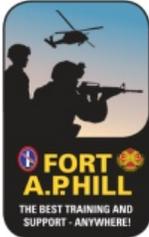


# PROGRAMMATIC ENVIRONMENTAL ASSESSMENT RESTORING LINE-OF-SIGHT AT FORT A.P. HILL, VIRGINIA

Prepared for:



Directorate of Public Works  
1952 North Range Road,  
Building 1220  
Fort A.P. Hill, Virginia 22427

Prepared by:



4422 E. Indian School Road  
Suite 101  
Phoenix, Arizona 85018

August 2015





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**DRAFT FINDING OF NO SIGNIFICANT IMPACT  
RESTORING LINE-OF-SIGHT AT  
FORT A.P.HILL, VIRGINIA**

**August 2015**

**Introduction:** A Programmatic Environmental Assessment (PEA) was prepared to analyze the potential for significant environmental impacts associated with restoring line-of-sight at Fort A.P. Hill (FAPH).

The PEA was prepared in accordance with the National Environmental Policy Act (NEPA) (Title 42 U.S. Code Section 4321, et seq.), Council on Environmental Quality (CEQ) regulations (Title 40 Code of Federal Regulations [CFR] Parts 1500-1508), and *Environmental Analysis of Army Actions* (32 CFR 651). This Finding of No Significant Impact is a document that briefly states why the Proposed Action will not significantly affect the environment and that an Environmental Impact Statement will not be prepared.

**Description of the Proposed Action:** The Proposed Action is the restoration of line-of-sight on FAPH's impact areas by using a systematic and integrated approach to pest management through a combination of mechanical, biological, and chemical vegetation control practices.

**Alternatives Considered:** Two alternatives, the Preferred Alternative and a No Action Alternative, were evaluated for their potential direct, indirect, and cumulative impacts on the human environment.

The Army's Preferred Alternative (Proposed Action) involves the restoration of line-of-sight from various observation points, firing points, and ranges into the two impact areas within the FAPH's live-fire range complex. Maturing trees, shrubs, and forest vegetation will be targeted using a systematic and integrated approach to pest management through a combination of mechanical, biological, and chemical vegetation control practices, including aerial herbicide application (in areas containing unexploded ordnance). The herbicide application would eliminate the woody, broadleaf herbaceous understory vegetation, which is obstructing views from the various ranges used for indirect fire into the impact areas.

Under the No Action Alternative, the Army would not use aerial herbicide application and would continue vegetation management with methods currently in use on the Installation. The No Action Alternative is required under the CEQ regulations implementing the NEPA, and serves as a baseline or benchmark to be compared with the Proposed Action and alternatives.

**Additional Alternatives:** In addition to the Proposed Action and No Action Alternative, a PEA should identify any alternatives eliminated from detailed analysis during the planning process. The presence of unexploded ordnance limits the methods of vegetation control and herbicide application that can be used within the impact areas. It is not safe to use the same methods of vegetation control and removal in the impact areas that are used in other areas of the Installation.

Aerial application of herbicides via fixed-wing aircraft is an option. However, FAPH eliminated the consideration of using fixed-wing aircraft, because rotary-wing aircraft would allow for better control of herbicide application and less chance of chemical drift from the targeted location. Additionally, the removal of unexploded ordnance to allow for other methods of vegetation control and removal is cost-prohibitive and impractical, given the designated use and purpose of the areas. Therefore, the Preferred Alternative and the No Action Alternative are the only alternatives analyzed in the PEA.

**Anticipated Environmental Effects:** Based on information presented and analyzed in the PEA, it has been determined that implementation of the Proposed Action as the Preferred Alternative, and the No Action Alternative would have no significant direct, indirect, or cumulative adverse impacts on the environment. Adverse impacts associated with implementing the Proposed Action would be minor in context and intensity, and most would be temporary. Consequently, the overall environmental effect of implementing the Proposed Action is anticipated to be less than significant.

**30-Day Public and Agency Review Period:** The PEA and a draft copy of this Finding of No Significant Impact are available to the general public and applicable government agencies for review and comment during a 30-day period commencing with the publication of a Notice of Availability in the *Caroline Progress* and *Free Lance-Star*. Copies of the PEA along with instructions for submitting comments are available at two Caroline County Public Libraries: Bowling Green Branch, 17202 Richmond Turnpike, Milford, Virginia 22514, and Port Royal Branch, 419 King Street, Port Royal, Virginia, 22535; and at <http://www.aphill.army.mil/ea.asp>. Copies of the documents are also being sent directly to applicable agencies for review.

**Public and Agency Comments:** Comments from the public and governmental agencies received during the 30-day public comment period will be included in this section.

**Findings:** Based on the analysis contained in the PEA, I have concluded that implementation of the Proposed Action would not constitute a major federal action significantly affecting the quality of the human environment. Consequently, implementation of the Proposed Action does not require the preparation of an Environmental Impact Statement.

Approved By:

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DAVID A. MEYER  
Lieutenant Colonel, US Army  
Commanding

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Date

## **HOW THIS PROGRAMMATIC ENVIRONMENTAL ASSESSMENT IS ORGANIZED**

The EXECUTIVE SUMMARY briefly describes the Proposed Action and alternatives. Impacts and conclusions are summarized.

### **ACRONYMS AND ABBREVIATIONS**

- SECTION 1      PURPOSE AND NEED discusses the purpose and need for the Proposed Action, the regulatory background surrounding this project, and the scope of this Programmatic Environmental Assessment.
- SECTION 2      DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES discusses the Proposed Action and alternatives addressed in this Programmatic Environmental Assessment.
- SECTION 3      AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES describes the existing environment within the region of influence. It also provides a comparison of environmental consequences associated with each alternative. Conservation and mitigation measures are also addressed in this section. The cumulative impacts analyses are also included in this section.
- SECTION 4      FINDINGS AND CONCLUSIONS
- SECTION 5      REFERENCES provides bibliographical information for sources cited in the text of this Programmatic Environmental Assessment.
- SECTION 6      LIST OF PREPARERS AND CONTRIBUTORS
- SECTION 7      DISTRIBUTION LIST
- SECTION 8      LIST OF INDIVIDUALS AND AGENCIES CONSULTED

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**PROGRAMMATIC ENVIRONMENTAL ASSESSMENT  
RESTORING LINE-OF-SIGHT AT  
FORT A.P. HILL, VIRGINIA**

Prepared by:

Vernadero Group Incorporated  
4422 E. Indian School Road, Suite 101  
Phoenix, Arizona 85018

Recommended for approval by:

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TERRY BANKS  
Chief, Environmental and Natural Resources Division  
Fort A.P. Hill, Virginia

Approved by:

---

DAVID A. MEYER  
Lieutenant Colonel, US Army  
Commanding

August 2015

FORMAT PAGE

## EXECUTIVE SUMMARY

This Programmatic Environmental Assessment (PEA) was prepared to analyze the potential environmental effects associated with restoring line-of-sight at Fort A.P. Hill (FAPH).

FAPH (the Installation) is a military installation encompassing nearly 76,000 acres of land between the Towns of Bowling Green and Port Royal in Caroline County, Virginia. The Installation is approximately 70 miles south of Washington, District of Columbia, and 35 miles north of the state capitol, Richmond, Virginia. United States Route 301 bisects the Installation and provides the main thoroughfare between Bowling Green and Port Royal.

Two alternatives are analyzed in this PEA, the Preferred Alternative and the No Action Alternative. The Proposed Action, which is the Army's Preferred Alternative, is the restoration of line-of-sight on FAPH's impact areas by using a systematic and integrated approach to pest management through a combination of mechanical, biological, and chemical vegetation control practices. Under the No Action Alternative, the Army would not use aerial herbicide application and would continue vegetation management with methods currently in use on the Installation. The No Action Alternative is required under the Council of Environmental Quality regulations implementing the National Environmental Policy Act (NEPA), and serves as a baseline or benchmark to be compared with the Proposed Action and alternatives.

No significant impacts are anticipated to result from implementing the Proposed Action at FAPH. Some minor adverse impacts to certain resource areas would be expected, but these impacts would be less than significant. Implementation of the Proposed Action would also have minor, beneficial impacts to the local economy and would have long-term, beneficial impacts to various resource areas. A summary of potential impacts of the Proposed Action and measures to minimize adverse impacts is provided in Table ES-1.

Based on the analysis contained herein, it is the conclusion of this PEA that the Proposed Action, which is the Army's Preferred Alternative, and No Action Alternative would not constitute a major federal action with significant impact on human health or the environment. A Finding of No Significant Impact for the Proposed Action should be issued to conclude the NEPA documentation process.

**Table ES-1. Summary of Potential Impacts and Measures to Minimize Impacts  
for Preferred Alternative (Proposed Action)**

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than	No Impact	
Land Use		X		No significant impacts to land use are anticipated as a result of the implementation of the Proposed Action. Restoring line-of-sight (LOS) through vegetation removal would allow the live-fire training range to be fully utilized and offer additional training opportunities that have been unavailable due to loss of LOS. There would be an overall positive impact to the Installation's overall military training mission.
Topography, Geology, and Soils		X		No impacts to geology or topography would be expected. No significant impacts to soils would be anticipated. Minor short-term impacts to soils would result from vegetation removal and activities that involve ground disturbance from the use of vehicles and equipment. These impacts are expected to be less than significant.
Hydrology and Water Resources		X		No significant impacts to hydrology and water resources would be expected as a result of the implementation of the Proposed Action. All vegetation removal activities would be conducted in accordance with applicable Installation management plans that are designed to protect the Installation's watershed and water resources.
Biological Resources		X		No significant impacts to biological resources would be anticipated as a result of the implementation of the Proposed Action. Although some minor, short-term adverse impacts would be expected as a result of prescribed burns, the long-term, beneficial impacts outweigh them by promoting the sustainment of a healthy ecosystem. Other short-term, minor impacts would be expected as a result of vegetation removal; however, implementing best management practices established in the Integrated Natural Resources Management Plan and other guidance documents, such as the Integrated Pest Management Plan and Integrated Wildland Fire Management Plan (IWFMP), would limit those impacts. These impacts would mostly be temporary in nature.
Cultural Resources		X		No significant impacts to cultural resources are anticipated as a result of the implementation of the Proposed Action. All projects are evaluated for their potential effect on known cultural resources. If an unknown cultural resource is discovered on a project site, work ceases and the Fort A.P. Hill (FAPH) Cultural Resources Manager is consulted. The Cultural Resources Manager coordinates with applicable state and federal agencies when necessary.

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than	No Impact	
Air Quality		X		No significant impacts to air quality are expected. The Installation is in an attainment area for all criteria pollutants and its annual emissions are well below thresholds requiring additional permits. Minor, short-term impacts would be expected during vegetation removal activities. Most activities' emissions would be fugitive dust and vehicle and equipment exhaust. Herbicide application would result in minor, temporary impacts to air quality. Prescribed burns would be expected to contribute the greatest amount of air pollutants; however, those impacts would be temporary and compliance with best management practices within the IWFMP would minimize impacts. Overall, impacts would be less than significant and would not contribute significant emissions to local or regional air quality.
Noise		X		No significant impacts would result from the noise generated by the Proposed Action. Noise associated with project vehicles and equipment would be consistent with noise already occurring on the Installation. Impacts would be temporary and most would occur during daylight hours when noise receptors are less sensitive.
Visual Resources		X		No significant impacts to visual resources would result from the implementation of the Proposed Action. Minor, short-term impacts would result from prescribed burns. However, given the temporary nature of the impacts and long-term benefits, the impacts are considered less than significant. Long-term impacts are limited to the loss of vegetation in certain areas. However, these areas are located in sections of the Installation that are not accessible to the general public and not highly visible from outside the Installation.
Socioeconomic s			X	No impact to socioeconomics would be expected. The Proposed Action would not result in a permanent increase in population and is not expected to contribute any measurable amount to the local economy. No impacts would result in environmental injustice issues.
Transportation and Circulation		X		No significant impacts to transportation and circulation are anticipated as a result of the implementation of the Proposed Action. The Installation's road network is capable of handling the vehicle and equipment traffic associated with the proposed activities. The only new equipment proposed for use is the helicopter that would be used for aerial herbicide application. This commercial helicopter is smaller than many of the military helicopters already in use on the Installation. Given the limited frequency and short duration of these applications, no significant impact is expected.
Utilities			X	No impacts to utilities are anticipated as a result of the implementation of the Proposed Action. The Installation's utilities and infrastructure are capable of handling the demand associated with the proposed activities, which are not expected to result in an increased demand for any utilities. The Proposed Action would not result in the creation of any new utilities on the Installation.

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than	No Impact	
Hazardous Materials and Wastes		X		No significant impacts from the use of hazardous materials and waste are anticipated as a result of the implementation of the Proposed Action. The materials and waste associated with the proposed activities are consistent with the materials used and wastes generated currently by the Installation. All handling, storage, transportation, and disposal of hazardous materials and waste would comply with applicable local, state, and federal laws and regulations. The Installation maintains an Installation-wide Spill Response Plan that would be implemented in the event of an accidental release. The herbicide proposed for aerial application would be brought on site by the contractor and would not be stored or disposed of on the Installation. The contractor would be responsible for complying with the same laws and regulations that apply to those materials used and stored regularly by FAPH.
Health and Human Safety		X		No significant impacts to human health and safety are anticipated as a result of the implementation of the Proposed Action. Emergency services and medical facilities on and around the Installation are capable of responding to any issues arising from the proposed activities. All personnel would be required to comply with applicable health and safety regulations. No impacts would result in disproportionate effects on children.

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## LIST OF ACRONYMS AND ABBREVIATIONS

AIRFA	American Indian Religious Freedom Act
amsl	Above Mean Sea Level
AQCR	Air Quality Control Region
AR	Army Regulation
ARPA	Archaeological Resources Protection Act
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DA	Department of the Army
dB	Decibels
dBA	A-Weighted Decibels
DNL	Day-Night Average Sound Level
DoD	Department of Defense
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency

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ESA	Endangered Species Act
FAPH	Fort A.P. Hill
FNSI	Finding of No Significant Impact
ft	Feet
FR	Federal Register
GHG	Greenhouse Gas
GIS	Geographic Information System
GPS	Global Positioning System
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IWFMP	Integrated Wildland Fire Management Plan
LOS	Line-of-Sight
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
O <sub>3</sub>	Ozone
Pb	Lead
PEA	Programmatic Environmental Assessment
PIF	Partners-in-Flight
PM <sub>2.5</sub>	Very Fine Particulate Matter
PM <sub>10</sub>	Fine Particulate Matter

PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SO <sub>2</sub>	Sulfur Dioxide
TM	Technical Manual
U.S.	United States
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded Ordnance
VDEQ	Virginia Department of Environmental Quality
WMP	Watershed Management Plan

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## **1.0 PURPOSE AND NEED**

### **1.1 Introduction**

Fort A.P. Hill (FAPH or the Installation), is a military installation encompassing nearly 76,000 acres of land between the Towns of Bowling Green and Port Royal in Caroline County, Virginia (Figure 1-1). The Installation is approximately 70 miles south of Washington, District of Columbia, and 35 miles north of the state capitol, Richmond, Virginia. United States (U.S.) Route 301 bisects the Installation and provides the main thoroughfare between Bowling Green and Port Royal.

FAPH was established as an Army training facility in 1941. The Installation's mission, as a Regional Training Center, is to provide realistic joint and combined arms training in support of America's Defense Forces. FAPH serves as a training and maneuver center for active and reserve troops of the Army, Navy, Air Force, and Marines. Several government agencies, such as the Departments of State and the Interior, U.S. Customs, other federal organizations, and state and local law enforcement and security agencies also train at FAPH. The Installation has also hosted foreign ally training. FAPH is the sixth largest military installation on the East Coast and is used for training year round.

The National Environmental Policy Act (NEPA) requires all federal agencies to give appropriate consideration to potential environmental effects of proposed major actions in planning and decision making, as further explained in Section 1.3. In accordance with the NEPA, FAPH is completing this Programmatic Environmental Assessment (PEA) to evaluate the potential environmental impacts of restoring line-of-sight (LOS) to FAPH dudded impact areas, which are areas having designated boundaries within which all dud-producing ordnance will detonate or impact. There are two dudded impact areas on FAPH: the Upper Zion and Daniel impact areas (hereafter referred to as "impact areas").

### **1.2 Purpose and Need for Action**

#### *1.2.1 Purpose*

The purpose of the Proposed Action is to restore LOS from various observation points, firing points, and ranges into the two impact areas within FAPH's live-fire range complex. Maturing shrubs and forest vegetation will be targeted. The Proposed Action would use a combination of mechanical vegetation removal and control, and aerial herbicide application.

#### *1.2.2 Need*

The need for the Proposed Action is to ensure that FAPH's range complex provides adequate training opportunities to support its mission and maintain military readiness. A clear LOS is required by Army regulation for all indirect fire into impact areas. The understory growth in the impact areas impairs visibility of targets and inhibits or reduces training capabilities. Unexploded

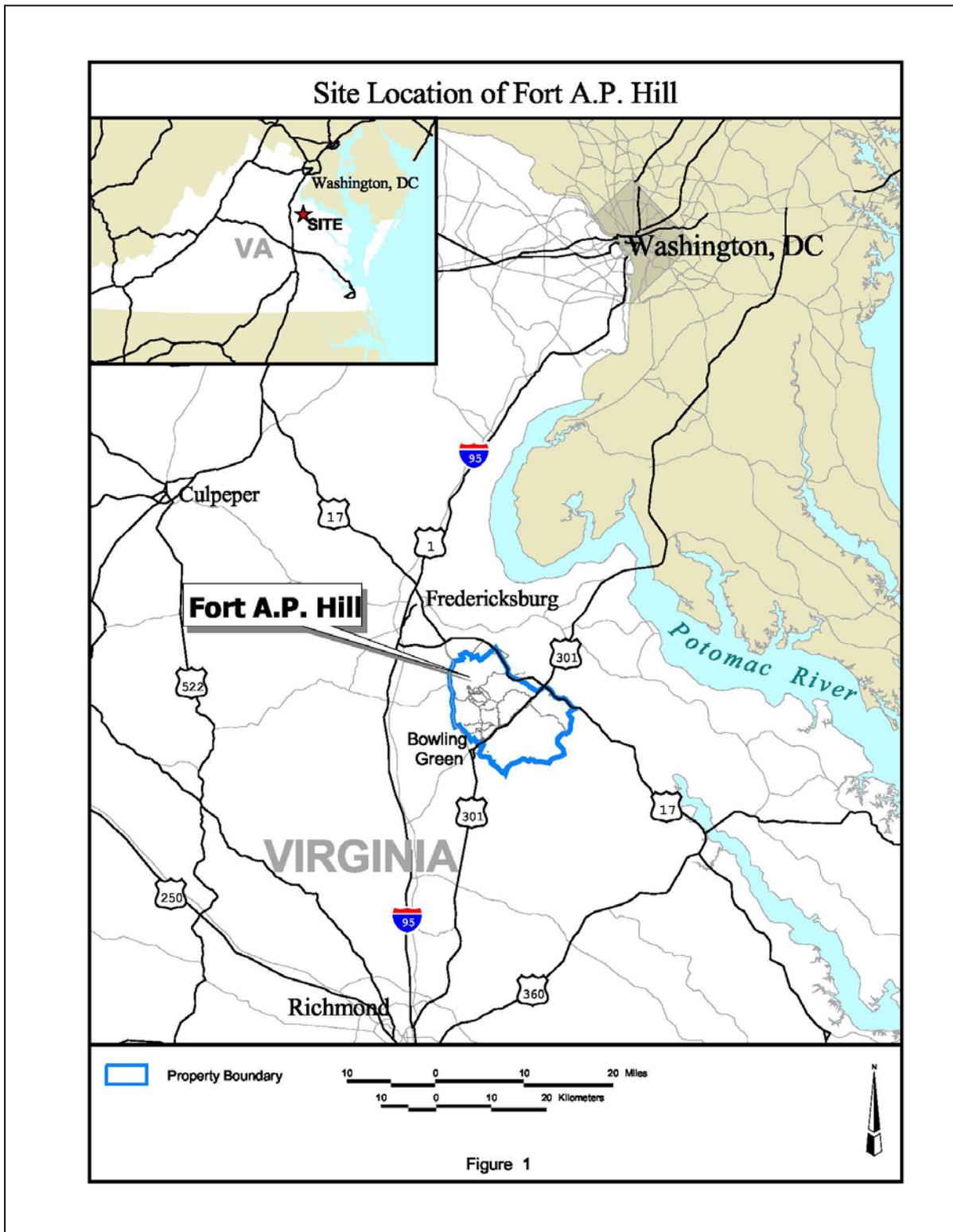


Figure 1-1. Regional Location Map

ordnance (UXO) makes the impact areas inaccessible for most methods of herbicide application and vegetation control in use by the Installation. Aerial herbicide application has not been conducted on FAPH since 1982; a PEA is therefore required to analyze the potential environmental effects of its use.

### 1.3 Regulatory Framework

Congress enacted the NEPA in 1969 with accompanying regulations requiring federal agencies to consider potential impacts before taking actions that may impact the environment. The process is designed to provide the decision maker with an overview of the major environmental resources that may be affected, the interrelationship of these resources, and potential impacts to the human environment. The NEPA process is not intended to fulfill the specific requirements of other environmental statutes and regulations. The NEPA process:

- Helps to identify potential alternatives to the Proposed Action;
- Integrates other environmental processes;
- Summarizes technical information;
- Documents impact analyses and decisions;
- Interprets technical information for the decision maker and the public; and
- Assists the decision maker in selecting a preferred action.

The NEPA process is intended to be incorporated into the early stages of decision-making to ensure that planning and decisions consider environmental values. The NEPA process enables the Army and stakeholders to gain a better appreciation of each other's needs and fosters a decision-making process that helps avoid unexpected confrontations in the future. In addition, NEPA compliance provides for ongoing evaluation of environmental effects for actions that will continue over time.

The Council on Environmental Quality (CEQ), which was established as part of NEPA, coordinates federal environmental efforts and works closely with other White House offices in the development of environmental policies and initiatives. In 2012, the CEQ issued what is commonly referred to as the NEPA Efficiency Guidance. This guidance encourages federal agencies to provide the best use of agency resources in ensuring a timely, effective, and efficient NEPA review by creating concise documents, conducting early scoping, incorporating NEPA into the project planning process, and taking advantage of existing documents and studies through adoption, incorporation by reference, or tiering from programmatic documents. As such, this PEA incorporates by reference the *Final Programmatic Environmental Assessment for the Implementation of U.S. Army Pest Management Program* as it relates to the management of nuisance vegetation, and FAPH's draft Integrated Natural Resources Management Plan (INRMP) and the Environmental Assessments that were prepared for implementation of the INRMP as they relate to the management of natural resources on FAPH.

In addition to NEPA, this PEA has been prepared in compliance with two Department of the Army (DA) regulations that provide guidance for environmental analyses:

- Title 32 Code of Federal Regulations (CFR) Part 651, *Environmental Analysis of Army Actions*, dated 29 March 2002, is designed to provide policy, responsibilities, and procedures for integrating environmental considerations into Army planning and decision making. It establishes criteria for determining which of five review categories apply to a particular action, and therefore what type of environmental document should be prepared. If the Proposed Action is not covered adequately in any existing Environmental Assessment, PEA, or Environmental Impact Statement (EIS) and cannot be categorically excluded from NEPA analysis, then a separate NEPA analysis must be completed prior to the commitment of resources (personnel, funding, or equipment) to the Proposed Action; and
- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, dated December 2007, describes DA responsibilities, policies, and procedures to preserve, protect, and restore the quality of the environment. The regulation incorporates a wide range of applicable statutory and regulatory requirements.

#### **1.4 Use of This Programmatic Environmental Assessment**

This PEA analyzes and documents the potential for environmental impacts associated with restoring LOS to FAPH's impact areas, relative to the No Action Alternative. FAPH will use this PEA to determine whether a Finding of No Significant Impact (FNSI) is appropriate or if a Notice of Intent to prepare an EIS should be issued.

#### **1.5 Public Participation Opportunities**

In keeping with established Army policy to provide a transparent and open decision-making process, FAPH will make this PEA and draft decision document available to applicable federal and local agencies, stakeholders, and the general public for review and comment. Agency coordination letters and responses received from agencies and the public are included in Appendix B. A Notice of Availability will be published in the *Caroline Progress* and *Free Lance-Star* newspapers, and a copy of the PEA will be made available on the internet at <http://www.aphill.army.mil/ea.asp> and at the following libraries:

Caroline County Public Library  
Bowling Green Branch  
17202 Richmond Turnpike  
Milford, Virginia 22514

Caroline County Public Library  
Port Royal Branch  
419 King Street  
Port Royal, Virginia 22535

Comments must be postmarked within 30 days of the publishing date of the Notice of Availability to be considered as part of the NEPA process. Comments should be submitted to:

Fort A.P. Hill  
Environmental and Natural Resources Division  
Attn: NEPA Coordinator  
19952 North Range Road, Building 1220  
Fort A.P. Hill, Virginia 22427  
Email: [usarmy.aphill.imcom-northeast.mail.ernd@mail.mil](mailto:usarmy.aphill.imcom-northeast.mail.ernd@mail.mil)

A final decision document in the form of a FNSI or a Notice of Intent to complete an EIS will be issued following completion of the 30-day review period and will address comments received under this NEPA process.

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## **2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

### **2.1 Proposed Action (Preferred Alternative)**

The Proposed Action analyzed in this PEA is the Army's Preferred Alternative. This alternative involves the restoration of LOS from various observation points, firing points, and ranges into the two impact areas within the FAPH's live-fire range complex. Maturing trees, shrubs, and forest vegetation will be targeted using a systematic and integrated approach to pest management through a combination of mechanical, biological, and chemical vegetation control practices, including aerial herbicide application (in areas containing UXO). The herbicide application would eliminate the woody, broadleaf herbaceous understory vegetation, which is obstructing views from the various ranges used for indirect fire into the impact areas.

Mechanical methods of vegetation removal and control are already in use by FAPH in the Controlled Access Areas and include herbicide spray application on foot and from all-terrain vehicles, and via robotic equipment in impact areas and associated buffer zones. Prescribed burns are also used to control vegetation. Vegetation removal by hand may also be used if necessary. There are existing plans that cover current methods of vegetation control, including the Integrated Wildland Fire Management Plan (IWFMP), INRMP, and Integrated Pest Management Plan. All chemicals in use and proposed for use are approved by the Department of Defense (DoD) and the U.S. Environmental Protection Agency (EPA), and included in the Army-wide pest management program. The Army mandates the use of integrated pest management techniques in carrying out pesticide management.

Aerial herbicide application has not been used by FAPH since 1982. Aerial herbicides would be applied via rotary-wing aircraft only. The helicopters proposed for herbicide application use would be commercial aircraft, smaller than many of the military helicopters used on the Installation. Before each aerial application may be initiated, specific climatic conditions must be met, including wind speed, wind direction, and temperature (FAPH 2015a). All aerial applications would be performed by contractors that are licensed and experienced and applications would comply with applicable federal, state, and local regulations and laws. Aerial applications would also comply with the Installation's *Code of Practice for Fort A.P. Hill Aerial Spraying* (FAPH 2015a). FAPH anticipates a need for biannual aerial application, with the potential for some additional applications for maintenance, on an as-needed basis. Aerial application is proposed for use beginning around the fall of 2015.

### **2.2 No Action Alternative**

The No Action Alternative is required under CEQ regulations implementing the NEPA and serves as a baseline or benchmark used to compare with the Proposed Action and alternatives. Under the No Action Alternative, FAPH would not restore LOS to the impact areas. Understory vegetation will continue to affect target visibility and impair and/or prevent training opportunities. Limiting training capabilities at the Installation negatively impacts FAPH's mission and military readiness.

### **2.3 Alternatives Considered but Eliminated from Further Analysis**

In addition to the Proposed Action and No Action Alternative, a PEA should identify any alternatives eliminated from detailed analysis during the planning process. The presence of UXO limits the methods of herbicide application and vegetation control that can be used within the impact areas. It is not safe to use the same methods of vegetation control and removal in the impact areas that are used in other areas of the Installation.

Aerial application of herbicides via fixed-wing aircraft is an option. However, FAPH eliminated the consideration of using fixed-wing aircraft, because rotary-wing aircraft would allow for better control of herbicide application and less chance of chemical drift from the targeted location. Additionally, the removal of UXO to allow for other methods of vegetation control and removal is cost-prohibitive and impractical, given the designated use and purpose of the areas. Therefore, the Preferred Alternative and the No Action Alternative are the only alternatives analyzed in this PEA.

### **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

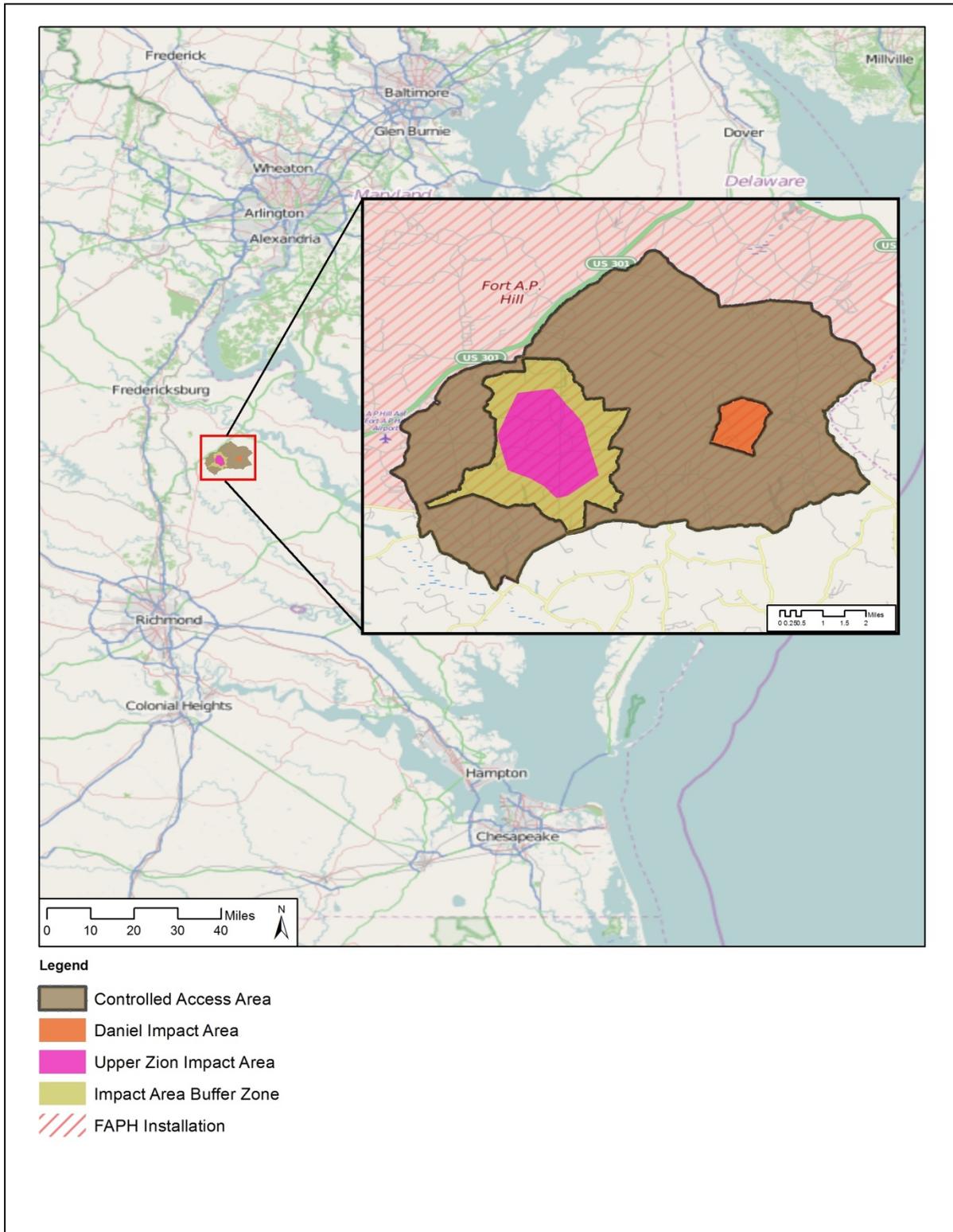
This section describes conditions of, and possible impacts to, environmental resources potentially affected by the Proposed Action and alternatives. The description of existing conditions provides a baseline understanding of the resources from which any environmental changes that may result due to the implementation of an alternative can be identified and evaluated. Following the existing conditions, potential changes or impacts to the resources are described as environmental consequences. As stated in CEQ regulations, 40 CFR 1508.14, the “human environment potentially affected” is interpreted comprehensively to include the natural and physical resources and the relationship of people with those resources. The term “environment” as used in this PEA encompasses all aspects of the physical, biological, social, and cultural surroundings. In compliance with the NEPA and CEQ regulations, the description of the affected environment focuses only on those aspects potentially subject to impacts. Finally, cumulative impacts are addressed, defined by CEQ regulations 40 CFR 1500-1508 as those impacts attributable to the Proposed Action combined with other past, present, or reasonably foreseeable future impacts regardless of the source.

#### **3.1 Land Use**

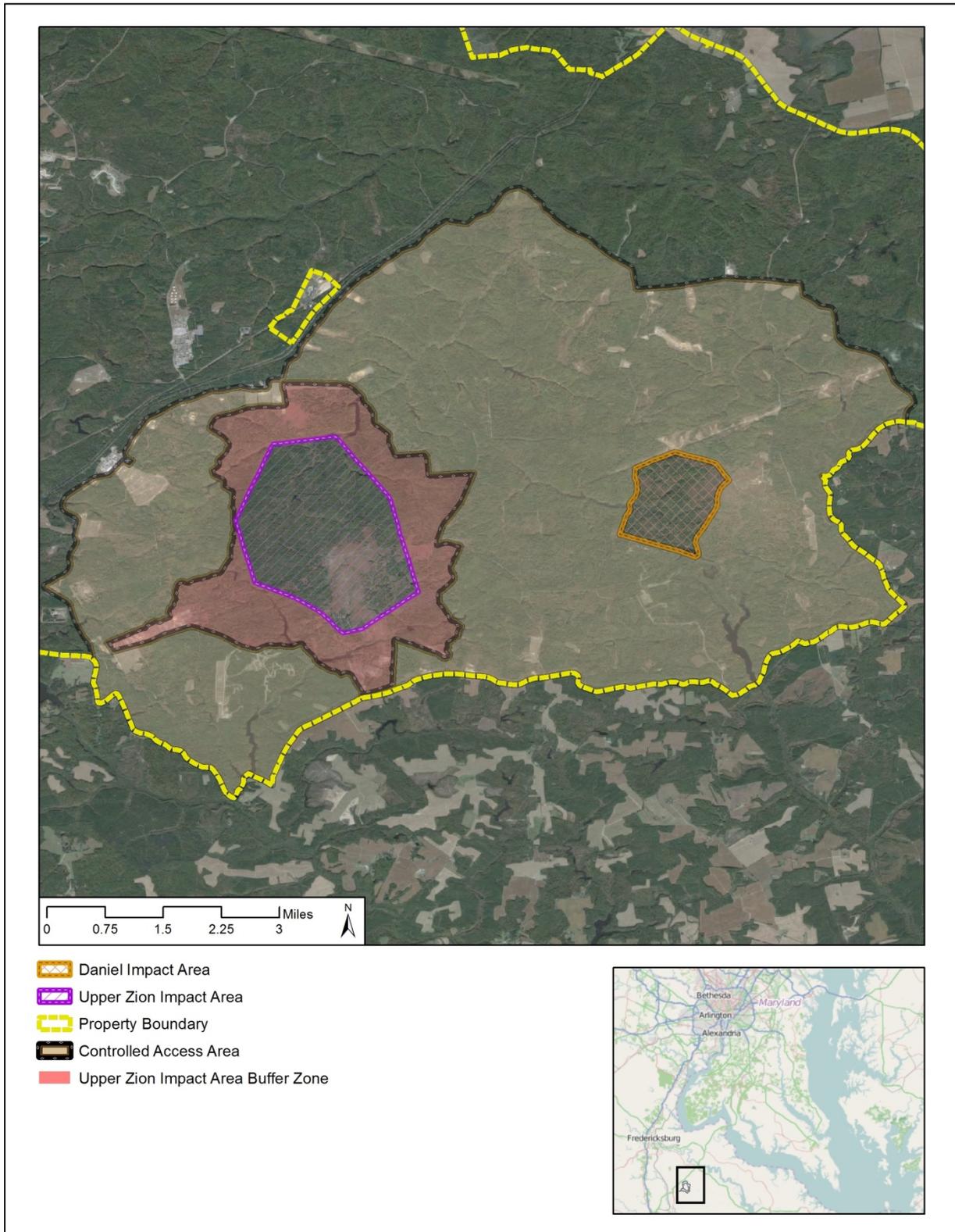
##### *3.1.1 Affected Environment*

FAPH is a military installation in the northeastern portion of Caroline County, Virginia. Caroline County is one of the larger counties within the Commonwealth of Virginia, encompassing approximately 549 square miles. FAPH is situated on nearly 76,000 acres, making up approximately 22 percent of the County's land area. A small portion of FAPH is located within Essex County. The Installation is situated between the Towns of Bowling Green and Port Royal and is bisected by U.S. Route 301, which is the main thoroughfare between the two towns. The Installation's live-fire range complex, including the two impact areas subject of this PEA, is in the portion of FAPH that is south of Route 301 (Figure 3-1). All training activities involving the use of live ammunition and explosives is conducted within the live-fire range complex.

The two impact areas are the Upper Zion Impact Area and Daniel Impact Area (Figure 3-2). They are dudded impact areas, which are areas having designated boundaries within which all dud-producing ordnance will detonate or impact. The Upper Zion Impact Area covers 1,900.85 acres and the Daniel Impact Area covers 606.76 acres. The impact areas contain UXO and are off limits to all pedestrian and vehicular traffic. These impact areas are surrounded by a Controlled Access Area consisting of 23,460 acres, which is limited to authorized personnel. Additionally, the Upper Zion Impact Area is also surrounded by an impact area buffer zone, which provides an added restricted area within the Controlled Access Area.



**Figure 3-1. Controlled Access Area and Impact Areas**



**Figure 3-2. Aerial Map of Controlled Access Area and Impact Areas**

The Controlled Access Area contains numerous firing ranges. Firing points and observation points are also located throughout the Controlled Access Area and impact area buffer zone. The views from many of the firing points and observation points are obstructed by vegetation, making the target areas difficult to see or not visible at all. These obstructed LOS prevent several types of training from being conducted at FAPH, including indirect fire, mortars and artillery, air to ground fire, and Close Air Support Operations. The LOS obscuration caused by the vegetation growth has been a recognized issue about 2002 and has slowly worsened over time. The reduction in this type of training negatively impacts FAPH's overall training mission and forces many units to travel greater distances to other Installations to conduct necessary range training.

### *3.1.2 Environmental Consequences*

#### Preferred Alternative (Proposed Action)

Implementation of the Preferred Alternative is not anticipated to result in any adverse impacts to land use on the Installation. There would be no change in land use designations within the impact areas and no land use incompatibilities would result from the implementation of the Preferred Alternative. Clearing vegetation to restore LOS within the impact areas would be beneficial to the Installation's overall training mission, as it would allow range training to occur at levels and frequencies afforded to units in the past.

#### No Action Alternative

No significant impacts to land use are anticipated under the No Action Alternative. However, major, long-term adverse impacts to the Installation's training mission would continue. Without proper vegetation management, LOS would continue to be compromised, negatively impacting FAPH's range training, and subsequently impacting the Installation's military mission.

#### Cumulative Impacts

The FAPH Real Property Master Plan guides land use and development on the Installation. Due to the dangers associated with UXO, no development is proposed in the foreseeable future for the impact areas. There are also no major development or improvement projects scheduled within the Controlled Access Area. Maintenance and upkeep of firing ranges and associated infrastructure within the Controlled Access Area would not be anticipated to result in any cumulative impacts.

Given the ongoing collaborative efforts between FAPH and surrounding communities, no significant cumulative impacts would be anticipated as a result of the implementation of the Preferred Alternative, even when combined with proposed growth on and surrounding FAPH.

## **3.2 Topography, Geology, and Soils**

### *3.2.1 Affected Environment*

#### Topography

The Installation lies within the Atlantic Coastal Plain physiographic province. It is located just east of the fall line, and therefore displays characteristics of both the Piedmont and Coastal Plain regions (FAPH 2015b). The topography of the Installation varies from relatively flat in the southern portion, moderately rolling in the northern portion, and fairly steep in some central locations. Elevations on the Installation range from approximately 10 feet (ft) above mean sea level (amsl) to about 255 ft amsl. Most of the Installation is above 100 ft amsl. The northern two-thirds of the Installation drain northward to the Rappahannock River, and the southern one-third drains south-southeasterly to the Mattaponi River; both eventually feed into the Chesapeake Bay (FAPH 2015b).

#### Geology

The Atlantic Coastal Plain is underlain by a seaward-thickening wedge of regionally extensive, eastward-dipping strata of unconsolidated to partly consolidated marine and fluvial sediments of Cretaceous, Tertiary, and Quaternary age that unconformably overlie a basement of consolidated bedrock (U.S. Geological Survey 2006). The sediments are primarily composed of unconsolidated gravels, sands, silt, and clay, with variable amounts of shells. Available data estimate the thickness of these sediments to be greater than 450 ft and the depth to bedrock greater than 400 ft (U.S. Geological Survey 2006).

#### Soils

Soil survey data for the Installation identify numerous unique soil series at FAPH. Most soils at FAPH are categorized as upland soils, which are mostly well-drained sandy soils that develop on sandy, clayey, and loamy Coastal Plain sediments. These soils have high permeability and low shrink-swell potential and are susceptible to moderate to severe erosion. Representative upland soils comprising the majority of the Controlled Access Area and impact areas include the Kempsville-Emporia and Slagle-Kempsville complexes (USDA 2015).

### *3.2.2 Environmental Consequences*

#### Preferred Alternative (Proposed Action)

No significant impacts to soils are anticipated to occur as a result of implementing the Proposed Action. No impacts to topography or geology are expected.

Minor short-term soil disturbance and possible minor increases in soil erosion would be expected as a result of vegetation removal as vegetative cover is lost. However, these disturbances would be less than significant and temporary in nature. Removal activities within the impact areas would be limited to robotic removal and aerial herbicide application because of

the dangers associated with UXO. Prescribed burns are used within the Controlled Access Area and would be expected to have the most impact; however, when conducted in compliance with the INRMP and IWFMP, the impacts would be minimized. The Proposed Action is not expected to result in any significant increase in the amount of prescribed burns being conducted at the Installation. The use of heavy machinery during robotic removal and vehicular traffic associated with vegetation removal and herbicide application would also have minor, temporary impacts to soils they directly contact. These disturbances are not expected to result in any measurable effects.

#### No Action Alternative

The No Action Alternative would not result in any impacts to topography, geology, or soils. FAPH would continue to manage vegetation with methods currently being used on the Installation and without the introduction of aerial herbicide application to restore LOS into the impact areas.

#### Cumulative Impacts

Other projects proposed for FAPH require project-specific best management practices (BMPs), including stormwater control and erosion control measures, that would limit the amount of soil disturbance and erosion. Therefore, no significant cumulative impacts to the Installation's topography, geology, and soils would be expected. Implementation of the Proposed Action when combined with development outside FAPH is not expected to result in cumulative impacts to regional topography, geology, or soils.

### **3.3 Hydrology and Water Resources**

#### *3.3.1 Affected Environment*

##### Floodplains

The designated frequency for floodplain identification used by the Federal Emergency Management Agency is the 100-year flood. The 100-year floodplain is an area that has a 100 percent chance of flooding at least once within 100 years or a 1 percent chance of flooding per year. There are some small floodplain areas associated with creeks and streams within the impact areas and Controlled Access Area (Figure 3-3).

##### Groundwater

The regional hydrogeologic framework of the Coastal Plain consists of eight confined aquifers, eight major confining units, and an uppermost water table aquifer. Coastal Plain groundwater is mainly recharged by precipitation infiltration and percolation to the water table. Water quality and permeability varies throughout the range of the Coastal Plain. Most unconfined groundwater flows relatively short distances and discharges to nearby streams; however, a small amount

flows downward to recharge the deeper confined aquifers. Most groundwater flows laterally through the unconfined and confined aquifers, but some vertical flow also occurs.

The sole source of potable water at FAPH is the groundwater below the Installation. There are four aquifers in the FAPH area: the Yorktown-Eastover Aquifer, the Chickahominy-Piney Point Aquifer, the Aquia Aquifer, and the Middle Potomac Aquifer. FAPH pumps its water from the Middle Potomac Aquifer. This aquifer produces moderate to large quantities of high-quality fresh water. The average seasonal depth to groundwater in representative upland soils is greater than six feet (FAPH 2015b).

### Surface Water

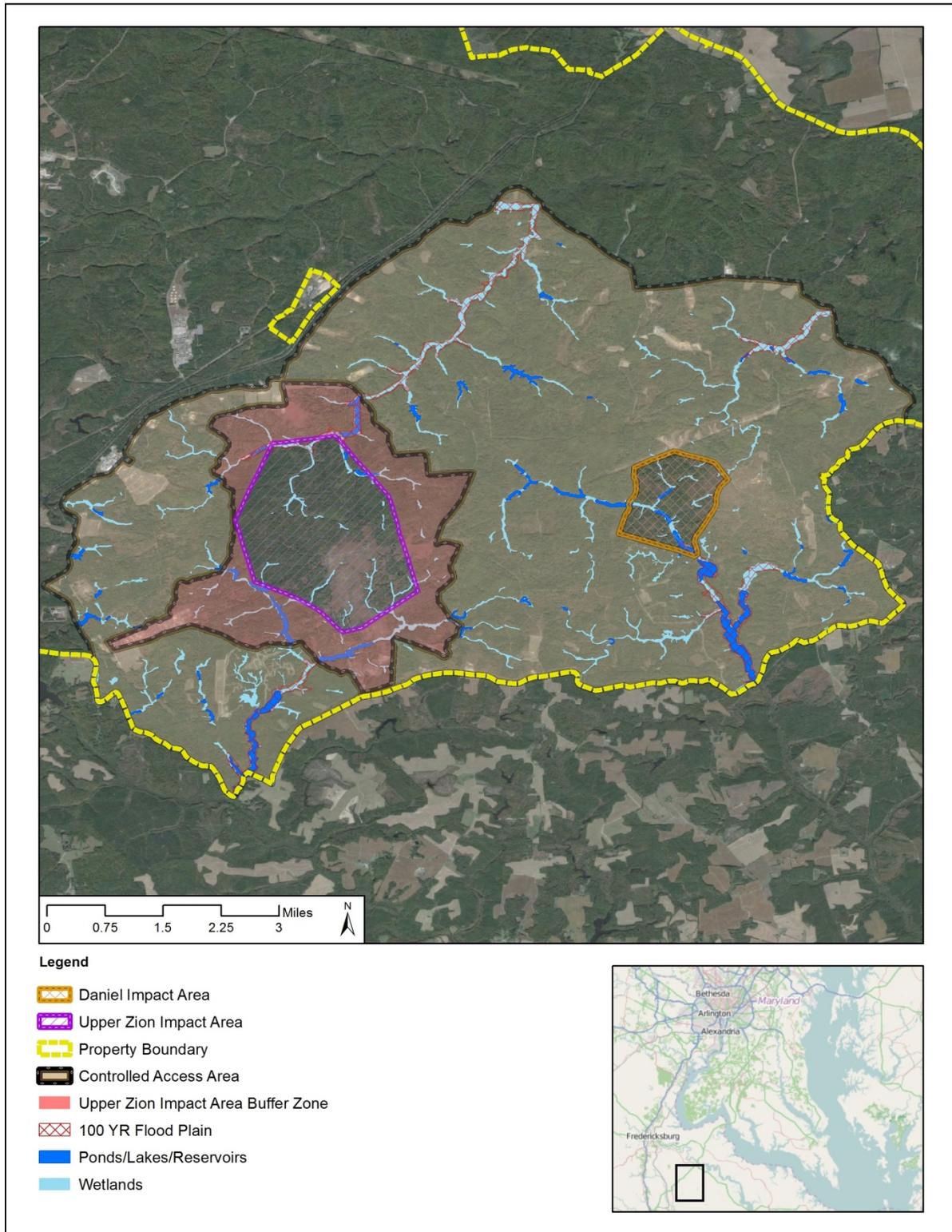
There are numerous impoundments and ponds totaling approximately 798 acres at FAPH (Fisher 2014). Several of these ponds and White's Lake are located within the impact areas and Controlled Access Area (Figure 3-3). Water quality within the lakes and ponds is typical of shallow lakes and ponds within the Coastal Plain, exhibiting slightly acidic, tannin-stained water with low buffering capacity (FAPH 2015b).

FAPH is located within the Chesapeake Bay watershed. The Chesapeake Bay watershed spans six states and more than 64,000 square miles, all draining into the Chesapeake Bay and its rivers. The watershed is made of many smaller subwatersheds, which are further divided into smaller watersheds. FAPH is split between the Rappahannock watershed and the Mattaponi watershed, which are both subwatersheds of the Chesapeake Bay watershed. The northern two-thirds of the Installation are within the Rappahannock watershed and drain northward to the Rappahannock River, and the southern one-third of the Installation is within the Mattaponi watershed and drains south-southeasterly to the Mattaponi River. Both eventually feed into the Chesapeake Bay (FAPH 2015b).

There are approximately 560 miles of streams on FAPH. Many of these streams run through the impact areas and Controlled Access Area (Figure 3-3). Headwaters of these on-site streams are formed by shallow aquifer groundwater discharges, which commonly create wetland areas locally referred to as seepage swamps (FAPH 2015b). Wetlands occurring on FAPH are discussed in Section 3.4, *Biological Resources*. FAPH has developed a Watershed Management Plan (WMP), which provides guidance for the protection and management of surface water and groundwater resources.

### Coastal Zone

The federal Coastal Zone Management Act (CZMA) of 1972 (Title 16 United States Code [U.S.C.] 1451, et seq.) provides management of the nation's coastal resources and balances economic development with environmental conservation by preserving, protecting, developing, and where possible restoring or enhancing the nation's coastal zone. CZMA provisions facilitated the development of the federally approved Virginia Coastal Zone Management



**Figure 3-3. Surface Waters, Floodplains, and Wetlands in Controlled Access Area and Impact Areas**

Program (CZMP) in 1986. The Virginia CZMP is administered by the Virginia Department of Environmental Quality (VDEQ), which enforces laws, regulations, and policies that protect coastal resources. Virginia's coastal zone encompasses 29 percent of the Commonwealth's land, including 29 counties, 17 cities, and 42 incorporated towns (VDEQ 2014). All of Caroline County, including FAPH, is within Virginia's coastal zone and is subject to the CZMP regulations. Federal actions that have reasonably foreseeable effects on any land or water use, or natural resource of the coastal zone, must be consistent with the enforceable policies of a coastal state's federally approved coastal management program before they can occur; a Coastal Zone Consistency Determination for the Proposed Action is therefore provided in Appendix A.

### *3.3.2 Environmental Consequences*

#### Preferred Alternative (Proposed Action)

The Preferred Alternative would not be expected to result in any significant impacts to water resources. No new point sources of pollution would result from the implementation of the Preferred Alternative. No impact to floodplains is expected as a result of the implementation of the Proposed Action. Nonpoint source pollution would be minimized as a result of the implementation of the Proposed Action through use of BMPs and compliance with applicable management plans and permits.

To ensure nonpoint source pollution is minimized when herbicide applications are conducted, a comprehensive Project Work Plan will be completed by the applicator and reviewed/approved by FAPH Environmental and Natural Resources Division prior to any herbicide being applied. The Project Work Plan will include details of the pesticide spraying operation including but not limited to the following: application date and methods, pesticide type and quantity, mixing rates, target area, target species, identify surface water/wetlands boundaries (no spray areas) within target area, and outline which BMPs will be implemented to ensure nonpoint source pollution is minimized and surface waters/wetlands are avoided. Example BMPs that would be implemented include but are not limited to the following:

- Require a pre-application meeting with applicator, pesticide management coordinator, and FAPH Environmental and Natural Resources Division to review the Project Work Plan, ensure the applicator is aware of any no-spray areas, and answer questions regarding the application before execution.
- Provide the applicator with detailed maps to show the locations of surface waters/wetlands and designate these features as no-spray areas.
- Provide the applicator with geographic information system (GIS) data layers that includes boundaries of surface waters/wetlands within and in close proximity to the proposed target areas. This information will be loaded into the applicator's instrumentation to provide an additional control guide to avoid spraying into surface waters/wetlands during the application.

- A minimum 100 foot no-spray buffer to reduce the chance of spray drift and runoff into surface waters/wetlands.

Robotic vegetation removal would not result in any impacts to groundwater. Aerial herbicide application is not anticipated to have any significant impact to groundwater because chemicals used would be approved by the EPA and all application rates would comply with product guidelines and be used in accordance with applicable federal and state laws and regulations, and Installation management plans. When used properly and in accordance with product labeling, the herbicide would not be expected to impact groundwater.

The Proposed Action does not involve any direct disturbance of any surface waters occurring within the Controlled Access Area and impact areas. All methods of vegetation removal proposed for use in restoring LOS would avoid surface waters and specific buffers would be in place depending on the method of removal. Herbicides would not be applied to any surface water body. In the event that herbicide application becomes necessary on surface water or within its designated buffer zone, the FAPH Environmental and Natural Resources Division will, as a separate action, coordinate application with the VDEQ and/or other applicable regulatory agencies and obtain any necessary permits.

Aerial herbicide application would be conducted using spray apparatus with a global positioning system (GPS) that allows for very precise application. BMPs for aerial application would include the use of a mist control additive to minimize the amount of product drift during application. Protocols are in place to reduce the risk of spray drift and indirect runoff into nearby surface waters, including the prohibition of aerial application when the wind velocity exceeds 5 miles per hour, when herbicide would come into contact with fog banks, and if it is raining or if rain is expected to occur within two hours of application. Aerial herbicide application is also only proposed to occur on a biannual basis, with the potential for smaller applications in between if necessary for maintenance. The limited nature and short duration of these applications would result in short-term, temporary impacts. When conducted in compliance with applicable laws, regulations, and management plans, and BMPs are implemented, the proposed activities would not be expected to result in any significant impacts to surface waters.

The Proposed Action would have no adverse effect on the land and water uses or natural resources within Virginia's coastal zone. A Coastal Zone Consistency Determination for the Proposed Action is provided in Appendix A.

#### No Action Alternative

There would be no impacts to hydrology or water resources under the No Action Alternative. FAPH would continue to conduct vegetation management activities currently in use at the Installation, in accordance with all applicable laws, regulations, and management plans.

## Cumulative Impacts

No significant cumulative impacts to water resources are anticipated to occur as a result of the Proposed Action. The potential exists for short-term surface water impacts during vegetation removal activities, and this could combine with other impacts to surface water quality on or around the Installation. However, given the short duration of the added impact during these activities, it is unlikely to result in any lasting damage to existing water resources. Activities occurring on FAPH with the potential to impact water quality and other watershed resources have been assessed in the Installation's WMP. FAPH carefully considers all activities proposed for use on the Installation to identify potential stressors, allowing them to implement adequate land use controls and BMPs to eliminate or limit impacts to the watershed. The WMP is updated on a regular basis. When carried out in accordance with the WMP and other management plans such as the INRMP, cumulative impacts to water resources are expected to be less than significant, even when combined with other activities occurring on and off the Installation.

### **3.4 Biological Resources**

#### *3.4.1 Affected Environment*

##### Vegetation

The majority of the Controlled Access Area and impact areas are undeveloped land comprising forested areas and open grasslands. The forests are mixed hardwoods and pines. Typical species of trees on FAPH include loblolly pine (*Pinus taeda*), Virginia pine (*P. virginiana*), yellow poplar (*Liriodendron tulipifera*), oaks (*Quercus* spp.), and hickories (*Carya* spp.). Grasslands include native grass, shrub, and seedling trees and fire-maintained grasslands.

##### Wildlife

Numerous biological surveys have been conducted at FAPH, identifying approximately 350 fish and wildlife species. Common mammal species include white-tail deer (*Odocoileus virginiana*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), muskrat (*Ondatra zibethica*), woodchuck (*Marmota monax*), raccoon (*Procyon lotor*), eastern mole (*Scalopus aquaticus*), eastern gray squirrel (*Sciurus carolinensis*), cottontail rabbit (*Sylvilagus floridanus*), gray fox (*Urocyon cinereoargenteus*), and red fox (*Vulpes fulva*). Common reptile and amphibian species expected to occur at FAPH include northern copperhead (*Agkistrodon contortrix mokasen*), northern black racer (*Coluber constrictor constrictor*), eastern kingsnake (*Lampropeltis getulus*), eastern garter snake (*Thamnophis sirtalis*), eastern box turtle (*Terrapene carolina*), snapping turtle (*Chelydra serpentina*), spotted salamander (*Ambystoma maculatum*), red-spotted newt (*Notopthalmus viridescens*), American toad (*Bufo americanus*), spring peeper (*Pseudacris crucifer*), and bullfrog (*Rana catesbeiana*) (FAPH 2015b).

Common bird species on the Installation include red-tailed hawk (*Buteo jamaicensis*), great-horned owl (*Bubo virginianus*), American goldfinch (*Carduelis tristis*), downy woodpecker (*Picoides pubescens*), Eastern wood-pewee (*Contopus virens*), American crow (*Corvus*

*brachyrhynchos*), red-eyed vireo (*Vireo olivaceus*), yellow warbler (*Dendroica petechia*), gray catbird (*Dumetella carolinensis*), ovenbird (*Seiurus aurocapilla*), wood thrush (*Hylocichla mustelina*), wild turkey (*Meleagris gallopavo*), mourning dove (*Zenaida macroura*), song sparrow (*Melospiza melodia*), northern mockingbird (*Mimus polyglottos*), Carolina chickadee (*Poecile carolinensis*), white-breasted nuthatch (*Sitta carolinensis*), Carolina wren (*Thryothorus ludovicianus*), and eastern kingbird (*Tyrannus tyrannus*) (FAPH 2015b).

The DoD, in cooperation with Partners-in-Flight (PIF), prepared a Strategic Plan for the conservation and management of migratory and resident landbirds and their habitats on DoD lands (DoD PIF 2002). Initially, the focus on bird species of conservation concern was on declining species that breed in temperate North America and winter in the tropics (neotropical migrants). Habitat loss, degradation, and fragmentation of the temperate breeding and tropical wintering grounds are likely the major reasons for these declines (Flather and Sauer 1996; Sherry and Holmes 1996), as well as the loss of important stopover habitat used during migration (Moore et al. 1993). In response to declines in bird populations, Executive Order (EO) 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, was issued on 10 January 2001. This EO requires federal agencies to evaluate the effects of their actions and plans on migratory bird species of concern. Species of concern are those identified in 1) *Migratory Nongame Birds of Management Concern in the United States* (USFWS 1995); 2) priority species identified by established plans such as those prepared by PIF; and 3) species listed in 50 CFR 17.11. The focus on these species of concern was expanded to include all landbirds breeding in the continental U.S. (DoD PIF 2005) as well as some aquatic bird species. In addition to the Strategic Plan (DoD PIF 2002), lists of bird species of conservation concern were prepared by conservation region. FAPH is in DoD PIF Conservation Region 27 (DoD PIF 2014). Common species of wildlife known to occur on the Installation would be expected to occur within the Controlled Access Area and the impact areas.

The Controlled Access Areas and impacts areas also provide habitat for an abundance of insect species, including pollinators such as bees. Honey bees from properties that contain bee hives in the surrounding community have the potential to travel within these areas.

### Special Status Species

The federal Endangered Species Act (ESA) protects federally listed animal and plant species and their critical habitats. The U.S. Fish and Wildlife Service (USFWS) maintains a listing of species that are considered threatened, endangered, proposed, or candidates under the ESA. An endangered species is defined as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species likely to become an endangered species in the foreseeable future. Candidate species are those that the USFWS has enough information on file to propose listing as threatened or endangered, but whose listing has been precluded by other agency priorities. Although federal agencies are not required by the ESA to consider candidate species, AR 200-1 requires the Army to consider candidate species in all actions that may affect them.

For purposes of this PEA, special status species include federally or state threatened or endangered species. Special status species known to occur on FAPH include swamp pink (*Helonias bullata*), a federally listed threatened and state listed endangered species; small whorled pogonia (*Isotria medeoloides*), a federally listed threatened and state listed endangered species; American ginseng (*Panax quinquefolius*), a state listed threatened species; and New Jersey rush (*Juncus caesariensis*), a state listed threatened and federally listed species of concern. Although not currently recorded on the Installation, the Bachman's sparrow (*Peucaea aestivalis*), a state listed threatened species, has historically been recorded. Indiana bats (*Myotis sodalis*), a federally listed endangered species, and the northern long-eared bat (*Myotis septentrionalis*), a federally listed threatened species, are also on the Installation. Reoccurring surveys for these bat species have begun and FAPH is updating their INRMP to include applicable management for the bats and their habitat.

Additionally, the Bald and Golden Eagle Protection Act provides federal protection to bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), including their parts, nests, or eggs. Bald eagles do occur on FAPH, and a historical high of 11 active bald eagle nests have been documented on the Installation (FAPH 2015b).

FAPH actively monitors and manages its special status species in accordance with applicable federal and state regulations, and the FAPH INRMP. All projects are reviewed in advance to identify any potential impact to these species. Special status plant species surveys have not and will not be conducted within the impact areas or their associated buffers due to the safety risks associated with UXO. These areas will also not receive field reconnaissance surveys for special status plant species, which is common practice throughout the rest of the Installation prior to ground-disturbing activities. However, aerial imagery and GIS data (e.g., wetlands, terrain maps) will be used to identify wetland areas and establish buffers thereby protecting any swamp pink or New Jersey Rush that may be present. The Installation has several land-cover and vegetation community GIS data layers, generated through remote sensing, that include the impact areas and their buffers. This data does not identify any characteristic habitat for small whorled pogonia or American ginseng, and therefore it is unlikely that either of these species would be affected by proposed.

Surveys for federally listed bats will be conducted in accordance with the most current USFWS Guidelines for each project area where LOS is to be restored and in consultation with the USFWS. All LOS restoration activities will be conducted in accordance with the Programmatic Agreement between (i) the U.S. Army, IMCOM and the USFWS, and (ii) Interagency Consultations between FAPH and the USFWS. If bat surveys cannot be conducted due to UXO, then any LOS restoration activities will only occur before 15 April and after 15 September or in consultation with the USFWS.

### Habitat for Protected Species

Critical habitat is defined as a specific geographic area that is essential for the conservation of a federally threatened or endangered species and that may require special management and protection. Critical habitat may include areas that are not occupied by the species, but are necessary for its recovery. No critical habitat has been designated on FAPH.

### Wetlands

The U.S. Congress enacted the Clean Water Act (CWA) in 1972 to restore and maintain the chemical, physical, and biological integrity of the Nation's waters (33 U.S.C. 1251, *et seq.*). Section 404 of the CWA delegates jurisdictional authority over wetlands to the U.S. Army Corps of Engineers and the EPA. Waters of the U.S. protected by the CWA include rivers, streams, and estuaries, as well as most ponds, lakes, and wetlands. The U.S. Army Corps of Engineers and the EPA jointly define wetlands as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE, undated).

There are approximately 6,300 acres of wetlands at FAPH and some wetlands occur within the Controlled Access Area and impact areas (Figure 3-3). Typical wetland areas at FAPH are perennial swamps containing combinations of trees, shrubs and aquatic species. In accordance with the Chesapeake Bay Preservation Area Designation and Management Regulation, FAPH requires the establishment and conservation of 100 ft wide resource protection areas around all wetlands and perennial streams.

#### *3.4.2 Environmental Consequences*

##### Preferred Alternative (Proposed Action)

Implementation of the Preferred Alternative is anticipated to result in less than significant direct and indirect impacts to biological resources.

Herbicide application would have direct impacts to vegetation within application sites. To restore and maintain LOS into the impact areas, vegetation would be removed resulting in a minor, permanent loss of vegetation in and around the impact areas. However, the removal of this vegetation is necessary to facilitate an effective and safe training environment. Herbicide application also has the potential to result in short-term, minor impacts to biological resources as a result of accidental spills, runoff, or leaching. However, all applications would be conducted in accordance with applicable local, state, and federal laws and regulations, and FAPH management plans. Therefore, the risk of the adverse impacts is minimized. Additionally, in the event of an accidental spill, the Installation has spill plans in place that would be implemented to ensure appropriate containment and cleanup measures are completed.

In order to protect pollinators from the aerial application of herbicides, the only pesticides FAPH will approve for spraying must be deemed "practically nontoxic" to bees. Practically nontoxic is a regulatory term that indicates that the LD50 (the dose required to kill 50 percent of the test population) is greater than 25 milligrams per bee.

Robotic vegetation removal and prescribed burns would create temporary alterations to the natural habitat in the project areas. The loss of habitat that would result from these activities would temporarily displace wildlife and potentially result in the loss of some wildlife. However, most wildlife would be expected to clear the project area without being harmed. Additionally, the majority of prescribed burns at FAPH are conducted during the winter months when wildlife is less likely to be affected and the Proposed Action is not expected to result in any significant increase in the amount of prescribed burns occurring within the Controlled Access Area. Although these activities create minor, short-term adverse impacts, prescribed burns result in long-term, beneficial impacts as they promote a healthy, sustainable forest ecosystem.

All proposed activities occurring on the Installation are evaluated to ensure that they do not result in any adverse impacts to special status species. Prior to all land-disturbing activities, the FAPH Environmental and Natural Resource Division conducts field reconnaissance surveys of the project area to identify special status species, so that proper mitigation measures can be implemented if necessary. However, these reconnaissance surveys are not conducted within the impact areas or associated buffers for federal or state listed plants because of the dangers associated with the presence of UXO.

FAPH will also continue to conduct all proposed activities in accordance with the Installation's INRMP, applicable special status species management plans, and all applicable federal and state laws and regulations pertaining to special status species known to occur on the Installation.

Buffer zones will be established around potential swamp pink and New Jersey Rush habitat (i.e., wetlands) to ensure that projects do not negatively impact these species, if present. Impacts to special status bats are expected to be negligible by following USFWS Survey Guidelines and entering into Interagency Consultation with the USFWS on proposed project areas.

The Migratory Bird Treaty Act of 1918 (6 U.S.C. 703-712) as amended makes it illegal to take or possess any migratory bird, or parts, nests, or eggs of a bird except under the terms of a valid permit from the USFWS. Migratory birds protected by this act occur on and around FAPH. However, the Preferred Alternative is expected to have minor impacts to these species and their habitat. Loss of foraging and nesting habitat is expected as a result of proposed vegetation removal methods, but the impact would not be significant since the acreage of lost habitat is small within the entire breeding range of these species. Additionally, prescribed burns promote natural regrowth, which would provide foraging opportunities after activities are complete. If nesting migratory birds are found in the project area and "take" is anticipated, FAPH will consult with the USFWS Division of Migratory Bird Management.

The Proposed Action would not result in any direct impacts or loss of wetlands. Resource protection area buffers have been established around wetlands occurring on the Installation to protect wetlands and wetland resources. Additionally, as with surface waters, herbicide would not be applied to wetlands. In the event herbicide application becomes necessary, the FAPH Environmental and Natural Resources Division will, under separate action, coordinate with the VDEQ, U.S. Army Corps of Engineers, and/or other applicable regulatory agencies and obtain any necessary permits. Wetland impact risks resulting from aerial application drift and runoff would be eliminated or minimized through the use of BMPs, such as a mist control additive, no-spray areas, and protocols established in FAPH management plans.

### No Action Alternative

Under the No Action Alternative, FAPH would continue to manage vegetation in the Controlled Access Area and impact areas with methods currently in use on the Installation. No impacts to biological resources are expected to result from the implementation of the No Action Alternative.

### Cumulative Impacts

Implementation of the Proposed Action is not anticipated to result in any significant cumulative impacts to biological resources or wetlands occurring on or near FAPH. Other projects proposed for FAPH would likely produce minor impacts to biological resources. However, projects would require compliance with Installation management plans, and federal, state, and local regulations to prevent or minimize impacts to natural resources. Future development may potentially decrease the amount of naturally occurring habitat both on and off the Installation. Overall, the monitoring, maintenance, preservation, and protective measures implemented by the Installation through established management plans would have a long-term beneficial impact to the Installation and the surrounding area's biological resources.

## **3.5 Cultural Resources**

### *3.5.1 Affected Environment*

Cultural resources is a broad term that includes all aspects of human activities, including material remains of the past and the beliefs, traditions, rituals and cultures of the present. As mandated by law, all federal installations and personnel must participate in the preservation and stewardship needs of archaeological and cultural resources and must consider potential impacts to these resources prior to any installation undertaking. Resources include historic properties as defined by the National Historic Preservation Act (NHPA), cultural items as defined by the Native American Graves Protection and Repatriation Act (NAGPRA), archaeological resources as defined by the Archaeological Resources Protection Act (ARPA), sacred sites as defined by EO 13007, to which access is provided under the American Indian Religious Freedom Act (AIRFA), significant paleontological items as described by 16 U.S.C. 431-433 (Antiquities Act of 1906) and collections as defined in 36 CFR 79, *Curation of Federally Owned and Administrated Archaeological Collections* (DA 2007).

The NHPA of 1966 and AR 200-1 constrain land uses and development where cultural resources are affected. The FAPH Integrated Cultural Resources Management Plan (ICRMP) guides the Installation's Cultural Resources Management Program. Specific guidance and procedures for managing and maintaining historic buildings is provided in Technical Manual (TM) 5-801-1, *Historic Preservation Administrative Procedures*, and TM 5-801-2, *Historic Preservation Maintenance Procedures*.

Implementation of the ICRMP ensures that current management complies with applicable laws and regulations and effectively combines with public interests to promulgate a plan of action that sacrifices neither the integrity of the Installation's mission nor that of the archaeological and cultural resources. Many requirements include consultation with affected parties before a planned action, as well as allowing maximum time for treatment efforts, alternative plans, or avoidance actions to be implemented. Determination of effects and decisions regarding appropriate treatment are specific to individual actions.

FAPH is a steward to an abundance of cultural and archaeological resources. According to the ICRMP, approximately 27,400 acres at the Installation have been surveyed for archaeological resources. Archaeological and architectural resources have been identified within the Controlled Access Area and archaeological resources have been identified within the impact areas.

### *3.5.2 Environmental Consequences*

#### Preferred Alternative (Proposed Action)

Implementation of the Preferred Alternative is not anticipated to result in any significant impacts to cultural resources. All vegetation management and removal activities are conducted in compliance with applicable federal, state, and local laws and regulations and the FAPH ICRMP. The introduction of aerial herbicide application is not expected to result in any adverse impacts to known cultural resources.

#### No Action Alternative

Under the No Action Alternative, the Installation would continue to manage its vegetation using methods already in use and would not introduce aerial herbicide application. Current vegetation management is performed in compliance with applicable federal, state, and local laws and regulations, along with the FAPH INRMP and ICRMP. Therefore, implementation of the No Action Alternative would not result in any impacts to cultural resources.

#### Cumulative Impacts

The cultural resources located at FAPH are well preserved and located within Installation boundaries, making them inaccessible to the general public and therefore better protected. The Installation's ICRMP is required to be updated at least every five years. The ICRMP anticipates projects that may affect historic properties, based on the Installation's mission and proposed activities and guides the Installation in ensuring that historic properties are treated in compliance

with applicable laws and regulations. All projects occurring on the Installation are evaluated for their potential to affect cultural resources. Projects are guided by the Installation's ICRMP and comply with all applicable laws and regulations, including the NHPA, ARPA, AIRFA, and NAGPRA. Implementation of the Proposed Action when combined with past, present, and anticipated future projects, including those occurring outside the Installation, would not be expected to result in any significant cumulative impacts to cultural resources.

### **3.6 Air Quality**

#### *3.6.1 Affected Environment*

The Clean Air Act (CAA) (42 U.S.C 7401-7671q), as amended, allows the EPA to set limits on certain air pollutants. The CAA requires the EPA to establish primary and secondary National Ambient Air Quality Standards (NAAQS) for pollutants that may be harmful to public health and the environment. Primary standards protect public health, including the health of sensitive populations, such as asthmatics, children, and the elderly; and secondary standards protect public welfare, including protections against decreased visibility and damage to animals, crops, vegetation, and buildings (EPA 2012). The NAAQS (40 CFR 50) set acceptable threshold standards for six criteria pollutants consisting of carbon monoxide (CO); nitrogen oxides (NO<sub>x</sub>), particularly nitrogen dioxide (NO<sub>2</sub>); ozone (O<sub>3</sub>); sulfur dioxide (SO<sub>2</sub>); lead (Pb); and particulate matter, including very fine particulate matter (PM<sub>2.5</sub>) and fine particulate matter (PM<sub>10</sub>).

Areas where criteria pollutants are below NAAQS are designated as attainment areas and areas where criteria pollutants meet or exceed NAAQS are designated as nonattainment areas. Caroline County, including all of FAPH, is within the Northeastern Virginia Intrastate Air Quality Control Region (AQCR). This AQCR is in attainment for all criteria pollutants. The CAA General Conformity Rule requires federal agencies to determine whether their action would increase emissions of criteria pollutants above preset threshold levels. These *de minimis* levels vary depending on the severity of nonattainment status and geographic location. Since the air quality at FAPH and the surrounding area is in compliance with federal standards and the Installation is in a designated attainment area, a general conformity analysis is not required.

#### Greenhouse Gases

The EPA made an endangerment finding stating that "current and projected concentrations of the six key well-mixed greenhouse gases (GHGs) (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations" (EPA 2014). This finding has opened the door for the regulation of GHG emissions published in 75 Federal Register (FR) 31514 (3 June 2010), which led to what is known as the prevention of significant deterioration (PSD) and Title V GHG Tailoring Rule (FR 2010). For the purposes of PSD and Title V, this rule has set a major source emission threshold of either 75,000 or 100,000 tons per year of carbon dioxide equivalent (CO<sub>2</sub>e) depending upon circumstances (FR 2010).

In addition, on 22 September 2009, the Administrator of the EPA signed the Final Mandatory Reporting of the GHG Rule, known as the Mandatory Reporting Rule. The final rule was published in 40 CFR 98 on 30 October 2009. The final rule requires reporting of GHG emissions from identified stationary sources that emit 25,000 metric tons of CO<sub>2</sub>e or more per year.

### 3.6.2 *Environmental Consequences*

#### Preferred Alternative (Proposed Action)

Short-term, minor impacts to local and regional air quality would be anticipated as a result of the implementation of the Preferred Alternative. The proposed vegetation removal activities would generate little to no emission of criteria air pollutants. Activity emissions would include fugitive dust, in the form of particulate matter, from site disturbance and exhaust generated from vehicles on individual project sites for short durations. Dust emissions would consist primarily of large particles that generally settle on nearby surfaces rather than becoming airborne for any great distance. The limited use of these vehicles and equipment is not anticipated to impact regional or local air quality conditions.

FAPH is well below the threshold for emissions requiring a major source permit and none of the proposed activities would be expected to generate enough emissions to exceed those thresholds or exceed the EPA's GHG thresholds requiring additional permits. Air emissions are not expected to exceed *de minimis* threshold levels or contribute emissions in violation of any federal, state, or local air quality regulations.

Aerial herbicide application is not expected to result in any significant impacts to local or regional air quality. The applications are anticipated to occur twice a year, with the potential for an occasional maintenance application in between scheduled applications. The limited quantity and short duration of these applications would not result in any long-term negative impacts to air quality. The herbicide would be applied in a liquid form via a GPS-enabled sprayer mounted to a helicopter. This method allows for a very precise application and limits the potential for spray drift. All aerial applications would be required to comply with the *Installation's Code of Practice for Fort A.P. Hill Aerial Spraying*, which establishes restrictions for aerial application that include when wind velocity is 5 miles per hour or greater, when herbicide would contact fog banks, when there are temperature inversions and air stagnation, when the temperature exceeds 90 degrees Fahrenheit, when relative humidity is lower than 50 percent, and when it is raining or expected to rain within two hours of application. This Installation guidance also prohibits aerial herbicide application within 200 meters of the Installation boundary, which further reduces any risk of spray drift affecting any off-post properties. Additionally, contractors conducting the application must comply with all product labels and applicable laws and regulations. When applied properly, and in conjunction with the BMPs and management plans established by the Installation, there is minimal risk that the herbicide would travel any significant distance from the target areas.

Prescribed burning activities would contribute the greatest amount of criteria pollutants. However, the Proposed Action is not expected to significantly increase the amount or frequency of prescribed burns occurring within the Controlled Access Area. Prescribed burns produce large quantities of smoke, containing particulate matter, volatile organic compounds, carbon monoxide, and some nitrogen oxides. These prescribed burns are conducted in accordance with the FAPH IWFMP, which also addresses wildfire management. Advanced notification is required for all prescribed burns. The amount of pollutant emissions varies and is dependent on many factors, including the size of the burn, the heat at which the fire burns, and the fuel (vegetation type that is being burned). Prescribed burning of slash piles or debris generated will not be conducted during high ozone level days. Given the temporary and seasonally limited nature of these burns, no significant impacts to air quality would be anticipated.

#### No Action Alternative

The No Action Alternative would not result in impacts to local or regional air quality. Under the No Action Alternative, FAPH would continue to use current vegetation management methods and there would be no change in the air emissions generated by the Installation.

#### Cumulative Impacts

The long-term air quality impacts expected to result from the implementation of the Preferred Alternative and would not contribute to any significant cumulative impacts to regional air quality or violate federal, state, or local air regulations. The air emissions associated with the Proposed Action would be *de minimis*, and when combined with proposed development on and off the Installation, is not expected to affect the attainment status of the region.

### **3.7 Noise**

#### *3.7.1 Affected Environment*

For the purpose of environmental analysis, noise is considered to be sound that is loud or unpleasant or that causes a disturbance. When sound interrupts daily activities such as sleeping or conversation, it becomes noise. The degree to which noise becomes disruptive depends on the way it is perceived by the receptors (people) living or working in the affected area.

Noise is measured in decibels (dB) with zero dB being the least perceptible sound to more than 130 dB, at which noise becomes a health hazard. Because the human ear is more sensitive to certain ranges of the sound spectrum, a weighted scale has been developed to more accurately reflect what the human ear perceives. These measurements are adjusted into units known as A-weighted decibels (dBA). According to AR 200-1, sensitivity to noise varies by the time of day, with receptors being more sensitive at night. To reflect this sensitivity, ambient noise measurements are normally adjusted by adding 10 dB to actual measurements between the hours of 2200 and 0700. Decibel levels adjusted in this way are known as the day-night average sound level, or DNL (DA 2007).

Construction activities can generate noticeable levels of noise. A single item of construction equipment may generate noise levels of 80 to 90 dBA at a distance of 50 feet. Numerous equipment items operating concurrently can produce relatively high noise levels within several hundred feet of active construction sites. Major sources of noise within the Controlled Access Area and impact areas result from military vehicle and aircraft training activities and weapons testing and training.

### *3.7.2 Environmental Consequences*

#### Preferred Alternative (Proposed Action)

Implementation of the Preferred Alternative would be expected to result in less than significant noise impacts. Proposed vegetation removal methods would involve minimal amounts of noise, and most vehicles and equipment that would be used are already in use on a regular basis on the Installation. The only new equipment being introduced as part of the Proposed Action is the helicopter that would be used for aerial herbicide application. These commercial helicopters are smaller than many of the military helicopters that are already being used on the Installation. Aerial herbicide application and robotic vegetation removal occurring within the impact areas would be limited to daytime hours. The undeveloped nature of the Controlled Access Area and impact areas also greatly minimizes the number of sensitive noise receptors that would be subject to the noise generated during these activities. Noise impacts would mostly be limited to personnel working in the immediate vicinity of the project location. Slightly greater noise levels may result from prescribed burns. However, given the temporary nature of these events, and limited amount of development surrounding the Installation's boundaries, these impacts would not contribute any significant additional noise to the surrounding environment.

#### No Action Alternative

Under the No Action Alternative, FAPH would not implement the Proposed Action. The No Action Alternative would not generate any noise in addition to those that are currently generated from current vegetation management activities, and therefore no impacts would be expected as a result.

#### Cumulative Impacts

Noise generated by the implementation of the Proposed Action would be temporary and minor in context and intensity. Other activities at FAPH that generate noise include aircraft operations, training noise, and vehicle noise associated with training and general traffic. These temporary sources of noise attenuate within short distances of the source. While small surges in noise may occur when, for example, an aircraft passes over a construction site, the average noise levels would not be anticipated to exceed acceptable thresholds (greater than 65 DNL) for nearby sensitive receptors. The noise may result in a temporary annoyance during the surge but would be less than significant given the short duration. Therefore, cumulative noise impacts are anticipated to be less than significant.

### **3.8 Visual Resources**

#### *3.8.1 Affected Environment*

Most of the Controlled Access Area and impact areas consist of undeveloped, but highly disturbed land consistent with current and historic military use of the property. Live fire ammunition and artillery training in these areas, along with the use of prescribed burns to control vegetation, result in areas of damaged and/or scorched vegetation and trees. However, access to these areas from within the Installation is restricted to authorized personnel, and there is not much development along the southern boundaries of these areas, which is viewable from outside the Installation boundary.

#### *3.8.2 Environmental Consequences*

##### Preferred Alternative (Proposed Action)

FAPH's commitment to sustaining the environment includes preserving the natural beauty of the Installation. Under the Proposed Action, minor impacts to visual resources are anticipated due to the loss of vegetation associated with restoring LOS into the impact areas. Vegetation management creating the greatest disruption to the natural environment would be prescribed burns. However, visual resources are a highly subjective topic and what may be aesthetically pleasing to one viewer may not be for another. The charred forest that remains after a prescribed burn, dead vegetation after herbicide application, removal of vegetation through other means, may generate different responses from different individuals. However, the long-term benefit of the prescribed burns and vegetation control outweigh the temporary impact on the natural environment. Considering prescribed burns have been conducted at the Installation for many years, and vegetation removal and control in this area proposed under the Preferred Alternative is consistent with current military use of the property, no significant impact to the Installation's overall natural environment is anticipated. Additionally, there is very little development along the Installation boundaries where these areas are located, limiting the amount of outside receptors that may be affected by changes to the viewshed.

Short-term, minor adverse impacts may also result during activities where vehicles, equipment, and materials will be present on site and would temporarily disrupt the existing landscape. However, these visual impacts will be temporary and only last for the duration of the project.

##### No Action Alternative

The No Action Alternative would not result in any impacts to visual resources. FAPH would continue to conduct vegetation management activities with currently used methods and therefore would not result in any new changes to the visual environment.

### Cumulative Impacts

The Proposed Action, combined with known future development on the Installation, is not anticipated to have a significant cumulative impact on visual resources. Development outside the Installation is not anticipated to result in any combined, cumulative impacts to visual resources on or surrounding FAPH. Additionally, FAPH's Army Compatible Use Buffer program preserves approximately 30,000 acres of undeveloped land surrounding the Installation, protecting viewsheds off post, including some within historic districts. The continued success of the ACUB program limits encroachment and further minimizes the potential for any cumulative impacts to visual resources.

## **3.9 Socioeconomics**

### *3.9.1 Affected Environment*

Socioeconomic resources are defined as basic attributes associated with the human environment, primarily population and economic activity. Population encompasses the magnitude, characteristics, and distribution of people, and economic activity refers to employment distribution, business growth, and individual income. The region of influence (ROI) subject to this analysis contains the City of Fredericksburg and Caroline, Essex, King George, Spotsylvania, and Stafford counties. The ROI covers an area of 1,653 square miles in northeastern Virginia.

FAPH is located almost completely in Caroline County, along the Interstate 95 corridor, between two major metropolitan statistical areas (MSAs): the Baltimore-Washington MSA, comprising a population in excess of 2.4 million, and the Richmond-Petersburg MSA, with a population of more than 1.1 million (FAPH 2007). The Town of Bowling Green is south of the Installation and the Town of Port Royal is north of the Installation. Both towns are small in comparison to the total population of Caroline County, which as reported from the 2010 U.S. Census is 28,545. Port Royal has a population of 126 and Bowling Green 1,111 (U.S. Census Bureau 2010). The towns provide networks of local businesses that supply the Installation with retail, commercial, and dining establishments.

Caroline County's unemployment rate for 2013 averaged 6.7 percent, which is higher than the Commonwealth's rate of 5.5 percent, but lower than the national rate of 7.4 percent (Bureau of Labor Statistics 2014; Virginia Economic Development Partnership no date). FAPH is one of Caroline County's largest employers. The Installation supports approximately 550 full-time employees. The majority of personnel commute from within 20 to 30 miles outside the Installation. The average number of personnel training at FAPH per day is 2,000. There is no significant increase in population projected for the Installation over the next five years (FAPH 2013).

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, ensures 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. FAPH is not in an area that has a disproportionately high concentration of minority or low-income populations. Caroline County's 2013 population was 66.4 percent White; 29.4 percent Black or African American; 0.6 percent American Indian or Alaska Native; 0.5 percent Asian; 0.0 percent Native Hawaiian or other Pacific Islander; and 2.3 percent persons of two or more races. Persons of Hispanic or Latino origin composed 3.7 percent of the total population (U.S. Census Bureau 2013). Note that persons of Hispanic or Latino origin can be of any race, so they are also included in applicable race categories. The 2013 population for individuals in Caroline County living below poverty level was 12.7 percent, which is slightly higher than the Commonwealth's estimated 11.3 percent, but lower than the national average of 15.4 percent (U.S. Census 2013). Population estimates in the other counties within the ROI are similar to Caroline County. No areas within the ROI have a disproportionately high concentration of minority or low-income populations.

### *3.9.2 Environmental Consequences*

#### Preferred Alternative (Proposed Action)

Implementation of the Preferred Alternative would not result in an increase in FAPH's full-time personnel. Therefore, there will be no impacts to the population at the Installation or in the surrounding ROI. Some methods of vegetation control, including robotic removal, may result in a loss of commercial-sized timber that is cut in the impact areas and associated buffers and cannot be harvested due to UXO safety risks. However, given the minimal loss anticipated by the Installation as a result of these activities, overall impacts to the Installation's economic status would be negligible. The introduction of aerial herbicide application would involve the use of an outside contractor that may contribute to the local economy. However, given the limited number and short duration of the applications, the contribution would be less than significant and would not be expected to result in any measurable beneficial impacts. No environmental justice impacts are anticipated. FAPH is not in an area that has a disproportionately high concentration of minority or low-income populations.

#### No Action Alternative

Implementation of the No Action Alternative would not result in any impacts to the local or regional population or economy. FAPH would continue to manage vegetation using methods already conducted on the Installation.

#### Cumulative Impacts

Implementation of the Proposed Action, when considered with the growth of the surrounding community, is not anticipated to result in any significant cumulative impacts. Since the Proposed Action would have no direct impacts on population, demographics, employment, housing, and the demand on community services, no adverse cumulative socioeconomic impacts are anticipated to occur.

### **3.10 Transportation and Circulation**

#### *3.10.1 Affected Environment*

Access to the Controlled Access Area and impact areas is most easily attained through the Installation's south gate off of U.S. Route 301. The south gate is located across Route 301 from the main/north gate and is open during peak hours throughout the week. The primary transportation network within the Controlled Access Area and impact areas is a vast network of unpaved roads and trails. Access to the Controlled Access Area is limited to authorized personnel and both vehicular and pedestrian traffic is prohibited within the impact areas.

#### *3.10.2 Environmental Consequences*

##### Preferred Alternative (Proposed Action)

Implementation of the Preferred Alternative would be expected to result in less than significant impacts to transportation and circulation on and around FAPH. Roads and trails within the Controlled Access Area and impact areas are designed to handle the vehicles and equipment that would be traveling to and from the project sites during proposed activities. There is no increase in the amount of vehicles or equipment used for vegetation removal activities, except the introduction of the herbicide application helicopters. However, given the limited nature and short duration of these aerial applications, impacts would be short term and would last only during the duration of the application.

##### No Action Alternative

The No Action Alternative would not result in any impacts to transportation or circulation on or around the Installation. FAPH would continue to conduct vegetation management activities with currently used methods; there would therefore be no change in transportation or circulation.

##### Cumulative Impacts

Activities associated with the Proposed Action are not anticipated to contribute to any cumulative impacts to regional transportation. The capacity of existing routes into FAPH is adequate to accommodate both the anticipated future growth in the surrounding communities, development on FAPH, as well activities associated with the Proposed Action.

### **3.11 Utilities**

#### *3.11.1 Affected Environment*

Rappahannock Electric Cooperative operates and maintains FAPH's electrical system and provides electrical service to FAPH via three substations along the perimeter of the Installation. Telephone service is provided by Verizon.

The only potable water supply at FAPH is groundwater from the regional aquifer. Potable water is accessed through a series of wells throughout FAPH. Production facilities draw water to the surface, disinfect it, and pump it to elevated storage tanks. Production and distribution are managed by a private service contractor, American Water. The Installation's wastewater collection and treatment system is also operated and maintained by American Water.

Utilities are available throughout the Controlled Access Area and impact areas. Given the undeveloped nature of the majority of these areas, utilities are more limited than in areas on the Installation that are more developed. Firing ranges, observation towers, and stationary latrines would be representative of the facilities in these areas where utilities are available.

Solid waste accumulated at the Installation has been transported off the post since the Installation's landfill closed in 1992. Most solid waste is diverted to the King George County Landfill.

### *3.11.2 Environmental Consequences*

#### Preferred Alternative (Proposed Action)

The Preferred Alternative is not anticipated to result in any impacts to utilities at FAPH. The proposed activities would not require any new utilities or associated infrastructure. The demand on utilities is not anticipated to increase, and no additional solid waste is expected to be generated as a result of the proposed activities.

#### No Action Alternative

Under the No Action Alternative, FAPH would continue using current methods of vegetation management and no impacts to utilities would be expected.

#### Cumulative Impacts

The growth and development on and around the Installation continues to increase the demand for utilities such as those providing electricity, telecommunications, water, and wastewater. The Proposed Action is not anticipated to result in any impacts, however, and when combined with the proposed future development would not be expected to result in any cumulative adverse impacts to utilities.

## **3.12 Hazardous Materials and Wastes**

### *3.12.1 Affected Environment*

"Hazardous materials" refers to any item or agent (biological, chemical, or physical) that has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. Across the Army, the Hazardous Material Management Program is used to integrate the accountability for hazardous materials into day-to-day decision-making, planning, operations, and compliance across all Army missions, activities, and functions, The

program's policies, including its objectives and goals, are set forth in AR 200-1. A complete list of federally recognized hazardous substances as well as their reportable quantities is provided in 40 CFR 302.4. Many substances not on this list may be considered hazardous according to their ignitability, corrosivity, reactivity, or toxicity as defined by 40 CFR 261.20-24.

FAPH is a Resource Conservation and Recovery Act (RCRA) large-quantity generator of hazardous wastes and is a former transportation, storage, and disposal facility. The Installation's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) identification number is VA2210020416. The Installation cannot store hazardous waste more than 90 days and uses a RCRA-permitted contractor to transport and dispose of the waste offsite. The FAPH Directorate of Public Works' management of hazardous wastes is guided by the Installation's Hazardous Waste Management/Waste Minimization Plan. The Hazardous Materials Management Program guides the management of hazardous materials for all Installation, tenant, and contractor activities at FAPH. The Installation also maintains the hazardous substance management database, which tracks all hazardous materials procured, stored, or used on the Installation.

All herbicides used for vegetation management on the Installation are used, stored, and disposed of in accordance with the Installation's Hazardous Materials and Hazardous Waste Management Plans and the Integrated Pest Management Plan. The herbicide proposed for use in aerial application would be brought on site by the contractor and would not be stored on the Installation.

### *3.12.2 Environmental Consequences*

#### Preferred Alternative (Proposed Action)

Implementation of the Preferred Alternative is not anticipated to cause any significant impacts from the use of hazardous materials or generation of hazardous wastes. Hazardous materials used during proposed activities would include herbicides, gasoline, diesel fuel, and other petroleum, oils, and lubricants typical in maintaining and operating vehicles and equipment. Use of these materials would vary depending on the individual project. The use of these materials would be temporary and is not anticipated to result in a significant increase in the amount of hazardous wastes generated by FAPH. All hazardous materials and wastes must be handled, stored, transported, and disposed of in accordance with applicable Installation policies, ARs, and local, state, and federal laws. In the event of a hazardous spill, FAPH would implement appropriate containment and cleanup in accordance with the Installation's spill plans and applicable laws and regulations. Therefore, no significant impacts are expected to result from the use, storage, or disposal of hazardous materials associated with the Preferred Alternative.

Herbicides proposed for aerial application would be brought onsite by the contractor hired to conduct the application. The contractor would be responsible for complying with the same Installation policies and management plans and with applicable local, state, and federal laws and regulations. Aerial application herbicides would not be stored or disposed of on the

Installation. All contractor personnel handling the herbicides must be properly trained and/or credentialed on the proper handling and use of the specific herbicide being used.

#### No Action Alternative

Under the No Action Alternative, FAPH would not implement the Proposed Action; therefore, no changes in the use, storage, or disposal of hazardous materials and waste would occur. No impacts would be anticipated as a result of the No Action Alternative.

#### Cumulative Impacts

The Installation Spill Contingency Plan describes the procedures to be implemented in the event of a spill of hazardous materials or petroleum, oil, and lubricants. Due to the extensive policies and procedures in place to prevent and mitigate potential spills and mishandling of hazardous and toxic substances, it is expected that the Proposed Action will not result in a cumulative local or regional impact from the use of hazardous and toxic substances. Any hazardous waste generated during proposed activities would be turned in to the Installation's Hazardous Waste Accumulation Center for proper transfer and disposal.

### **3.13 Human Health and Safety**

#### *3.13.1 Affected Environment*

Health and safety services, including police, fire, and rescue protection, can be obtained on FAPH and within surrounding communities throughout Caroline County and the State of Virginia.

The FAPH Directorate of Emergency Services, Law Enforcement Division, has the primary responsibility of enforcing the rules, regulations and security of the Installation. The FAPH Fire Department provides fire prevention and protection services, including inspections and tests of fire protection equipment and systems at FAPH. The Fire Department also provides hazardous materials, first responder, and emergency medical services to the Installation. There are three fire departments on FAPH.

The FAPH Lois E. Wells Health Clinic provides basic medical care to military personnel. The clinic, however, does not offer X-ray services or medical care for military family members. Basic sick call services are offered from 7:30 a.m.-3 p.m. Monday through Friday, while clinic services are offered from 7 a.m. to 4 p.m. Monday through Friday.

Paramedic services are offered 24 hours a day, seven days a week. Major hospitals located off site in the area include Mary Washington Hospital and Spotsylvania Memorial Regional Hospital in Fredericksburg, and Henrico Doctors Hospital, Medical College of Virginia, St. Mary's Hospital, and the Richmond Community Hospital in Richmond. Additional facilities and emergency services are located in Richmond and Fredericksburg.

The Caroline County Department of Fire-Rescue and Emergency Management provides fire and medical services to Caroline County residents. They are also available to assist surrounding communities and the FAPH Fire Department if needed. The Caroline County Sheriff's Office and Virginia State Police Department provide law enforcement protection throughout Caroline County and the state, respectively. They are also available to assist FAPH Law Enforcement if needed.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, recognizes a growing body of scientific knowledge that demonstrates that children may suffer disproportionately from environmental health risks and safety risks. The EO directs federal agencies to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children.

### 3.13.2 *Environmental Consequences*

#### Preferred Alternative (Proposed Action)

Implementation of the Preferred Alternative is not anticipated to result in any significant adverse impacts to human health and safety. Individuals conducting vegetation removal activities would be exposed to some health and safety risks, but those risks would be minimized through careful planning, worker training, and regular maintenance of vehicles and equipment. All individuals conducting vegetation management activities will comply with all applicable safety and occupational health regulations, wear appropriate personal protective equipment, and receive appropriate levels of training specific to the individual task being performed. In the event of an emergency, adequate Installation and local emergency services are available. The Installation also maintains a Installation-specific spill plan which provides guidance on how to safely and effectively manage any spills that may pose a risk to human health and safety.

Given the dangers associated with UXO, proposed vegetation removal activities would be limited to robotic removal and aerial herbicide application. If any evidence of UXO is encountered during removal activities within the Controlled Access Area, all work will immediately cease and remain stopped until the FAPH's Range Control has been notified and appropriate clearance procedures have been completed.

All herbicide application is conducted in accordance with the FAPH Integrated Pest Management Plan, product labeling, and all applicable local, state, and federal laws and regulations. In addition, ground herbicide application must be conducted in accordance with the Installation's *Spill and Decontamination Response Plan, Fort A.P. Hill Ground Herbicide Applications*. Aerial herbicide application must also be conducted in accordance with the Installation's *Code of Practice for Fort A.P. Hill Aerial Spraying*, which includes additional safety measures and BMPs specific to aerial application. All ground and air crew must be properly trained on the handling and use of the herbicide and application equipment. They must also be briefed on emergency scenarios and be prepared for application equipment failures, leaks, and other issues that may occur during application. A reconnaissance flight will also be conducted

prior to spraying to ensure that no humans are within the area to be sprayed. Detailed records of the herbicide used, application rate, and weather/climatic conditions at the time of application must be recorded and provided to the FAPH Pesticide Coordinator at the completion of each application.

All prescribed burns within the Controlled Access Area are coordinated with FAPH Range Control and conducted in accordance with the IWFMP. Specific climatic conditions must also be present during prescribed burns. When conducted in accordance with applicable regulations and guidelines, risks would be minimized, and impacts to human health and safety would be less than significant.

The Preferred Alternative will not result in any impacts that disproportionately affect children.

#### No Action Alternative

The No Action Alternative would not result in any impacts to human health and safety. FAPH would continue to conduct vegetation management activities with methods currently used on the Installation.

#### Cumulative Impacts

Implementation of the Proposed Action, in combination with other proposed FAPH projects and surrounding community growth, would not result in any significant cumulative impacts to health and human safety, or any environmental health or safety risks that may disproportionately affect children. No adverse cumulative impacts are anticipated to occur with regard to human health and safety.

#### 4.0 FINDINGS AND CONCLUSIONS

A summary of the potential impacts and measures to minimize adverse impacts is provided in Table 4-1. Based on the analysis contained herein, this PEA concludes that neither the implementation of the Preferred Alternative (Proposed Action) nor the No Action Alternative will constitute a major federal action with significant impact to human health or the environment. It is recommended that a FNSI be issued to complete the NEPA documentation process.

**Table 4-1. Summary of Potential Impacts and Measures to Minimize Impacts for Preferred Alternative (Proposed Action)**

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Land Use		X		No significant impacts to land use are anticipated as a result of the implementation of the Proposed Action. Restoring line-of-sight (LOS) through vegetation removal would allow the live-fire training range to be fully utilized and offer additional training opportunities that have been unavailable due to loss of LOS. There would be an overall positive impact to the Installation's overall military training mission.
Topography, Geology, and Soils		X		No impacts to geology or topography would be expected. No significant impacts to soils would be anticipated. Minor short-term impacts to soils would result from vegetation removal and activities that involve ground disturbance from the use of vehicles and equipment. These impacts are expected to be less than significant.
Hydrology and Water Resources		X		No significant impacts to hydrology and water resources would be expected as a result of the implementation of the Proposed Action. All vegetation removal activities would be conducted in accordance with applicable Installation management plans that are designed to protect the Installation's watershed and water resources.
Biological Resources		X		No significant impacts to biological resources would be anticipated as a result of the implementation of the Proposed Action. Although some minor, short-term adverse impacts would be expected as a result of prescribed burns, the long-term, beneficial impacts outweigh them by promoting the sustainment of a healthy ecosystem. Other short-term, minor impacts would be expected as a result of vegetation removal; however, implementing best management practices established in the Integrated Natural Resources Management Plan and other guidance documents, such as the Integrated Pest Management Plan and Integrated Wildland Fire Management Plan (IWFMP), would limit those impacts. These impacts would mostly be temporary in nature.

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Cultural Resources		X		No significant impacts to cultural resources are anticipated as a result of the implementation of the Proposed Action. All projects are evaluated for their potential effect on known cultural resources. If an unknown cultural resource is discovered on a project site, work ceases and the Fort A.P. Hill (FAPH) Cultural Resources Manager is consulted. The Cultural Resources Manager coordinates with applicable state and federal agencies when necessary.
Air Quality		X		No significant impacts to air quality are expected. The Installation is in an attainment area for all criteria pollutants and its annual emissions are well below thresholds requiring additional permits. Minor, short-term impacts would be expected during vegetation removal activities. Most activities' emissions would be fugitive dust and vehicle and equipment exhaust. Herbicide application would result in minor, temporary impacts to air quality. Prescribed burns would be expected to contribute the greatest amount of air pollutants; however, those impacts would be temporary and compliance with best management practices within the IWFMP would minimize impacts. Overall, impacts would be less than significant and would not contribute significant emissions to local or regional air quality.
Noise		X		No significant impacts would result from the noise generated by the Proposed Action. Noise associated with project vehicles and equipment would be consistent with noise already occurring on the Installation. Impacts would be temporary and most would occur during daylight hours when noise receptors are less sensitive.
Visual Resources		X		No significant impacts to visual resources would result from the implementation of the Proposed Action. Minor, short-term impacts would result from prescribed burns. However, given the temporary nature of the impacts and long-term benefits, the impacts are considered less than significant. Long-term impacts are limited to the loss of vegetation in certain areas. However, these areas are located in sections of the Installation that are not accessible to the general public and not highly visible from outside the Installation.
Socioeconomics			X	No impact to socioeconomics would be expected. The Proposed Action would not result in a permanent increase in population and is not expected to contribute any measurable amount to the local economy. No impacts would result in environmental injustice issues.
Transportation and Circulation		X		No significant impacts to transportation and circulation are anticipated as a result of the implementation of the Proposed Action. The Installation's road network is capable of handling the vehicle and equipment traffic associated with the proposed activities. The only new equipment proposed for use is the helicopter that would be used for aerial herbicide application. This commercial helicopter is smaller than many of the military helicopters already in use on the Installation. Given the limited frequency and short duration of these applications, no significant impact is expected.

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Utilities			X	No impacts to utilities are anticipated as a result of the implementation of the Proposed Action. The Installation's utilities and infrastructure are capable of handling the demand associated with the proposed activities, which are not expected to result in an increased demand for any utilities. The Proposed Action would not result in the creation of any new utilities on the Installation.
Hazardous Materials and Wastes		X		No significant impacts from the use of hazardous materials and waste are anticipated as a result of the implementation of the Proposed Action. The materials and waste associated with the proposed activities are consistent with the materials used and wastes generated currently by the Installation. All handling, storage, transportation, and disposal of hazardous materials and waste would comply with applicable local, state, and federal laws and regulations. The Installation maintains an Installation-wide spill response plan that would be implemented in the event of an accidental release. The herbicide proposed for aerial application would be brought onsite by the contractor and would not be stored or disposed of on the Installation. The contractor would be responsible for complying with the same laws and regulations that apply to those materials used and stored regularly by FAPH.
Health and Human Safety		X		No significant impacts to human health and safety are anticipated as a result of the implementation of the Proposed Action. Emergency services and medical facilities on and around the Installation are capable of responding to any issues arising from the proposed activities. All personnel would be required to comply with applicable health and safety regulations. No impacts would result in disproportionate effects on children.

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## 6.0 PREPARERS AND CONTRIBUTORS

Tyler Berg	GIS Analyst Vernadero Group Incorporated 8540 Executive Woods Drive, Suite 500 Lincoln, Nebraska 68512-9225 Project role: GIS, map preparation
Karen Collins	Project Manager/NEPA Specialist Vernadero Group Incorporated P.O. Box 433 Ladysmith, Virginia 22501 Project role: project management, affected environment, impact analysis, technical review
Michael Collins, PhD	Program Manager Vernadero Group Incorporated 4422 E. Indian School Road, Suite 101 Phoenix, Arizona 85018 Project role: program management
Maggie Fulton	Technical Editor Vernadero Group Incorporated 4422 E. Indian School Road, Suite 101 Phoenix, Arizona 85018 Project role: technical editing, formatting
Sara Jackson	NEPA Specialist Vernadero Group Incorporated P.O. Box 121143 West Melbourne, Florida 32912-1143 Project role: technical review

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## **7.0 LIST OF INDIVIDUALS CONSULTED**

Jason Applegate, Natural Resources Specialist, FAPH Environmental and Natural Resources Division

Terry Banks, Environmental Chief, FAPH Environmental and Natural Resources Division

Kristine Brown, NEPA Coordinator, FAPH Environmental and Natural Resources Division

Heather Casey, GIS Specialist, FAPH Directorate of Public Works

Lance Didlake, FAPH Directorate of Plans, Training, Mobilization, and Security

Gef Fisher, Environmental Specialist, FAPH Environmental and Natural Resources Division

Mark Fisher, Environmental Specialist, FAPH Environmental and Natural Resources Division

Robert Floyd, Natural Resource Specialist, FAPH Environmental and Natural Resources Division

Ben Fulton, Wildlife Biologist/Installation Pest Coordinator, FAPH Environmental and Natural Resources Division

Karen Gillett, Staff Judge Advocate, Fort Belvoir

Scott Kittle, Range Officer, FAPH Directorate of Plans, Training, Mobilization, and Security

Scutter Lee, Environmental Consultant, FAPH Environmental and Natural Resources Division

Sergio Sergi, Environmental Engineer, FAPH Environmental and Natural Resources Division

Anne Ulrey, Forestry Planner, FAPH Environmental and Natural Resources Division

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**Appendix A. Coastal Zone Management Program Consistency Determination**

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**Determination of Consistency with  
Virginia's Coastal Resources Management Program for  
Restoring Line-of-Sight at  
Fort A.P. Hill, Virginia**

Pursuant to Section 307 of the Coastal Zone Management Act (CZMA) of 1972, as amended, this document provides the Commonwealth of Virginia with the U.S. Army's consistency determination under CZMA section 307(c)(1) and Title 15 Code of Federal Regulations (CFR) Part 930, Subpart C, as enforced by the Virginia Coastal Zone Management Program (CZMP). The Army's Proposed Action described herein would be carried out in a manner consistent with the Virginia CZMP's enforceable policies.

**DESCRIPTION OF THE PROPOSED ACTION**

The Proposed Action analyzed in the Programmatic Environmental Assessment (PEA) is the restoration of line-of-sight from various observation points, firing points, and ranges into the two impact areas within Fort A.P. Hill's (FAPH's) live-fire range complex. Maturing shrubs and forest vegetation will be targeted using a systematic and integrated approach to pest management through a combination of mechanical, biological, and chemical vegetation control practices.

**ASSESSMENT OF PROBABLE EFFECTS**

The planning and design phase of the Proposed Action would not have any effects on coastal zone resources. A review of permits and/or approvals required under Virginia CZMP enforceable policies will be conducted prior to the start of each project associated with the Proposed Action. Any applicable permits required for individual vegetation removal or herbicide application projects would be obtained prior to the start of the project and complied with throughout the duration of the project. The Proposed Action has been evaluated and the probable effects on enforceable policies are as followed:

**Fisheries Management:** The Proposed Action does not involve the building, dumping, or otherwise trespassing on or over, encroaching on, taking or using any material from the beds of bays, ocean, rivers, streams, or creeks within Virginia. The Proposed Action would have no reasonably foreseeable effects on fish spawning, nursery, or feeding grounds; and therefore has no foreseeable impacts to finfish or shellfish resources and would not affect the promotion of commercial or recreational fisheries. Additionally, no paints containing tributyltin would be used as part of the Proposed Action.

**Subaqueous Lands Management:** The Proposed Action does not involve encroachment in, on, or over state-owned submerged lands. Therefore, no reasonably foreseeable effects to subaqueous lands are expected to result from implementation of the Proposed Action.

**Wetlands Management:** Best management practices (BMPs) would be implemented during proposed activities to avoid impacts to wetlands occurring in project areas. During the course of

the Proposed Action, if an unforeseen impact to wetlands is encountered, applicable federal, state, and local permits would be obtained for the project. Additionally, if wetlands or any other surface water are proposed for herbicide application it will be treated as separate action, FAPH will consult with the U.S. Army Corps of Engineers and/or Virginia Department of Environmental Quality and USFWS, to ensure compliance with applicable laws and regulations, and obtain any required permits and complete any regulatory-required mitigation.

**Dunes Management:** The Proposed Action does not involve the alteration, destruction, or construction upon any coastal sand dunes. No sand dunes exist on FAPH; therefore no effects are expected to result from implementation of the Proposed Action.

**Nonpoint Source Pollution Control:** The Proposed Action would not be expected to result in any significant nonpoint source pollutants, as a result of sound, proactive stormwater management procedures. Individual projects involving mechanical vegetation removal or herbicide application will be reviewed prior to the start of the project. Through implementation of BMPs and compliance with applicable management plans and permits, nonpoint source pollution would be minimized as a result of the implementation of the Proposed Action.

To ensure nonpoint source pollution is minimized when herbicide applications are conducted, a comprehensive Project Work Plan will be completed by the applicator and reviewed/approved by FAPH Environmental and Natural Resources Division prior to any herbicide being applied. The Project Work Plan will include details of the pesticide spraying operation including but not limited to the following: application date and methods, pesticide type and quantity, mixing rates, target area, target species, identify surface water/wetlands boundaries (no spray areas) within target area, and outline which BMPs will be implemented to ensure nonpoint source pollution is minimized and surface waters/wetlands are avoided. Example BMPs that would be implemented include but are not limited to the following:

- Require a pre-application meeting with applicator, pesticide management coordinator, and FAPH Environmental and Natural Resources Division to review the Project Work Plan, ensure the applicator is aware of any no-spray areas, and answer questions regarding the application before execution.
- Provide the applicator with detailed maps to show the locations of surface waters/wetlands and designate these features as no-spray areas.
- Provide the applicator with geographic information system (GIS) data layers that includes boundaries of surface waters/wetlands within and in close proximity to the proposed target areas. This information will be loaded into the applicator's instrumentation to provide an additional control guide to avoid spraying into surface waters/wetlands during the application.
- A minimum 100 foot no-spray buffer to reduce the chance of spray drift and runoff into surface waters/wetlands.

**Point Source Pollution Control:** The Proposed Action does not involve the generation of any new point source pollutant discharge.

**Coastal Lands Management:** The Proposed Action does not involve any activities within Resource Protection Areas (RPAs) regulated by the Chesapeake Bay Preservation Act. Through implementation of BMPs and compliance with applicable management plans, regulations, and permits, no effects on coastal lands are anticipated as a result of the Proposed Action.

**Shoreline Sanitation:** The Proposed Action would not involve the construction of septic systems or sanitation facilities. Wastewater would not adversely affect any streams, rivers, or other waters of the Commonwealth.

**Air Pollution Control:** The Proposed Action would not generate air emissions that exceed *de minimis* threshold values. A Clean Air Act general conformity determination is not required.

**Chesapeake Bay Preservation Areas:** The Proposed Action does not involve the development or redevelopment of any RPAs. Therefore, no effects on Chesapeake Bay Preservation Areas are expected to result from implementation of the Proposed Action.

## **SUMMARY OF FINDINGS**

Based on the information provided within this document and the analysis provided in the PEA for the Proposed Action, it is the Army's determination that the Proposed Action would have no adverse effect on the land and water uses or natural resources within Virginia's coastal zone. This determination is consistent, to the maximum extent practicable, with the Virginia CZMP enforceable policies. Pursuant to 15 CFR section 930.41, the Virginia CZMP has 60 days from receipt of this document to concur with or object to the Army's consistency determination, or to request an extension under 15 CFR section 930.41(b). The Virginia CZMP's concurrence will be presumed if a response is received by the Army on or before the end of the 60 days. A written response should be sent to the Fort A.P. Hill Environmental and Natural Resources Division, Attn: NEPA Coordinator, 19952 North Range Road, Building 1220, Fort A.P. Hill, Virginia 22427.

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**Appendix B. Agency Coordination Letters and Responses**

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