoing risks such as safety of operations and maintenance workers. Those risks would be managed through compliance with applicable federal, state, and local regulations regarding human health and safety such as those promulgated by OSHA. Therefore, cumulative effects on human health and safety would be less than significant.

4.2.7 Land Use

Long-term beneficial cumulative effects on land use would be expected. Planning processes for on- and off-post land-use would account for previous development to avoid conflicts with existing land use to the maximum extent practicable. Those land-use planning processes would also take into account future land uses that would avoid to the maximum extent practicable conflicts or incompatibilities with existing and future land uses. Therefore, cumulative effects on land use would be less than significant.

4.2.8 Noise

Cumulative noise effects occur when noise from more than one noise source occurs at approximately the same time and within an area in which a common sensitive noise receptor could hear it. Noise associated with the Proposed Action would occur in the short term during construction, demolition, and renovation projects and in the long term from operation of new facilities such as HVAC systems, backup generators, transformers, and traffic. Activities outside IMCOM installations such as vehicle and air traffic, mowing and other landscaping activities, HVAC units operating, and use of heavy equipment associated with construction would add to the noise environment. Cumulative projects would generally occur at different times and be spaced out across the ROI so that noise would not combine to produce significant impacts. All projects, whether private or government, would be required to comply with the Noise Control Act and applicable local noise ordinances, so overall noise levels would remain appropriate for the type of land use. Therefore, cumulative effects on noise would be less than significant.

4.2.9 Socioeconomics

Beneficial cumulative economic effects would be expected over time from jobs created, income earned, and business sales in the ROI associated with on- and off-post planning and development activities, resulting in a minor-to-moderate beneficial cumulative effect. The Proposed Action would have no disproportionate impacts on low-income or minority populations, and so would not contribute to any cumulative effects on environmental justice. Both on- and off-post projects would implement reasonable measures to avoid disproportionate risks to the safety and health of children. Planners and developers on- and off-post would plan for recreational opportunities in each installation's ROI that would reflect the types and number of recreational opportunities considered by the community to be important. Therefore, cumulative effects on socioeconomics would be beneficial.

4.2.10 Transportation and Traffic

In areas with dense development or growing populations, congestion on the vehicular transportation network would increase over time. On- and off-post planners and developers would anticipate this trend by planning projects that would help alleviate traffic congestion by expanding either the vehicular transportation network, public transit

opportunities, or infrastructure for alternative modes of transportation such as walking and bicycling. Construction and maintenance activities associated with implementing those projects would temporarily increase congestion; however, over the long term, improved traffic flow and safety compared to the baseline would be expected. Therefore, cumulative effects on transportation and traffic would be beneficial.

4.2.11 Water Resources

Past, present, and reasonably foreseeable future on- and off-post projects would have short- and long-term, less-than-significant impacts on water resources. Impacts would include increases in stormwater runoff, increases in demand for water, degradation of water quality, and lower rates of groundwater recharge. Stormwater management during construction would be addressed, as required by law, by SWPPP and/or appropriate erosion and sedimentation control BMPs that would be approved by installation staff or the state before construction begins. Post-construction stormwater runoff would be controlled and managed to minimize degradation of water quality, control the quantity of water leaving a site both short term (during construction) and long term, and minimize the potential for adverse cumulative impacts.

Although IMCOM garrisons and their surrounding communities are aware of the need to conserve water resources and, in some areas, are planning to maintain or reduce demand for water, demand is expected to increase in many areas, especially those in which the population is growing. Increased demand for water results in lower groundwater recharge rates and less available surface water. To manage use of surface and groundwater resources, IMCOM garrisons and other users in some areas must obtain water rights or permits that limit the amount of water they can use from a given source. The regulatory agencies that manage water resources determine those limits by balancing the needs of humans and the natural environment.

If wetlands were to be impacted, the developer would be required to comply with the CWA and state regulatory requirements, including obtaining permits prior to construction and implementing mitigation measures as necessary to minimize and mitigate any adverse wetland impacts. Projects proposed in coastal areas would need to comply with the CZMA and be reviewed and approved by the state. All construction projects, whether private or government, would be required to comply with federal, state, and local regulations, as applicable. Therefore, cumulative effects on water resources would be less than significant.

4.2.12 Utilities

Past, present, and reasonably foreseeable future on- and off-post projects would result in changes to utility infrastructure and ongoing filling of landfills. On- and off-post planners and developers would anticipate needs for utility infrastructure expansion and maintenance to meet user demand. Construction and maintenance activities associated with implementing those projects could involve temporary service disruptions; however,

over the long term, a sufficient and reliable supply of basic utilities (e.g., water, energy, communications, and waste disposal) would be expected. On- and off-post projects of all types would contribute to the quantity of debris disposed of at regional landfills, gradually filling landfills and reducing available capacity. On- and off-post planners and developers would anticipate the need for additional landfill capacity or new landfills and either expand existing facilities or build new ones prior to reaching capacity at existing landfills. Therefore, cumulative effects on utilities would be less than significant.

4.3 CUMULATIVE EFFECTS UNDER THE NO ACTION ALTERNATIVE

Under the No Action Alternative, on- and off-post planners and developers would continue to use their existing processes to conduct master planning and implementing projects that anticipate and are responsive to the community's needs. Planning efforts on- and off-post would take into account the orderly growth and development of the region and identify conflicts or potential conflicts and solutions for avoiding or minimizing them, resulting in minor-to-moderate beneficial cumulative effects. On- and off-post planners would continue to collaborate on issues that affect both the IMCOM installation and the local community (such as noise and air quality) and identity ways to avoid or mitigate adverse effects on the human and natural environments. Specific on- and off-post projects would have cumulative effects similar to those described for the Proposed Action. Therefore, implementing the No Action Alternative would have minor-to-moderate beneficial and less than significant adverse cumulative effects on the human and natural environments.

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5.0 SUMMARY OF POTENTIAL EFFECTS AND CONCLUSION

5.1 SUMMARY OF POTENTIAL EFFECTS

For each resource area analyzed, Table 6 provides a summary of anticipated impacts using the categorization noted in Section 3.1.

As discussed in Section 1.4, IMCOM garrisons would use the Environmental Checklist in Appendix A of this PEA when considering an individual proposed action to determine whether tiering from this PEA is appropriate, or whether additional NEPA analysis is needed. If the installation concludes that additional NEPA analysis is necessary, it must be completed before any irreversible and irretrievable commitments of resources related to that action occurs.

Table 6. Summary of Potential Effects

Resource area	Proposed Action (Preferred Alternative)	No Action Alternative
Air quality and GHGs	Short-term minor-to-moderate adverse; long-term minor beneficial to moderate adverse	Short-term minor-to-moderate adverse; long-term minor beneficial to moderate adverse
Biological resources	Short-term minor-to-moderate adverse; long-term beneficial to minor adverse	Short-term minor-to-moderate adverse; long-term beneficial to minor adverse
Cultural resources	Short-term minor adverse; long-term ranging from none to moderate adverse	Short-term minor adverse; long-term ranging from none to moderate adverse
Earth resources	Short- and long-term minor beneficial to minor adverse	Short- and long-term minor beneficial to minor adverse
Hazardous substances and waste	Short- and long-term minor beneficial to minor adverse	Short- and long-term minor beneficial to minor adverse
Human health and safety	Short-term minor adverse; long-term minor beneficial	Short-term minor adverse; long-term minor beneficial
Land use	No short-term; long-term minor beneficial	No short-term; long-term minor beneficial
Noise	Short-term minor-to-moderate adverse; long-term minor beneficial to minor adverse	Short-term minor-to-moderate adverse; long-term minor beneficial to minor adverse
Socioeconomics	Short-term minor beneficial; long-term minor beneficial to moderate adverse	Short-term minor beneficial; long-term minor beneficial to moderate adverse

Resource area	Proposed Action (Preferred Alternative)	No Action Alternative
Transportation and traffic	Short-term negligible-to-moderate adverse; long-term impacts moderate adverse to moderate beneficial	Short-term negligible-to-moderate adverse; long-term impacts moderate adverse to moderate beneficial
Utilities	Short- and long-term minor beneficial to minor adverse	Short- and long-term minor beneficial to minor adverse
Water resources	Short-term minor-to-moderate adverse; long-term moderate adverse to moderate beneficial	Short-term minor-to-moderate adverse; long-term moderate adverse to moderate beneficial

5.2 SUMMARY OF MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

As described in Section 3.0, no mitigation measures would be necessary to reduce potential adverse impacts to below significant levels. BMPs—most of which are already standard practice at IMCOM garrisons—would be implemented as applicable to manage and further reduce impacts. Each IMCOM garrison would select the appropriate BMPs for their installation's conditions and the individual proposed action being evaluated. BMPs presented in Section 3.0 are summarized in Table 7.

Table 7. Summary of Best Management Practices

Resource area	Best management practice
Air quality and GHGs	• Consider low-emission options for all emissions-producing equipment (e.g., HVAC systems, generators, transformers, and refrigeration units). • To suppress dust during ground-disturbing activities, cover or apply water or soil stabilizers to soil. Limit or halt soil-disturbing activities during high-wind conditions when work is in soil classified as highly erodible. • Limit driving on unpaved surfaces to necessary vehicles only and drive slowly on unpaved surfaces. • Cover soil stockpiles and trucks transporting soil or other materials that could cause airborne dust. • Use electricity from established power sources rather than generators whenever possible. • Service equipment in accordance with the manufacturer's recommendations and repair equipment promptly to prevent excess emissions. • Minimize vehicle and equipment idling times. • Clean excess soil from heavy equipment and trucks leaving the work zone to prevent off-site transport.

Resource area	Best management practice
Biological resources	• Avoid vegetation removal (e.g., tree removal, tree trimming, brush removal, or disturbance of vegetated ground) during the migratory bird breeding season and protected bat roosting season (typically spring to late summer). Specific dates would depend upon the species present locally and would be specified in the garrison's INRMP. If vegetation must be removed during that time, have a qualified biologist conduct a preconstruction survey to identify nests, maternity roosts, burrows, and other wildlife shelters of concern and determine the most appropriate action to take to comply with species protection requirements (e.g., establishing buffers around nests or rescheduling construction activities). The preconstruction survey would be conducted close enough to the start of construction activities that no substantial changes in the interim period would be likely. • Inspect and/or wash vehicle tires prior to vehicles entering and exiting construction areas with disturbed ground to reduce the potential spread of invasive species. • Promptly revegetate disturbed areas with native plant species from the garrison's approved plant list. • Comply with any installation tree removal and replacement policies. • For construction projects, implement an approved SWPPP and/or appropriate erosion and sedimentation control BMPs such as silt fences, straw bale dikes, diversion ditches, limiting total area of disturbance, and sedimentation ponds.
Cultural resources	• None other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans.
Earth resources	• Minimize soil erosion that could result in fugitive dust by implementing appropriate control measures such as applying water or other stabilizers to exposed soils, limiting vehicle speeds on unpaved surfaces, minimizing or temporarily stopping ground-disturbing activities during high-wind conditions, and training staff on fugitive dust control practices. • Minimize soil erosion that could result in sedimentation of surface water during ground-disturbing activities by implementing appropriate control measures such as silt fences, inlet protection, diversion ditches, and training staff on erosion and sediment control practices. • After finishing ground-disturbing activities, promptly establish permanent ground cover using native species from the garrison's approved plant list, mulch, and/or other appropriate cover materials (e.g., rock, gravel). • Scarify soils in areas where impervious surfaces would be removed to reduce soil compaction and allow precipitation to infiltrate naturally. • To the extent possible, limit construction in areas with earth-related hazards such as karst terrain or other areas where subsidence could occur, areas with steep or unstable slopes, or seismically active areas. When construction in such areas is necessary, conduct a geotechnical study and implement its recommended measures to limit risk.

Resource area	Best management practice
Hazardous substances and waste	• None other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans. In particular, each garrison has established BMPs for spill prevention and response contained in its SPCC or other management plans. All contractors working on the garrison must also implement these and other BMPs.
Human health and safety	• None other than compliance with applicable codes such as National Fire Protection Association, National Electric Code, etc.; laws and regulations; permits; and Army and installation programs, policies, and plans.
Land use	• None other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans.
Noise	• In densely developed, mixed-use areas, incorporate appropriate levels of sound-dampening construction materials into the design of buildings where a quiet interior is important such as homes, hospitals, lodging, schools, childcare facilities, offices, and classrooms. • Where no local noise ordinance applies, limit construction to daytime hours on weekdays to the maximum extent practicable. • For all construction activities, implement the industry standard practice of operating construction equipment in accordance with the manufacturer's specifications and with standard mufflers and other noise-reducing equipment in proper operating condition. • For construction activities within 800 feet of on- or off-post noise-sensitive receptors, use equipment mufflers and/or other sound-shielding devices as appropriate. Shut down noise-generating equipment when not in use. If complaints about noise are received, increase sound-reducing measures appropriately. • Position HVAC systems, generators, transformers, and other noise-producing equipment away from areas where quiet is important and shield it with walls or other enclosures as appropriate to reduce sound transmission.
Socioeconomics	• Fence construction sites and post appropriate signage to deter unauthorized people, including children, from accessing them.
Transportation and traffic	• Route and schedule construction vehicles to minimize conflicts with other traffic to the maximum extent practical. • To safely and efficiently manage traffic around construction sites, implement appropriate measures from Part 6 of the *Manual on Uniform Traffic Control Devices for Streets and Highways* (DOT and FHWA 2012), or other applicable standards or guidance document, as applicable. For larger projects, consider preparing a written temporary traffic control plan—either as a stand-alone document or as a portion of the project's health and safety plan—to ensure that BMPs are clear and easy to communicate to all parties involved in the work. • For ACP projects, coordinate with the jurisdictional agency or agencies of nearby off-post areas (e.g., the local community and/or state DOT) on

Resource area	Best management practice
	using signage, flaggers, public notification, and other appropriate BMPs for traffic management during construction, as applicable.
Utilities	• None other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans.
Water resources	• None other than compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans. If a CWA individual permit is required, wetland mitigations may be required.

5.3 CONCLUSION

This PEA examines the Proposed Action (the Preferred Alternative) and a No Action Alternative. The analysis in this PEA supports the conclusion that no significant adverse impacts, either individual or cumulative, on the human or natural environment would result from implementing the Proposed Action or No Action Alternative, provided that the Proposed Action is implemented in compliance with all applicable laws, ordinances, and regulations and subject to application of the Environmental Checklist (Appendix A) for consideration of individual proposed actions.

Issuance of a FONSI is appropriate, and an EIS need not be prepared before implementing the Proposed Action.

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- HQ USACE
- USACE Construction Engineering Research Laboratory (CERL)
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7.0 REFERENCES

ACSIM (Assistant Chief of Staff for Installation Management, Department of the Army). 2013. Memorandum on Unified Facilities Criteria (UFC) 2-100-01 for Master Planning Policy Guidance. Assistant Chief of Staff for Installation Management, Headquarters, Department of the Army, Washington, DC.

AEC and PNNL (U.S. Army Environmental Command and Pacific Northwest National Laboratory). 2016. *Programmatic Environmental Assessment for Construction and Operation of Solar Photovoltaic Renewable Energy Project on Army Installations.* U.S. Army Environmental Command, Joint Base San Antonio–Fort Sam Houston, TX, and Pacific Northwest National Laboratory, Richland, WA.

AGI (American Geosciences Institute). 2019. *Which areas are most at risk for sinkholes?* Accessed April 2019. https://www.americangeosciences.org/critical-issues/faq/which-areas-are-most-risk-sinkholes.

CEQ (Council on Environmental Quality). 1997. *Environmental Justice Guidance Under the National Environmental Policy Act*. Executive Office of the President, Council on Environmental Quality, Washington, DC.

CHC (Center for Hearing and Communication). 2019. *Common environmental noise levels* page. Center for Hearing and Communication website. Accessed March 2019. http://chchearing.org/noise/common-environmental-noise-levels/.

DA (Department of the Army). 2017a. Memorandum on Sustainable Design and Development Policy Update. Assistant Secretary of the Army (Installations, Energy, and Environment), Department of the Army, Washington, DC.

DA (Department of the Army). 2017b. Army Environmental Universe (PowerPoint presentation). Headquarters, Department of the Army, Washington, DC.

Daikin. 2019. *Application Guide AG 31-010: HVAC Acoustic Fundamentals*. Accessed March 2019. http://www.vibrationdata.com/tutorials2/AG31-010lo.pdf.

DoD (Department of Defense). 2017. Fact Sheet: Threatened and Endangered Species on DoD Lands. Accessed April 2019. http://www.dodnaturalresources.net/TES_Fact_Sheet_3-1-17.pdf.

DoD (Department of Defense). 2018. *Base Structure Report – Fiscal Year 2018 Baseline: A Summary of the Real Property Inventory Data*. Department of Defense, Washington, DC.

DoD and USFWS (Department of Defense and U.S. Fish and Wildlife Service). 2014. Memorandum of Understanding between the US Department of Defense and the US Fish and Wildlife Service to Promote the Conservation of Migratory Birds. DoD and USFWS, Washington, DC.

DOE (U.S. Department of Energy). 2016. Federal Progress Toward Energy/Sustainability Goals. Accessed March 2019. https://www.energy.gov/sites/prod/files/2016/09/f33/fy15_facility_sustainability_goals.pdf.

DOT and FHWA (U.S. Department of Transportation and Federal Highway Administration). 2012. *Manual on Uniform Traffic Control Devices for Streets and Highways*. 2009 ed. including rev. 1 and 2. U.S. Department of Transportation, Washington, DC, and Federal Highway Administration, Washington, DC.

EPA (U.S. Environmental Protection Agency). 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Prepared for U.S. Environmental Protection Agency by Bolt, Beranek, and Newman, Washington, DC.

EPA (U.S. Environmental Protection Agency). 2019. Overview of Greenhouse Gases. Accessed March 2019. https://www.epa.gov/ghgemissions/overview-greenhouse-gases.

FedCenter. 2019. Climate Change Adaptation and Federal Facilities. Accessed March 2019. https://www.fedcenter.gov/progams/climate/.

FEMA (Federal Emergency Management Agency). 2014. *The Importance of Building Codes in Earthquake-Prone Communities*. https://www.fema.gov/media-library-data/1410554614185-e0da148255b25cd17a5510a80b0d9f48/Building_Code_Fact_Sheet_Revised_August_2014.pdf.

FTA (Federal Transit Administration). 2006. *Transit Noise and Vibration Impact Assessment.* Federal Transit Administration, Office of Planning and Environment, Washington, DC.

IMCOM (U.S. Army Installation Management Command). 2019a. Command Information Brief for Army Materiel Command (PowerPoint presentation). Headquarters, U.S. Army Installation Management Command, San Antonio, TX.

IMCOM (U.S. Army Installation Management Command). 2019b. Command Universe (PowerPoint slide). Headquarters, U.S. Army Installation Management Command, San Antonio, TX.

NatureServe. 2011. Species at Risk on Department of Defense Lands: Updated Analysis, Report, and Maps. Accessed April 2019. http://www.natureserve.org/conservation-tools/projects/species-risk-dod-installations.

NPS (National Park Service). 1998. *National Register Bulletin, Guidelines for Evaluating and Documenting Traditional Cultural Properties*. Accessed April 2019. https://www.nps.gov/nr/publications/bulletins/pdfs/nrb38.pdf.

Schneider (Schneider Electric). 2019. *What is the standard sound level (in dB) of Transformers of various kVA ratings?* Technical FAQs on Schneider Electric website. Accessed March 2019. https://www.schneider-electric.us/en/faqs/FA120629/.

USACERL (U.S. Army Construction Engineering Research Laboratories). 1994. *EIFS 5.0 Economic Impact Forecast System User Reference Manual*. U.S. Army Construction Engineering Research Laboratories, Champaign, IL.

U.S. Census Bureau. 1995. Bureau of the Census Statistical Brief: Poverty Areas. Accessed April 2019. https://www.census.gov/prod/1/statbrief/sb95_13.pdf.

U.S. Census Bureau. 2019a. QuickFacts. Accessed March 2019. https://www.census.gov/quickfacts/fact/table/US/PST045218.

U.S. Census Bureau. 2019b. 2013-2017 American Community Survey 5-Year Estimates, Selected Economic Characteristics. Accessed March 2019. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t.

U.S. Census Bureau. 2019c. Preliminary Estimate of Weighted Average Poverty Thresholds for 2018. Accessed April 2019. https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html.

USFWS (U.S. Fish and Wildlife Service). 2007. *National Bald Eagle Management Guidelines*. Accessed April 2019. https://www.fws.gov/southdakotafieldoffice/NationalBaldEagleManagementGuidelines.pdf.

USGS (U.S. Geological Survey). 2019a. *Earthquake Facts*. Accessed April 2019. https://earthquake.usgs.gov/learn/facts.php.

USGS (U.S. Geological Survey). 2019b. *Earthquake Statistics*. Accessed April 2019. https://earthquake.usgs.gov/earthquakes/browse/stats.php.

USGS (U.S. Geological Survey). 2019c. *Sinkholes*. Accessed April 2019. https://water.usgs.gov/edu/sinkholes.html.

Appendix A.
Environmental Checklist

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ENVIRONMENTAL CHECKLIST FOR PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR REAL PROPERTY MASTER PLANS ON U.S. ARMY INSTALLATION MANAGEMENT COMMAND GARRISONS

INTRODUCTION

This checklist supports referencing the *Programmatic Environmental Assessment for Real Property Master Plans on U.S. Army Installation Management Command Garrisons* (PEA) and the associated Finding of No Significant Impact (FONSI).

The purpose of this checklist is to ensure that actions proposed by U.S. Army Installation Management Command (IMCOM) garrisons comply with the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* Section 4321), the Council on Environmental Quality (CEQ) NEPA regulations (Title 40 of the *Code of Federal Regulations* [C.F.R.] Parts 1500–1508), and the Army's NEPA implementing regulation (32 C.F.R. Part 651), *Environmental Analysis of Army Actions*.

The checklist facilitates consideration of environmental effects of IMCOM garrisons developing, adopting, implementing, and updating Real Property Master Plans (RPMPs) and their component documents using a standardized process in accordance with Department of Defense and Army guidance and encourages community partner participation in that process. It also provides a framework for identifying installation-specific NEPA requirements.

The terms "IMCOM garrisons," "IMCOM installations," "garrisons," and "installations" apply only to Army installations or joint bases managed by Headquarters, IMCOM. IMCOM installations located outside the United States and its territories are not subject to NEPA.

USING THIS CHECKLIST

The RPMP PEA should be used by any IMCOM garrison considering a proposed action to (1) adopt a new or updated RPMP component document or (2) implement a project in the RPMP or any of its component documents. If an installation-specific proposed action is outside the scope of the PEA, additional NEPA analysis will be required.

IMCOM installations wanting to tier from the RPMP PEA and associated FONSI should use this checklist to determine whether reliance on the PEA—and possibly other NEPA analyses and one or more categorical exclusions [CXs]—is appropriate or if additional NEPA analysis is needed before implementing a proposed action. When completing the

checklist, garrison personnel might need to consult multiple subject matter experts to ensure careful and informed consideration of all potential impacts.

Based on the responses in the checklist, a garrison must complete the appropriate NEPA documentation as follows:

- If the garrison responds “no” to each checklist item, no further NEPA analysis would appear to be required. The proposed action would qualify for a record of environmental consideration (REC), indicating that the analysis in the PEA has adequately addressed the action. If any CXs apply, the REC should cite them.
- If the garrison responds “yes” or “maybe” to any checklist item, the garrison could reconsider the proposed action to determine if it can be altered to avoid the effect on the resource and the answer changed to “no.” If, upon investigation of each “yes” and “maybe” response, the installation determines that no further environmental analysis is required and that a REC is appropriate, it should maintain documentation of the results of the investigation with the REC and completed checklist.
- If the garrison responds “yes” or “maybe” to any checklist item and the impact(s) cannot be avoided, additional environmental analysis might be required as part of an installation-level NEPA process. The garrison should consider all previous NEPA documentation prepared for the installation and whether Environmental Assessments for RPMPs at other garrisons have addressed the same issue(s).

If the garrison concludes that additional NEPA analysis is necessary, it must prepare the documentation before any irreversible and irretrievable commitments of resources are made for the proposed action. The installation-specific NEPA document can focus on resource areas for which “yes” was checked and tier from the RPMP PEA for resource areas for which the response was “no.”

If the garrison determines that no further NEPA analysis is required, it should prepare a REC reflecting that determination. If it is relying on the RPMP PEA or any other NEPA analyses, the REC should cite 32 C.F.R. § 651.12(a)(2): “action is adequately covered within an existing EA or EIS,” name the applicable analysis (e.g., the PEA) and associated FONSI or Record of Decision, and state where the cited NEPA document(s) can be accessed. If the garrison is relying on this PEA, at least in part, the completed checklist should be attached. If any CXs apply, the REC should also include those citations. Lastly, the REC should discuss any specific issues that prompted modification or special consideration of the proposed action (e.g., the items for which the initial response was “yes” or “maybe”).

ADDITIONAL REGULATORY REQUIREMENTS

This checklist is designed to assist IMCOM garrisons in identifying the documentation required to meet NEPA requirements. Requirements under other federal and state environmental laws, ordinances, and regulations also must be met, as applicable. Those requirements may include resource-specific consultations with other federal, state, and Tribal governments and agencies—such as consulting with the U.S. Fish and Wildlife Service (USFWS) (or National Oceanic and Atmospheric Administration [NOAA] Fisheries for marine species) under the Endangered Species Act (ESA) or a State Historic Preservation Officer (SHPO) under the National Historic Preservation Act (NHPA)—or completing NEPA-like requirements of the state in which the garrison is located.

Resource Area and Questions	***Check the appropriate response:***
Air Quality	
Would the proposed action result in a National Ambient Air Quality Standards attainment area becoming a nonattainment area?	☐ Yes ☐ No ☐ Maybe
Would the proposed action produce emissions within a nonattainment or maintenance area that exceeded the General Conformity Rule *de minimis* (of minimal importance) threshold values established in 40 C.F.R. § 93.153(b)?	☐ Yes ☐ No ☐ Maybe
Would the proposed action generate nationally substantial greenhouse gas emissions by producing more than 75,000 tons of carbon dioxide equivalent from non-exempt sources per year?	☐ Yes ☐ No ☐ Maybe
Biological Resources	
Note: All required USFWS and/or NOAA Fisheries informal or formal consultation must be completed prior to implementing a proposed action.	
Would the proposed action result in an unpermitted take of a federally protected species (e.g., under the ESA, Migratory Bird Treaty Act, Marine Mammal Protection Act, and Bald and Golden Eagle Protection Act)?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in detrimental alteration of USFWS-designated critical habitat?	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in local extirpation of a sensitive non-federally listed species?	☐ Yes ☐ No ☐ Maybe
Would the proposed action have a substantial detrimental effect on the amount or diversity of common native wildlife or plant communities?	☐ Yes ☐ No ☐ Maybe
Would the proposed action have a high probability of increasing the spread of nonnative or invasive species?	☐ Yes ☐ No ☐ Maybe
Cultural Resources	
Note: All required NHPA Section 106 consultation with the SHPO, Advisory Council on Historic Preservation (ACHP), federally recognized Native American Tribes (Tribes), including Native Alaskans or Native Hawaiians, and other relevant consulting parties must be completed prior to the approval of the expenditure of any federal funds on the undertaking. Proposed projects requiring ground disturbance in areas not yet surveyed for cultural resources would require a survey prior to construction beginning.	
Would the proposed action result in NHPA-defined adverse effects, as defined by the NHPA, on a historic property listed or eligible for listing on the NRHP that are not resolved through a Memorandum of Agreement with the SHPO, and possibly with the ACHP?	☐ Yes ☐ No ☐ Maybe
Would the proposed action create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes without discussions on a government-to-government level with the affected Tribe(s)?	☐ Yes ☐ No ☐ Maybe
Earth Resources	
Would the proposed action induce waterborne soil erosion resulting in sedimentation that would violate federal or state water quality laws?	☐ Yes ☐ No ☐ Maybe
Would the proposed action induce windborne soil erosion that would violate federal or state air quality laws?	☐ Yes ☐ No ☐ Maybe
Would the proposed action expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☐ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☐ No ☐ Maybe
Would the proposed action disturb restoration sites or the progress of cleanup activities at those sites so that adverse effects on human health or the environment could result?	☐ Yes ☐ No ☐ Maybe
Would the proposed action conflict with established land-use controls?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in noncompliance with applicable federal, state, or local laws or regulations; or with permits related to hazardous materials and waste?	☐ Yes ☐ No ☐ Maybe
Human Health and Safety	
Would the proposed action substantially increase human exposure to a health hazard or safety risk?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☐ No ☐ Maybe
Land Use	
Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☐ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☐ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☐ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action site incompatible land uses near existing on- or off-installation noise-sensitive receptors?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zones II or III; reference Army Regulation 200-1, Chapter 14)?	☐ Yes ☐ No ☐ Maybe
Socioeconomics	
Note: Under NEPA, significant socioeconomic impacts by themselves do not require that an environmental impact statement be prepared unless the action also will have natural or physical environmental impacts (40 C.F.R. § 1508.14).	
Would the proposed action result in substantial gains or losses in population that would exceed historic rates of growth or decline?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in a decrease in jobs that substantially raises the regional unemployment rates?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in a substantial change in the housing market such as severe housing shortages or surpluses?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in a substantial increase in need for public services (e.g., fire protection, law enforcement, schools)?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in a substantial long-term loss or displacement of recreational opportunities and resources?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population per Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*? *Note*: Refer also to the CEQ's 1997 *Environmental Justice Guidance Under NEPA*.	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in a disproportionately high and adverse environmental health or safety risk to an identified population of children per EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm to the safety of children?	☐ Yes ☐ No ☐ Maybe
Transportation and Traffic	
Would the proposed action substantially increase traffic congestion or delays for an extended period of time?	☐ Yes ☐ No ☐ Maybe
Would the proposed action substantially increase transportation safety hazards due to an RPMP project design feature?	☐ Yes ☐ No ☐ Maybe
Would the proposed action overwhelm existing parking capacity?	☐ Yes ☐ No ☐ Maybe
Utilities	
Would the proposed action exceed the available capacity of existing utilities and supporting infrastructure without an appropriate plan to provide the additional needed capacity?	☐ Yes ☐ No ☐ Maybe
Would the proposed action cause long term or frequent disruption of utility service on- or off-installation?	☐ Yes ☐ No ☐ Maybe
Would the proposed action violate regulatory or permit limits related to utilities (e.g., by creating a wastewater discharge greater than that allowed by an existing permit)?	☐ Yes ☐ No ☐ Maybe
Water Resources	
Note: Projects might require one or more permits and approvals, including National Pollutant Discharge Elimination System (NPDES) permits, Clean Water Act Section 401 and 404 permits, and a Coastal Zone Management Act Federal Consistency Determination.	
Would the proposed action cause an exceedance of a total maximum daily load?	☐ Yes ☐ No ☐ Maybe
Would the proposed action cause a detrimental change in the impairment status of a surface water?	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in an unpermitted direct impact on a water of the United States?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in the unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands?	☐ Yes ☐ No ☐ Maybe
Would the proposed action cause erosion and sedimentation that would violate water quality laws or the terms of a NPDES stormwater permit?	☐ Yes ☐ No ☐ Maybe
Public Involvement	
Would the proposed action be of interest to the off-post community such that additional public involvement efforts should be conducted?	☐ Yes ☐ No ☐ Maybe
Would the proposed action be environmentally controversial?	☐ Yes ☐ No ☐ Maybe
General	
Would the proposed action involve any extraordinary circumstances that are not captured in the responses above that might necessitate additional analysis?	☐ Yes ☐ No ☐ Maybe
Cumulative Effects	
Are there other actions underway or proposed whose effects—when combined with the potential effects of implementing the proposed plan—could have a significant adverse cumulative effect on human health or the environment?	☐ Yes ☐ No ☐ Maybe

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
CX	Categorical Exclusion
EO	Executive Order
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
IMCOM	U.S. Army Installation Management Command
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric
NPDES	National Pollutant Discharge Elimination System
PEA	Programmatic Environmental Assessment
REC	Record of Environmental Consideration
RPMP	Real Property Master Plan
SHPO	State Historic Preservation Officer
Tribes	Native American Tribes, including Native Hawaiians and Native Alaskans
USFWS	U.S. Fish and Wildlife Service

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Appendix B.
Examples of Key Elements of Real Property Master Plans

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APPENDIX B. EXAMPLES OF KEY ELEMENTS OF REAL PROPERTY MASTER PLANS

This appendix presents examples of some of a Real Property Master Plan's (RPMP's) standard component documents as well as some key elements of those documents to provide additional context for readers of the Programmatic Environmental Assessment (PEA).

Examples are provided of the following elements of RPMP component documents, which are only some of those required in the plan:

- **Vision Plan:** Examples of vision statements, goals, and objectives and a Framework Plan.
- **Installation Planning Standards:** Examples of building standards, street standards, and landscape standards.
- **Long-Range Component (or Installation Development Plan):** Examples of Constraints maps, an Illustrative Plan of a Preferred Alternative, and a Regulating Plan.
- **Capital Investment Strategy:** An example Capital Investment Strategy that provides a bridge between project ideas and an executable funding program.

B.1 VISION PLAN

The primary components of a Real Property Vision Plan are the (1) Real Property Vision Statement, (2) planning goals that support implementation of the Real Property Vision Statement, and (3) specific and measurable objectives that define how each planning goal will be achieved.



Figure 1. Fort Drum, NY, Vision Plan

B.1.1 REAL PROPERTY VISION STATEMENT

Figure 2 is an example of a Real Property Vision Statement for Fort Drum, NY.

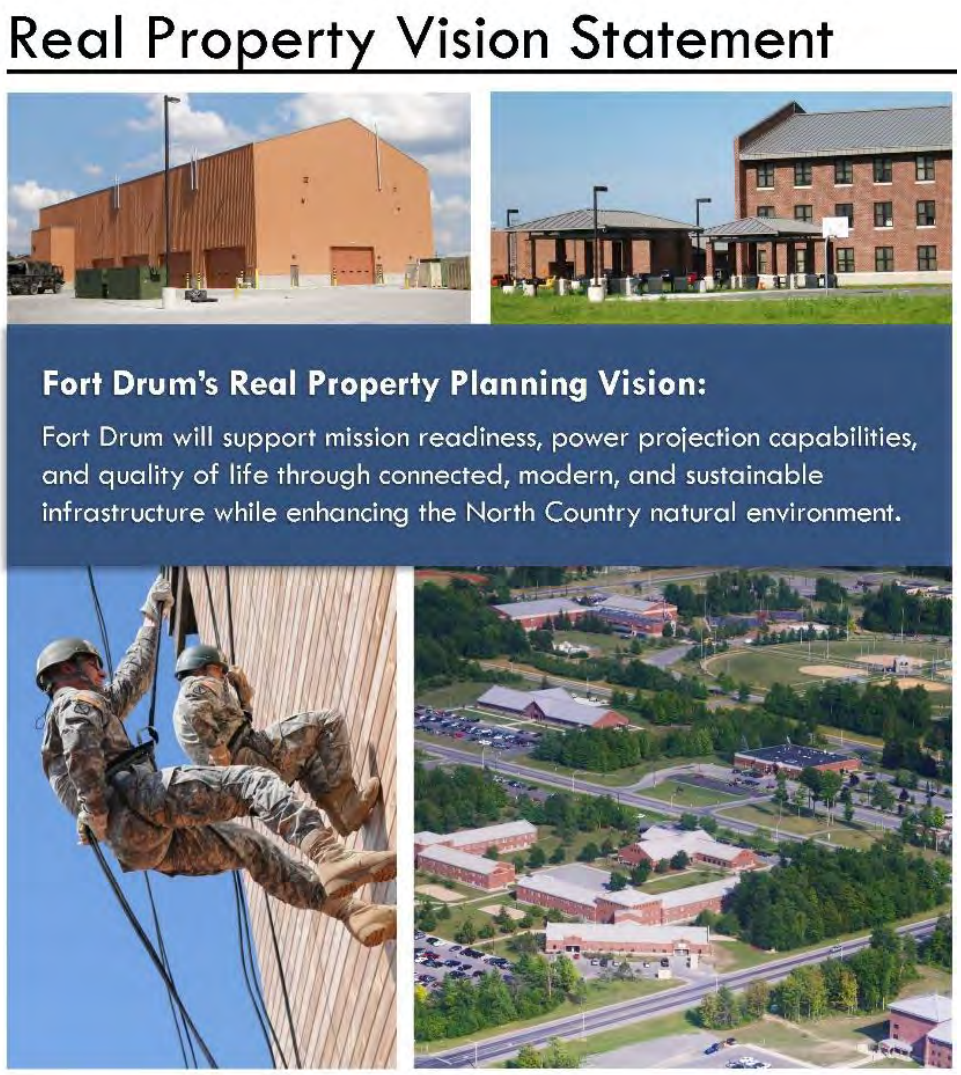


Figure 2. Vision Statement from Fort Drum, NY, Real Property Vision Plan, February 2016.

Other examples of Real Property Vision Statements are:

- "Our planning vision is to create a family of sustainable neighborhoods with multistory, flexible buildings and neighborhood parks connected by great streets that preserve and celebrate our natural resources and cultural heritage." – U.S. Army Garrison Hawaii, February 2013.
- "Fort Drum will support mission readiness, power projection capabilities, and quality of life through connected, modern, and sustainable infrastructure while enhancing the North Country natural environment." – Fort Drum, February 2016.

B.1.2 PLANNING GOALS

Goals are established to help achieve the Real Property Vision Statement. The following examples of planning goals (Figure 3) support Fort Drum's Real Property Vision Statement, which is presented in Section B.1.1:

- Goal 1. Connected Networks: Provide improved circulation through flexible roads, trails, and efficient utility corridors.
- Goal 2. Modern Infrastructure: Provide state-of-the-art, multipurpose real property to promote an efficient, user-friendly environment.
- Goal 3. Sustainable Infrastructure: Provide flexible, energy efficient, and adaptable real property that responds to ever-changing requirements.
- Goal 4. Enhanced North Country Natural Environment: Preserve, protect, and integrate natural systems, habitats, and their functions.

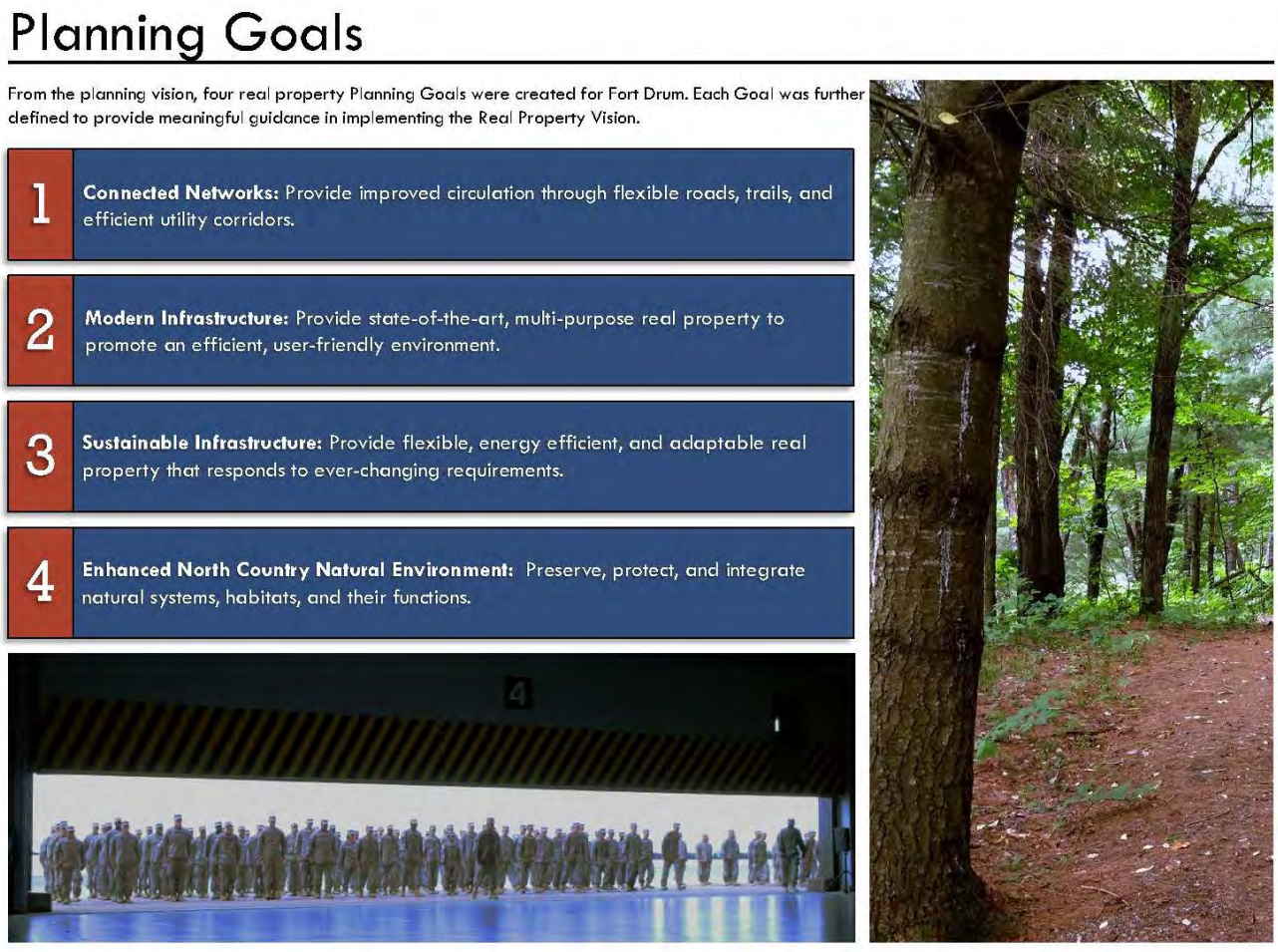


Figure 3. Planning Goals from Fort Drum, NY, Real Property Vision Plan, February 2016.

B.1.3 OBJECTIVES

Objectives are specific, measurable ways to reach the Real Property Vision Statement and support the planning goals. The following examples of objectives are taken from Fort Drum's planning goals 3 and 4, which are presented in Section B.1.2 and repeated here for reference:

- Goal 3: Sustainable Infrastructure
  - Prioritize infill development opportunities.
  - Practice compact development.
  - Utilize clear span structures and demountable walls to facilitate building reconfiguration.
  - Implement renewable energy best practices where practical.
- Goal 4: Enhanced North Country Natural Environment
  - Practice low impact development.
  - Utilize conservation planning to maintain intact natural buffers while preserving land for the mission.
  - Consider local climate and regional characteristics in architectural and site planning.



Figure 4. goals and objectives from Fort Drum, NY, Real Property Vision Plan, February 2016.

B.2 INSTALLATION PLANNING STANDARDS

Installation Planning Standards provide the installation's guidelines for developing sustainable and efficient facilities. They provide a clear set of guidelines to ensure that the installation's vision statement, goals, and planning objectives are achieved. Installation Planning Standards are applicable to all installation tenants and include building, street, and landscape standards.

B.2.1 BUILDING STANDARDS

Building standards regulate building form. They shape public space that is safe, comfortable, and functional through placement and envelope controls on each building type (e.g., administrative, barracks, and commercial) and include force protection standards. For each general type of building, there is a building envelope standard, which is shown in the Regulating Plan (see Section B.3.3). Typical elements in each building envelope standard are massing, height, type of use, and placement of facilities and infrastructure. The building standards aim for the minimum level of land-use control necessary to meet the planning goals.

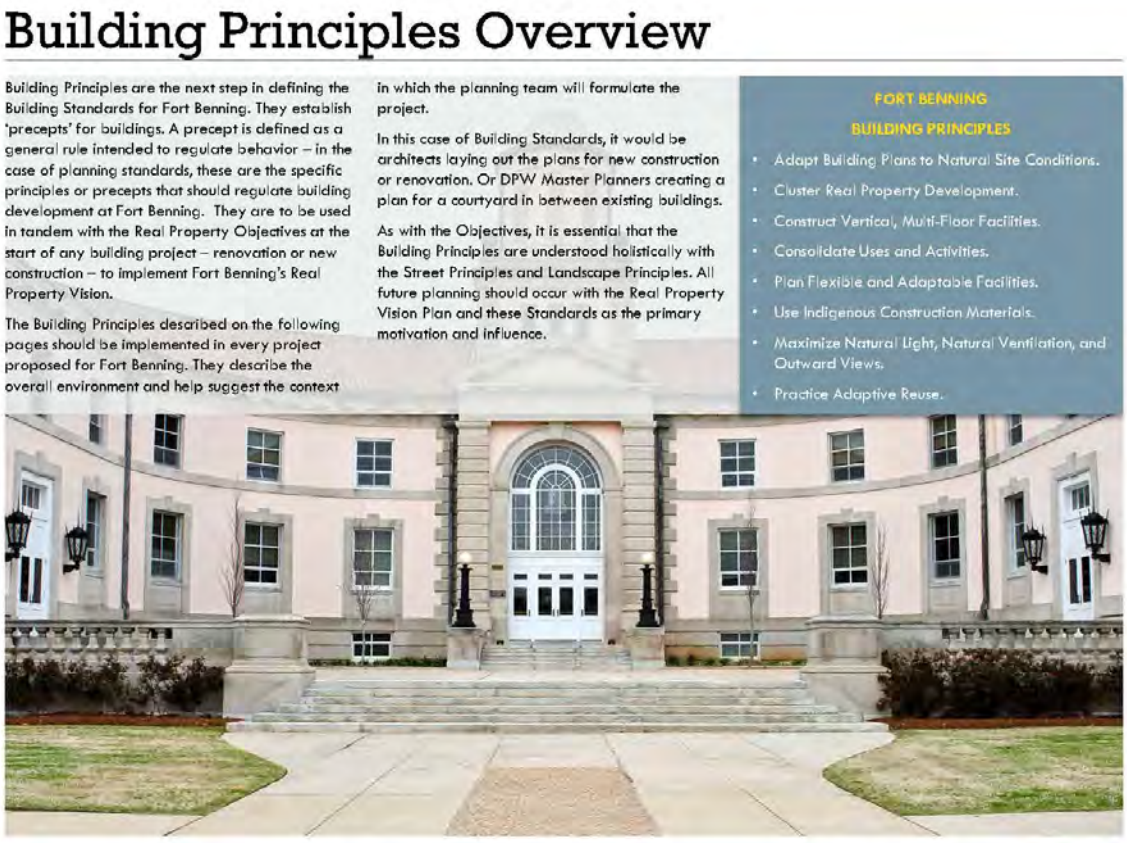


Figure 5. Building Principles that Support the Building Standards from Fort Benning, GA, Installation Planning Standards, February 2016.

B.2.2 STREET STANDARDS

The street standards illustrate typical configurations for all street types specified on an installation through street envelope standards, which are required elements of the Installation Planning Standards. Each street envelope standard addresses vehicular traffic-lane widths, sidewalk and tree planting area dimensions, and on-street parking configurations. After a street (or section of a street, as an entire street need not follow the same standard throughout its length) is selected, the characteristics desired for that street or street section should be documented in the street standards.

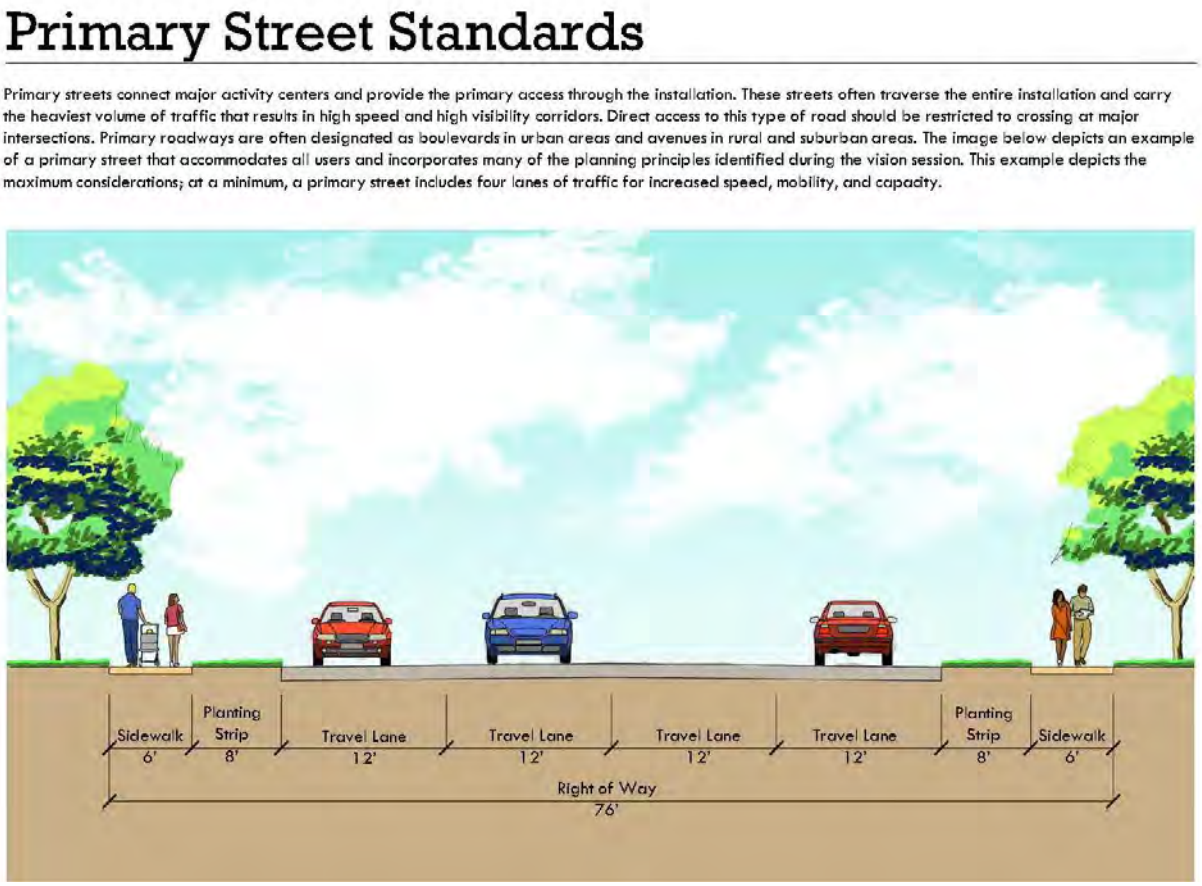


Figure 6. Sample Street Standards from Fort Benning, GA, Installation Planning Standards, February 2016.

B.2.3 LANDSCAPE STANDARDS

Landscape standards show, at a minimum, appropriate type and placement of landscape elements, which include natural landscape features (e.g., trees, shrubs, and ground cover), man-made landscape features (e.g., street furniture, signage, and lighting), and landscape-related force protection features. Landscape standards identify the installation's landscape themes. They address both planning intent and allowable plant materials and site-furnishing elements.

Plant Palette

Plant Material Suitability Matrix		Type		Growth			Flower				Interest				Light			Resistant		Soil Moisture			Function									
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Inconspicuous	Flower	Bark	Foliage	Fruit / Wildlife	Shade	Sun / Shade	Sun	Drought	Pest	Moist	Average	Dry	Street Tree	Shade Tree	Screen	Massing	Windbreak	Hedge	Bank Cover / Natural Area	Specimen	Open Area / Site	Not Available in Nurseries
Botanical Name	**Common Name**	**Characteristics**									**Culture**												**Use**									
Canopy Trees																																
Liriodendron tulipiferastyraciflua	Boxelder	●			●	●			●	●			●	●		●	●	●		●	●			●						●	●	
Liriodendron tulipifera	Tulip Tree	●				●			●		●		●				●			●	●			●		●				●	●	
Magnolia grandiflora	Magnolia		●		●	●		●			●		●	●		●	●	●		●	●				●					●	●	
Metasequoia glyptostroboides	Dawn Redwood*	●				●				●		●	●				●			●	●		●		●	●			●	●	●	
Nyssa sylvatica	Blackgum	●			●				●	●		●	●	●		●	●		●	●				●		●			●	●		
Oxydendrum arboretum	Sourwood	●		●				●			●		●			●	●				●	●				●				●		
Pinus echinata	Shortleaf Pine		●			●			●	●		●					●	●				●				●					●	
Pinus elliottii	Slash Pine		●			●			●	●				●			●			●	●					●					●	
Pinus palustris	Longleaf Pine		●			●			●	●		●	●			●	●				●					●				●		



Tulip Tree



Blackgum



Shortleaf Pine



Longleaf Pine

Figure 7. Sample Landscape Standards from Fort Benning, GA, Installation Planning Standards, February 2016.

B.3 LONG-RANGE COMPONENT

The Long-Range Component is called the Installation Development Plan in Unified Facilities Criteria 2-100-01, *Installation Master Planning*. It comprises Area Development Plans (ADPs) for each of the districts identified in the Vision Plan. The Framework Plan (a part of the Vision Plan) identifies the planning districts on the installation, each of which has its own ADP. Each ADP includes a variety of maps and plans, including a map of environmental constraints, Illustrative Plan, and Regulating Plan.

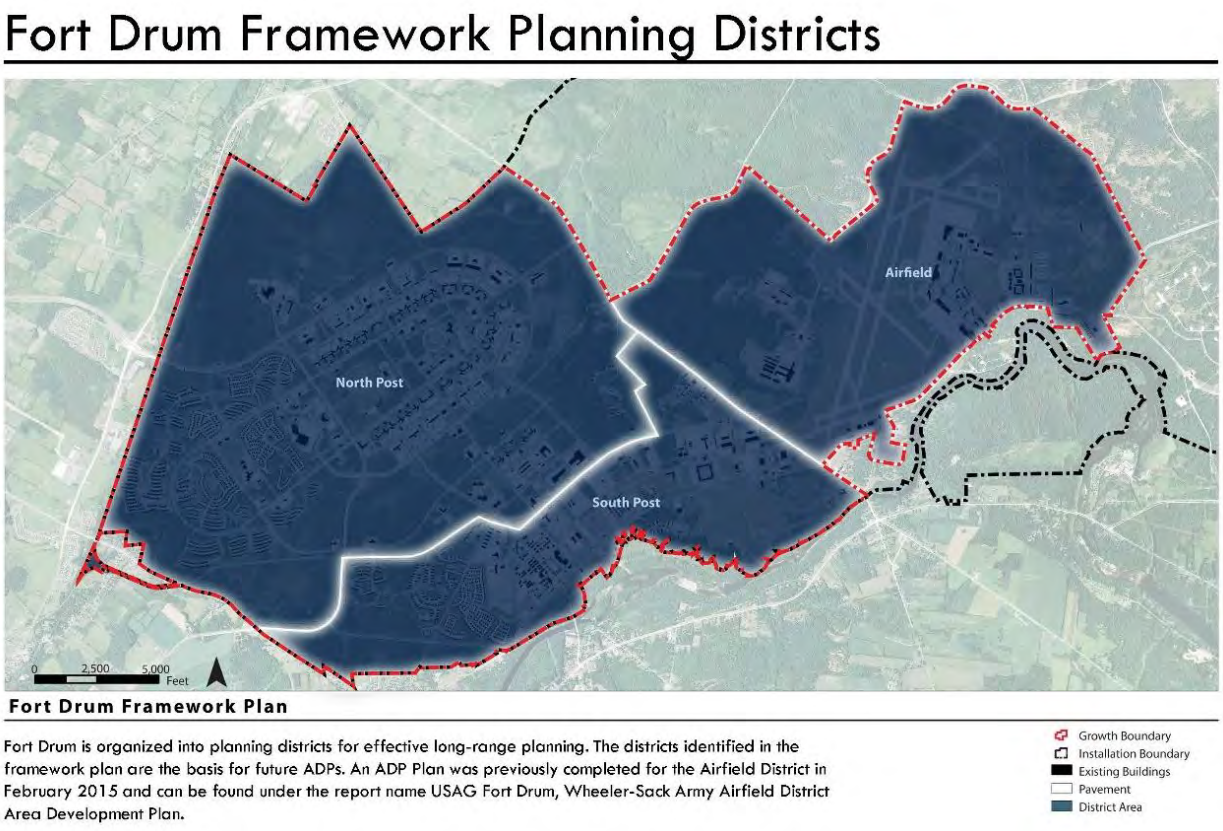


Figure 8. Districts Used to Identify Area Development Plans from Fort Drum, NY, Framework Plan, February 2016.

B.3.1 CONSTRAINTS TO DEVELOPMENT MAPS

Identifying planning constraints at an installation involves a multitude of considerations, including natural and cultural resources information, environmental quality issues, airspace restrictions, operational safety requirements, the built environment, and other factors that influence facility site planning on the installation. This information is critical when beginning to identify land for mission redevelopment, expansion, or new mission acceptance.

Built constraints generally refer to existing development within a district. Environmental constraints are natural elements that have the potential to influence real property development on an installation. Operational constraints directly affect an installation's options for future growth and have associated rules and restrictions to which the installation must adhere. Other influences on development depicted on maps include the location of existing utility lines and topography.

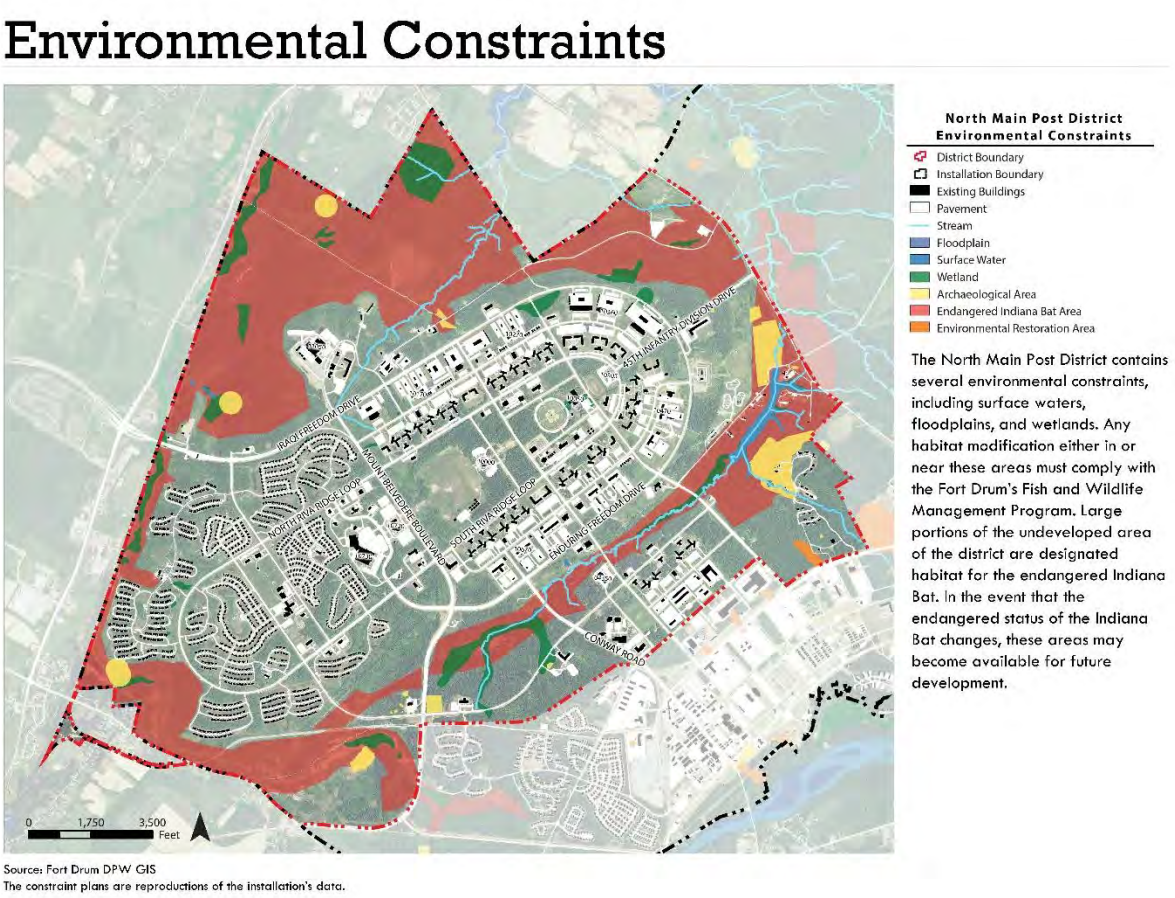


Figure 9. Environmental Constraints from Fort Drum, NY, North Main Post District Area Development Plan, June 2017.

B.3.2 ILLUSTRATIVE PLAN FOR A PREFERRED ALTERNATIVE

The Illustrative Plan, shown for a Preferred Alternative, is a conceptual view of what the build-out of the district could look like in 20 years or more. It incorporates all the known requirements at the time for future program requirements in phased plans.

Stakeholders develop multiple alternatives for future development within the district and then select one or combine two or more of them to create the preferred alternative, which is depicted as the Illustrative Plan. The Illustrative Plan represents only one construction variation, a snapshot in time, that meets the planning vision. The Illustrative Plan shows one way of developing the site based on the Regulating Plan but can change as the plan is updated (while the Regulating Plan is enduring and rarely changes).

The Illustrative Plan visualization of the potential buildout scenario is used to develop the Capital Investment Strategy. Projects are listed as short-, mid-, and long-range efforts, providing a phased approach to development.

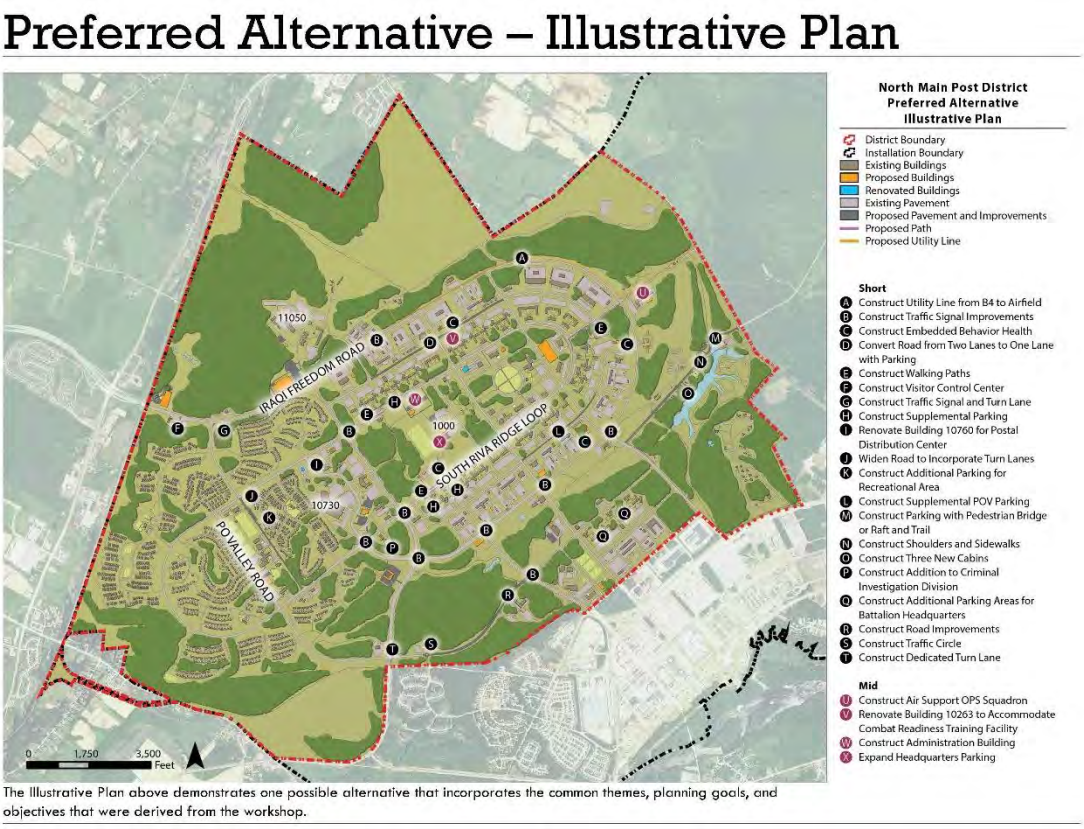


Figure 10. Illustrative Plan of a Preferred Alternative for Fort Drum, NY, North Main Post District Area Development Plan, June 2017.

B.3.3 REGULATING PLAN

The Regulating Plan serves as the installation's "zoning code" for development and uses the Illustrative Plan as a basis for its development. The Regulating Plan functions as an enhanced land-use plan, providing increased flexibility over the traditional land-use style of planning. Building and street standards are applied to specific zones and build-to lines, and allowable uses per zone are established. The Regulating Plan uses the building envelope standard, street envelope standard, and landscape standards in the Installation Planning Standards to help define the required build-to lines.

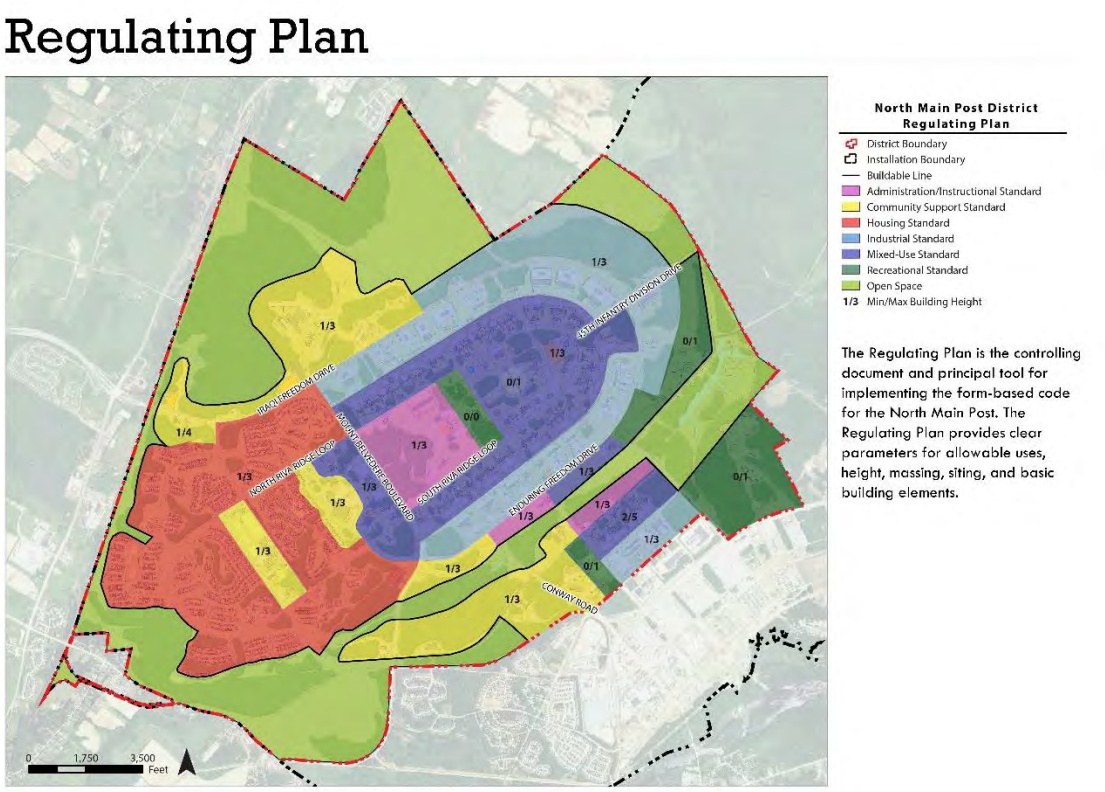


Figure 11. Regulating Plan from Fort Drum, NY, North Main Post District Area Development Plan, June 2017.

B.4 CAPITAL INVESTMENT STRATEGY

The Capital Investment Strategy is another of the five standard components of the RPMP. It links long-term planning to plan implementation. The Capital Investment Strategy represents projects identified by stakeholders during the planning process as well as major projects already programmed. It shows all projects at an installation in both map and table formats. Each project's status is identified as budgeted, programmed, or planned. The funding source and a rough order of magnitude project cost are also provided.

The projects are prioritized by a ranking, or recommended order, in which each project should be developed. The Capital Investment Strategy process is designed to provide a 5-year (short-term), 6–10-year (mid-term), and 11–20-year (long-term) look at program execution.



Figure 12. Capital Investment Strategy Brochure for Fort Campbell, KY.

Appendix E

PEA Environmental Checklist

ADDITIONAL REGULATORY REQUIREMENTS

This checklist is designed to assist IMCOM garrisons in identifying the documentation required to meet NEPA requirements. Requirements under other federal and state environmental laws, ordinances, and regulations also must be met, as applicable. Those requirements may include resource-specific consultations with other federal, state, and Tribal governments and agencies—such as consulting with the U.S. Fish and Wildlife Service (USFWS) (or National Oceanic and Atmospheric Administration [NOAA] Fisheries for marine species) under the Endangered Species Act (ESA) or a State Historic Preservation Officer (SHPO) under the National Historic Preservation Act (NHPA)—or completing NEPA-like requirements of the state in which the garrison is located.

Resource Area and Questions	***Check the appropriate response:***
Air Quality	
Would the proposed action result in a National Ambient Air Quality Standards attainment area becoming a nonattainment area?	☐ Yes ☐ No ☐ Maybe
Would the proposed action produce emissions within a nonattainment or maintenance area that exceeded the General Conformity Rule *de minimis* (of minimal importance) threshold values established in 40 C.F.R. § 93.153(b)?	☐ Yes ☐ No ☐ Maybe
Would the proposed action generate nationally substantial greenhouse gas emissions by producing more than 75,000 tons of carbon dioxide equivalent from non-exempt sources per year?	☐ Yes ☐ No ☐ Maybe
Biological Resources	
Note: All required USFWS and/or NOAA Fisheries informal or formal consultation must be completed prior to implementing a proposed action.	
Would the proposed action result in an unpermitted take of a federally protected species (e.g., under the ESA, Migratory Bird Treaty Act, Marine Mammal Protection Act, and Bald and Golden Eagle Protection Act)?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in detrimental alteration of USFWS-designated critical habitat?	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Would the proposed action result in local extirpation of a sensitive non-federally listed species?	☐ Yes ☐ No ☐ Maybe
Would the proposed action have a substantial detrimental effect on the amount or diversity of common native wildlife or plant communities?	☐ Yes ☐ No ☐ Maybe
Would the proposed action have a high probability of increasing the spread of nonnative or invasive species?	☐ Yes ☐ No ☐ Maybe
Cultural Resources	
Note: All required NHPA Section 106 consultation with the SHPO, Advisory Council on Historic Preservation (ACHP), federally recognized Native American Tribes (Tribes), including Native Alaskans or Native Hawaiians, and other relevant consulting parties must be completed prior to the approval of the expenditure of any federal funds on the undertaking. Proposed projects requiring ground disturbance in areas not yet surveyed for cultural resources would require a survey prior to construction beginning.	
Would the proposed action result in NHPA-defined adverse effects, as defined by the NHPA, on a historic property listed or eligible for listing on the NRHP that are not resolved through a Memorandum of Agreement with the SHPO, and possibly with the ACHP?	☐ Yes ☐ No ☐ Maybe
Would the proposed action create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes without discussions on a government-to-government level with the affected Tribe(s)?	☐ Yes ☐ No ☐ Maybe
Earth Resources	
Would the proposed action induce waterborne soil erosion resulting in sedimentation that would violate federal or state water quality laws?	☐ Yes ☐ No ☐ Maybe
Would the proposed action induce windborne soil erosion that would violate federal or state air quality laws?	☐ Yes ☐ No ☐ Maybe
Would the proposed action expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☐ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☐ No ☐ Maybe
Would the proposed action disturb restoration sites or the progress of cleanup activities at those sites so that adverse effects on human health or the environment could result?	☐ Yes ☐ No ☐ Maybe
Would the proposed action conflict with established land-use controls?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in noncompliance with applicable federal, state, or local laws or regulations; or with permits related to hazardous materials and waste?	☐ Yes ☐ No ☐ Maybe
Human Health and Safety	
Would the proposed action substantially increase human exposure to a health hazard or safety risk?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☐ No ☐ Maybe
Land Use	
Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☐ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☐ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☐ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action site incompatible land uses near existing on- or off-installation noise-sensitive receptors?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zones II or III; reference Army Regulation 200-1, Chapter 14)?	☐ Yes ☐ No ☐ Maybe
Socioeconomics	
Note: Under NEPA, significant socioeconomic impacts by themselves do not require that an environmental impact statement be prepared unless the action also will have natural or physical environmental impacts (40 C.F.R. § 1508.14).	
Would the proposed action result in substantial gains or losses in population that would exceed historic rates of growth or decline?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in a decrease in jobs that substantially raises the regional unemployment rates?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in a substantial change in the housing market such as severe housing shortages or surpluses?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in a substantial increase in need for public services (e.g., fire protection, law enforcement, schools)?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in a substantial long-term loss or displacement of recreational opportunities and resources?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population per Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*? *Note*: Refer also to the CEQ's 1997 *Environmental Justice Guidance Under NEPA*.	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in a disproportionately high and adverse environmental health or safety risk to an identified population of children per EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm to the safety of children?	☐ Yes ☐ No ☐ Maybe
Transportation and Traffic	
Would the proposed action substantially increase traffic congestion or delays for an extended period of time?	☐ Yes ☐ No ☐ Maybe
Would the proposed action substantially increase transportation safety hazards due to an RPMP project design feature?	☐ Yes ☐ No ☐ Maybe
Would the proposed action overwhelm existing parking capacity?	☐ Yes ☐ No ☐ Maybe
Utilities	
Would the proposed action exceed the available capacity of existing utilities and supporting infrastructure without an appropriate plan to provide the additional needed capacity?	☐ Yes ☐ No ☐ Maybe
Would the proposed action cause long term or frequent disruption of utility service on- or off-installation?	☐ Yes ☐ No ☐ Maybe
Would the proposed action violate regulatory or permit limits related to utilities (e.g., by creating a wastewater discharge greater than that allowed by an existing permit)?	☐ Yes ☐ No ☐ Maybe
Water Resources	
Note: Projects might require one or more permits and approvals, including National Pollutant Discharge Elimination System (NPDES) permits, Clean Water Act Section 401 and 404 permits, and a Coastal Zone Management Act Federal Consistency Determination.	
Would the proposed action cause an exceedance of a total maximum daily load?	☐ Yes ☐ No ☐ Maybe
Would the proposed action cause a detrimental change in the impairment status of a surface water?	☐ Yes ☐ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in an unpermitted direct impact on a water of the United States?	☐ Yes ☐ No ☐ Maybe
Would the proposed action result in the unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands?	☐ Yes ☐ No ☐ Maybe
Would the proposed action cause erosion and sedimentation that would violate water quality laws or the terms of a NPDES stormwater permit?	☐ Yes ☐ No ☐ Maybe
Public Involvement	
Would the proposed action be of interest to the off-post community such that additional public involvement efforts should be conducted?	☐ Yes ☐ No ☐ Maybe
Would the proposed action be environmentally controversial?	☐ Yes ☐ No ☐ Maybe
General	
Would the proposed action involve any extraordinary circumstances that are not captured in the responses above that might necessitate additional analysis?	☐ Yes ☐ No ☐ Maybe
Cumulative Effects	
Are there other actions underway or proposed whose effects—when combined with the potential effects of implementing the proposed plan—could have a significant adverse cumulative effect on human health or the environment?	☐ Yes ☐ No ☐ Maybe

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Would the proposed action be environmentally controversial?	☐ Yes ☒ No ☐ Maybe
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Resource Area and Questions	***Check the appropriate response:***
Air Quality	
Would the proposed action result in a National Ambient Air Quality Standards attainment area becoming a nonattainment area?	☐ Yes ☒ No ☐ Maybe
Would the proposed action produce emissions within a nonattainment or maintenance area that exceeded the General Conformity Rule *de minimis* (of minimal importance) threshold values established in 40 C.F.R. § 93.153(b)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action generate nationally substantial greenhouse gas emissions by producing more than 75,000 tons of carbon dioxide equivalent from non-exempt sources per year?	☐ Yes ☒ No ☐ Maybe
Biological Resources	
Note: All required USFWS and/or NOAA Fisheries informal or formal consultation must be completed prior to implementing a proposed action.	
Would the proposed action result in an unpermitted take of a federally protected species (e.g., under the ESA, Migratory Bird Treaty Act, Marine Mammal Protection Act, and Bald and Golden Eagle Protection Act)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in detrimental alteration of USFWS-designated critical habitat?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Would the proposed action result in local extirpation of a sensitive non-federally listed species?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a substantial detrimental effect on the amount or diversity of common native wildlife or plant communities?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a high probability of increasing the spread of nonnative or invasive species?	☐ Yes ☒ No ☐ Maybe
Cultural Resources	
Note: All required NHPA Section 106 consultation with the SHPO, Advisory Council on Historic Preservation (ACHP), federally recognized Native American Tribes (Tribes), including Native Alaskans or Native Hawaiians, and other relevant consulting parties must be completed prior to the approval of the expenditure of any federal funds on the undertaking. Proposed projects requiring ground disturbance in areas not yet surveyed for cultural resources would require a survey prior to construction beginning.	
Would the proposed action result in NHPA-defined adverse effects, as defined by the NHPA, on a historic property listed or eligible for listing on the NRHP that are not resolved through a Memorandum of Agreement with the SHPO, and possibly with the ACHP?	☐ Yes ☒ No ☐ Maybe
Would the proposed action create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes without discussions on a government-to-government level with the affected Tribe(s)?	☐ Yes ☒ No ☐ Maybe
Earth Resources	
Would the proposed action induce waterborne soil erosion resulting in sedimentation that would violate federal or state water quality laws?	☐ Yes ☒ No ☐ Maybe
Would the proposed action induce windborne soil erosion that would violate federal or state air quality laws?	☐ Yes ☒ No ☐ Maybe
Would the proposed action expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☒ No ☐ Maybe
Would the proposed action disturb restoration sites or the progress of cleanup activities at those sites so that adverse effects on human health or the environment could result?	☐ Yes ☒ No ☐ Maybe
Would the proposed action conflict with established land-use controls?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with applicable federal, state, or local laws or regulations; or with permits related to hazardous materials and waste?	☐ Yes ☒ No ☐ Maybe
Human Health and Safety	
Would the proposed action substantially increase human exposure to a health hazard or safety risk?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☒ No ☐ Maybe
Land Use	
Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☒ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☒ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action site incompatible land uses near existing on- or off-installation noise-sensitive receptors?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zones II or III; reference Army Regulation 200-1, Chapter 14)?	☐ Yes ☒ No ☐ Maybe
Socioeconomics	
Note: Under NEPA, significant socioeconomic impacts by themselves do not require that an environmental impact statement be prepared unless the action also will have natural or physical environmental impacts (40 C.F.R. § 1508.14).	
Would the proposed action result in substantial gains or losses in population that would exceed historic rates of growth or decline?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a decrease in jobs that substantially raises the regional unemployment rates?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial change in the housing market such as severe housing shortages or surpluses?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action result in a substantial long-term loss or displacement of recreational opportunities and resources?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population per Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*? *Note*: Refer also to the CEQ's 1997 *Environmental Justice Guidance Under NEPA*.	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in a disproportionately high and adverse environmental health or safety risk to an identified population of children per EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm to the safety of children?	☐ Yes ☒ No ☐ Maybe
Transportation and Traffic	
Would the proposed action substantially increase traffic congestion or delays for an extended period of time?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase transportation safety hazards due to an RPMP project design feature?	☐ Yes ☒ No ☐ Maybe
Would the proposed action overwhelm existing parking capacity?	☐ Yes ☒ No ☐ Maybe
Utilities	
Would the proposed action exceed the available capacity of existing utilities and supporting infrastructure without an appropriate plan to provide the additional needed capacity?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause long term or frequent disruption of utility service on- or off-installation?	☐ Yes ☒ No ☐ Maybe
Would the proposed action violate regulatory or permit limits related to utilities (e.g., by creating a wastewater discharge greater than that allowed by an existing permit)?	☐ Yes ☒ No ☐ Maybe
Water Resources	
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Would the proposed action cause a detrimental change in the impairment status of a surface water?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in an unpermitted direct impact on a water of the United States?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause erosion and sedimentation that would violate water quality laws or the terms of a NPDES stormwater permit?	☐ Yes ☒ No ☐ Maybe
Public Involvement	
Would the proposed action be of interest to the off-post community such that additional public involvement efforts should be conducted?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be environmentally controversial?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action involve any extraordinary circumstances that are not captured in the responses above that might necessitate additional analysis?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action have a substantial detrimental effect on the amount or diversity of common native wildlife or plant communities?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a high probability of increasing the spread of nonnative or invasive species?	☐ Yes ☒ No ☐ Maybe
Cultural Resources	
Note: All required NHPA Section 106 consultation with the SHPO, Advisory Council on Historic Preservation (ACHP), federally recognized Native American Tribes (Tribes), including Native Alaskans or Native Hawaiians, and other relevant consulting parties must be completed prior to the approval of the expenditure of any federal funds on the undertaking. Proposed projects requiring ground disturbance in areas not yet surveyed for cultural resources would require a survey prior to construction beginning.	
Would the proposed action result in NHPA-defined adverse effects, as defined by the NHPA, on a historic property listed or eligible for listing on the NRHP that are not resolved through a Memorandum of Agreement with the SHPO, and possibly with the ACHP?	☐ Yes ☒ No ☐ Maybe
Would the proposed action create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes without discussions on a government-to-government level with the affected Tribe(s)?	☐ Yes ☒ No ☐ Maybe
Earth Resources	
Would the proposed action induce waterborne soil erosion resulting in sedimentation that would violate federal or state water quality laws?	☐ Yes ☒ No ☐ Maybe
Would the proposed action induce windborne soil erosion that would violate federal or state air quality laws?	☐ Yes ☒ No ☐ Maybe
Would the proposed action expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☒ No ☐ Maybe
Would the proposed action disturb restoration sites or the progress of cleanup activities at those sites so that adverse effects on human health or the environment could result?	☐ Yes ☒ No ☐ Maybe
Would the proposed action conflict with established land-use controls?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with applicable federal, state, or local laws or regulations; or with permits related to hazardous materials and waste?	☐ Yes ☒ No ☐ Maybe
Human Health and Safety	
Would the proposed action substantially increase human exposure to a health hazard or safety risk?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☒ No ☐ Maybe
Land Use	
Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☒ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☒ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action site incompatible land uses near existing on- or off-installation noise-sensitive receptors?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zones II or III; reference Army Regulation 200-1, Chapter 14)?	☐ Yes ☒ No ☐ Maybe
Socioeconomics	
Note: Under NEPA, significant socioeconomic impacts by themselves do not require that an environmental impact statement be prepared unless the action also will have natural or physical environmental impacts (40 C.F.R. § 1508.14).	
Would the proposed action result in substantial gains or losses in population that would exceed historic rates of growth or decline?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a decrease in jobs that substantially raises the regional unemployment rates?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial change in the housing market such as severe housing shortages or surpluses?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial increase in need for public services (e.g., fire protection, law enforcement, schools)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial long-term loss or displacement of recreational opportunities and resources?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population per Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*? *Note*: Refer also to the CEQ's 1997 *Environmental Justice Guidance Under NEPA*.	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in a disproportionately high and adverse environmental health or safety risk to an identified population of children per EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm to the safety of children?	☐ Yes ☒ No ☐ Maybe
Transportation and Traffic	
Would the proposed action substantially increase traffic congestion or delays for an extended period of time?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase transportation safety hazards due to an RPMP project design feature?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action exceed the available capacity of existing utilities and supporting infrastructure without an appropriate plan to provide the additional needed capacity?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause long term or frequent disruption of utility service on- or off-installation?	☐ Yes ☒ No ☐ Maybe
Would the proposed action violate regulatory or permit limits related to utilities (e.g., by creating a wastewater discharge greater than that allowed by an existing permit)?	☐ Yes ☒ No ☐ Maybe
Water Resources	
Note: Projects might require one or more permits and approvals, including National Pollutant Discharge Elimination System (NPDES) permits, Clean Water Act Section 401 and 404 permits, and a Coastal Zone Management Act Federal Consistency Determination.	
Would the proposed action cause an exceedance of a total maximum daily load?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause a detrimental change in the impairment status of a surface water?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in an unpermitted direct impact on a water of the United States?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause erosion and sedimentation that would violate water quality laws or the terms of a NPDES stormwater permit?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action be of interest to the off-post community such that additional public involvement efforts should be conducted?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action generate nationally substantial greenhouse gas emissions by producing more than 75,000 tons of carbon dioxide equivalent from non-exempt sources per year?	☐ Yes ☒ No ☐ Maybe
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Note: All required USFWS and/or NOAA Fisheries informal or formal consultation must be completed prior to implementing a proposed action.	
Would the proposed action result in an unpermitted take of a federally protected species (e.g., under the ESA, Migratory Bird Treaty Act, Marine Mammal Protection Act, and Bald and Golden Eagle Protection Act)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in detrimental alteration of USFWS-designated critical habitat?	☐ Yes ☒ No ☐ Maybe

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Resource Area and Questions	Check the appropriate response:
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☒ No ☐ Maybe
Would the proposed action disturb restoration sites or the progress of cleanup activities at those sites so that adverse effects on human health or the environment could result?	☐ Yes ☒ No ☐ Maybe
Would the proposed action conflict with established land-use controls?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with applicable federal, state, or local laws or regulations; or with permits related to hazardous materials and waste?	☐ Yes ☒ No ☐ Maybe
Human Health and Safety	
Would the proposed action substantially increase human exposure to a health hazard or safety risk?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☒ No ☐ Maybe
Land Use	
Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☒ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☒ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action site incompatible land uses near existing on- or off-installation noise-sensitive receptors?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zones II or III; reference Army Regulation 200-1, Chapter 14)?	☐ Yes ☒ No ☐ Maybe
Socioeconomics	
Note: Under NEPA, significant socioeconomic impacts by themselves do not require that an environmental impact statement be prepared unless the action also will have natural or physical environmental impacts (40 C.F.R. § 1508.14).	
Would the proposed action result in substantial gains or losses in population that would exceed historic rates of growth or decline?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a decrease in jobs that substantially raises the regional unemployment rates?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial change in the housing market such as severe housing shortages or surpluses?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial increase in need for public services (e.g., fire protection, law enforcement, schools)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial long-term loss or displacement of recreational opportunities and resources?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population per Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*? *Note*: Refer also to the CEQ's 1997 *Environmental Justice Guidance Under NEPA*.	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in a disproportionately high and adverse environmental health or safety risk to an identified population of children per EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm to the safety of children?	☐ Yes ☒ No ☐ Maybe
Transportation and Traffic	
Would the proposed action substantially increase traffic congestion or delays for an extended period of time?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase transportation safety hazards due to an RPMP project design feature?	☐ Yes ☒ No ☐ Maybe
Would the proposed action overwhelm existing parking capacity?	☐ Yes ☒ No ☐ Maybe
Utilities	
Would the proposed action exceed the available capacity of existing utilities and supporting infrastructure without an appropriate plan to provide the additional needed capacity?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause long term or frequent disruption of utility service on- or off-installation?	☐ Yes ☒ No ☐ Maybe
Would the proposed action violate regulatory or permit limits related to utilities (e.g., by creating a wastewater discharge greater than that allowed by an existing permit)?	☐ Yes ☒ No ☐ Maybe
Water Resources	
Note: Projects might require one or more permits and approvals, including National Pollutant Discharge Elimination System (NPDES) permits, Clean Water Act Section 401 and 404 permits, and a Coastal Zone Management Act Federal Consistency Determination.	
Would the proposed action cause an exceedance of a total maximum daily load?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause a detrimental change in the impairment status of a surface water?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in an unpermitted direct impact on a water of the United States?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause erosion and sedimentation that would violate water quality laws or the terms of a NPDES stormwater permit?	☐ Yes ☒ No ☐ Maybe
Public Involvement	
Would the proposed action be of interest to the off-post community such that additional public involvement efforts should be conducted?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be environmentally controversial?	☐ Yes ☒ No ☐ Maybe
General	
Would the proposed action involve any extraordinary circumstances that are not captured in the responses above that might necessitate additional analysis?	☐ Yes ☒ No ☐ Maybe
Cumulative Effects	
Are there other actions underway or proposed whose effects—when combined with the potential effects of implementing the proposed plan—could have a significant adverse cumulative effect on human health or the environment?	☐ Yes ☒ No ☐ Maybe

Action 9: Renovate Bldg 7733

ADDITIONAL REGULATORY REQUIREMENTS

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Resource Area and Questions	***Check the appropriate response:***
Air Quality	
Would the proposed action result in a National Ambient Air Quality Standards attainment area becoming a nonattainment area?	☐ Yes ☒ No ☐ Maybe
Would the proposed action produce emissions within a nonattainment or maintenance area that exceeded the General Conformity Rule *de minimis* (of minimal importance) threshold values established in 40 C.F.R. § 93.153(b)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action generate nationally substantial greenhouse gas emissions by producing more than 75,000 tons of carbon dioxide equivalent from non-exempt sources per year?	☐ Yes ☒ No ☐ Maybe
Biological Resources	
Note: All required USFWS and/or NOAA Fisheries informal or formal consultation must be completed prior to implementing a proposed action.	
Would the proposed action result in an unpermitted take of a federally protected species (e.g., under the ESA, Migratory Bird Treaty Act, Marine Mammal Protection Act, and Bald and Golden Eagle Protection Act)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in detrimental alteration of USFWS-designated critical habitat?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Would the proposed action result in local extirpation of a sensitive non-federally listed species?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a substantial detrimental effect on the amount or diversity of common native wildlife or plant communities?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a high probability of increasing the spread of nonnative or invasive species?	☐ Yes ☒ No ☐ Maybe
Cultural Resources	
Note: All required NHPA Section 106 consultation with the SHPO, Advisory Council on Historic Preservation (ACHP), federally recognized Native American Tribes (Tribes), including Native Alaskans or Native Hawaiians, and other relevant consulting parties must be completed prior to the approval of the expenditure of any federal funds on the undertaking. Proposed projects requiring ground disturbance in areas not yet surveyed for cultural resources would require a survey prior to construction beginning.	
Would the proposed action result in NHPA-defined adverse effects, as defined by the NHPA, on a historic property listed or eligible for listing on the NRHP that are not resolved through a Memorandum of Agreement with the SHPO, and possibly with the ACHP?	☐ Yes ☒ No ☐ Maybe
Would the proposed action create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes without discussions on a government-to-government level with the affected Tribe(s)?	☐ Yes ☒ No ☐ Maybe
Earth Resources	
Would the proposed action induce waterborne soil erosion resulting in sedimentation that would violate federal or state water quality laws?	☐ Yes ☒ No ☐ Maybe
Would the proposed action induce windborne soil erosion that would violate federal or state air quality laws?	☐ Yes ☒ No ☐ Maybe
Would the proposed action expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☒ No ☐ Maybe
Would the proposed action disturb restoration sites or the progress of cleanup activities at those sites so that adverse effects on human health or the environment could result?	☐ Yes ☒ No ☐ Maybe
Would the proposed action conflict with established land-use controls?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with applicable federal, state, or local laws or regulations; or with permits related to hazardous materials and waste?	☐ Yes ☒ No ☐ Maybe
Human Health and Safety	
Would the proposed action substantially increase human exposure to a health hazard or safety risk?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☒ No ☐ Maybe
Land Use	
Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☒ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☒ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action site incompatible land uses near existing on- or off-installation noise-sensitive receptors?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zones II or III; reference Army Regulation 200-1, Chapter 14)?	☐ Yes ☒ No ☐ Maybe
Socioeconomics	
Note: Under NEPA, significant socioeconomic impacts by themselves do not require that an environmental impact statement be prepared unless the action also will have natural or physical environmental impacts (40 C.F.R. § 1508.14).	
Would the proposed action result in substantial gains or losses in population that would exceed historic rates of growth or decline?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a decrease in jobs that substantially raises the regional unemployment rates?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial change in the housing market such as severe housing shortages or surpluses?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial increase in need for public services (e.g., fire protection, law enforcement, schools)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial long-term loss or displacement of recreational opportunities and resources?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population per Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*? *Note*: Refer also to the CEQ's 1997 *Environmental Justice Guidance Under NEPA*.	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in a disproportionately high and adverse environmental health or safety risk to an identified population of children per EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm to the safety of children?	☐ Yes ☒ No ☐ Maybe
Transportation and Traffic	
Would the proposed action substantially increase traffic congestion or delays for an extended period of time?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase transportation safety hazards due to an RPMP project design feature?	☐ Yes ☒ No ☐ Maybe
Would the proposed action overwhelm existing parking capacity?	☐ Yes ☒ No ☐ Maybe
Utilities	
Would the proposed action exceed the available capacity of existing utilities and supporting infrastructure without an appropriate plan to provide the additional needed capacity?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause long term or frequent disruption of utility service on- or off-installation?	☐ Yes ☒ No ☐ Maybe
Would the proposed action violate regulatory or permit limits related to utilities (e.g., by creating a wastewater discharge greater than that allowed by an existing permit)?	☐ Yes ☒ No ☐ Maybe
Water Resources	
Note: Projects might require one or more permits and approvals, including National Pollutant Discharge Elimination System (NPDES) permits, Clean Water Act Section 401 and 404 permits, and a Coastal Zone Management Act Federal Consistency Determination.	
Would the proposed action cause an exceedance of a total maximum daily load?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause a detrimental change in the impairment status of a surface water?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in an unpermitted direct impact on a water of the United States?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause erosion and sedimentation that would violate water quality laws or the terms of a NPDES stormwater permit?	☐ Yes ☒ No ☐ Maybe
Public Involvement	
Would the proposed action be of interest to the off-post community such that additional public involvement efforts should be conducted?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be environmentally controversial?	☐ Yes ☒ No ☐ Maybe
General	
Would the proposed action involve any extraordinary circumstances that are not captured in the responses above that might necessitate additional analysis?	☐ Yes ☒ No ☐ Maybe
Cumulative Effects	
Are there other actions underway or proposed whose effects—when combined with the potential effects of implementing the proposed plan—could have a significant adverse cumulative effect on human health or the environment?	☐ Yes ☒ No ☐ Maybe

ADDITIONAL REGULATORY REQUIREMENTS

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Resource Area and Questions	***Check the appropriate response:***
Air Quality	
Would the proposed action result in a National Ambient Air Quality Standards attainment area becoming a nonattainment area?	☐ Yes ☒ No ☐ Maybe
Would the proposed action produce emissions within a nonattainment or maintenance area that exceeded the General Conformity Rule *de minimis* (of minimal importance) threshold values established in 40 C.F.R. § 93.153(b)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action generate nationally substantial greenhouse gas emissions by producing more than 75,000 tons of carbon dioxide equivalent from non-exempt sources per year?	☐ Yes ☒ No ☐ Maybe
Biological Resources	
Note: All required USFWS and/or NOAA Fisheries informal or formal consultation must be completed prior to implementing a proposed action.	
Would the proposed action result in an unpermitted take of a federally protected species (e.g., under the ESA, Migratory Bird Treaty Act, Marine Mammal Protection Act, and Bald and Golden Eagle Protection Act)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in detrimental alteration of USFWS-designated critical habitat?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Would the proposed action result in local extirpation of a sensitive non-federally listed species?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a substantial detrimental effect on the amount or diversity of common native wildlife or plant communities?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a high probability of increasing the spread of nonnative or invasive species?	☐ Yes ☒ No ☐ Maybe
Cultural Resources	
Note: All required NHPA Section 106 consultation with the SHPO, Advisory Council on Historic Preservation (ACHP), federally recognized Native American Tribes (Tribes), including Native Alaskans or Native Hawaiians, and other relevant consulting parties must be completed prior to the approval of the expenditure of any federal funds on the undertaking. Proposed projects requiring ground disturbance in areas not yet surveyed for cultural resources would require a survey prior to construction beginning.	
Would the proposed action result in NHPA-defined adverse effects, as defined by the NHPA, on a historic property listed or eligible for listing on the NRHP that are not resolved through a Memorandum of Agreement with the SHPO, and possibly with the ACHP?	☐ Yes ☒ No ☐ Maybe
Would the proposed action create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes without discussions on a government-to-government level with the affected Tribe(s)?	☐ Yes ☒ No ☐ Maybe
Earth Resources	
Would the proposed action induce waterborne soil erosion resulting in sedimentation that would violate federal or state water quality laws?	☐ Yes ☒ No ☐ Maybe
Would the proposed action induce windborne soil erosion that would violate federal or state air quality laws?	☐ Yes ☒ No ☐ Maybe
Would the proposed action expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action conflict with established land-use controls?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with applicable federal, state, or local laws or regulations; or with permits related to hazardous materials and waste?	☐ Yes ☒ No ☐ Maybe
Human Health and Safety	
Would the proposed action substantially increase human exposure to a health hazard or safety risk?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☒ No ☐ Maybe
Land Use	
Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☒ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☒ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action site incompatible land uses near existing on- or off-installation noise-sensitive receptors?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zones II or III; reference Army Regulation 200-1, Chapter 14)?	☐ Yes ☒ No ☐ Maybe
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Resource Area and Questions	***Check the appropriate response:***
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Transportation and Traffic	
Would the proposed action substantially increase traffic congestion or delays for an extended period of time?	☐ Yes ☒ No ☐ Maybe
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Cumulative Effects	
Are there other actions underway or proposed whose effects—when combined with the potential effects of implementing the proposed plan—could have a significant adverse cumulative effect on human health or the environment?	☐ Yes ☒ No ☐ Maybe

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Resource Area and Questions	***Check the appropriate response:***
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Note: All required USFWS and/or NOAA Fisheries informal or formal consultation must be completed prior to implementing a proposed action.	
Would the proposed action result in an unpermitted take of a federally protected species (e.g., under the ESA, Migratory Bird Treaty Act, Marine Mammal Protection Act, and Bald and Golden Eagle Protection Act)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in detrimental alteration of USFWS-designated critical habitat?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
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Would the proposed action create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes without discussions on a government-to-government level with the affected Tribe(s)?	☐ Yes ☒ No ☐ Maybe
Earth Resources	
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Would the proposed action expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☒ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☒ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action site incompatible land uses near existing on- or off-installation noise-sensitive receptors?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the location of new noise-sensitive receptors in incompatible noise environments (i.e., noise zones II or III; reference Army Regulation 200-1, Chapter 14)?	☐ Yes ☒ No ☐ Maybe
Socioeconomics	
Note: Under NEPA, significant socioeconomic impacts by themselves do not require that an environmental impact statement be prepared unless the action also will have natural or physical environmental impacts (40 C.F.R. § 1508.14).	
Would the proposed action result in substantial gains or losses in population that would exceed historic rates of growth or decline?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a decrease in jobs that substantially raises the regional unemployment rates?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial change in the housing market such as severe housing shortages or surpluses?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial increase in need for public services (e.g., fire protection, law enforcement, schools)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in a substantial long-term loss or displacement of recreational opportunities and resources?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in disproportionately high and adverse environmental or human health impacts to an identified minority or low-income population per Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*? *Note*: Refer also to the CEQ's 1997 *Environmental Justice Guidance Under NEPA*.	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in a disproportionately high and adverse environmental health or safety risk to an identified population of children per EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm to the safety of children?	☐ Yes ☒ No ☐ Maybe
Transportation and Traffic	
Would the proposed action substantially increase traffic congestion or delays for an extended period of time?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase transportation safety hazards due to an RPMP project design feature?	☐ Yes ☒ No ☐ Maybe
Would the proposed action overwhelm existing parking capacity?	☐ Yes ☒ No ☐ Maybe
Utilities	
Would the proposed action exceed the available capacity of existing utilities and supporting infrastructure without an appropriate plan to provide the additional needed capacity?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause long term or frequent disruption of utility service on- or off-installation?	☐ Yes ☒ No ☐ Maybe
Would the proposed action violate regulatory or permit limits related to utilities (e.g., by creating a wastewater discharge greater than that allowed by an existing permit)?	☐ Yes ☒ No ☐ Maybe
Water Resources	
Note: Projects might require one or more permits and approvals, including National Pollutant Discharge Elimination System (NPDES) permits, Clean Water Act Section 401 and 404 permits, and a Coastal Zone Management Act Federal Consistency Determination.	
Would the proposed action cause an exceedance of a total maximum daily load?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause a detrimental change in the impairment status of a surface water?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in an unpermitted direct impact on a water of the United States?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in the unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands?	☐ Yes ☒ No ☐ Maybe
Would the proposed action cause erosion and sedimentation that would violate water quality laws or the terms of a NPDES stormwater permit?	☐ Yes ☒ No ☐ Maybe
Public Involvement	
Would the proposed action be of interest to the off-post community such that additional public involvement efforts should be conducted?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be environmentally controversial?	☐ Yes ☒ No ☐ Maybe
General	
Would the proposed action involve any extraordinary circumstances that are not captured in the responses above that might necessitate additional analysis?	☐ Yes ☒ No ☐ Maybe
Cumulative Effects	
Are there other actions underway or proposed whose effects—when combined with the potential effects of implementing the proposed plan—could have a significant adverse cumulative effect on human health or the environment?	☐ Yes ☒ No ☐ Maybe

ADDITIONAL REGULATORY REQUIREMENTS

This checklist is designed to assist IMCOM garrisons in identifying the documentation required to meet NEPA requirements. Requirements under other federal and state environmental laws, ordinances, and regulations also must be met, as applicable. Those requirements may include resource-specific consultations with other federal, state, and Tribal governments and agencies—such as consulting with the U.S. Fish and Wildlife Service (USFWS) (or National Oceanic and Atmospheric Administration [NOAA] Fisheries for marine species) under the Endangered Species Act (ESA) or a State Historic Preservation Officer (SHPO) under the National Historic Preservation Act (NHPA)—or completing NEPA-like requirements of the state in which the garrison is located.

Resource Area and Questions	***Check the appropriate response:***
Air Quality	
Would the proposed action result in a National Ambient Air Quality Standards attainment area becoming a nonattainment area?	☐ Yes ☒ No ☐ Maybe
Would the proposed action produce emissions within a nonattainment or maintenance area that exceeded the General Conformity Rule *de minimis* (of minimal importance) threshold values established in 40 C.F.R. § 93.153(b)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action generate nationally substantial greenhouse gas emissions by producing more than 75,000 tons of carbon dioxide equivalent from non-exempt sources per year?	☐ Yes ☒ No ☐ Maybe
Biological Resources	
Note: All required USFWS and/or NOAA Fisheries informal or formal consultation must be completed prior to implementing a proposed action.	
Would the proposed action result in an unpermitted take of a federally protected species (e.g., under the ESA, Migratory Bird Treaty Act, Marine Mammal Protection Act, and Bald and Golden Eagle Protection Act)?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in detrimental alteration of USFWS-designated critical habitat?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Would the proposed action result in local extirpation of a sensitive non-federally listed species?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a substantial detrimental effect on the amount or diversity of common native wildlife or plant communities?	☐ Yes ☒ No ☐ Maybe
Would the proposed action have a high probability of increasing the spread of nonnative or invasive species?	☐ Yes ☒ No ☐ Maybe
Cultural Resources	
Note: All required NHPA Section 106 consultation with the SHPO, Advisory Council on Historic Preservation (ACHP), federally recognized Native American Tribes (Tribes), including Native Alaskans or Native Hawaiians, and other relevant consulting parties must be completed prior to the approval of the expenditure of any federal funds on the undertaking. Proposed projects requiring ground disturbance in areas not yet surveyed for cultural resources would require a survey prior to construction beginning.	
Would the proposed action result in NHPA-defined adverse effects, as defined by the NHPA, on a historic property listed or eligible for listing on the NRHP that are not resolved through a Memorandum of Agreement with the SHPO, and possibly with the ACHP?	☐ Yes ☒ No ☐ Maybe
Would the proposed action create conditions that would stop the traditional use of sacred or ceremonial sites or resources by a Tribe or Tribes without discussions on a government-to-government level with the affected Tribe(s)?	☐ Yes ☒ No ☐ Maybe
Earth Resources	
Would the proposed action induce waterborne soil erosion resulting in sedimentation that would violate federal or state water quality laws?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action expose people or structures to substantial earth-related hazards by locating structures on a geologic unit or soil that is unstable or that would become unstable as a result of the project, potentially resulting in a landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	Check the appropriate response:
Hazardous Materials and Waste	
Would the proposed action expose people or substantially increase their risk of exposure to hazardous substances, including explosives, without adequate protection?	☐ Yes ☒ No ☐ Maybe
Would the proposed action substantially increase the risk of spills or releases of hazardous substances?	☐ Yes ☒ No ☐ Maybe
Would the proposed action disturb restoration sites or the progress of cleanup activities at those sites so that adverse effects on human health or the environment could result?	☐ Yes ☒ No ☐ Maybe
Would the proposed action conflict with established land-use controls?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with applicable federal, state, or local laws or regulations; or with permits related to hazardous materials and waste?	☐ Yes ☒ No ☐ Maybe
Human Health and Safety	
Would the proposed action substantially increase human exposure to a health hazard or safety risk?	☐ Yes ☒ No ☐ Maybe
Would the proposed action result in noncompliance with or a violation of laws and regulations governing human health and safety?	☐ Yes ☒ No ☐ Maybe
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Would the proposed action substantially conflict with established land uses in the area or create a major land-use incompatibility?	☐ Yes ☒ No ☐ Maybe
Would the proposed action physically divide an established community?	☐ Yes ☒ No ☐ Maybe
Would the proposed action be inconsistent with adopted land-use control plans that required regulatory agency acceptance, to include land-use controls for restoration sites and habitat conservation plans to protect endangered species?	☐ Yes ☒ No ☐ Maybe
Noise	
Would the proposed action result in a violation of an applicable noise ordinance?	☐ Yes ☒ No ☐ Maybe

Resource Area and Questions	***Check the appropriate response:***
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Resource Area and Questions	***Check the appropriate response:***
Would the proposed action result in an unpermitted direct impact on a water of the United States?	☐ Yes ☒ No ☐ Maybe
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Cumulative Effects	
Are there other actions underway or proposed whose effects—when combined with the potential effects of implementing the proposed plan—could have a significant adverse cumulative effect on human health or the environment?	☐ Yes ☒ No ☐ Maybe

Appendix F

2018 SOP Wetland Mitigation Worksheet

NON-RIVERINE WETLAND QUALITATIVE ASSESSMENT

Project Name:	Proposed Access Road - MCRA
Impact Wetland Name:	Wetland D
Wetland Type:	Depression
WAA Center Coordinates:	31.878411N, -81.554547W
Date:	6/14/2021

Water Storage -1

Answer		Questions
Yes		Are there above grade fills or structures obstructing hydrologic flows into or out of the wetland, or are there drainage structures, ditches, or man-made impoundments within 100 feet of the assessment area and within the catchment that are hydrologically affecting the wetland? (Y/N)
Yes		Is the contributing drainage basin at least 50 percent forested? (Y/N)
FUNCTION SCORE	Moderate	

BioGeoChemical Cycling - 2

Answer		Questions
Yes		Is there large woody debris (LWD) in the wetland? (Y/N)
No		Has the vegetative community been adversely altered within the last 20 years? (Y/N)
FUNCTION SCORE	High	

Maintain Characteristic Wetland Community - 3

Answer		Questions
No		Has the vegetative community been adversely altered within the last 20 years? (Y/N)
No		Is there greater than 10 percent invasive cover (i.e., cummulative absolute cover across all strata)? (Y/N)
FUNCTION SCORE	High	

Maintain Faunal Habitat - 4

Answer		Questions
No		Has the vegetative community been adversely altered within the last 20 years? (Y/N)
Yes		Is there woody debris in the wetland? (Y/N)
Yes		Is the contributing drainage basin at least 50 percent forested? (Y/N)
FUNCTION SCORE	High	

WETLAND QUALITATIVE FUNCTIONAL CAPACITY SCORE	**High**

Legend

Green Cell = User must manually input information.
Orange Cells = User must select the choice from the drop-down list.
Grey Cells = The calculation of these cells is automated.
Dark Grey Cells = These cells do not require input. The corresponding value is populated from the user input to a previous question.

NON-RIVERINE WETLAND QUALITATIVE ASSESSMENT

Project Name:	Proposed Access Road - MCRA
Impact Wetland Name:	Wetland E
Wetland Type:	Depression
WAA Center Coordinates:	31.872651N, -81.556232W
Date:	6/14/2021

Water Storage -1

Answer		Questions
Yes		Are there above grade fills or structures obstructing hydrologic flows into or out of the wetland, or are there drainage structures, ditches, or man-made impoundments within 100 feet of the assessment area and within the catchment that are hydrologically affecting the wetland? (Y/N)
Yes		Is the contributing drainage basin at least 50 percent forested? (Y/N)
FUNCTION SCORE	Moderate	

BioGeoChemical Cycling - 2

Answer		Questions
Yes		Is there large woody debris (LWD) in the wetland? (Y/N)
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FUNCTION SCORE	High	

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No		Has the vegetative community been adversely altered within the last 20 years? (Y/N)
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FUNCTION SCORE	High	

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NON-RIVERINE WETLAND QUALITATIVE ASSESSMENT

Project Name:	Proposed Access Road - MCRA
Impact Wetland Name:	Wetland I
Wetland Type:	Depression
WAA Center Coordinates:	31.868264N, -81.554572W
Date:	6/14/2021

Water Storage -1

Answer		Questions
Yes		Are there above grade fills or structures obstructing hydrologic flows into or out of the wetland, or are there drainage structures, ditches, or man-made impoundments within 100 feet of the assessment area and within the catchment that are hydrologically affecting the wetland? (Y/N)
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Version 1.3 (May 15, 2018)

Qualitative Worksheet Summary For Wetland Adverse Impacts						
Worksheet Number	**Name of Wetland**	**Wetland Type**	**Acres of Impact (ac.)**	**Impact Duration**	**2018 Credits**	**Grandfathered Credits**
1	Wetland D	Depressional/Flat Wetlands	0.18	Permanent/Reoccurring	0.18	1.44
2	Wetland E	Depressional/Flat Wetlands	2.07	Permanent/Reoccurring	2.07	16.56
3	Wetland I	Depressional/Flat Wetlands	0.01	Permanent/Reoccurring	0.01	0.08

Summary of Credits Owed			
Wetland Type	**Acres of Impact (ac.)**	**2018 Credits**	**Grandfathered Credits**
Freshwater Tidal Wetlands	0.00	0.00	0.00
Saltwater Tidal Wetlands	0.00	0.00	0.00
Riverine/Lacustrine Fringe Wetlands	0.00	0.00	0.00
Slope Wetlands	0.00	0.00	0.00
Depressional/Flat Wetlands	2.26	2.26	18.08
Open Water/Ditch/Canal	0.00	0.00	0.00

Worksheet 1: Qualitative Worksheet for Wetland Adverse Impacts

Project Name:	Proposed Access Road - MCRA
Impact Wetland Name:	Wetland D
Acres of Impact (Acres):	0.18
Wetland Type:	Depressional/Flat Wetlands
Date:	June 14, 2021

Impact Factors	**Index Description**	**Index Value**
1. Wetland Qualitative Functional Capacity Score (*WQFC*)	High	1.00
2. Impact Category Description (*Impact Category*)	Discharge of Fill	1.00
3. Product of WQFC and Impact (*WQFC Impact*) =		1.00
4. Duration of Impact (*Duration*)	Permanent/Reoccurring	1.00
5. Product of WQFC Impact and Duration (*Total WQFC Impact*) =		1.00
6. Product of Total WQFC Impact and Acres (***Total 2018 Wetland Credits Owed***) =		**0.18**
7. Conversion of Total 2018 Wetland Compensation to Grandfathered Credits (***Grandfathered Wetland Credits Owed***) =		**1.44**

Legend
Green Cells = User must manually input information.
Orange Cells = User must select the index choice from the drop-down list.
Grey Cells = The calculation of these cells is automated.

Worksheet 2: Qualitative Worksheet for Wetland Adverse Impacts

Project Name:	Proposed Access Road - MCRA
Impact Wetland Name:	Wetland E
Acres of Impact (Acres):	2.07
Wetland Type:	Depressional/Flat Wetlands
Date:	June 14, 2021

Impact Factors	**Index Description**	**Index Value**
1. Wetland Qualitative Functional Capacity Score (*WQFC*)	High	1.00
2. Impact Category Description (*Impact Category*)	Discharge of Fill	1.00
3. Product of WQFC and Impact (*WQFC Impact*) =		1.00
4. Duration of Impact (*Duration*)	Permanent/Reoccurring	1.00
5. Product of WQFC Impact and Duration (*Total WQFC Impact*) =		1.00
6. Product of Total WQFC Impact and Acres (***Total 2018 Wetland Credits Owed***) =		**2.07**
7. Conversion of Total 2018 Wetland Compensation to Grandfathered Credits (***Grandfathered Wetland Credits Owed***) =		**16.56**

Legend
Green Cells = User must manually input information.
Orange Cells = User must select the index choice from the drop-down list.
Grey Cells = The calculation of these cells is automated.

Worksheet 3: Qualitative Worksheet for Wetland Adverse Impacts

Project Name:	Proposed Access Road - MCRA
Impact Wetland Name:	Wetland I
Acres of Impact (Acres):	0.01
Wetland Type:	Depressional/Flat Wetlands
Date:	June 14, 2021

Impact Factors	**Index Description**	**Index Value**
1. Wetland Qualitative Functional Capacity Score (*WQFC*)	High	1.00
2. Impact Category Description (*Impact Category*)	Discharge of Fill	1.00
3. Product of WQFC and Impact (*WQFC Impact*) =		1.00
4. Duration of Impact (*Duration*)	Permanent/Reoccurring	1.00
5. Product of WQFC Impact and Duration (*Total WQFC Impact*) =		1.00
6. Product of Total WQFC Impact and Acres (***Total 2018 Wetland Credits Owed***) =		**0.01**
7. Conversion of Total 2018 Wetland Compensation to Grandfathered Credits (***Grandfathered Wetland Credits Owed***) =		**0.08**

Legend
Green Cells = User must manually input information.
Orange Cells = User must select the index choice from the drop-down list.
Grey Cells = The calculation of these cells is automated.

Appendix G

USACE Jurisdictional Determination Letter

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3604

September 28, 2021

Regulatory Division
SAS-2021-00519

Mr. George Harris
USAG, Directorate of Public Works
1550 Veterans Parkway, Building 1137
Fort Stewart, Georgia 31313

Dear Mr. Harris:

I refer to a letter received on June 24, 2021, submitted on your behalf by Arrowood Environmental Group, Incorporated, requesting a delineation of aquatic resources for your 380 acre site located at Wright Army Airfield, Hinesville, Liberty County, Georgia (Latitude 31.8754, Longitude -81.5568). This project has been assigned number SAS-2021-00519 and it is important that you refer to this number in all communication concerning this matter.

The enclosed exhibit entitled, “Figure 9, Survey of Aquatic Resources, MidCoast Regional Airport / Wright Army Airfield, Fort Stewart”, dated 9/24/2021, identifies the delineation limits of all aquatic resources within the project area. The wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual,” as amended by the most recent regional supplements to the manual.

If you intend to sell property that is part of a project that requires Department of the Army Authorization, it may be subject to the Interstate Land Sales Full Disclosure Act. The Property Report required by Housing and Urban Development Regulation must state whether, or not a permit for the development has been applied for, issued or denied by the U.S. Army Corps of Engineers (Part 320.3(h) of Title 33 of the Code of Federal Regulations).

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

This communication does not relieve you of any obligation or responsibility for complying with the provisions of any other laws or regulations of other federal, state or local authorities. It does not affect your liability for any damages or claims that may arise as a result of the work. It does not convey any property rights, either in real estate or material, or any exclusive privileges. It also does not affect your liability for any interference with existing or proposed federal projects. If the information you have submitted and on which the Corps bases its determination is later found to be in error, this determination may be subject to modification, suspension, or revocation.

Thank you in advance for completing our on-line Customer Survey Form located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

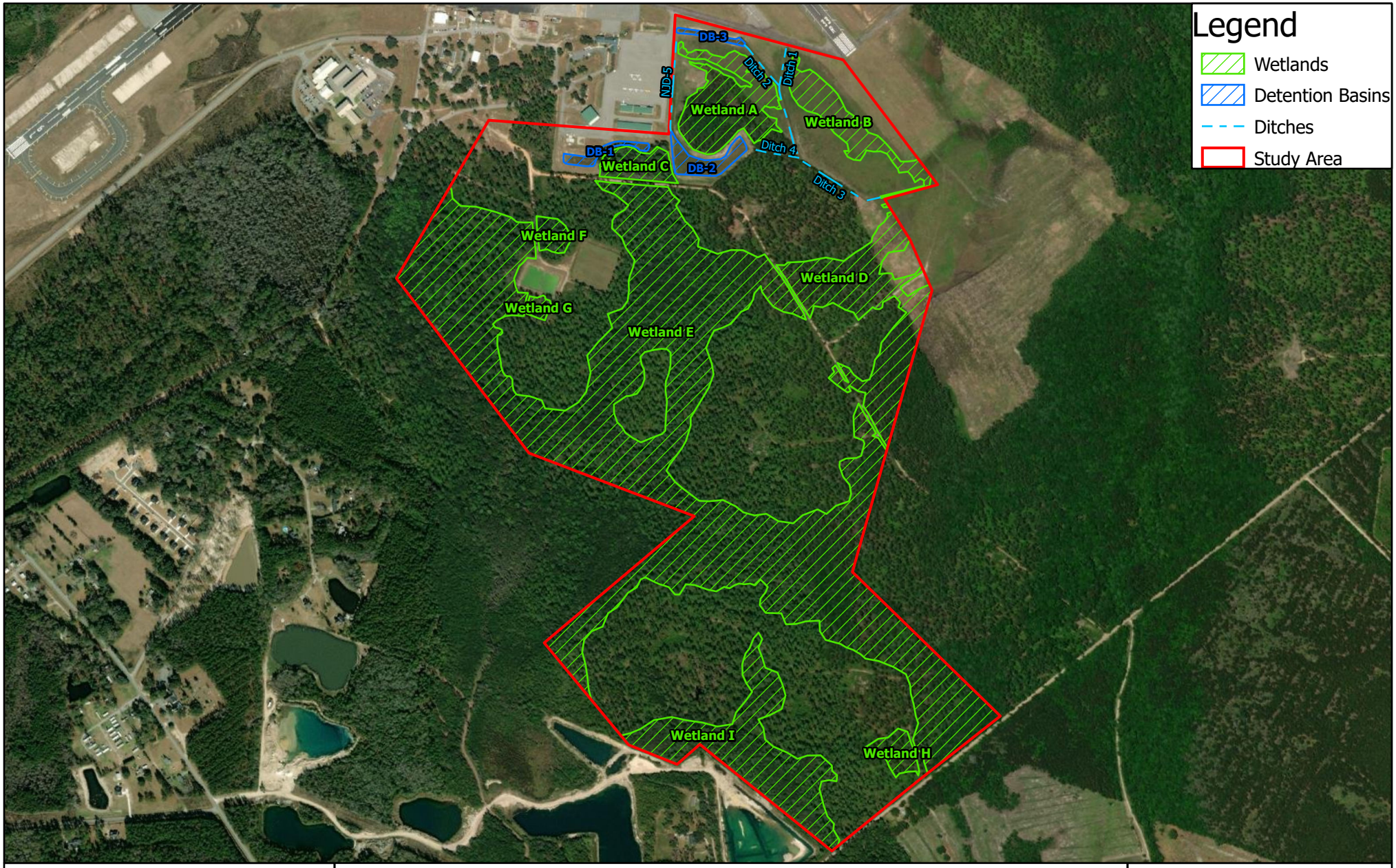
If you have any questions, I can be contacted via telephone at 912-652-5139 or email at tyler.j.brock@usace.army.mil.

Sincerely,

Tyler J. Brock
Project Manager, Coastal Branch

Copy Furnished: Mr. Steve Smith, Arrowood Environmental Group, Inc.

Enclosure



Survey of Aquatic Resources

Figure 9

ARROWOOD ENVIRONMENTAL GROUP, INC.

MidCoast Regional Airport / Wright Army Airfield
Fort Stewart
Liberty County, Georgia

Date: 9/24/2021

Scale: 1" = 1,050 '

N

0 525 1,050 Feet

Appendix H

Biological Assessment and USFWS Consultation Documentation

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART/HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY
FORT STEWART GEORGIA 31314

Office of the Directorate

U.S. Department of the Interior
Fish and Wildlife Service
ATTN: John Doresky
P.O. Box 52560
Fort Benning, GA 31995-2560

Dear Mr. Doresky:

Fort Stewart proposes to construct access roads to the Mid-Coast Regional Airport/Wright Army Airfield that will provide civilians with direct access to the airport. A Biological Assessment (BA) has been prepared in accordance with the requirements of the Endangered Species Act. The conclusion reached in this BA is that the proposed action will not affect the red-cockaded woodpecker, frosted flatwoods salamander, eastern indigo snake, wood stork, smooth coneflower, eastern black rail, Atlantic sturgeon, or shortnose sturgeon. Fort Stewart reached its red-cockaded woodpecker recovery goal of 350 potential breeding groups during the breeding season of 2012 and has enough suitable or potentially suitable habitat to support 657 red-cockaded woodpecker clusters post project. Fort Stewart had 582 potential breeding groups at the end of the 2020 breeding season.

If additional information is needed, please contact Mr. Lawrence Carlile, DPW, Fish and Wildlife Branch at telephone (912) 767-8241. Your continued cooperation and assistance are appreciated.

Sincerely,

FOR James Heidle
Director, Public Works

Enclosures

BIOLOGICAL ASSESSMENT

Mid-Coast Regional Airport / Wright Army Airfield Access Road Construction

Fort Stewart, Georgia

Prepared By:

_____
ROY L. KING
Wildlife Biologist
Fish and Wildlife Branch
Environmental Division
Directorate of Public Works
Fort Stewart, GA

Reviewed By:

_____
FOR DAVID R. LAVENDER
Chief, Planning and Monitoring
Fish and Wildlife Branch
Environmental Division
Directorate of Public Works
Fort Stewart, GA

Submitted By:

_____
LAWRENCE D. CARLILE
Chief, Fish and Wildlife Branch
Environmental Division
Directorate of Public Works
Fort Stewart, GA

Approved By:

_____
THOMAS C. FRY
Chief, Environmental Division
Directorate of Public Works
Fort Stewart, GA

PROJECT DESCRIPTION

Fort Stewart (FS) proposes to construct 1.81 miles of 60-foot-wide (including the Right-of-Way (ROW)) access roads in Natural Resource Management Unit (NRMU) A-16.4 in Liberty County, Georgia (Figure 1). The access roads will connect Mid-Coast Regional Airport/Wright Army Airfield (MCRA/WAAF) to Old Hines Road in Liberty County and will provide civilians with direct access to MCRA/WAAF without creating traffic control concerns or force protection issues. The project area totals 13.04 acres, and encompasses 10.91 acres of existing red-cockaded woodpecker (RCW) Habitat Management Unit (HMU), 1.01 acres of lowland hardwood, and 1.12 acres of non-forested habitat as identified in FS's Integrated Natural Resources Management Plan (INRMP; Directorate of Public Works 2001). Presently, civilians must travel through the FS boundary gate on Old Sunbury Road to access the airport. The proposed project would ensure civilian access and aid MCRA/WAAF in maintaining its status as a Level III Business Airport of Regional Impact Facility. Project construction will include clearing vegetation, stumping, grubbing, and grading, and will adhere to best management practices in order to minimize impacts to the environment.

SITE DESCRIPTIONS

Forested habitat within the proposed project comprises a canopy of longleaf pine (*Pinus palustris*), slash pine (*P. elliotti*), and loblolly pine (*P. taeda*) with a midstory of sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), live oak (*Q. virginiana*), wax myrtle (*Morella cerifera*), and red bay (*Persea borbonia*). The groundcover is characterized by saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), shiny blueberry (*Vaccinium myrsinites*), huckleberry (*Gaylusaccia frondosa*), runner oak (*Q. pumila*), and rusty lyonia (*Lyonia ferruginea*). Wetland systems within, and adjacent to, the proposed project are dominated by pond cypress (*Taxodium ascendens*), blackgum (*Nyssa sylvatica*), pond pine (*P. serotina*), red maple (*Acer rubrum*), and red bay. The soil types within the project area are comprised of Ellabelle, Fuquay, Pelham, and Stilson loamy sands, Ocilla loamy fine sand, and Mascotte fine sand.

SPECIES CONSIDERED

The following species occur, or may occur, in the proposed action area and were considered in this assessment:

Red-cockaded woodpecker (*Dryobates borealis*) – Endangered
Eastern black rail (*Laterallus jamaicensus jamaicensus*) – Threatened
Wood stork (*Mycteria americana*) – Threatened
Eastern indigo snake (*Drymarchon couperi*) – Threatened
Frosted flatwoods salamander (*Ambystoma cingulatum*) – Threatened
Atlantic sturgeon (*Acipenser oxyrinchus*) – Endangered
Shortnose sturgeon (*Acipenser brevirostrum*) – Endangered
Smooth coneflower (*Echinacea laevigata*) – Endangered

DISCUSSION

Red-cockaded Woodpecker (RCW)

Fish and Wildlife Branch personnel surveyed the project area for RCWs and RCW cavity trees. No RCW cavity trees were found in the project area, neither are any RCW foraging partitions impacted by the project. The project will impact 10.91 acres of existing RCW HMU, 1.01 acres of lowland hardwood, and 1.12 acres of non-forested habitat as identified in FS's INRMP (Directorate of Public Works 2001; Figure 2). The nearest RCW cluster is 1.51 miles northwest of the project area in NRMU A-18.2. Habitat degradation (lack of prescribed fire due to proximity to the MCRA/WAAF and the City of Hinesville) in the project area contributes to the area's unsuitability for the RCW.

A May 2005 memorandum from Noreen Walsh, Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, Atlanta, GA entitled "Implementation Procedures for Use of Foraging Habitat Guidelines and Analysis of Project Impacts under the Red-cockaded Woodpecker (*Picoides borealis*) Recovery Plan: Second Revision" (USFWS 2003) describes parameters and concepts to be considered when federal properties analyze projects that may affect RCWs. There are potentially 5 levels of analysis to consider in the preparation of biological assessments, with the analyses conducted in the following order: 1) foraging partition, 2) group, 3) neighborhood, 4) population, and 5) recovery unit. The results of each level of analysis predicates the necessity to conduct subsequent analyses.

Due to the small amount of acreage removed from the RCW HMU, habitat degradation, and the distance between the nearest RCW cluster and the project area, any negative effects to RCW habitat will be insignificant. Therefore, the proposed action will not affect the RCW and the group, neighborhood, population, and recovery unit analyses are not warranted.

Frosted Flatwoods Salamander (FFS)

The project area will not impact FFS HMU or any FFS breeding ponds. No FFS have ever been detected in the project area. The nearest known FFS occurrence is 2.34 miles northwest of the project area in NRMU A-18.1 (Figure 3). Habitat in project area lacks breeding ephemeral wetlands with grassy ecotones and a sufficient hydroperiod, and open, grassy uplands that transition to ephemeral wetlands. Therefore, the project area habitat is not suitable for FFS. Project design will incorporate delineation of wetland areas and protection measures as required by the Clean Water Act and the Georgia Erosion and Sedimentation Control Act to ensure appropriate wetland protection. Therefore, the proposed action will not result in significant erosion, run-off, or other off-site impacts that might affect FFS habitat or ponds. Due to the distance from the project area to the nearest FFS sighting, unsuitability of the habitat, and the implementation of previously mentioned control measures, the proposed action will not affect the FFS.

Eastern Indigo Snake (EIS)

The project area does not lie within the EIS HMU. No EIS have ever been detected in the project area. Habitat in the project area may be suitable for EIS hunting grounds, however, the lack of overwintering and breeding sandhill habitat contributes to the project area's unsuitability for the EIS. The nearest known occurrence of an EIS is 3.71 miles north-northwest of the action area in NRMU B-4.14 (Figure 4). For the abovementioned reasons, we conclude that the proposed project will not affect the EIS.

Eastern Black Rail (EBR)

No EBR have never been observed in the proposed project area, nor have they ever been observed on FS, though they may migrate through FS. The nearest confirmed sighting of EBR is in Greene County, Georgia, > 150 miles northwest of the installation. Habitat in the project area is unsuitable for the EBR due to the mix of closed canopy pine and hardwood dominated wetlands. Due to unsuitable habitat in the project area and the distance between the proposed project area and documented EBR sightings, the proposed project will not affect the EBR.

Wood Stork (WS)

No WS were observed, nor have they ever been observed, foraging in the project area. Habitat in the project area comprises closed canopy mixed pine and hardwood, which is not preferred habitat for the WS, and therefore, is generally unsuitable. The nearest area where foraging WS have been observed is approximately 2.24 miles north-northeast of the project area in NRMU A-16.2 (Figure 5). Because of the distance from confirmed WS sightings to the project area, unsuitable habitat characteristics, and the implementation of erosion and sedimentation control measures, the proposed action will not affect the WS.

Atlantic and Shortnose Sturgeon

Telemetry and capture data, which was collected as part of FS's shortnose sturgeon monitoring program (1991-2000), indicate that these fish do not travel >2 miles up the Canoochee River or 20 miles up the Ogeechee River from the Canoochee/Ogeechee River confluence. The Canoochee River flows diagonally through the Installation while the Ogeechee River forms much of the Installation's eastern boundary. Critical habitat has been designated for the Atlantic sturgeon on the Ogeechee River along FS's eastern boundary (Figure 6). The proposed project lies in low elevation wetland habitat, and is >15 miles southwest of the nearest Atlantic sturgeon critical habitat and nearest shortnose sturgeon occurrence on the Canoochee River. Due to unsuitable habitat in the project area and the distance between the proposed project area and documented sturgeon sightings, the project will not affect Atlantic and shortnose sturgeons.

Smooth Coneflower (SC)

No SC were observed in the proposed project area. The nearest population of the SC is located in NRMU F-11.1, approximately 20.53 miles northwest of the project area (Figure 7). Habitat suitable for SC is generally dry, open woodlands. Therefore, habitat in the project area is unsuitable due to its wetland characteristics. Because of the distances from the confirmed SC population and the unsuitable environmental conditions in the project area, the proposed action will not affect the SC.

CUMULATIVE EFFECTS

There are no foreseeable state, local, tribal, or private actions that would have a cumulative adverse effect when combined with impacts associated with the proposed action.

CONCLUSION

The proposed action will not affect the RCW, FFS, WS, EBR, EIS, SC, or Atlantic and shortnose sturgeons because habitat in the action area is not suitable, or fundamentally unsuitable, for these species. Critical habitat has been designated for the FFS and the Atlantic Sturgeon, but no FFS critical habitat was designated on FS. Aquatic habitats of a portion of the Ogeechee River were designated as critical habitat for the Atlantic Sturgeon. The Ogeechee River forms much of FS's eastern boundary, but no critical habitat will be destroyed or modified adversely (Figure 6). Other listed species that occur on FS have no critical habitat designated, so no critical habitat will be destroyed or modified adversely. The Army did not draw on the regulatory definition of destruction or adverse modification of critical habitat at 50 Code of Federal Regulation 402.02 with respect to the conclusions and analysis made in this BA. Instead, the Army has incorporated into the critical habitat effects analysis the conservation of species principals found in the statutory provisions of the Endangered Species Act.

Figure 1. Location of Access Road Project Area, Fort Stewart, Georgia.

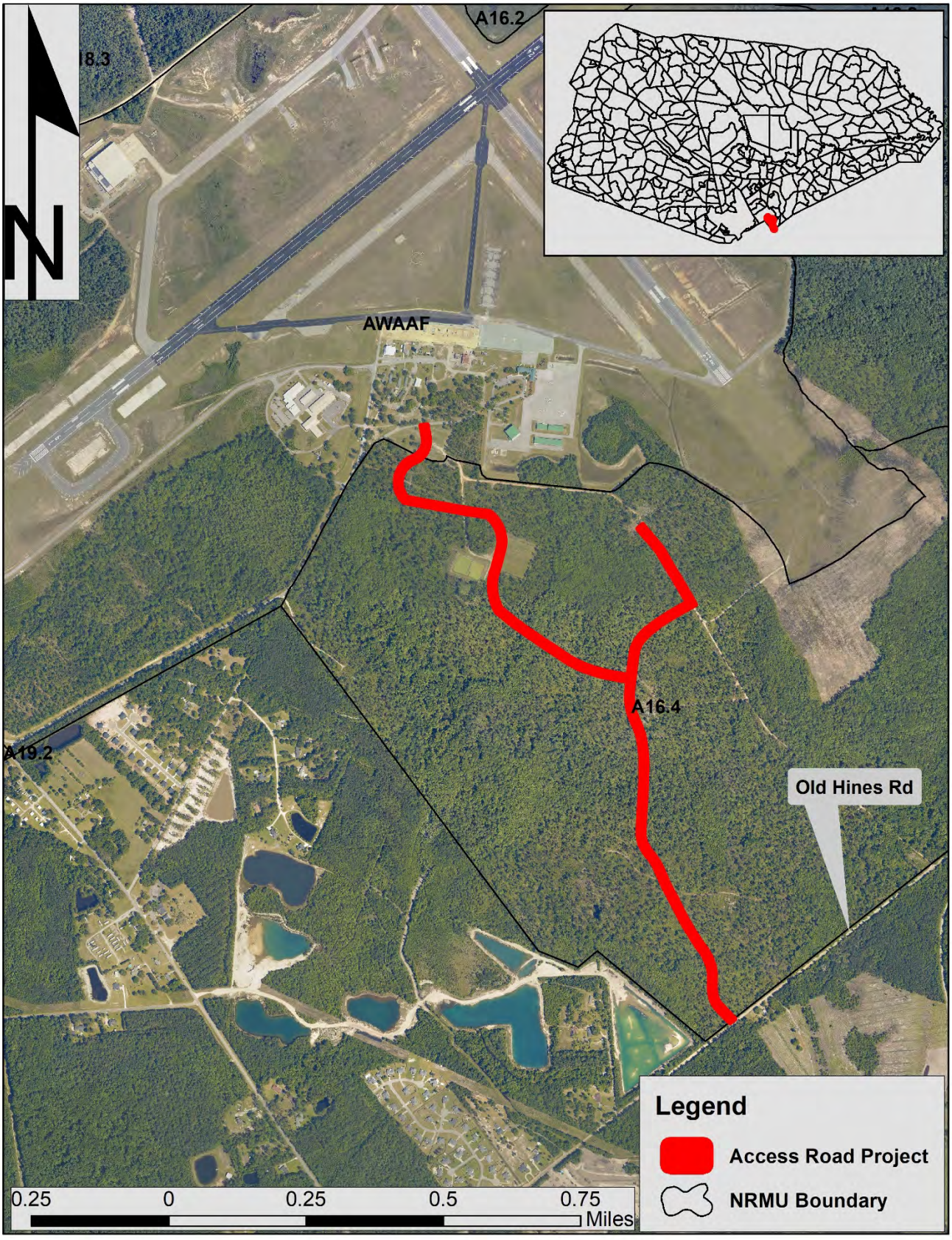


Figure 2. Red-cockaded Woodpecker HMU and Clusters near the Proposed Project, Fort Stewart, Georgia.

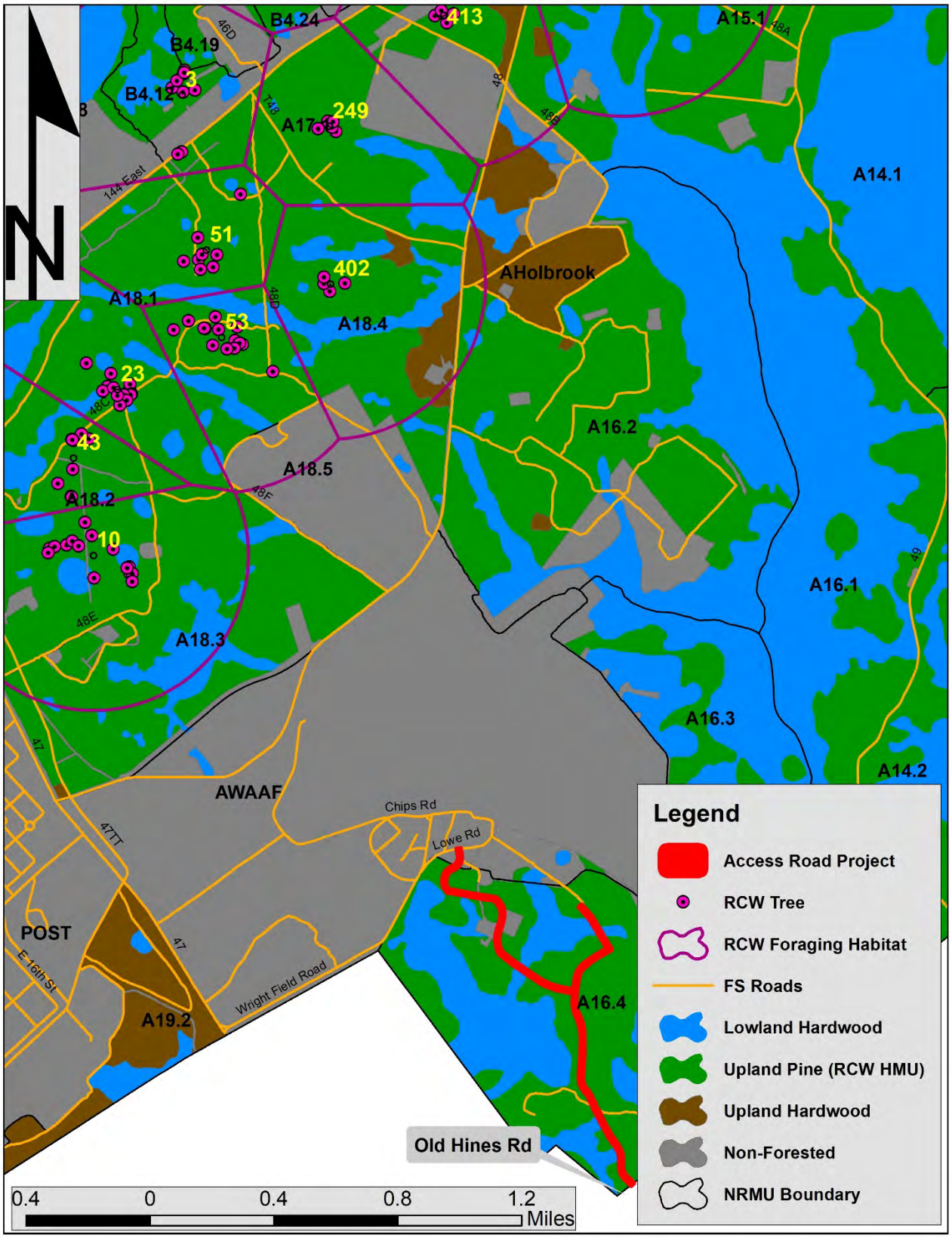


Figure 3. Frosted Flatwoods Salamander HMU and Capture Sites near the Project Area, Fort Stewart, Georgia.

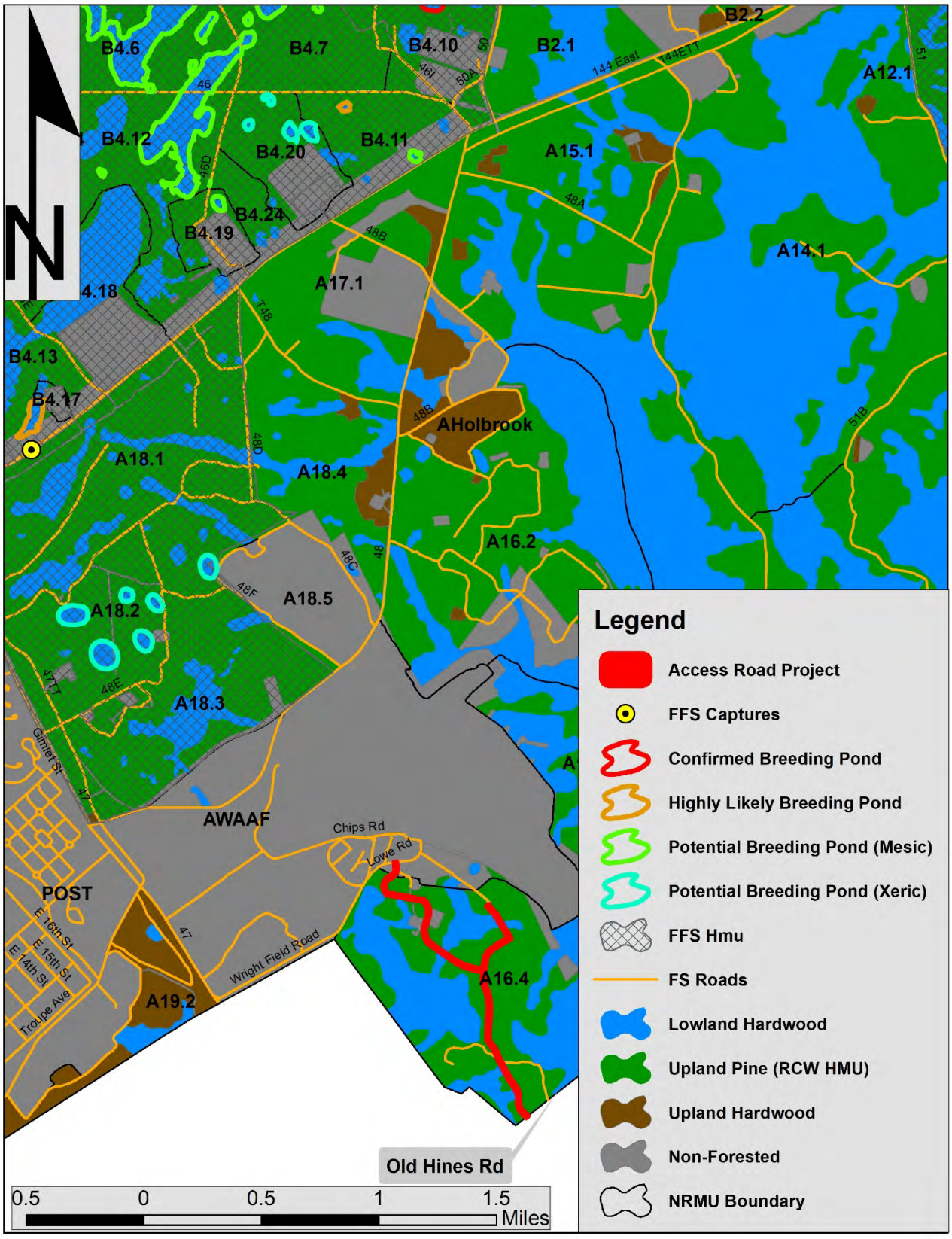


Figure 4. Eastern Indigo Snake Captures near the Project Area, Fort Stewart, Georgia.

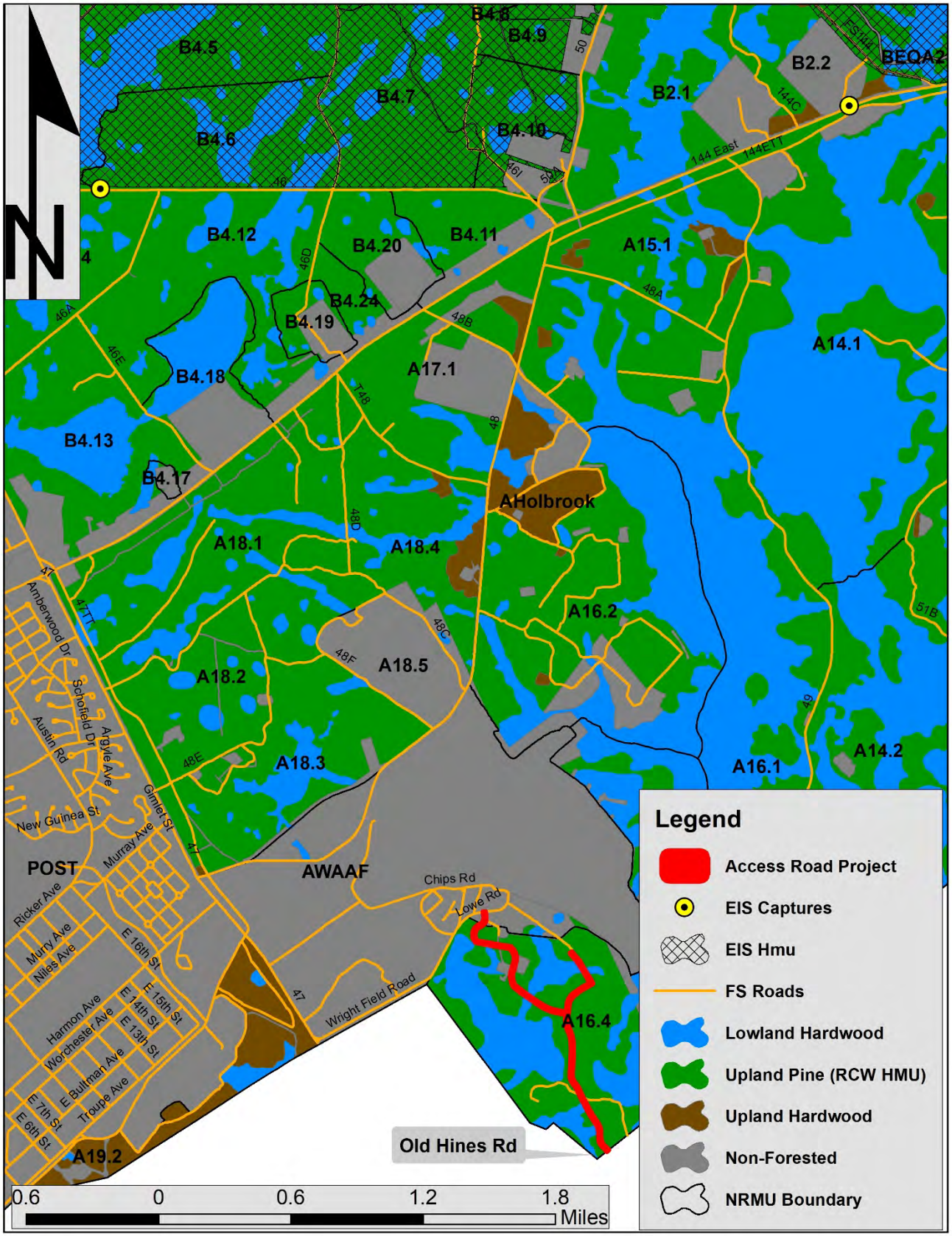


Figure 5. Wood Stork Sightings near the Project Area, Fort Stewart, Georgia.

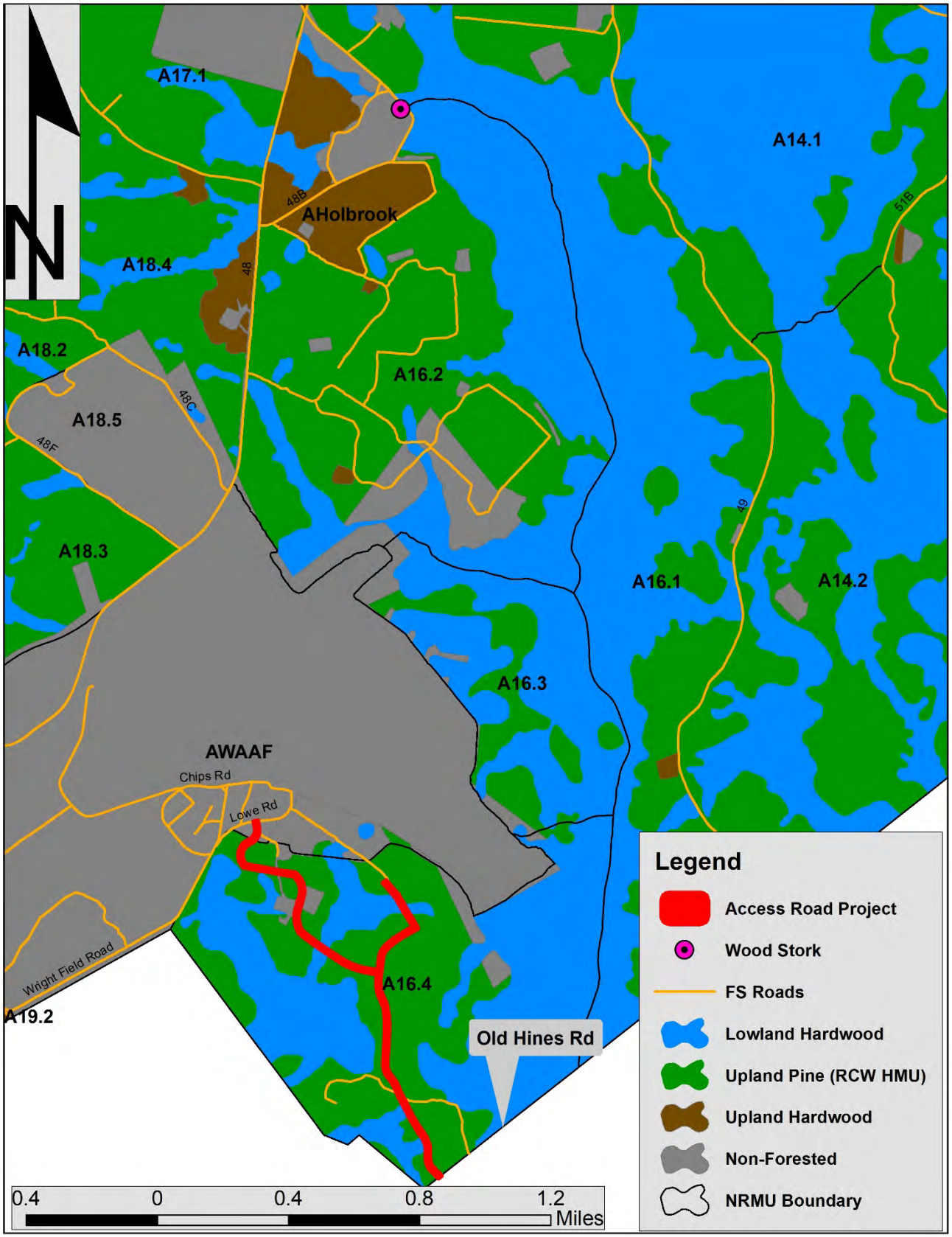


Figure 6. Atlantic Sturgeon Critical Habitat, Fort Stewart, Georgia.

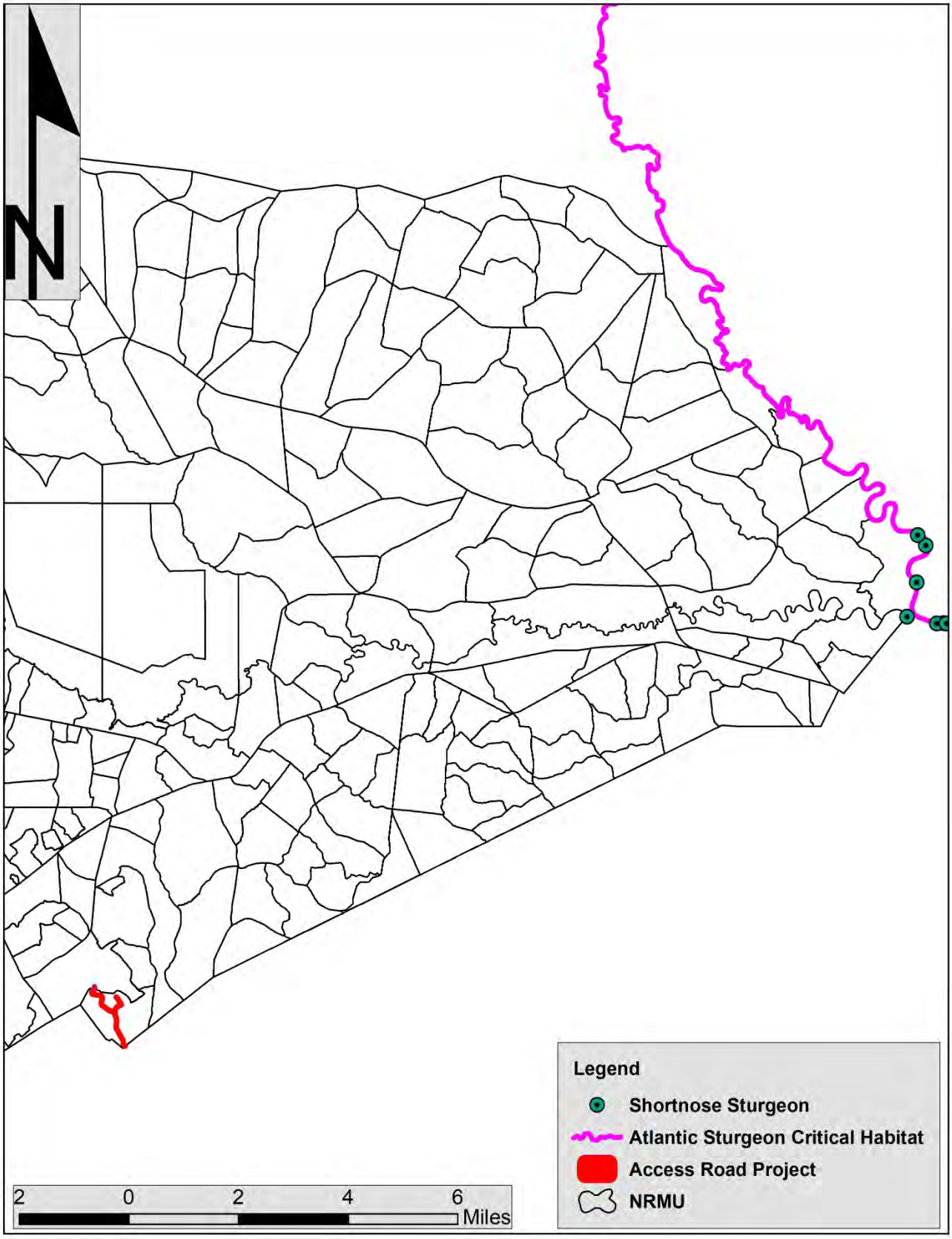
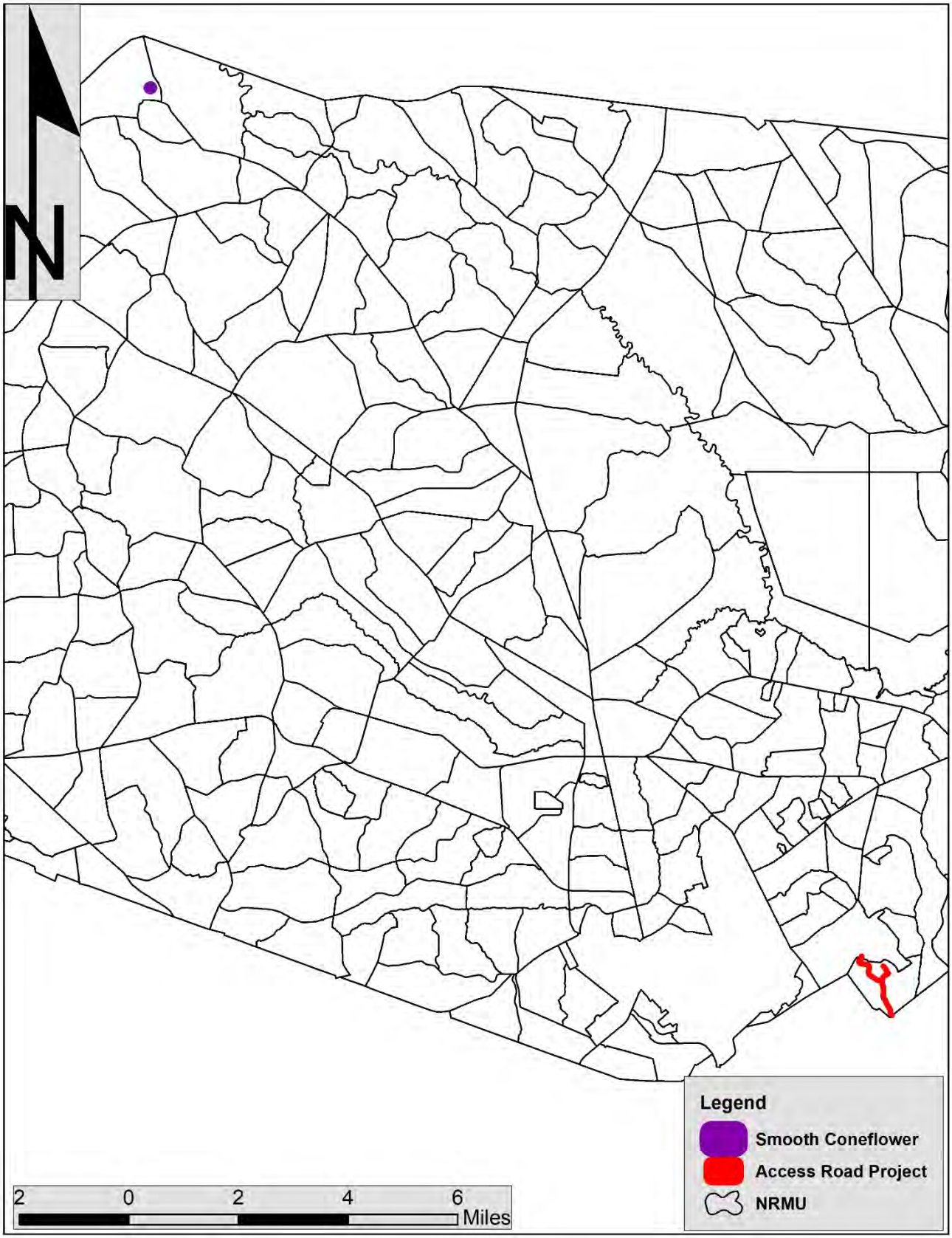


Figure 7. Smooth Coneflower Population near the Project Area, Fort Stewart, Georgia.



LITERATURE CITED

Conner, R.N., and D.C. Rudolph. 1991. Forest habitat loss, fragmentation, and red-cockaded woodpecker populations. Wilson Bulletin. 103(3), pp. 446-457.

Directorate of Public Works. 2001. Integrated Natural Resources Management Plan, 2001-2005. 172 pp. plus appendices.

Palis, John G. 2002. Distribution of Potential Habitat of the Federally Threatened Flatwoods Salamander (*Ambystoma cingulatum*) on Fort Stewart, Georgia. Contract #DAKF10-01-P-0265.

United States Department of the Interior

Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, Georgia 30601

West Georgia Sub Office
P.O. Box 52560
Ft. Benning, Georgia 31995-2560

Coastal Sub Office
4980 Wildlife Drive
Townsend, Georgia 31331

April 30, 2021

Thomas Fry, Chief
Environmental
Division Directorate of
Public Works 1616
Veterans Parkway Fort
Stewart, GA 31314

Re: FWS Log No. FWS-2021-I-2036

Dear Mr. Fry:

The U.S. Fish and Wildlife Service (Service) has received your April 20, 2021, biological assessment on the proposed construction access roads to the Mid-Coast Regional Airport/Wright Army Airfield. The Service understands Fort Stewart (FS) proposes to construct 1.81 miles of 60-foot-wide (including the Right-of-Way) access roads in Natural Resource Management Unit (NRMU) A-16.4 in Liberty County, Georgia.

Proposed Action:

The access roads will connect Mid-Coast Regional Airport/Wright Army Airfield (MCRA/WAAF) to Old Hines Road in Liberty County and will provide civilians with direct access to MCRA/WAAF without creating traffic control concerns or force protection issues. The project area totals 13.04 acres and encompasses 10.91 acres of existing red-cockaded woodpecker (RCW) Habitat Management Unit (HMU), 1.01 acres of lowland hardwood, and 1.12 acres of non-forested habitat as identified in FS's Integrated Natural Resources Management Plan.

Fort Stewart reports that presently, civilians must travel through the FS boundary gate on Old Sunbury Road to access the airport. The proposed project would ensure civilian access and aid MCRA/WAAF in maintaining its status as a Level III Business Airport of Regional Impact Facility. Project construction will include clearing vegetation, stumping, grubbing, and grading, and will adhere to best management practices in order to minimize impacts to the environment.

Species Assessment:

- The Service understands that the FS Fish and Wildlife Branch personnel surveyed the project area for RCWs and RCW cavity trees.

No RCW cavity trees were found in the project area, neither are any RCW foraging partitions impacted by the project. Habitat degradation (lack of prescribed fire due to proximity to the MCRA/WAAF and the City of Hinesville) in the project area contributes to the area's unsuitability for the RCW.

- The project area will not impact Frosted Flatwoods Salamander (FFS) HMU or any FFS breeding ponds. No FFS have ever been detected in the project area. The nearest known FFS occurrence is 2.34 miles northwest of the project area in NRMU A-18.1.

- The project area does not lie within the Eastern Indigo Snake (EIS) HMU. No EIS have ever been detected in the project area. No EIS have ever been detected in the project area. Habitat in the project area may be suitable for EIS hunting grounds, however, the lack of overwintering and breeding sandhill habitat contributes to the project area's unsuitability for the EIS. The nearest known occurrence of an EIS is 3.71 miles north-northwest of the action area in NRMU B-4.14.

- No Eastern Black Rails (EBR) have never been observed in the proposed project area, nor have they ever been observed on FS, though they may migrate through FS. The nearest confirmed sighting of EBR is in Greene County, Georgia, > 150 miles northwest of the installation. Habitat in the project area is unsuitable for the EBR due to the mix of closed canopy pine and hardwood dominated wetlands.

- No Wood Storks (WS) were observed, nor have they ever been observed, foraging in the project area. Habitat in the project area comprises closed canopy mixed pine and hardwood, which is not preferred habitat for the WS, and therefore, is generally unsuitable. The nearest area where foraging WS have been observed is approximately 2.24 miles north-northeast of the project area in NRMU A-16.2.

- Telemetry and capture data, which was collected as part of FS's shortnose sturgeon monitoring program (1991-2000), indicate that these fish do not travel >2 miles up the Canoochee River or 20 miles up the Ogeechee River from the Canoochee/Ogeechee River confluence. Critical habitat has been designated for the Atlantic sturgeon on the Ogeechee River along FS's eastern boundary. The proposed project lies in low elevation wetland habitat and is >15 miles southwest of the nearest Atlantic sturgeon critical habitat and nearest shortnose sturgeon occurrence on the Canoochee River.

- No Smooth Coneflowers (SC) were observed in the proposed project area. The nearest population of the SC is located in NRMU F-11.1, approximately 20.53 miles northwest of the project area.

Based on the information provided in the biological assessment, we concur with your determination that this action "may affect, but is not likely to adversely affect" the red-cockaded woodpecker and frosted flatwoods salamander. Based on the information provided, FS has made a no effect determination for eastern indigo snake, wood stork, smooth coneflower, eastern black rail, Atlantic sturgeon and shortnose sturgeon. Our office typically does not make comments

related to no effect determinations unless we would like more information or a reconsideration of those determinations. The Service has no comment on this determination at this time.

In view of this, we believe that the requirements of section 7 of the Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

Thank you for the opportunity to provide comments on the proposed project. If you require additional assistance, please contact John Doresky at our West Georgia Sub Office at (706)544-6030.

Sincerely,



Donald Imm
Field Supervisor

Appendix I

Fort Stewart Prepared MFR for Cultural Resources

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To Be Inserted Upon Receipt

Appendix J

Regulatory Correspondence and Media

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Jeffrey W. Cown, Director

Land Protection Branch
2 Martin Luther King, Jr. Drive
Suite 1054, East Tower
Atlanta, Georgia 30334
404-657-8600

MEMORANDUM

To: Kim Hembree KBH

From: Mo Ghazi

Date: January 26, 2024

RE: Department of the Army Headquarters, Fort Stewart Directorate Works in Conjunction with Liberty County Development Authority Draft Environmental Assessment for Wright Army Airfield/Midcoast Regional Airport Improvement Project.

The above-mentioned Environmental Assessment (EA) details the proposed action to implement required improvements at Wright Army Airfield/Midcoast Regional Airport (WAAF/MCRA). The proposed project is also to expand the current exclusive use area (EUA). The purpose of the proposed action is to improve the usability of WAAF/MCRA to ensure critical actions are implemented which support civilian and military mission, improve usability of the overall airfield, and allow the joint-use airfield to adapt to future demand as it develops into an economic and strategic hub for the region.

The EA describes five alternatives to achieve the objectives of the proposed action. These are:

- Alternative I - No Action,
- Alternative II - Proposed Action (preferred),
- Alternative III - Land Acquisition, Fence Construction, No Road Construction,
- Alternative IV - Land Acquisition, Access Road Construction, No Fence Construction, and
- Alternative V - Land Acquisition, No Fence Construction, No Road Construction.

However, based on a comparative analysis, Alternatives III, IV and V were eliminated and only Alternative I and Alternative II (preferred) are considered viable in this EA.

Please note that Solid Waste Management Unit 13 (SWMU 13) is located at the northwest portion of Wright Army Airfield. There is no mention of SWMU 13 in the EA. SWMU 13 is an active environmental remediation site where many monitoring wells are located and used for monitoring contaminant plumes in groundwater. Therefore, the Georgia Environmental Protection Division (EPD) recommends in the Section on Hazardous Materials and Waste to include a discussion on potential impacts of the proposed action on remedial activity, (i.e., monitoring wells) at SWMU 13. Furthermore, EPD recommends including in the EA a map showing the location of SWMU 13, and its associated monitoring wells, relative to the proposed activity.

Also, GA EPD recommends including a list of acronyms in this EA.

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Federal Aviation Authority
Attn: Jennifer P. Adams
Environmental Protection
Atlanta Airports District Office
1701 Columbia Ave., Suite 220
College Park, GA 30337-2747

Dear Ms. Adams:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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These documents are available for review on the FSGA/HAAF NEPA webpage at https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa. If preferred, a CD version may be obtained by contacting Ms. Melissa B. Kendrick, FSGA/HAAF NEPA/Project Integrator, Melissa.B.Kendrick.civ@army.mil. Please submit comments during the 30-day public comment period (December 8, 2023 - January 6, 2024) to the email address identified or by calling (912) 767-2010.

Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

U.S. Forest Service
Chattahoochee-Oconee National Forest
Attn: Mr. George Bain
755 Cleveland Highway
Gainesville, GA 30501

Dear Mr. Bain:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Georgia Department of Natural Resources
Environmental Protection Division
Attn: Mr. Jim Boylan
Air Protection Branch
2 Martin Luther King Jr. Drive, SE
Suite 1054 East
Atlanta, GA 30334-9000

Dear Mr. Boylan:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

Thomas C. Fry

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Liberty County Development Authority
Attn: Joey Brown
425 W. Oglethorpe Highway
Hinesville, GA 31313

Dear Mr. Brown:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Georgia Forestry Commission
Attn: Steve Campbell
1203 South Coastal Highway
Midway, Georgia 31320

Dear Mr. Cambell:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

Thomas C. Frey

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Georgia Department of Natural Resources
Environmental Protection Division
Attn: Mr. Richard Dunn
2 Martin Luther King Jr. Drive, SE
Atlanta, GA 30334-9000

Dear Mr. Dunn:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

Thomas C. Fry

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

U.S. Environmental Protection Agency / Region 4
NEPA Program Office
Attn: Mr. Larry O. Gissentanna
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Dear Mr. Gissentanna:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

Thomas C. Fry

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Georgia Department of Transportation
Aviation Project Manager
Attn: Jeffrey Griffith
112 Tift Street
Jesup, Georgia 31545

Dear Mr. Griffith:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

Thomas C. for
James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

City of Hinesville
Attn: Mr. Kenneth Howard, City Manager
115 East MLK Jr. Drive
Hinesville, GA 31313

Dear Mr. Howard:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

U.S. Fish and Wildlife Service
Georgia Ecological Services
Attn: Mr. Don Imm
R.G. Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, GA 30606

Dear Mr. Imm:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Bryan County Board of Commissioners
Attn: Mr. Carter Infinger
51 North Courthouse Street
Pembroke, GA 31321

Dear Mr. Infinger:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Liberty County Board of Commissioners
Attn: Mr. Donald Lovette
112 North Main Street
Hinesville, GA 31313

Dear Mr. Lovette:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Georgia Department of Natural Resources
Environmental Protection Division
Attn: Mr. Amin Mahbub
Risk Assessment Program
2 Martin Luther King Jr. Drive, SE
Suite 1054 East
Atlanta, GA 30334-9000

Dear Mr. Mahbub:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

Thomas C. Fry

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

U.S. Fish and Wildlife Service
Harris Neck National Wildlife Refuge
Attn: Mr. Anthony Sowers
5000 Wildlife Drive
Townsend, GA 31331

Dear Mr. Sowers:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

James L. Heidle
Director, Public Works

DEPARTMENT OF THE ARMY
U.S. ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY, BUILDING 1101
FORT STEWART, GEORGIA 31314-5602

Office of the Directorate

Savannah District Corps of Engineers
Wetland Regulatory Division
Attn: Mr. Ross Sullivan
100 W. Oglethorpe Avenue
Savannah, GA 31401

Dear Mr. Sullivan:

The U.S. Army at Fort Stewart, Georgia (FSGA) and the Liberty County Development Authority (LCDA) have prepared an Environmental Assessment (EA) to analyze the potential environmental impacts of implementing improvement projects at Wright Army Airfield/MidCoast Regional Airfield, a joint-use military and Civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

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Sincerely,

James L. Heidle
Director, Public Works

FORT STEWART-HUNTER ARMY AIRFIELD
3rd INFANTRY DIVISION
"ROCK OF THE MARNE"
Public Affairs Office
942 Dr. Ben Hall Place Fort Stewart, Georgia 31314
P: 912-435-9879

Press Release

Release Date: December 8, 2023

NOTICE OF AVAILABILITY DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR IMPLEMENTATION OF AIRFIELD IMPROVEMENT PROJECTS AT WRIGHT ARMY AIRFIELD/MIDCOAST REGIONAL AIRFIELD ON FORT STEWART, GA

(FORT STEWART/HUNTER ARMY AIRFIELD – December 8, 2023) – The U.S. Army seeks public comments on the Draft Environmental Assessment (EA), Draft Finding of No Significant Impacts (FONSI), and Draft Finding of No Practicable Alternative (FONSI/FONPA) for Implementation of Airfield Improvement Projects on Wright Army Airfield/Midcoast Regional Airfield (WAAF)/MCRA) on Fort Stewart, Georgia (FSGA).

The U.S. Army at FSGA and the Liberty County Development Authority (LCDA) have prepared an EA to analyze the potential environmental impacts of implementing airfield improvement projects at WAAF/MCRA, which is a joint-use military and civilian airfield located on FSGA and operated and maintained jointly by the U.S. Army and the LCDA on FSGA.

National Environmental Policy Act (NEPA) analysis considered the potential impacts to the natural and human environment on FSGA and determined that no significant adverse impacts would result from implementing the proposed airfield improvement projects on installation lands. Accordingly, a Draft FONSI was prepared. As some of the proposed projects are located within or adjacent to wetlands and floodplains, a Draft FONPA was also prepared.

A copy of these documents can be accessed via the FSGA NEPA webpage at: https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa. CD copies of the document are available by contacting Melissa B. Kendrick, FSGA-HAAF NEPA/Project Integrator, at Melissa.B.Kendrick.civ@mail.mil.

Please submit comments during the public comment period [30 days from date of publication] to the email address identified or by calling 912-767-2010.

Please help inform your community by sharing the information in this news release.

For more information, contact Melissa Kendrick at 912-767-2010 or Melissa.B.Kendrick.civ@mail.mil.

News media should direct questions to Fort Stewart Public Affairs at 912-210-9375.

-30-

NOTICE OF AVAILABILITY

DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT for

IMPLEMENTATION OF AIRFIELD IMPROVEMENT PROJECTS ON

WRIGHT ARMY AIRFIELD/MIDCOAST REGIONAL AIRFIELD

ON FORT STEWART, GEORGIA

The U.S. Army seeks public comments on the Draft Environmental Assessment (EA), Draft Finding of No Significant Impacts (FONSI), and Draft Finding of No Practicable Alternative (FONSI/FONPA) for Implementation of Airfield Improvement Projects on Wright Army Airfield/Midcoast Regional Airfield (WAAF)/MCRA) on Fort Stewart, Georgia (FSGA).

The U.S. Army at FSGA and the Liberty County Development Authority (LCDA) have prepared an EA to analyze the potential environmental impacts of implementing improvement projects at WAAF/MCRA, which is a joint-use military and civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA.

National Environmental Policy Act (NEPA) analysis considered the potential impacts to the natural and human environment on FSGA and determined that no significant adverse impacts would result from implementing the proposed airfield improvement projects on installation lands. Accordingly, a Draft FONSI was prepared. As some of the proposed projects are located within or adjacent to wetlands and floodplains, a Draft FONPA was also prepared.

A copy of the Draft PEA, Draft FONSI, and Draft FONPA can be accessed via the Fort Stewart-Hunter Army Airfield NEPA webpage at: https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa. Hard copies, if preferred, may be obtained by contacting Ms. Melissa B. Kendrick, FSGA/HAAF NEPA/Project Integrator, Melissa.B.Kendrick.civ@army.mil. Please submit comments during the public comment period [December 8, 2023 to January 6, 2024] to the email address identified or by calling (912) 767-2010.

COASTAL COURIER

AFFIDAVIT OF PUBLICATION

STATE OF GEORGIA
COUNTY OF LIBERTY

Personally appeared before me, the undersigned Notary Public, Jan Melton, who after being duly sworn stated under oath that she is Regional Sales Manager of the Coastal Courier, the official Legal Organ of Liberty County, newspaper published in the city of Hinesville, Georgia, and who further states under oath that the *Environmental Assesment*, advertisement attached hereto and made part of this affidavit appeared in the Coastal Courier on the following date(s):

Coastal Courier: 12/21/2023.

Sworn to and subscribed before me12/21//2023

Pamela Pollard
Notary Public
My commission expires 02/15/2027

POLLARD NOTARY PUBLIC Comm. Exp. 02/15/27

NOTICE OF AVAILABILITY
DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT for
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ON FORT STEWART, GEORGIA

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47136 12/21/23 BMHe

From:	Cooke, Molly Anne CIV USARMY ID-READINESS (USA)
Subject:	MARNE MESSAGE- DEC. 14, 2023: Wreaths for Warriors Walk this weekend; See the Festival of Lights; Holiday Hours of Operation posted - [UNCLASSIFIED - 2023-12-14T16:07:05.100Z]
Date:	Thursday, December 14, 2023 11:07:26 AM

UNCLASSIFIED

PLEASE DISTRIBUTE TO YOUR WORKFORCE, AND SOLDIERS THROUGHOUT YOUR COMMAND. THE MARNE MESSAGE IS ALSO AVAILABLE ON THE TEAM STEWART WEBSITE, home.army.mil/stewart

CRISIS RESOURCES

The holidays can be a difficult time for many people. If you or someone you know is struggling, we are here to assist. Visit https://home.army.mil/stewart/contact/crisis-resources to access a helpful list of installation and community crisis resources.

HOLIDAY HOURS OF OPERATION

A complete listing of holiday hours of operation for both Fort Stewart and Hunter Army Airfield can be found online at https://www.facebook.com/FortStewartHunterArmyAirfield.

COMBINED FEDERAL CAMPAIGN

Donations to the Combined Federal Campaign will be accepted through Jan. 15 via the CFC website at GiveCFC.org PEACHBELT ZONE 23. The CFC has vetted charities for any cause you are passionate about. Make your pledge online to donate a little from each paycheck or pledge a few volunteer hours a month. For more information contact: latonya.y.maxwell.civ@army.mil

(TODAY) MCNEELY ROAD CLOSURE FS

McNeely Road will be closed for one day between the East end of Stockton Circle and the traffic circle on Hase Road beginning 8 a.m. Dec. 14 to apply Thermo Stripping on new asphalt. Motorists are advised to avoid the area if possible. The POC for this construction effort is Dennis Dowdy at 912-320-0410.

(TODAY) ACS EFMP PCS 101 BRIEF CANCELLED

The ACS Exceptional Family Member Program (EFMP) PCS 101 Brief has been cancelled for Thursday, Dec. 14 for training. For more information, please contact ACS EFMP at 912-435-9646.

(NOW- DEC 24) FESTIVAL OF LIGHTS – FS

Patrons can drive through a vibrant holiday light display featuring thousands of lights at Holbrook Pond Recreation Area from Dec. 10 to 24, 6 p.m. to 9 p.m. each night, weather permitting. Cost is free to drive through the Festival of Lights. For more information, please contact Fort Stewart Outdoor Recreation at 912-435-8213, or visit https://stewarthunter.armymwr.com/happenings/festival-lights.

(DEC. 15) Santa Run Parade- FS

Fort Stewart Family Homes will host a Santa Run Parade through all on-post housing areas this Friday, Dec. 15 from 5:30-7:30 p.m. For details, visit facebook.com/fortstewarthomes

DOWNLOAD THE DIGITAL GARRISON APP

Stay connected to Fort Stewart-Hunter Army Airfield through the Digital Garrison mobile app. This free app has everything you need to help you stay in the know about your military community. From online shopping, facility and gate hours, upcoming events, push notifications, weather and more, Digital Garrison has a little something for everyone. Download for free through the App Store or Google Play and set your location to Fort Stewart-Hunter Army Airfield.

SUBSCRIBE TO FORT STEWART-HUNTER ARMY AIRFIELD YOUTUBE

Subscribe to the Fort Stewart-Hunter Army Airfield YouTube. As we add to this platform throughout the year, users will have access to installation tours, news updates and plenty of motivating videos featuring 3ID Soldiers and more. Check it out at youtube.com/c/FortStewartHunterArmyAirfield

REDUCE YOUR PHARMACY WAIT TIME WITH Q-ANYWHERE

Fort Stewart-Hunter Army Airfield MEDDAC offers a way to reduce wait times for new medications at the installation's pharmacies and Richmond Hill Medical Home. You reduce pharmacy wait times by using Q-Anywhere. Check-In to activate your new prescriptions by texting "GET IN LINE" to 1-833-457-2014. You will then get a text to input your DoD Identification number and pharmacy location. The pharmacy will text you, after your prescriptions are ready for pick-up. Text "I Am Here" when you arrive at the lobby. You must be in the lobby. When you arrive, do not pull a new ticket. If you do, it will remove the Q-Anywhere ticket.

STATE CARRY ACT DOES NOT APPLY ON POST

The recently passed Georgia Constitutional Carry Act does not apply to Fort Stewart-Hunter Army Airfield or any Army installation in Georgia. Per Army Regulation 190-11, the carrying of privately owned weapons and ammunition is prohibited on post unless authorized by the Senior Commander. Also, the carrying of a concealed weapon on the installation is prohibited regardless of whether a state or county permit has been obtained. For questions about the regulation or how to register personally owned weapons on post, call the Directorate of Emergency Services at 767-2285.

COMMISSARY CLICK2GO

Grocery shopping got you down? Check out the Defense Commissary Agency's online ordering/curbside delivery service, Click2Go. Operating hours: 11 a.m. to 6 p.m. during normal business hours. Online payment only. Visa, Discover, American Express & MasterCard are accepted, and the $4.95 service fee has been waived for all patrons. No minimum order size or dollar amount required, and customers can order 24/7up to six days in advance. First time customers will need to create an account. For more information, visit commissaries.com.

NOTICE OF AVAILABILITY:

DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT for IMPLEMENTATION OF AIRFIELD IMPROVEMENT PROJECTS ON WRIGHT ARMY AIRFIELD/MIDCOAST REGIONAL AIRFIELD ON FORT STEWART, GEORGIA: The U.S. Army seeks public comments on the Draft Environmental Assessment (EA), Draft Finding of No Significant Impacts (FONSI), and Draft Finding of No Practicable Alternative (FONSI/FONPA) for Implementation of Airfield Improvement Projects on Wright Army

Airfield/Midcoast Regional Airfield (WAAF)/MCRA) on Fort Stewart, Georgia (FSGA). The U.S. Army at FSGA and the Liberty County Development Authority (LCDA) have prepared an EA to analyze the potential environmental impacts of implementing improvement projects at WAAF/MCRA, which is a joint-use military and civilian airfield operated and maintained by the U.S. Army and the LCDA on FSGA. National Environmental Policy Act (NEPA) analysis considered the potential impacts to the natural and human environment on FSGA and determined that no significant adverse impacts would result from implementing the proposed airfield improvement projects on installation lands. Accordingly, a Draft FONSI was prepared. As some of the proposed projects are located within or adjacent to wetlands and floodplains, a Draft FONPA was also prepared. A copy of the Draft PEA, Draft FONSI, and Draft FONPA can be accessed via the Fort Stewart-Hunter Army Airfield NEPA webpage at: https://home.army.mil/stewart/index.php/about/Garrison/DPW/environmental/prevention-and-compliance/nepa. Hard copies, if preferred, may be obtained by contacting Ms. Melissa B. Kendrick, FSGA/HAAF NEPA/Project Integrator, Melissa.B.Kendrick.civ@army.mil. Please submit comments during the public comment period [December 8, 2023-Janurary 6, 2024] to the email address identified or by calling (912) 767-2010.

COASTAL HAPPENINGS:
Events listed are public community events and not intended to imply Army endorsement.

KEEP LIBERTY BEAUTIFUL
Volunteer to participate in the city-wide cleanup with neighborhoods, civic organizations, youth groups, churches and businesses. Cleanups can also be arranged on a different day. Call 912-880-4888 to sign up or for more information.

VISIT LIBERTYCOUNTY.ORG
For things to do and best places to eat in Hinesville and Liberty County by visiting the Liberty County Chamber website at libertycounty.org/. It's your one stop shop for anything happening here in 'The Gem of the Georgia Coast.'

KEEP LIBERTY BEAUTIFUL
Keep Liberty Beautiful is a community education and volunteer action program dedicated to community improvement. Follow their Facebook page at facebook.com/keeplibertycountybeautiful, to find out about opportunities for volunteers to help Keep Liberty Beautiful!

LIVE OAK PUBLIC LIBRARIES
Discover everything the Live Oak Public Libraries have to offer. Monthly reading programs for all ages, movie nights, anime-related activities and much more. Live Oak Public Libraries is a system of 16 library locations serving Liberty, Chatham, and Effingham counties in southeast Georgia. Visit liveoakpl.org/locations/libraries to find a library near you.

VISIT SAVANNAH
visitsavannah.com is your online destination to make your trip to Savannah just right. Explore the 'Hostess City' and the endless attractions where art, period architecture, trendy boutiques and ghost

ADSI PROJECT
MIDCOAST REGIONAL AIRPORT
LIBERTY COUNTY, GEORGIA
NOVEMBER 19, 2012

The Company:

Aerospace Defense Systems, Inc. (ADSI) is a specialized United States (U.S.) corporation that focuses on selected aerospace applications using manned fixed wing and unmanned fixed wing aircraft. The company specializes in bringing new state-of-the-art cost-effective designs and aircraft modifications to government agencies, both domestic and international.

ADSI is known to Boeing, Northrop, and Raytheon, as well as select departments of the U.S. government. The company, due to its special interests, pursues a very low profile and prides itself in working "behind the scenes".

ADSI has office facilities presently on Hilton Head Island, South Carolina. It has hangar facility use in Jacksonville, Florida and Great Falls, Montana, which allows access to the full support of a F.A.A. Part 145 Repair Station.

The Company's Current Function:

ADSI currently develops special defense mechanisms, through joint efforts with major U.S. Department of Defense (DOD) contractors, which can be utilized by military, semi-military, and law enforcement agencies.

The Company's Immediate Task:

ADSI is currently pursuing a non-commercial site that will allow it to participate in-depth in U.S. Government classified programs, without exposure to the general public. The MidCoast Regional Airport at Wright Army Air Field is of great interest if certain issues can be overcome.

The Company's Goals:

ADSI intends to modify commercial fixed wing aircraft into state-of-the-art reconnaissance and offensive aerial platforms for the U. S. Government and its allies.

ADSI has a special interest in developing and enhancing the operational performance of unmanned aerial vehicles (UAV) at all levels for both military and other U.S. Government department applications.

ADSI also has a particular interest in special mission operations requiring defined aviation applications that will dramatically improve the defense of the United States, both on a domestic and international basis.

ADSI intends to:

- Develop very cost effective U.S. Government alternatives to aerial surveillance and defensive aerial applications/support
- Increase the technical and modification expertise of selected and specialized civilian support of the U.S. Government
- Design and support aerial defense platforms that will be U.S. supported, manufactured, and operated
- Greatly improve U.S. DOD budget reduction programs without compromising quality, design, or capability
- Support approved U.S. allies in military and semi-military aerial operations around the world

Proposed Facility – Phase 1:

F.A.A. Part 145 approved modification and maintenance facility for:

- Dash 8's – All Series
- CRJ's – 700 & 900 Series
- UAV's/Manned Drones
- Rotar Wing

Three 25,000 s.f. hangars with technical support, computer design, and SKIF office space would be constructed.

Proposed Facility – Phase 2:

Modification & maintenance facility for:

- C-130 – All Series
- Other Military Airframe

Two additional hangars would be constructed suitable for C-130 sized aircraft together with general and technical support office space.

Proposed Facility – Phase 3:

Additional land expansion area with runway access and perimeter security for future development of aerospace modification, maintenance technical research/design, and production related activities. Reserved space of approximately 33 additional acres would be needed allowing for additional hangars and/or aircraft production facilities, run-up area, and secured perimeter.

Economic Investment:

ADSI expects to invest approximately $4,500,000 to $6,500,000 in Phase 1 for site improvement and development. Investment in equipment and tooling for Phase 1 is anticipated to exceed over $500,000 in value.

Construction of two additional hangars in Phase 2 will require an additional $3,000,000 to $4,000,000. Another $600,000 will be required for equipment for support of QC programs for the Q-400. Costs associated with C-130 machinery and tooling have not yet been determined.

Employment is expected to be approximately 80 by the end of the first year. It is expected to be approximately 186 by the end of the second year (Phase 2) and 250 in year 4.

The jobs involved are expected to pay well:

- AP Floor Mechanics - $18.00 to $24.00 per hour
- Supervisors - $28.00 to $30.00 per hour
- Administrative/Executive/Professional - $16.00-$55.00 per hour

Fleet Mix & Need For Runway Extension:

ADSI is currently conservatively estimating approximately 600 flight operations per year with a mix of the C-130, the CRJ-700, the CRJ-900, and hopefully the CRJ-1000 if a non-commercial version can land within a 6,500 feet restriction, which is right at the limit of its requirements. (In commercial use with passengers the CRJ-1000 needs about 7,200 feet.)

Given some of the aircraft anticipated (with others currently being sought as well), ADSI has noted the need for a runway of at least 6,500 feet. The current runways are only 5,000 feet.

Costs Of Runway Extension From 5,000 Feet To 6,500 Feet:

Before any work can be done on the runway extension, delineation and permitting of the wetlands, an environmental assessment, and a finding of no significant impact (FONSI) will have to be performed at an estimated cost of $119,000.

Estimated costs for the proposed runway extension itself have been developed by CDM Smith, Paul Simonton & Associates, and Arrowood Environmental Group, Inc.

Runway items consist of:

Design	$300,000
Permitting	47,000
Construction	5,700,000
Mitigation	637,655
Total Runway Costs	$6,684,655

Local Interest & Support:

The MidCoast Regional Airport is managed by a Joint Management Board (JMB) comprised of representatives of the chairman of the Liberty County Board of Commissioners, mayor of the city of Hinesville, and chairman of the Liberty County Development Authority. The JMB is very interested in landing this exciting economic development project and encourages funding from the GDOT/FAA.

The Liberty County Development Authority (LCDA) stands ready to apply for funding from the One Georgia Authority, the Georgia Department of Community Affairs, the federal Economic Development Administration, and any other sources that might be identified.

The JMB and LCDA believe this is an excellent example of the type of project envisioned by the Georgia Department of Economic Development when it determined one of its major objectives would be the recruitment of aviation/aerospace projects.

The desire of ADSI to hire former military personnel as they exit the military at Ft. Stewart in Liberty County, Georgia is a major added bonus of the project.

The fact that integral elements of the project would directly support the strengthening of the national defense and counter-terrorism activities of the U.S. DOD, other national government agencies, and foreign allies greatly bolsters the need for the project and affiliated runway extension.

The JMB and LCDA stand ready to work with the GDOT, FAA and other state and federal agencies to implement all the work items needed to implement the ADSI Project.

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