

**PROGRAMMATIC ENVIRONMENTAL
ASSESSMENT**

**CONTAMINATED BUILDING DEMOLITION
AT ABERDEEN PROVING GROUND**

U.S. Army Garrison Aberdeen Proving Ground
Directorate of Public Works—Environmental Division

November 2016

**DISTRIBUTION STATEMENT
APPROVED FOR PUBLIC RELEASE:
DISTRIBUTION IS UNLIMITED (12755-A-7)**

Contaminated Building Demolition at Aberdeen Proving Ground

Programmatic Environmental Assessment

U.S. Army Garrison Aberdeen Proving Ground
Directorate of Public Works, Environmental Division

November 2016

DISTRIBUTION STATEMENT
APPROVED FOR PUBLIC RELEASE:
DISTRIBUTION IS UNLIMITED (12755-A-7)

TABLE OF CONTENTS

| | |
|---|------|
| TABLE OF CONTENTS..... | 1-1 |
| FINDING OF NO SIGNIFICANT IMPACT..... | 1-1 |
| 1.0 Purpose and Need for the Proposed Action..... | 1-1 |
| 1.1 Introduction..... | 1-1 |
| 1.2 Purpose and Need..... | 1-3 |
| 1.3 Scope of the Programmatic Environmental Assessment..... | 1-4 |
| 1.4 Environmental Laws and Regulations..... | 1-4 |
| 1.5 Public Involvement..... | 1-5 |
| 2.0 Description of the Proposed Action..... | 2-1 |
| 2.1 Proposed Action..... | 2-1 |
| 2.2 Assessment of Buildings..... | 2-1 |
| 2.3 Decontamination..... | 2-2 |
| 2.4 Demolition..... | 2-2 |
| 3.0 Alternatives Considered..... | 3-1 |
| 3.1 Preferred Alternative..... | 3-1 |
| 3.2 No Action Alternative..... | 3-1 |
| 3.3 Alternatives Eliminated from Further Study..... | 3-1 |
| 4.0 Existing Conditions..... | 4-1 |
| 4.1 Land Use..... | 4-1 |
| 4.2 Visual Aesthetics..... | 4-3 |
| 4.3 Geology, Soils and Topography..... | 4-3 |
| 4.3.1 Geology..... | 4-3 |
| 4.3.2 Soils..... | 4-3 |
| 4.3.2.1 Prime and Unique Farmland..... | 4-5 |
| 4.3.3 Topography..... | 4-5 |
| 4.4 Air Quality and Greenhouse Gases..... | 4-5 |
| 4.4.1 National Ambient Air Quality Standards and Attainment Status..... | 4-5 |
| 4.4.2 Regulatory Requirements for Hazardous Air Pollutants..... | 4-6 |
| 4.4.2.1 Clean Air Act Conformity..... | 4-8 |
| 4.4.3 Greenhouse and Gas Emissions and Hazardous Air Pollutants..... | 4-8 |
| 4.4.3.1 Regulatory Review and Permitting..... | 4-9 |
| 4.5 Noise..... | 4-9 |
| 4.5.1 Regulatory Overview..... | 4-10 |
| 4.5.2 Noise Management..... | 4-11 |
| 4.5.2.1 Stationary Noise Sources..... | 4-13 |
| 4.5.2.2 Construction Noise..... | 4-13 |
| 4.6 Water Resources..... | 4-13 |
| 4.6.1 Surface Water..... | 4-13 |
| 4.6.2 Groundwater..... | 4-15 |
| 4.6.3 Floodplains..... | 4-15 |
| 4.6.4 Wetlands..... | 4-17 |
| 4.6.5 Water Quality Certification..... | 4-19 |
| 4.7 Coastal Zone..... | 4-19 |

| | | |
|--------|--|------|
| 4.7.1 | Federal Consistency | 4-19 |
| 4.7.2 | Chesapeake Bay Critical Area | 4-20 |
| 4.8 | Biological Resources | 4-20 |
| 4.8.1 | Vegetation | 4-20 |
| 4.8.2 | Submerged Aquatic Vegetation | 4-21 |
| 4.8.3 | Wildlife Resources | 4-21 |
| 4.8.4 | Bald Eagle | 4-22 |
| 4.8.5 | Rare, Threatened, and Endangered Species | 4-23 |
| 4.9 | Cultural Resources | 4-25 |
| 4.9.1 | Archaeological Resources | 4-26 |
| 4.9.2 | Architectural Resources | 4-26 |
| 4.9.3 | Native American Resources | 4-26 |
| 4.10 | Hazardous, Toxic, and Radioactive Substance | 4-27 |
| 4.10.1 | Environmental Compliance Management Plans | 4-28 |
| 4.10.2 | Hazardous Materials Use | 4-29 |
| 4.10.3 | Hazardous Waste Treatment, Storage and Disposal | 4-30 |
| 4.10.4 | Existing Contamination | 4-30 |
| 4.10.5 | Installation Restoration Program | 4-31 |
| 4.10.6 | Pesticides | 4-31 |
| 4.10.7 | UXO | 4-32 |
| 4.11 | Utilities | 4-32 |
| 4.11.1 | Regulatory Framework | 4-33 |
| 4.11.2 | Stormwater | 4-33 |
| 4.11.3 | Solid Waste | 4-33 |
| 4.12 | Transportation | 4-34 |
| 4.13 | Socioeconomics, Environmental Justice and Protection of the Children | 4-34 |
| 4.13.1 | Employment | 4-34 |
| 4.13.2 | Economy | 4-35 |
| 4.13.3 | Housing | 4-35 |
| 4.13.4 | Environmental Justice | 4-35 |
| 5.0 | Summary of Environmental Impacts | 5-1 |
| 5.1 | Land Use | 5-2 |
| 5.1.1 | Environmental Criteria | 5-2 |
| 5.1.2 | Impacts from the Proposed Action | 5-2 |
| 5.1.3 | Impacts from the No Action Alternative | 5-2 |
| 5.2 | Visual Impacts | 5-2 |
| 5.2.1 | Environmental Criteria | 5-2 |
| 5.2.2 | Impacts from the Proposed Action | 5-3 |
| 5.2.3 | Impacts from No Action Alternative | 5-3 |
| 5.3 | Geology, Soils and Topography | 5-3 |

| | | |
|---------|--|------|
| 5.3.1 | Environmental Criteria..... | 5-3 |
| 5.3.2 | Impacts from the Proposed Action | 5-4 |
| 5.3.3 | Impacts from the No Action Alternative | 5-4 |
| 5.4 | Air Quality and Greenhouse Gasses..... | 5-5 |
| 5.4.1 | Environmental Criteria..... | 5-5 |
| 5.4.2 | Impacts from the Proposed Action | 5-5 |
| 5.4.3 | Impacts from the No Action Alternative | 5-6 |
| 5.5 | Noise..... | 5-7 |
| 5.5.1 | Environmental Criteria..... | 5-7 |
| 5.5.2 | Impacts from the Proposed Action | 5-7 |
| 5.5.3 | Impacts from the No Action Alternative | 5-8 |
| 5.6 | Water Resources..... | 5-8 |
| 5.6.1 | Surface Water and Ground Water..... | 5-8 |
| 5.6.1.1 | Environmental Criteria..... | 5-8 |
| 5.6.1.2 | Impacts of the Proposed Action | 5-8 |
| 5.6.1.3 | Impacts from the No Action Alternative..... | 5-8 |
| 5.6.2 | Floodplains..... | 5-9 |
| 5.6.2.1 | Environmental Criteria..... | 5-9 |
| 5.6.2.2 | Impacts of the Proposed Action | 5-9 |
| 5.6.2.3 | Impacts from the No Action Alternative..... | 5-9 |
| 5.6.3 | Wetlands | 5-9 |
| 5.6.3.1 | Environmental Criteria..... | 5-9 |
| 5.6.3.2 | Impacts of the Proposed Action | 5-10 |
| 5.6.4 | Impacts from the No Action Alternative | 5-10 |
| 5.6.5 | Water Quality Certification..... | 5-10 |
| 5.6.5.1 | Environmental Criteria..... | 5-10 |
| 5.6.5.2 | Impacts of the Proposed Action | 5-10 |
| 5.6.5.3 | Impacts of the No Action Alternative | 5-10 |
| 5.7 | Coastal Zone..... | 5-10 |
| 5.7.1 | Environmental Criteria..... | 5-10 |
| 5.7.2 | Impacts from the Proposed Action | 5-11 |
| 5.7.3 | Impacts from the No Action Alternative | 5-11 |
| 5.8 | Biological Resources..... | 5-11 |
| 5.8.1 | Environmental Criteria..... | 5-11 |
| 5.8.2 | Impacts from the Proposed Action | 5-11 |
| 5.8.3 | Impacts from the No Action Alternative | 5-12 |
| 5.9 | Cultural Resources | 5-12 |

| | | |
|----------|---|------|
| 5.9.1 | Environmental Criteria..... | 5-12 |
| 5.9.2 | Impacts from the Proposed Action | 5-13 |
| 5.9.3 | Impacts from the No Action Alternative | 5-13 |
| 5.10 | Hazardous, Toxic, and Radioactive Substances | 5-13 |
| 5.10.1 | Environmental Criteria..... | 5-13 |
| 5.10.1.1 | Hazardous Materials | 5-13 |
| 5.10.1.2 | Hazardous Wastes..... | 5-14 |
| 5.10.1.3 | Radiological Waste..... | 5-14 |
| 5.10.1.4 | Pesticides and Other Regulated Material..... | 5-14 |
| 5.10.1.5 | Installation Restoration Program | 5-14 |
| 5.10.1.6 | Unexploded Ordinance | 5-14 |
| 5.10.2 | Impacts from the No Action Alternative | 5-15 |
| 5.11 | Utilities | 5-15 |
| 5.11.1 | Environmental Criteria..... | 5-15 |
| 5.11.2 | Impacts from the Proposed Action | 5-16 |
| 5.11.2.1 | Utilities | 5-16 |
| 5.11.2.2 | Stormwater..... | 5-16 |
| 5.11.2.3 | Solid Waste..... | 5-16 |
| 5.11.3 | Impacts from the No Action Alternative | 5-16 |
| 5.12 | Transportation..... | 5-17 |
| 5.12.1 | Environmental Criteria..... | 5-17 |
| 5.12.2 | Impacts from the Proposed Action | 5-17 |
| 5.12.3 | Impacts from the No Action Alternative | 5-17 |
| 5.13 | Socioeconomics, Environmental Justice and Protection of the Children..... | 5-17 |
| 5.13.1 | Environmental Criteria..... | 5-17 |
| 5.13.2 | Impacts from the Proposed Action | 5-17 |
| 5.13.3 | Impacts from the No Action Alternative | 5-18 |
| 5.14 | Cumulative Effects | 5-18 |
| 5.14.1 | Land Use | 5-22 |
| 5.14.2 | Visual Aesthetics | 5-23 |
| 5.14.3 | Geology, Soils and Topography | 5-23 |
| 5.14.4 | Air Quality | 5-23 |
| 5.14.5 | Noise | 5-23 |
| 5.14.6 | Water Resources | 5-23 |
| 5.14.7 | Wetlands | 5-24 |
| 5.14.8 | Coastal Zone | 5-24 |
| 5.14.9 | Chesapeake Bay Critical Area | 5-24 |
| 5.14.10 | Biological Resources | 5-24 |
| 5.14.11 | Cultural Resources | 5-24 |
| 5.14.12 | Hazardous, Toxic and Radioactive Substances | 5-24 |
| 5.14.13 | Utilities..... | 5-25 |
| 5.14.14 | Stormwater and Drainage | 5-25 |
| 5.14.15 | Traffic and Transportation | 5-25 |

| | | |
|---------|---|------|
| 5.14.16 | Socioeconomics, Environmental Justice, and Protection of the Children | 5-25 |
| 6.0 | Conclusion | 6-1 |
| 7.0 | References | 7-1 |
| 8.0 | Acronyms and Abbreviations | 8-1 |

LIST OF TABLES

| | | |
|------------|---|------|
| Table 4-1: | National Ambient Air Quality Standards | 4-6 |
| Table 4-2: | Regional Hazardous Air Pollutant Emissions for APG..... | 4-7 |
| Table 4-3: | Criteria Pollutant Emissions for Aberdeen Proving Ground (2009 to 2013)..... | 4-7 |
| Table 4-4: | Common Sound Levels | 4-10 |
| Table 4-5: | Maximum Allowable Noise Levels (dBA) | 4-11 |
| Table 4-6: | Noise Limits for Military Noise Zones | 4-12 |
| Table 4-7: | Federal and State Listed Rare, Threatened, and Endangered Species that Occur or have the Potential to Occur at APG..... | 4-24 |
| Table 4-8: | Socioeconomic Figures | 4-36 |
| Table 5-1: | Estimated Emissions from a Large Demolition Project..... | 5-5 |
| Table 5-2: | Cumulative Actions at APG..... | 5-19 |
| Table 6-1: | Summary of the Effects of the Proposed Action and No Action Alternative | 6-2 |

LIST OF FIGURES

| | | |
|-------------|---|------|
| Figure 1-1: | Location of Aberdeen Proving Ground..... | 1-2 |
| Figure 4-1: | Land Use at Aberdeen Proving Ground..... | 4-2 |
| Figure 4-2: | Aberdeen Proving Ground Soils | 4-4 |
| Figure 4-3: | Aberdeen Proving Ground Surface Water | 4-14 |
| Figure 4-4: | Aberdeen Proving Ground Floodplains | 4-16 |
| Figure 4-5: | Aberdeen Proving Ground Wetlands | 4-18 |

LIST OF APPENDICIES

| | |
|------------|--|
| APPENDIX A | Agency Coordination |
| APPENDIX B | Coastal Zone Consistency Determination |
| APPENDIX C | Northern Long Eared Bat Programmatic Consultation Screening Criteria |

FINDING OF NO SIGNIFICANT IMPACT

CONTAMINATED BUILDING DEMOLITION AT ABERDEEN PROVING GROUND, MARYLAND

Introduction:

This Programmatic Environmental Assessment (PEA) analyzes the demolition of buildings and associated infrastructure that are deemed contaminated with legacy chemical warfare materials (CWM), biological warfare materials (BWM), radiological materials, and potentially munitions and explosives of concern (MEC) used for research and associated with mission-based activities at Aberdeen Proving Ground (APG). The demolition of unused, underutilized, and obsolete buildings will benefit APG by reducing fixed facility costs, reducing risk caused by structural deterioration, and clearing these areas within APG for redevelopment and future land uses, as well as eliminating the safety hazards posed by deteriorating and contaminated buildings.

The PEA was prepared in accordance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ) and 32 Code of Federal Regulations (CFR) Part 651.

Purpose and Need:

The purpose of the Proposed Action is to reduce or eliminate excess potentially contaminated facilities, slabs and infrastructure associated with mission-based activities at APG. Implementing the Proposed Action would reduce fixed facility costs, reduce risk caused by structural deterioration, and clear these areas within the already developed infrastructure of APG for redevelopment for future designated land uses. APG prepared the *Programmatic Environmental Assessment for Building Demolition, Construction and Renovation at Aberdeen Proving Ground* in May 2009. The 2009 PEA considers the potential environmental consequences of routine construction, demolition and renovation activities for uncontaminated buildings within APG. The 2009 PEA does not cover the demolition of facilities, slabs or infrastructure which may be contaminated with CWM, BWM, radiological material and MEC and may not be readily removed using standard demolition methods, or require decontamination prior to demolition.

Description of the Proposed Action and Alternatives:

Chapter 2 of the PEA presents a detailed description of the Proposed Action and the alternatives evaluated. An alternative that was considered but not further analyzed in this PEA would be to renovate and reuse the facilities in lieu of demolition. Reuse was eliminated from further study because it would be cost-prohibitive given the poor condition and possible contamination of some facilities and would not be economically feasible. Reuse would also not be economically feasible because the current size and configuration of the buildings are not appropriate for current needs. Facilities would need to be maintained for an undetermined period of time before and during decontamination and renovation. Given that some buildings are in poor condition and structurally unsound, maintaining the buildings could cause financial strain and increase health, safety and environmental risks.

The No Action Alternative was also considered.

- **No Action Alternative:** Under the No Action Alternative, potential remediation and demolition of contaminated buildings would not occur on APG.
- **The Proposed Action Alternative:** The Proposed Action encompasses a multiyear project to remove unused and/or unwanted facilities, slabs, and associated infrastructure within APG that are potentially contaminated with CWM, BWM, radiological material, or MEC from mission related activities.

Environmental Analysis:

Chapter 3 of the PEA discusses the affected environment and potential environmental consequences for the Proposed Action. The No Action Alternative serves as a baseline.

The Proposed Action would result in short term minor impacts to land use, visual aesthetics, geology, soils and topography, air quality, noise, wildlife, and transportation. The Proposed Action would result in negligible impacts to floodplains, wetlands, coastal zone and critical areas, vegetation, submerged aquatic vegetation, bald eagles, rare, threatened or endangered species, cultural resources, stormwater and drainage. Long term beneficial impacts provided by the Proposed Action would be to land use, visual aesthetics, surface waters, ground waters, and utilities. While the Proposed Action is expected to result in moderate adverse impacts to hazardous, toxic and radioactive substances in the short term, in the long term the Installation would benefit from the removal of potential contaminants and their source materials.

Permits and mitigation requirements will be evaluated on a case by case basis, but since demolition is expected to be completed within building and pavement footprints, no impacts to wetlands, streams, forests, or critical areas are anticipated. Approved Erosion and Sediment Control (ESC) plans would be submitted to MDE for each project tiered from this PEA. A federal Coastal Consistency Determination has been coordinated with the Maryland Federal Consistency Reviewers. Prior to the start of demolition, any required demolition-related permits or approvals would be obtained by APG as required.

Public Review and Comment:

Public participation opportunities with respect to this PEA and decision making on the Proposed Action are guided by 32 CFR Part 651. The PEA will be made available to the public for 30 days in order to receive public comments.

Finding of No Significant Impact:

After careful review of the PEA, which is attached hereto and incorporated by reference into this Finding of No Significant Impact (FNSI), the evaluation of concerns expressed during the public review period, and the Army’s intent to follow prescribed regulations, acquire required permits, and implement the mitigation measures identified, I have concluded that implementation of the Proposed Action will not generate significant controversy or have a significant direct, indirect, or cumulative impact on the quality of the human or natural environment. This analysis fulfills the requirements of Section 102(2)(c) of NEPA and the CEQ Regulations. An Environmental Impact Statement is not required and will not be prepared, and APG is issuing this FNSI.

James E. Davis
Colonel, U.S. Army
Commander, U.S. Army Garrison
Aberdeen Proving Ground, Maryland

Date

DRAFT

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

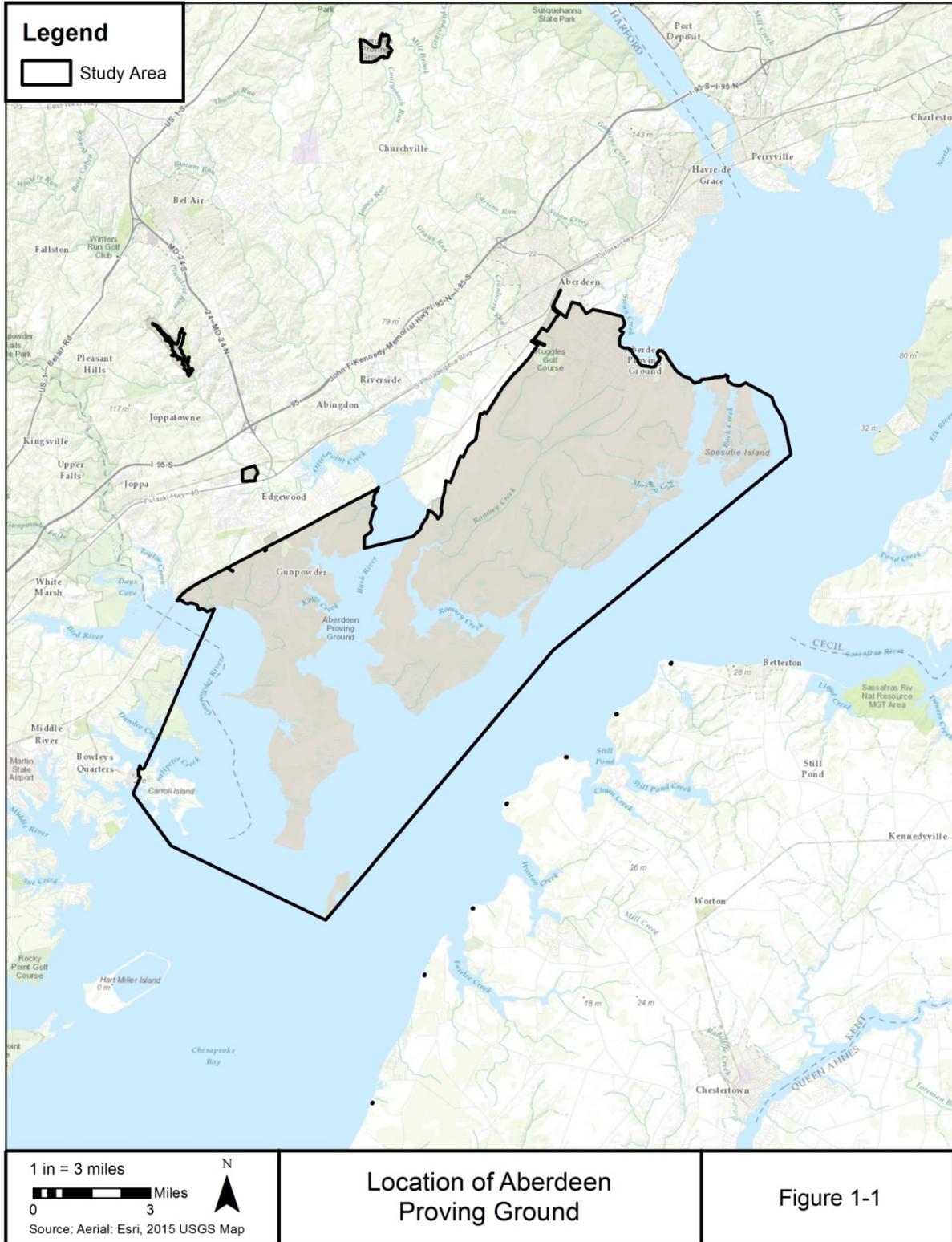
This Programmatic Environmental Assessment (PEA) analyzes the demolition of buildings and associated infrastructure that are deemed contaminated with legacy chemical warfare materials (CWM), biological warfare materials (BWM), radiological materials, and potentially munitions and explosive of concern (MEC) used for research and associated with mission-based activities at Aberdeen Proving Ground (APG). The demolition of unused, underutilized, and obsolete buildings will benefit APG by reducing fixed facility costs, reducing risk caused by structural deterioration, and clearing these areas within APG for redevelopment and future land uses, as well as eliminating the safety hazards posed by deteriorating and contaminated buildings.

APG is a renowned research and development, testing and evaluation facility for military weapons, equipment and personnel. APG is the Department of Defense's Center of Excellence for land combat systems, chemical and biological defense, public health, and Command, Control, Communications, Computers Intelligence, Surveillance and Reconnaissance (C4ISR). Administration of APG is the responsibility of the U.S. Army Garrison (USAG) Aberdeen Proving Ground with five management and control offices, six directorates, ten support offices, and more than 21,000 Army civilian, military, and contractor employees. Aberdeen Proving Ground encompasses more than 2,000 buildings with a combined footprint of approximately 17 million square feet of space. It is home to eleven major commands and supports more than 80 tenants, 20 satellites, 17 private activities (PHE, 2014).

APG is located primarily in Harford County, Maryland, with two small sections on the western edge of the installation located in Baltimore County. The City of Baltimore is the closest major city, which is located approximately 34 miles southwest of the installation's Aberdeen Area (APG-AA). In its entirety, APG occupies approximately 72,500 acres of land and water. The Bush River divides the installation into two non-contiguous areas, commonly referred to as the APG-AA, which encompasses 27,600 acres, and the Edgewood Area (APG-EA), which encompasses 9,850 acres. Contiguous waters of APG account for an additional 33,000 acres (Figure 1-1). Other areas of APG not attached to the main installation account for the remaining acreage, which includes the Churchville Test Area, Van Bibber Water Treatment Plant, Atkisson Reservoir and Dam, and Poole's Island in Harford County, and Graces Quarters and Carroll Island in Baltimore County, Maryland (APG, 2014).

This PEA is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969; 40 Code of Federal Regulations (CFR), Parts 1500-1508, the Council on Environmental Quality (CEQ) regulations implementing NEPA and 32 CFR Part 651, Environmental Analysis of Army Actions. This PEA provides NEPA analysis and documentation for the Proposed Action, which is to demolish contaminated buildings located on APG.

Figure 1-1: Location of Aberdeen Proving Ground



A PEA, by design, allows for greater efficiency in making informed decisions, reflects the need to coordinate multiagency reviews and ensures meaningful public engagement in the decision making process. The Army expects to gain efficiencies executing building demolition through a Proposed Action that includes a suite of demolition methods for the various conditions that could be encountered when demolishing a contaminated building on APG. It is essential that the Army project management team examine each action to ensure the environmental ramifications are within the scope of the Proposed Action and analysis within this PEA. If a circumstance exists where environmental impacts are suspected to be significant and or outside the scope of this PEA, the Army would conduct additional environmental review and analysis.

Subsequent NEPA reviews for future actions may be tiered from this PEA, thereby eliminating duplicate discussions where a reference to this document may be appropriate. In most instances, future building demolition may require a Record of Environmental Consideration (REC) that can be tiered from this PEA, though there may be extenuating circumstances or potential adverse environmental impacts that could require additional NEPA documentation such as a supplemental EA. Due to the complexity of issues and variables involved in contaminated building demolition, it is anticipated that a REC tiered from this PEA will be prepared for each facility before it is demolished.

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to reduce or eliminate excess potentially contaminated facilities, slabs and infrastructure associated with mission-based activities at APG. Implementing the Proposed Action would reduce fixed facility costs, reduce risk caused by structural deterioration, and clear these areas within the already developed infrastructure of APG for redevelopment for future designated land uses. APG prepared the *Programmatic Environmental Assessment for Building Demolition, Construction and Renovation at Aberdeen Proving Ground* in May 2009. The 2009 PEA considers the potential environmental consequences of routine construction, demolition and renovation activities for uncontaminated buildings within APG. The 2009 PEA does not cover the demolition of facilities, slabs or infrastructure which may be contaminated with CWM, BWM, radiological material and MEC, and may not be readily removed using standard demolition methods, or require decontamination prior to demolition.

The Proposed Action is needed because APG has multiple potentially mission-contaminated facilities and infrastructure that are unused, obsolete, structurally unsound, and need to be demolished. The buildings included under the Proposed Action have been unused for various lengths of time, ranging from several months to years. Many of the buildings are in various stages of disrepair, and in some cases, the structural integrity of the buildings is poor, causing potentially hazardous conditions. Reducing the buildings and infrastructure would reduce operation and maintenance costs, further structural deterioration risks, and would make otherwise idle areas of the installation available for productive reuse. Currently, APG maintains heat, electricity, ventilation and environmental control measures for some abandoned buildings on the base to maintain health and safety requirements. Demolishing these buildings and infrastructures would reduce operation costs associated with the unused buildings and substantially reduce APG's overall operating costs. This could improve the Army's ability to meet their mission requirements under current budgetary constraints. Complete removal of obsolete buildings would make valuable land available that could be utilized without converting limited range land or disturbing

natural areas within APG. Finally, by demolishing facilities and infrastructure that are not currently in use, APG will be in compliance with Army Regulations Utilization of Real Property (405-70) and Disposal of Real Estate (405-90), which state that Army installations should eliminate excess square footage that is not in current use.

1.3 SCOPE OF THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

This PEA is intended to address the potential environmental consequences of demolishing and removing buildings, slabs and associated infrastructure potentially contaminated with CWM, BWM, radiological material, and MEC materials at APG. Structures that fall under routine demolition are covered under the *2009 Programmatic Environmental Assessment for Building Demolition, Construction and Renovation at Aberdeen Proving Ground* and are therefore outside of the scope of this document. A programmatic EA can adequately evaluate area-wide environmental impacts of those programs that are similar in nature or broad in scope (32 Code of Federal Regulations [CFR] Part 651.14). Demolition projects could be required continuously over an extended period of years and a programmatic EA can eliminate the need for numerous repetitive NEPA documents. It is anticipated that this PEA will adequately address a number of APG's forthcoming demolition projects that contain CWM, BWM, radiological material, and MEC materials. APG's NEPA coordinator will review each proposed activity on a case-by-case basis, consulting with various subject matter experts on natural, environmental and cultural resources as needed, and in turn will determine whether the proposed activity is adequately addressed by this PEA and whether or not a REC or other level of NEPA review is required. If it is determined that this PEA does not cover the proposed activity, then APG's NEPA coordinator will provide further direction to the activity's proponent on how to proceed with additional NEPA analysis.

This PEA covers the demolition of buildings, slabs and their associated infrastructure contaminated with CWM, BWM, radiological material, and MEC from mission-related activities. It is anticipated that there would be no significant impacts from the Proposed Action as all proper procedures would be followed for the demolition of contaminated buildings; if, however, it is found that a significant impact could occur, an Environmental Impact Statement would be prepared.

As the demolition process takes place, it could be found that certain building demolition and slab removal projects include CWM, BWM, radiological material, and MEC contamination that extends beyond the building footprint, or an environmental release has occurred. In this situation, a decision would be made to determine if the Facility Reduction Program (FRP) would remain the appropriate vehicle for executing the demolition, or if the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, or in the case of MEC items the Military Munitions Response Program, would take over. Any actions that fall within the CERCLA process would not be covered under this PEA and would be handled in compliance with CERCLA requirements under the Department of Defense Installation Restoration Program (IRP).

1.4 ENVIRONMENTAL LAWS AND REGULATIONS

Additional laws and regulations that may apply to specific demolition and remediation activities could include the Clean Air Act (CAA), Clean Water Act (CWA), Toxic Substance and Control

Act (TSCA), Noise Control Act, Endangered Species Act (ESA), Coastal Zone Management Act (CZMA), National Historic Preservation Act (NHPA), Archaeological Resources Protection Act (ARPA), Resource Conservation and Recovery Act (RCRA), Executive Order 11593 (Protection and Enhancement of the Cultural Environment), Executive Order 11988 (Floodplain Management), Executive Order 11990 (Protection of Wetlands), Executive Order 12088 (Federal Compliance with Pollution Control Standards), Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), Executive Order 13045 (Protection of Children from Environmental Health Risks and Safety Risks), and Executive Order 13693 (Planning for Federal Sustainability in the Next Decade). Note that this list is not all-inclusive and other federal, state, and local regulations may apply.

1.5 PUBLIC INVOLVEMENT

Coordination with federal and state agencies including the U.S. Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources (MDNR) was initiated for the Proposed Action via letters and/or Public Notice in June 2015. Copies of coordination letters and agency responses are located in Appendix A – Agency Coordination.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 CFR Part 651. The PEA will be made available to the public for 30 days in order to receive public comments.

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 PROPOSED ACTION

The Proposed Action encompasses a multiyear project to remove unused and/or unwanted facilities, slabs, and associated infrastructure within APG that are potentially contaminated with CWM, BWM, radiological material, and MEC from mission related activities. The number and particular facilities selected to be demolished would be determined based on risk, mission priorities and funding. The Proposed Action would incorporate a combination of demolition and decontamination techniques in order to remove structures, slabs and their associated underground utilities.

Based on historic documentation, a small percentage of APG buildings have been identified as potentially containing material contaminated by legacy mission operations that involved the handling and/or storage of chemical agents, biological agents, radioisotopes, hazardous industrial chemicals and/or explosives. Buildings slated for demolition that are potentially contaminated would be assessed or characterized to evaluate the presence of contamination. Where contaminants are present or suspected, decontamination methods will be employed, as discussed in Section 2.2 below. Decontaminated non-hazardous solid wastes would be disposed of in a suitable off post landfill and any hazardous waste generated from contamination would be properly disposed of via permitted and approved hazardous waste treatment, storage and disposal facilities IAW applicable state and federal regulations.

The following subsections describe proposed activities under the Proposed Action.

2.2 ASSESSMENT OF BUILDINGS

As stated previously, facilities that fall within the scope of this PEA are contaminated with CWM, BWM, radiological material, and MEC to varying degrees; as such, each individual structure would be preliminarily classified to its likely extent of biological, chemical, radiological, or explosive material contamination.

Due to the potential for contamination, each suspect building slated for demolition would undergo an assessment in order to determine if there is a need for CWM, BWM, radiological material, or MEC decontamination and/or removal as necessary. The assessment would gather and review historical records to examine the past uses of the facility and underground infrastructure and determine whether there is a potential for CWM, BWM, radiological material and/or MEC contamination. If the initial records search identifies a risk of contamination, a field visit would occur to perform sampling and testing to determine the level and extent of contamination throughout the building and associated infrastructure. Depending on the level of contamination within the building and its infrastructure, a plan would be developed to properly decontaminate the portions of the facility to appropriate levels prior to demolition.

Asbestos-containing material (ACM) and Other Regulated Material (ORM) surveys would be conducted at each facility in order to collect data and assess controls necessary to minimize exposure to workers and the environment from asbestos fibers and other hazardous materials

during demolition. Abatement and remediation of ACM and ORM for building demolition is addressed in the 2009 Building Demolition PEA. If ACM or ORM are identified within a building, environmental procedures, consideration of environmental significant impacts, and removal efforts outlined within the 2009 PEA would be followed.

2.3 DECONTAMINATION

Decontamination methods for areas that are contaminated with CWM, BWM, radiological material and/or MEC would depend on the extent and type of contamination but could include the following methods:

- **Chemical Removal:** Chemical decontamination is most suited for the neutralization/inactivation and/or removal of localized chemical and biological agent contamination found on accessible surfaces. In general, personnel apply an appropriate chemical decontaminant and may subsequently wipe or flush the surface to remove the contamination.
- **Physical Removal:** Physical removal is suited for contaminated building components and equipment that either cannot be fully decontaminated in situ or otherwise warrant separate, specialized off-site treatment and/or disposal.
- **In-Situ Heating:** In-Situ heating is commonly employed in buildings that contain MEC. Contaminated material is subjected to high temperatures where the material is volatilized and combusted in the presence of oxygen.
- **New technologies:** Decontamination methods are always improving in order to result in more thorough cleanings and less environmental impacts. New technologies may be employed, as warranted, with appropriate level of NEPA review.

Army-approved subject matter experts would select the appropriate decontamination method and trained and protected personnel would execute the work. Due consideration would be given to the selection of engineering controls during decontamination planning and selection to protect human health and mitigate environmental risks and impacts.

2.4 DEMOLITION

Once buildings are properly decontaminated, each structure and slab would be demolished. The demolition may be accomplished in stages: as internal building materials are removed, an assessment of materials that are now accessible will be conducted to ensure proper decontamination and demolition of all building components. The contractor team would be responsible for the sampling, analysis and removal of building slabs and infrastructure, as well as any required remediation to restore the site for reuse. If at any point, facilities and/or their infrastructure are determined to not be contaminated, remediation efforts are not needed and conventional building demolition would be implemented.

Facilities, slabs, and other underground infrastructure that are found to contain potentially explosive material will have an Explosives Site Plan (ESP) prepared in order to classify the likely

extent of energetic material contamination in the structures, inspect and test for energetic material contamination, and plan for removal of energetic material. Prior to excavation for removal of underground infrastructure, soils would also be analyzed for CWM, BWM, radiological material and/or MEC contamination. Soil that is found to be contaminated within the building footprint would need to be remediated by proper methods. These may include soil removal for off-site treatment at authorized commercial facilities, or on-site treatment employing stabilization, bioremediation or other appropriate technology. Because legacy soil contamination is generally indicative of a release to the environment and in-situ treatment technologies require substantial investigation, planning, and time not often compatible with demolition schedules, in-situ treatment or other complicated remedy would likely be executed via the APG Installation Restoration Program and the CERCLA process. An excavation permit would be obtained from APG prior to any excavation activity.

DRAFT

3.0 ALTERNATIVES CONSIDERED

3.1 PREFERRED ALTERNATIVE

The Preferred Alternative is to execute the Proposed Action.

3.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, remediation and demolition of contaminated buildings would not occur on APG. The No Action Alternative is not feasible for the following reasons: 1) Congressionally mandated Executive Orders and supporting Army regulations require that military installations reduce unused square footage; 2) dilapidated or contaminated structures pose long-term health, safety and environmental risks; 3) unused and obsolete buildings and slabs are holding real estate that is needed for the Army mission; and 4) there is a burden of cost and effort to APG and the Army to maintain ventilations, filters, heat and other supporting systems on some of these buildings. The Council on Environmental Quality requires the analysis of the No Action Alternative even if the agency is under legislative command to act. Analysis of the No Action Alternative provides a benchmark for enabling decision-makers to compare the magnitude of environmental effects of the other action alternatives.

3.3 ALTERNATIVES ELIMINATED FROM FURTHER STUDY

As required by NEPA, potential alternatives to the Proposed Action must be considered. Alternatives to be evaluated must be economically feasible, able to be implemented and meet the purpose and need for the Proposed Action.

An alternative that was considered but not further analyzed in this PEA would be to renovate and reuse the facilities in lieu of demolition. Reuse was eliminated from further study because it would cost far beyond plant replacement value. Facilities would need to be maintained for an undetermined period of time before and during renovation and decontamination. Given that some buildings are in poor condition and structurally unsound, maintaining the buildings could cause financial strain and increase health, safety and environmental risks. Therefore, this PEA does not evaluate the reuse alternative in further detail.

4.0 EXISTING CONDITIONS

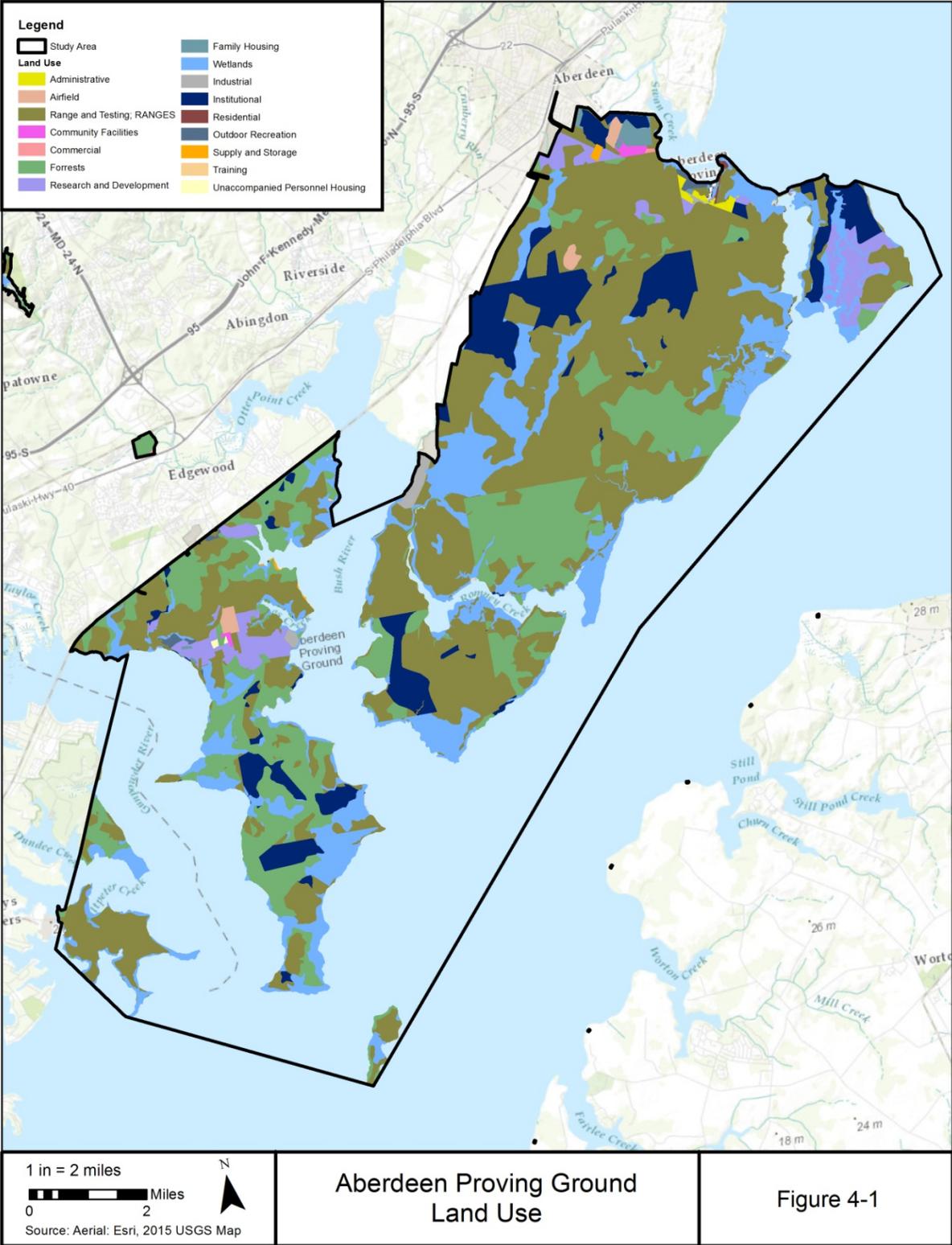
This section of the PEA describes the existing conditions of the natural and socioeconomic resources affected by the Proposed Action. Each environmental, cultural, and social resource category typically considered in a PEA was reviewed for its applicability to be affected by the Proposed Action. For the purpose of describing existing conditions and environmental effects, the area of influence encompasses all areas of Aberdeen Proving Ground that contain buildings deemed eligible for demolition (See Figure 1-1: Location of Aberdeen Proving Ground).

4.1 LAND USE

APG encompasses approximately 72,500 acres of land and water in Maryland at the northern end of the Chesapeake Bay. The majority of APG lies within Harford County with two small sections on the western edge of the installation which are located in Baltimore County. The Bush River divides the installation into the two main noncontiguous areas, commonly referred to as APG-AA, encompassing approximately 27,600 acres, and APG-EA, encompassing approximately 9,850 acres. Contiguous waters of APG account for approximately 33,000 acres. Four areas not attached to the installation proper include the Churchville Test Site and Poole's Island in Harford County, and Carroll Island and Graces Quarters in Baltimore County. These four areas combined account for the remaining acreage. Interstate Route 95, U.S. Route 40, and the Northeast Corridor rail line, utilized by Amtrak and Norfolk Southern, run parallel to the northwest boundary of the installation. Maryland (MD) Route 22 and U.S. Route 40 are the primary access routes to the APG-AA, and MD Routes 24, 755, and 152 provide direct access to APG-EA. The installation is predominantly surrounded by residential areas, commercial centers, light industrial use, and open space (Figure 4-1).

Land use at APG-AA includes a Garrison Headquarters, cantonment area, research area, a training and support area and test ranges in the APG-AA. Land uses within the APG-EA include an industrial area, training area, research and development area and test range. Land use in the surrounding areas outside the installation includes residential, commercial, industrial and agricultural uses. APG's facilities include more than 17 million square feet of building space in more than 2,000 buildings (including offices, administrative and training facilities, and warehouses, barracks, and family housing). There are more than 40 miles of vehicle test track, nearly 200 range firing positions, 8 medical research laboratories, 10 chemical laboratories, 2 physics laboratories, 5 human engineering laboratories, a materials research laboratory, C4ISR facilities, as well as Phillips Army Airfield (PAAF) and Weide Army Aviation Support Facility.

Figure 4-1: Land Use at Aberdeen Proving Ground



4.2 VISUAL AESTHETICS

Visual resources are the natural and human-made features on the installation landscape. They can include cultural and historic landmarks, landforms of particular beauty or significance, water surfaces, or vegetation. Together, these features, called the “viewshed,” form the overall impression that a viewer receives of the area or its landscape.

As previously described, APG is located on the western shore of the upper Chesapeake Bay. About half of the Installation’s 72,500 acres include undeveloped, intact forested areas, wetlands, marshes, and developed areas. The remaining acreage consists of open water associated with the Chesapeake Bay, and is surrounded by estuaries and approximately 103 miles of shoreline. The open shoreline and Chesapeake Bay waters provide valuable visual aesthetics to personnel, residents, and visitors to APG. Undeveloped areas along the shoreline also create a visual screen of APG for recreationists and other open water users in the adjacent waters of the bay.

The developed areas of APG are configured to meet specific visual themes within the installation. The four basic themes focus on historical, community life, future, and support operation visual zones. Where feasible, buildings and associated landscaping are designed to meet theme criteria. Building heights within APG are typically lower than 40 feet, and tracts of trees are distributed throughout the post to offer a balance to elevated structures (APG, 2014).

4.3 GEOLOGY, SOILS AND TOPOGRAPHY

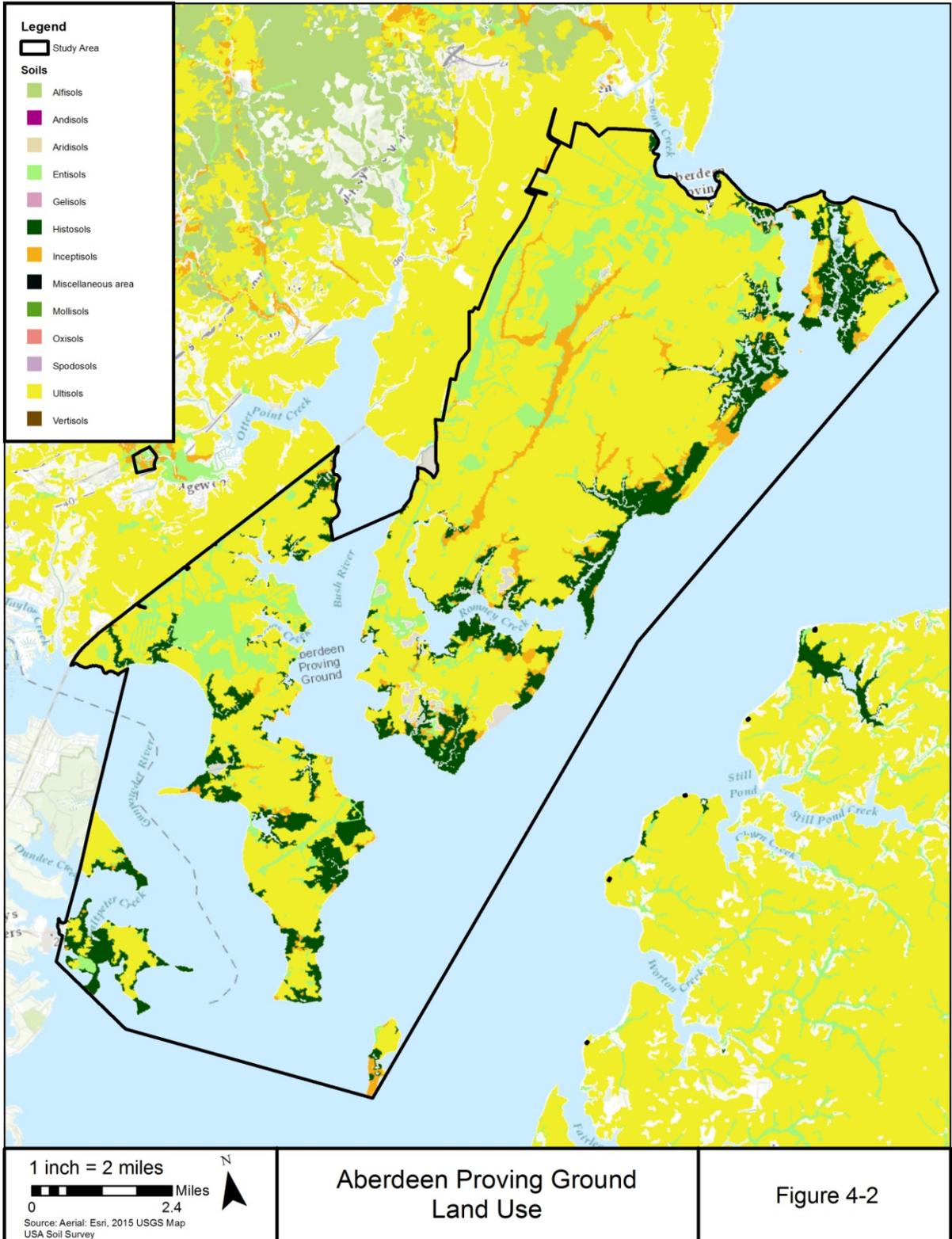
4.3.1 Geology

Aberdeen Proving Ground is located in the Atlantic Coastal Plain Physiographic Province. This province consists of underlying unconsolidated sediments including clay, silt, sand, and gravel in a form that is thicker from east to southeast across the area. The sediment layer may reach a thickness of 700 feet. The sediment layer overlaps the crystalline rocks of the Paleozoic and Precambrian Piedmont Crystalline Complex. Sediments in the Atlantic Coastal Plain are marine and nonmarine sediments, which were deposited on the eastern continuation of the Piedmont Crystalline Complex. Transgressive and regressive seas and local streams deposited layers of clay, silt, sand, and gravel, from fluctuating water levels, forming a wedge that thickens and gently dips toward the southeast. These sediments were deposited on a surface of crystalline basement rocks that compose formations of Paleozoic and Precambrian age (USACE, 2014).

4.3.2 Soils

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) performed the most recent soil survey of APG in 1997 and 1998. According to this survey, the predominant soil types on APG include Mattapex, Romney, Udorthents, and Woodstown series. These soil types comprise approximately 60% of the total soil types on the installation. They make up the following percentages of the soil on the installation: Romney silt loam (17.8%), Mattapex silt loam (16.0%), Woodstown sandy loam (9.5%), Udorthents loam (8.6%), and Puckum muck (8.1%). In all, there are 39 soil types that cover the installation (Figure 4-2) (NRCS, 2015).

Figure 4-2: Aberdeen Proving Ground Soils



Forty percent of APG's land area is within a firing range. Because of range activities, soils in these areas have been physically altered, including changes in the topography, permeability, erosion potential, and chemical composition (from contamination). These contaminated areas are under an ongoing study, and the cleanup is outlined in the Installation Action Plan (IAP) (WRA, 2013).

4.3.2.1 Prime and Unique Farmland

High quality farmland is of major importance in meeting the nation's short- and long-range needs for food and fiber. Prime farmland, as defined by USDA, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Although NRCS identifies soil map units on APG that may be considered prime farmland due to the physical and chemical properties of the soil, it is located within the bounds of an active military installation, and is excluded under the exceptions in the USDA definition; therefore, no prime farmland is found at APG (DA, 2007).

4.3.3 Topography

APG is generally comprised of low lying land, and varies from flat terrain to gently rolling hills. Elevations can range from zero feet to approximately 60 feet above mean sea level (AMSL). Steep slopes, both naturally occurring and man-made, also exist across the installation along the banks of the Bush River and Swan Creek. These slopes range from zero to ten percent, but most are two percent or less (USACE, 2014).

4.4 AIR QUALITY AND GREENHOUSE GASES

4.4.1 National Ambient Air Quality Standards and Attainment Status

The United States Environmental Protection Agency (USEPA) Region 3 and the Maryland Department of the Environment (MDE) regulate air quality in Maryland. The Clean Air Act (CAA) (42 U.S.C. 7401–7671q), as amended, gives USEPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) acceptable concentration levels for seven criteria pollutants: particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O₃), and lead (Pb). Short-term standards (i.e., 1-, 8-, and 24-hour periods) have been established for pollutants that contribute to acute health effects, while long-term standards (i.e., annual averages) have been established for pollutants that contribute to chronic health effects. Each state has the authority to adopt standards stricter than those established under the Federal program. MDE has adopted the NAAQS and is responsible for maintaining air quality standards for the State of Maryland.

Primary and secondary NAAQS for the aforementioned criteria are described in Table 4-1. Harford County was analyzed for that is where all building demolition activities would take place. Areas that exceed the NAAQS ambient concentration are labeled as nonattainment areas and are designated by federal regulations. According to the severity of the pollution problem, areas exceeding the established NAAQS are categorized as marginal, moderate, serious, severe, or extreme nonattainment or maintenance areas. APG is within the Metropolitan Baltimore Intrastate Air Quality Control Region (MBIAQCR), also known as Area III of the State of Maryland Air Quality Control Area. The region is in compliance with all pollutants except for 8-hour O₃, which are in serious nonattainment for the 1997 8-hour O₃ and moderate nonattainment for 2008 8-hour

O3 standards (MDE, 2013). Harford County was focused on in this PEA, for all buildings to be demolished are within APG-AA which is completely within Harford County. The State of Maryland submitted an attainment demonstration for the 1-hour O3 standard. Additionally, Harford County is within the O3 transport region that includes 28 states and Washington, D.C.

Table 4-1: National Ambient Air Quality Standards

| Pollutant | Standard | Averaging Time | Ambient Concentration | Harford County Attainment Status |
|-------------------|-----------------------|--|-----------------------|----------------------------------|
| CO | Primary | 1-hour ^a (ppm) | 35 | Maintenance |
| | | 8-hour ^a (ppm) | 9 | |
| NO ₂ | Primary | 1-hour ^b (ppm) | 100 | Attainment |
| | Primary and Secondary | Annual ^c (ppm) | 53 | |
| O ₃ | Primary and Secondary | 8-hour ^d (ppm) | 0.075 | Nonattainment |
| SO ₂ | Primary | 1-hour ^e (ppb) | 75 | Attainment |
| | Secondary | 3-hour ^a (ppm) | 0.5 | |
| PM _{2.5} | Primary and Secondary | 24-hour ^f (µg/m ³) | 35 | Attainment |
| | Primary | Annual arithmetic mean ^g (µg/m ³) | 12 | |
| | Secondary | Annual arithmetic mean ^g (µg/m ³) | 15 | |
| PM ₁₀ | Primary and Secondary | 24-Hour ^h (µg/m ³) | 150 | Attainment |

Source: 40 CFR 50.1-50.12; USEPA, 2015

CO = carbon monoxide; µg/m³ = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; NO₂ = nitrogen dioxide; O₃ = ozone; ppb = parts per billion; ppm = parts per million; PM_{2.5} = particulate matter less than 2.5 microns; PM₁₀ = particulate matter less than 10 microns; SO₂ = sulfur dioxide

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

^b 98th percentile, averaged over 3 years.

^c Annual mean.

^d The 3-year average of the fourth highest daily maximum 8-hour average O₃ concentrations over each year must not exceed 0.08 ppm.

^e The 3-year average of the 99th percentile of 1-hour daily maximum concentrations.

^f The 3-year average of the 98th percentile of 24-hour concentrations.

^g The 3-year average of the weighted annual mean.

^h Not to be exceeded more than once per year, on average over 3 years.

4.4.2 Regulatory Requirements for Hazardous Air Pollutants

In addition to criteria pollutant standards, the EPA also regulates hazardous air pollutant (HAP) emissions for each state. HAPs differ from criteria pollutants for they are known or suspected to cause cancer and other diseases, or have adverse environmental impacts. The total HAP emissions for the State of Maryland and the three counties adjacent to APG are shown in Table 4-2. As shown, APG's contribution to area HAP emissions is negligible. Sources of HAP emission at APG include stationary, mobile, and fugitive emissions sources. Stationary sources include boilers, incinerators, fuel storage tanks, fuel-dispensing facilities, vehicle maintenance shops, laboratories, degreasing units, and similar testing units. Mobile sources of emissions include private and government-owned vehicles. Fugitive sources include dust generated from demolition activities, open burning, detonation of munitions, and roadway traffic.

Table 4-2: Regional Hazardous Air Pollutant Emissions for APG

| Area | Total HAP Emissions (tpy) | Percent of Total Emissions in Maryland |
|----------------------------|---------------------------|--|
| State of Maryland | 64,108 | 100.00 |
| Baltimore County, Maryland | 7,562 | 11.80 |
| Harford County, Maryland | 2,625 | 2.09 |
| Cecil County, Maryland | 1,327 | 2.07 |
| Aberdeen Proving Ground | 13 | 0.02 |

Source: APG 2014.

APG holds two Title V operating permits: permit number 025-00081 for the APG-AA, which expires on January 31, 2020, and permit number 025-00082 for APG-EA which expires on October 31, 2019 (MDE, 2015). The permits include processes regarding boilers, paint booths, storage tanks, generators, and other emission units. APG conducts comprehensive annual air emission inventories for the installation (APG, 2014). Any new activity that would be conducted at the Installation requires an air permit review. Depending on the scope of the proposed activity, a demolition permit and/or a revision to the Title V air permit may be warranted. The cumulative criteria pollutant emissions calculated in both permits is denoted in Table 4-3.

Table 4-3: Criteria Pollutant Emissions for Aberdeen Proving Ground (2009 to 2013)

| Year | NO _x | Sulfur Oxides | PM ₁₀ | CO | VOC |
|------|-----------------|---------------|------------------|-------|------|
| | (tons per year) | | | | |
| 2013 | 59.72 | 11.02 | 1.91 | 30.87 | 2.34 |
| 2012 | 45.46 | 13.48 | 1.58 | 26.75 | 7.75 |
| 2011 | 38.96 | 22.95 | 1.43 | 35.44 | 3.92 |
| 2010 | 51.05 | 22.14 | 2.63 | 49.59 | 8.09 |
| 2009 | 41.65 | 34.06 | 4.19 | 28.51 | 7.93 |

NO_x = nitrogen oxides; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns; CO = carbon monoxide; VOC = volatile organic carbon

Source: MDE 2015

MDE develops air quality plans, which are also referred to as State Implementation Plans (SIPs) that are designed to attain and maintain the NAAQS, and to prevent significant deterioration of air quality in areas which demonstrate air that exceeds NAAQS standards. Maryland has individual SIPs for various pollutants, including NO₂, PM_{2.5}, 8-hour O₃, regional 5 haze, lead, etc. Federal agencies must ensure that their actions conform to the SIP in a non-attainment area, and do not contribute to new violations of ambient air quality standards, or an increase in the frequency or severity of existing violations, or a delay in timely state and/or regional attainment standards. If a proposed project's emissions exceed ten-percent of the total emissions inventory for a particular criteria pollutant in a nonattainment area, it is considered to be "regionally significant" and subject to the general conformity rule.

4.4.2.1 Clean Air Act Conformity

The 1990 amendments to the CAA require Federal agencies to ensure that their actions conform to the SIP in a nonattainment area. The purpose of the General Conformity Rule is to:

- Ensure that Federal activities do not interfere with the budgets in the SIPs
- Ensure the attainment and maintenance of NAAQS
- Ensure that actions do not cause or contribute to new violations of NAAQS

USEPA has developed two distinctive sets of conformity regulations: one for transportation projects and one for non-transportation projects. Non-transportation projects are governed by general conformity regulations (40 CFR 93). The Proposed Action is a non-transportation project within a nonattainment area. Therefore, a general conformity analysis is required with respect to the 8-hour O₃ NAAQS.

The General Conformity Rule (GCR) specifies threshold emissions levels by pollutant to determine the applicability of conformity requirements for a project. Due to the proximity to the urbanized east coast of the United States, Harford County and Baltimore County are considered an Ozone Transport Region (OTR). The OTR has a moderate ozone nonattainment classification by definition. Because ozone formation is driven by other direct emissions, the air quality analyses focus on ozone precursors that include VOCs and NO_x. In accordance with EPA policy, precursors that form PM_{2.5} (NO_x and SO₂) have also been evaluated. For an area in moderate nonattainment for the 8-hour O₃ NAAQS within the O₃ transport region, the applicability criterion is 100 tons per year (tpy) for NO_x and 50 tpy for VOCs (40 CFR 21 93.153). For an area in nonattainment for the PM_{2.5} NAAQS, the applicability criterion is 100 tpy for PM_{2.5}, NO_x, and SO₂ (71 CFR 40420).

Regulated under 40 CFR §93(b), the *General Conformity Rule* also prohibits any department, agency, or instrumentality of the Federal Government from engaging in, providing financial assistance for, approving, or supporting any activity that does not conform to applicable SIP designated for areas being in nonattainment of established NAAQS. A SIP is a compilation of a state's air quality control plans and rules, approved by the USEPA, in an effort to reduce or eliminate the severity and number of NAAQS violations and achieve expeditious attainment of these standards. A general conformity determination is also required if a proposed federal action exceeds ten-percent of the total emissions inventory for a particular criteria pollutant in a nonattainment area. If the project's emissions exceed this ten-percent threshold, the federal action is considered to be "regionally significant" and the general conformity rules apply.

4.4.3 Greenhouse and Gas Emissions and Hazardous Air Pollutants

Greenhouse Gases (GHGs) are a particular group of gasses that have the ability to trap heat by absorbing infrared radiation in the atmosphere. Scientific evidence indicates a trend of increasing global temperature over the past century which may be due to an increase in GHG emissions from human based activities. The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). The main source of GHGs from human activities is the combustion of fossil fuels, including crude oil and coal. Other examples of GHGs created and emitted primarily through human based activities include fluorinated gases (hydro-fluorocarbons and perfluorocarbons) and sulfur hexafluoride.

Each GHG is assigned a global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO₂, which has a value of one. For example, CH₄ has a GWP of 21, which means that it has a global warming effect 21 times greater than CO₂ on an equal-mass basis (IPCC, 2007). To simplify GHG analyses, total GHG emissions from a source are often expressed as a CO₂ equivalent (CO₂e).

4.4.3.1 Regulatory Review and Permitting

Currently the USEPA has two regulations that 1) require annual GHG emissions reporting, and 2) add the requirement to address best available control technology (BACT) for new or modified sources that occur after January 2, 2011. These rules apply to fossil fuel suppliers and industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and engines. The rule does not require control of GHGs, rather it requires only that sources above certain threshold levels monitor and report emissions. In addition, USEPA recently promulgated the Tailoring Rule that established a CO₂-e threshold for permitting purposes (i.e., construction and operation) of 75,000 tpy for modifications and 100,000 tpy for new sources.

4.4.3.1.1 Executive Order (EO) 13693

In April 2007, the U.S. Supreme Court determined that the USEPA has the regulatory authority to list GHGs as pollutants under the federal CAA. Congress has considered numerous proposals and bills to regulate GHGs but has not adopted any legislation.

Currently, federal agencies address emissions of GHGs by reporting and meeting reductions mandated in laws, executive orders, and policies. The most recent of these are EO 13693, *Planning for Federal Sustainability in the Next Decade*, of March 19, 2015.

The Energy Policy Act of 2005, Energy Independence and Security Act of 2007, and EO 13693 require an installation to adhere to specific energy improvements, which address waste reduction and improvements in efficiency. Specifically, the DoD Strategic Sustainability Performance Plan contains strategies to reduce energy waste and improve efficiency (DoD, 2015).

4.5 NOISE

Noise is often defined as unwanted sound that interferes with normal activities in a way that reduces the quality of the environment. The human ear experiences sound as a result of pressure variations in the air. The physical intensity or loudness level of noise is expressed quantitatively as the sound pressure level. Sound pressure levels are defined in terms of decibels (dB), which are measured on a logarithmic scale. Sound can be quantified in terms of its amplitude (loudness) and frequency (pitch). Frequency is measured in hertz, which is the number of cycles per second. The typical human ear can hear frequencies ranging from approximately 20 hertz to 20,000 hertz. Typically, the human ear is most sensitive to sounds in the middle frequencies where speech is found, and is less sensitive to sounds in the low and high frequencies.

Since the human ear cannot perceive all pitches or frequencies equally, measured noise levels in dB will not reflect the actual human perception of the loudness of the noise. Thus, the sound

measures can be adjusted or weighted to correspond to a scale appropriate for human hearing. A-weighting is used most often for high frequency sounds such as vehicle traffic (“hum” sounds). C-weighting is used for low-frequency events such as large arms and explosions (“boom” sounds). Sound levels and their associated dBA levels are listed in Table 4-4 below.

Table 4-4: Common Sound Levels

| Noise Level (dBA) | Description | Typical Sources |
|-------------------|--------------------|--------------------------|
| 140 | Threshold of pain | --- |
| 125 | Uncomfortably loud | Automobile assembly line |
| 120 | Uncomfortably loud | Jet aircraft |
| 100 | Very loud | Diesel truck |
| 80 | Moderately loud | Motor bus |
| 60 | Moderate | Low conversation |
| 40 | Quiet | Quiet room |
| 20 | Very quiet | Leaves rustling |

Noise levels decrease (attenuate) with distance from the source. A generally accepted rule is that the sound level from a stationary source would drop approximately 6 dB each time the distance from the sound source is doubled. The sound level from a moving “line” source (e.g., a train or a roadway) would drop 3 dB each time the distance from the source is doubled. Noise levels may be further reduced by natural factors, such as temperature and climate, and are reduced by barriers, both manmade (e.g., sound walls) and natural (e.g., forested areas, hills, etc.) (FTA, 2006).

Physical mitigation of noise is generally feasible for higher frequency sounds, such as small arms fire and traffic, whereby the low frequency component of impulsive “boom” noise has wave characteristics that can typically travel through obstacles.

4.5.1 Regulatory Overview

The Noise Control Act of 1972 (P.L. 92-574) directs Federal agencies to comply with applicable Federal, state, interstate, and local noise control regulations to the fullest extent consistent with agency missions. The act requires compliance with state or local noise control regulations in off-post areas only; however, the Army often uses the time restrictions outlined in local ordinances as general guidelines for on-post activities. In 1974, the EPA provided information suggesting that continuous and long-term noise levels in excess of 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals.

The Maryland Environmental Noise Act of 1974 established policy that states the “limitation of noise to that level which will protect the health, general welfare, and property of the people of the State.” Effective October 1, 2012, MDE delegated noise enforcement authority to local governments. MDE continues to update noise control standards, but enforcement is handled by local jurisdictions. Harford County codes and regulation only regulate noise from loud music and the use of household tools.

Title 26 of the Code of Maryland Regulation (COMAR), Department of the Environment, Subtitle 02, Chapter 03 (26.02.03 Control of Noise Pollution) provides the regulatory structure for noise

pollution, hazards, and control. The regulation set maximum allowable noise and vibration levels for zoning categories, as depicted in Table 4-5.

Table 4-5: Maximum Allowable Noise Levels (dBA)

| Time | Industrial | Commercial | Residential |
|-------------|-------------------|-------------------|--------------------|
| Day | 75 | 67 | 65 |
| Night | 75 | 62 | 55 |

Source: COMAR 26.02.03.02 Environmental Noise Standards

In addition, COMAR states that noise levels that emanate from construction or demolition site activities cannot exceed 90 dBA during daytime hours. Also, noise levels that extend beyond the property line of the noise source must not cause vibrations strong enough to move objects.

4.5.2 Noise Management

Policies focused on the control of operational noise to protect the health and welfare of the people are outlined and defined in U.S. Army Regulation (AR) 200-1 *Environmental Protection and Enhancement*. In order to best prevent noise conflicts with areas surrounding military bases, the Army developed Operational Noise Management Plans (ONMP). ONMP are developed on a statewide level, and when are focused on a single installation are called an IONMP (Installation Operational Noise Management Plan). The IONMP assesses noise levels from U.S. Army mission related activities to identify areas affected by noise and then assign land use compatibility zones for each area.

At APG, the Environmental Division of the Directorate of Public Works is responsible for environmental noise management. Large caliber and static detonation programs require command approval if the noise model prediction value is greater than 130 dB (APGR 385-1). In 2006, APG finalized and implemented an ONMP. The management plan establishes three Noise Zones (NZs) to provide guidance for appropriate types of land use. Three different zones were used to categorize the relationship between noise and land use:

- **Noise Zone I** is acceptable with all noise-sensitive land uses. This zone is usually the furthest zone from the noise source.
- **Noise Zone II** is normally not recommended for noise-sensitive land uses. Noise exposure here is considered significant and the use of land in this zone should generally be limited to activities such as manufacturing, warehousing, transportation, and resource protection. Residential use is strongly discouraged; however, if the community determines that this land must be used for houses, then specific noise mitigation measures should be incorporated into the design and construction.
 - **Land Use Planning Zone (LUPZ)** is generally acceptable with most noise-sensitive land uses. This zone represents the upper end of Noise Zone I, and is typically used to categorize locations that have a seasonal variability in their operations (or several unusually busy days during certain times of the year). Averaging those busier days over the course of a year effectively dilutes their impact. This zone can signal to planners when complaints might arise.

- **Noise Zone III** is not recommended with noise-sensitive land uses. The noise level in this area is so severe that no noise-sensitive uses should be considered.

Table 4-6 presents the noise level categories associated with the above mention Noise Zones (APG, 2006)

Table 4-6: Noise Limits for Military Noise Zones

| Noise Zone | Noise Zone Description | Noise Limits | | |
|----------------|---|-----------------|-----------------------|------------------|
| | | Aviation (ADNL) | Small Arms PK15 (met) | Impulsive (CDNL) |
| Noise Zone I | Compatible with noise sensitive land use | 60-65 | N/A | 57 - 62 |
| Noise Zone II | Normally incompatible with noise-sensitive land use | <65 | <87 | <62 |
| LUPZ | Compatible with noise sensitive land use | 65-75 | 87-104 | 62-70 |
| Noise Zone III | Incompatible with noise-sensitive land use | >75 | >104 | >70 |

Source: APG, 2006

ADNL = A-weighted day-night levels; CDNL = C-weighted day-night levels; dB = decibel, LUPZ = land use planning zone, N/A = not applicable; < = less than; > = greater than

Land use activities within Noise Zone I are acceptable for residential housing and medical and school facilities. Areas designated as Noise Zone I do not guarantee that training noise will not be heard in these areas, or that complaints about noise may be generated. Within Noise Zone II exposure to noise is considered significant and recommends limiting land use activities to industrial, manufacturing, transportation, and resource production. If used for other purposes, noise level reduction (NLR) features are recommended for incorporation into the design and demolition of buildings. Noise Zone III is considered severe and noise-sensitive land use activities are not recommended. Areas designated as Noise Zone III contain APG test ranges and may be designated natural open space.

APG has noise receptors located both inside and outside the installation within the various noise contours. Noise receptors that are deemed sensitive are adjacent to communities that include single family residences, Edgewood High School, Edgewood Middle School, and Deerfield Elementary school. Within the boundaries of APG, sensitive noise receptors include installation facilities and service areas. Individuals on APG may be subjected to multiple sources of continuous, intermittent, or impulsive noise during the day. Noise at APG may originate from blast noise, aircraft noise, test vehicle noise, small arms firing, road construction and maintenance,

construction projects, and regular vehicular traffic noise. Most of these noise sources are confined to the Installation with the exception of blast noise and aircraft noise during over-flights.

4.5.2.1 Stationary Noise Sources

Stationary sources of noise originate from weapons testing, explosives demolition, and limited small-unit training. Large caliber firings and static detonations of 10 pounds or more are conducted on weekdays between the hours of 8:30 AM and 10:00 PM. A noise deviation must be granted for these activities to take place at other times. Large caliber weapons firing and explosives can frequently be heard off the Installation. Blast noise can be heard by residents across Chesapeake Bay and cause complaints related to the noise itself and vibration of the residences. Weather conditions can vary the level and directionality of noise levels, and APG employs Best Management Practices (BMPs) to avoid conducting high-noise-producing operations when weather conditions can amplify or send noise toward sensitive receptor areas (DA, 2007). Small arms activity takes place on ranges located far enough from the boundaries of the Installation so that noise levels do not generate complaints from off the Installation. In addition, a program of acoustic management, the Intelligent Firing Program, is managed by Aberdeen Test Center and used to protect surrounding communities (DA, 2007).

4.5.2.2 Construction Noise

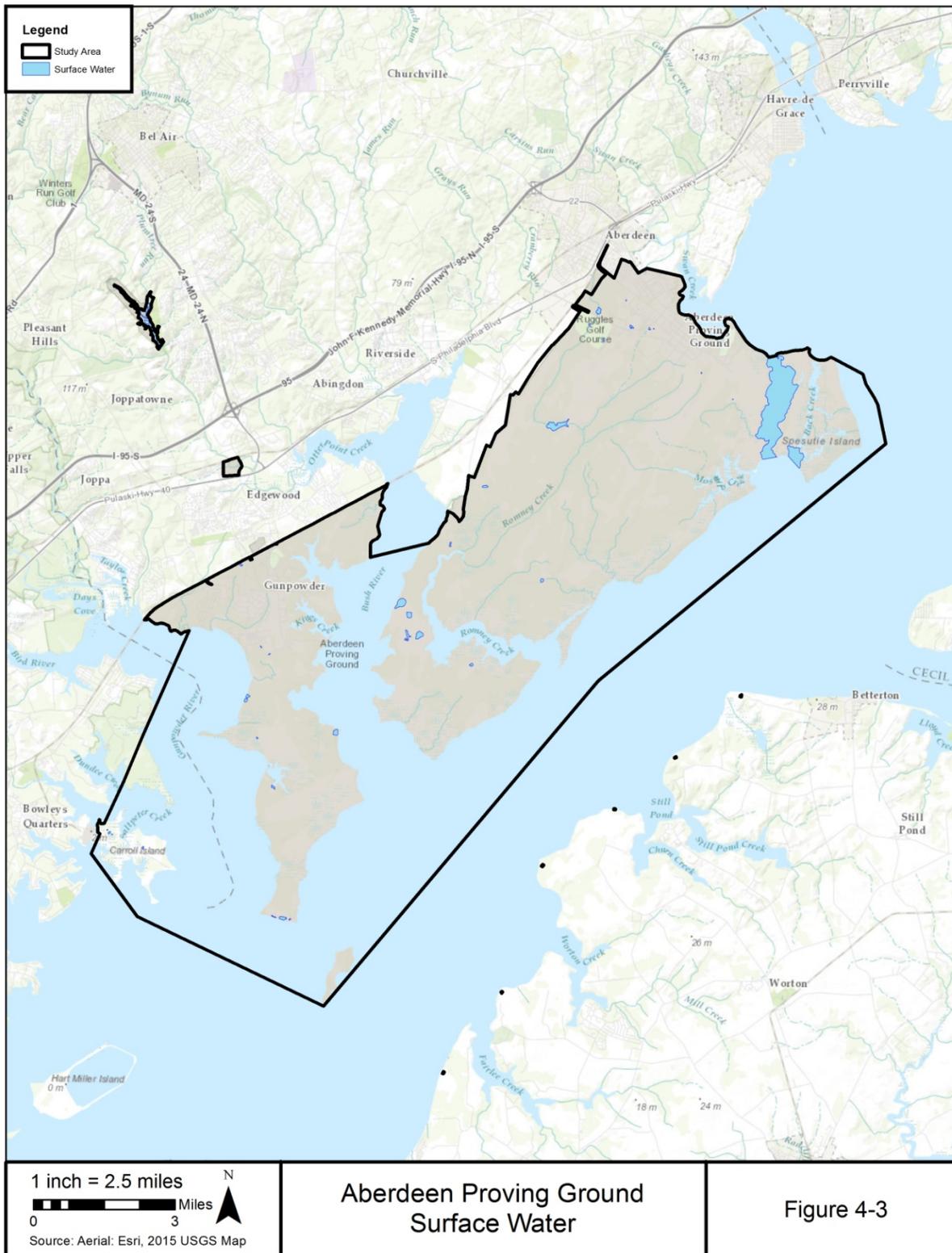
Construction noise levels at APG are generated from site preparation, construction, demolition, renovation, infrastructure construction, and repair activities. Noise levels generated can fluctuate depending on the type, number, and duration of use of heavy equipment for construction activities and can differ in affect by the type of activity, distance to noise sensitive uses, existing site conditions (vegetation to buffer sound) and ambient noise levels at those uses (DA 2007).

4.6 WATER RESOURCES

4.6.1 Surface Water

Surface drainage at APG is to the Chesapeake Bay, Gunpowder and Bush Rivers, or to creeks that discharge to these water bodies, which are part of the Upper Maryland Western Shore watershed. The Bush and Gunpowder Rivers ultimately drain into the Chesapeake Bay. The Upper Maryland Western Shore watershed encompasses an area of 920 square miles, including all of Harford County and parts of Baltimore, Cecil, and Carroll Counties. The surface waters at APG consist of rivers, estuarine and freshwater creeks, estuarine and freshwater marshes, freshwater ponds, and ephemeral ponds. Surface waters on APG tend to be shallow and sluggish, with tidal estuaries forming the mouths of the waterways, and marshes bordering their lengths (Figure 4-3) (WRA, 2013).

Figure 4-3: Aberdeen Proving Ground Surface Water



The upper Chesapeake Bay, including APG, has a drainage basin comprising about 27,500 square miles. The average depth of the Chesapeake Bay in the vicinity of APG is 15 feet. The average depth of estuarine waters at APG is approximately 7 feet mean low tide and rarely exceeds 15 feet. Due to APG's proximity to the Chesapeake Bay, surface waters of APG are generally characterized by tidal estuaries at the mouths of the waterways and brackish marshes bordering the shorelines. Surface waters of APG range from fresh, where salinity is zero parts per thousand (ppt), to brackish, where salinity is up to 12 ppt (USACE, 2014).

In order to address major issues facing the Chesapeake Bay, the Army has initiated the Army Chesapeake Bay Strategy. This strategy will address issues related to nutrient and sediment pollution, toxic chemical contaminants, and habitat. In addition, a bay-wide total maximum daily load (TMDL) has been established to reduce the amount of nitrogen, phosphorus and suspended solids in the bay. The Army plans to reduce the levels of these pollutants to meet the TMDL requirements through implementation of stormwater best management practices (BMPs) and pollution prevention activities, such as street sweeping.

In the developed portions of APG, storm sewers as well as catch basins manage the stormwater runoff. In less developed portions of the installation, stormwater runoff is managed by drainage swales. Contamination of surface waters at APG has resulted from historic discharges of sanitary, laboratory, and industrial wastewaters, historic disposal of solid and liquid wastes, and stormwater runoff, erosion, and sedimentation. Inorganic chemicals have been detected at concentrations exceeding water quality criteria in streams draining from APG (USACE, 2014).

4.6.2 Groundwater

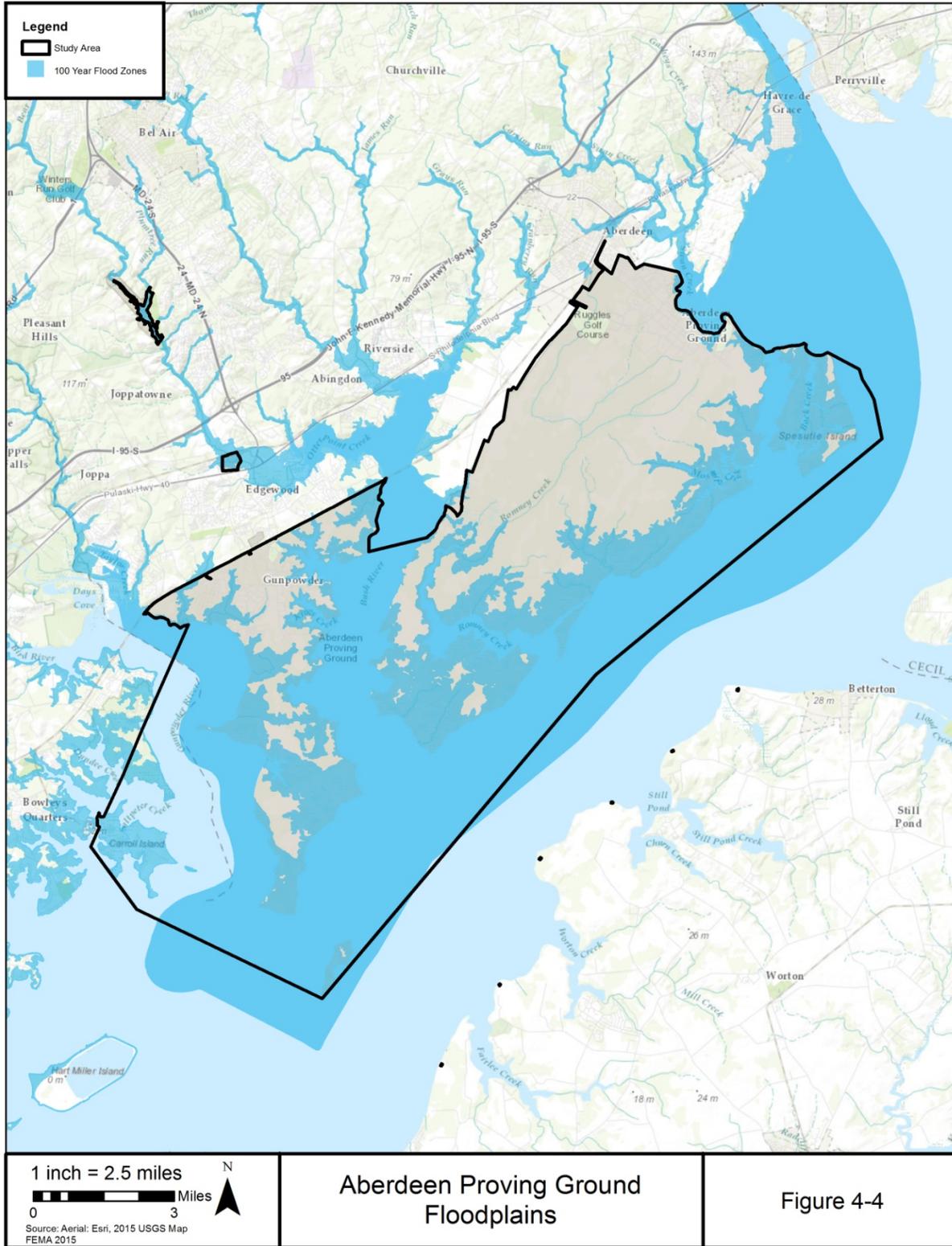
The predominant water-bearing formation in the APG region of the Atlantic Coastal Plain is the Patuxent Formation. A second formation, the Patapsco Formation, is also present and contains beds of sand and gravels that often yield a high volume of water. The groundwater flows primarily in the southeast direction, toward the Chesapeake Bay.

Groundwater on APG is monitored by 300 non-potable groundwater sampling wells at various environmental investigation/remediation sites across the installation. Preliminary results from the sampling of groundwater and surface water at APG indicate heavy metals, phosphorus, chemical agent breakdown by-products, and volatile organic compounds (VOCs). APG's IAP outlines a multi-year cleanup program for the installation, and identifies environmental cleanup requirements for the areas of concern (USACE, 2014).

4.6.3 Floodplains

According to FEMA, floodplains are defined as those areas that will be inundated by a flood event having a 1-percent chance of exceedance in any given year. Based on FEMA's Flood Insurance Rate Maps (FIRMs) for APG, several areas bordering the Chesapeake Bay, Bush River, and Gunpowder River on APG are within the 1-percent annual chance floodplain (Figure 4-4) (WRA, 2013).

Figure 4-4: Aberdeen Proving Ground Floodplains



EO 11988 directs Federal agencies to avoid floodplains unless the agency determines there is no practical alternative to undertaking the action in a floodplain. If building in a floodplain is the only practical alternative, an eight-step process, detailed in the FEMA document *Further Advice on EO 11988 Floodplain Management*, should be followed.

4.6.4 Wetlands

Wetlands are jointly defined by the EPA and the US Army Corps of Engineers (USACE) as “those 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. Wetlands generally include “swamp marshes, bogs and similar areas” (40 CFR 230.3(t) and 33 CFR 328.3(b)). USACE regulates the discharge of dredged or fill material in waters of the United States, including jurisdictional wetlands pursuant to Section 404 of the Clean Water Act (CWA).

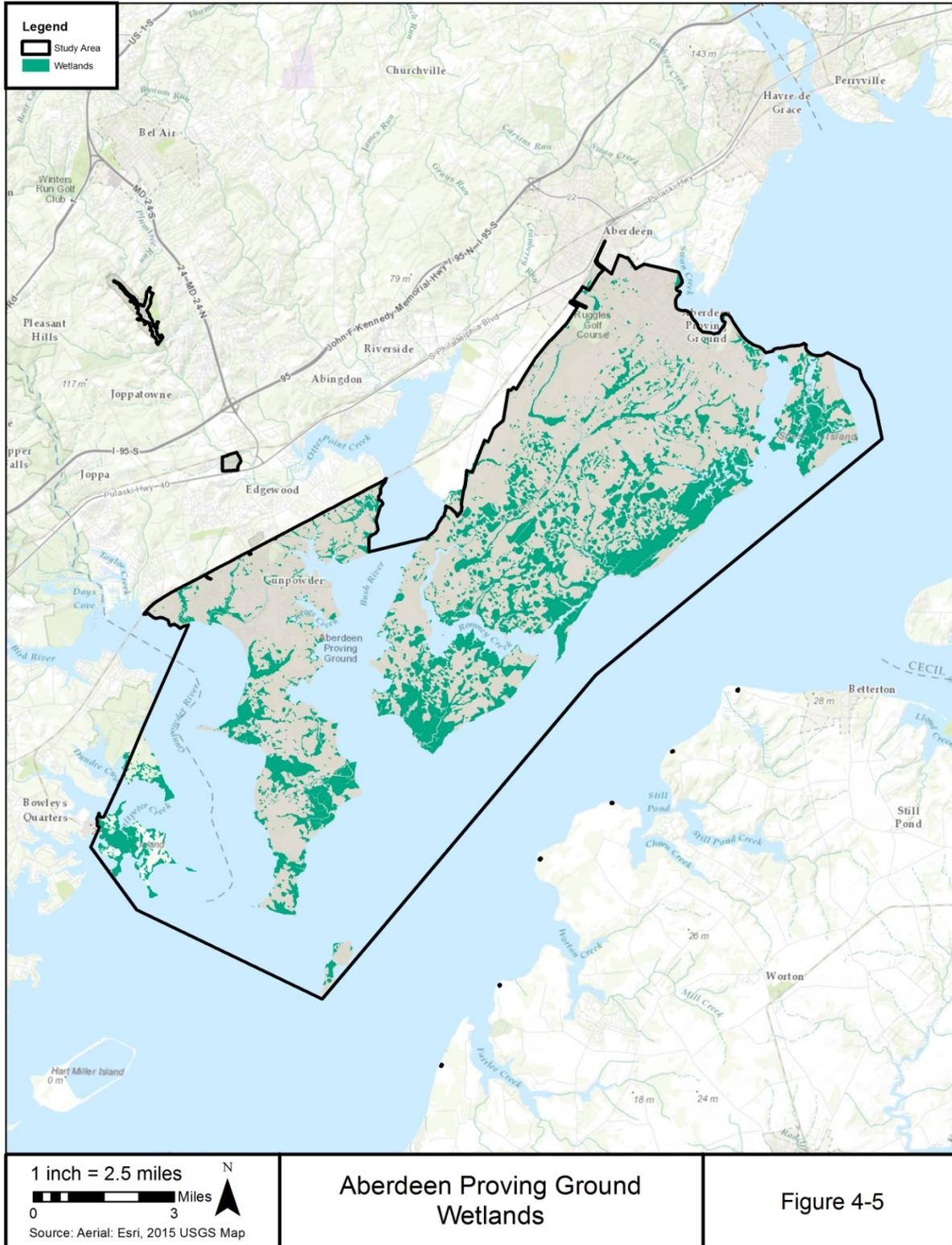
Section 404 of the CWA requires Federal regulation for most activities that impact wetlands. The Section 404 requirements support the goal of no net loss of wetlands. APG lies within the Chesapeake Bay watershed, a region supporting some of the most important wetland areas in the U.S.

The goal of Maryland’s Non-tidal Wetlands Act is no overall net loss of non-tidal wetland acreage and function. A permit is required for any activity that alters a non-tidal wetland or its 25-foot buffer. The 25-foot buffer is expanded to 100 feet for wetlands of special state concern as defined and designated in Code of Maryland Regulations (COMAR) 26.23.06. No wetlands of special state concern are located at APG.

EO 11990, *Protection of Wetlands*, requires Federal agencies take action to minimize the destruction, loss or degradation of wetlands. The order further requires Federal agencies to ensure that there are no practicable alternatives to such construction and that the Proposed Action includes all practical measures to minimize harm to wetlands which may result from such use. In making this determination agencies may take into account economic, environmental and other pertinent factors (USACE, 2014).

According to APG’s Draft 2015-2020 INRMP, 34.5% (13,600 acres) of APG’s land is identified as tidal and non-tidal wetlands. This was identified through the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), which was based on interpretation of aerial photography and limited ground-truthing surveys. This method is suitable for general planning purposes; however, detailed field delineation of wetlands would be necessary for future development (Figure 4-5) (EA Engineering, 2014).

Figure 4-5: Aberdeen Proving Ground Wetlands



4.6.5 Water Quality Certification

CWA water quality certifications provide the opportunity to address aquatic resource impacts of federally issued permits and licenses, in order to help protect water quality within the state. Under §401, a Federal agency cannot issue a permit or license for an activity that may result in a discharge to waters of the U.S. until they state where the discharge would originate or the Federal agency has granted or waived §401 certification. The state has the ability to grant, with or without conditions; deny; or waive certification. Granting certification, with or without conditions, allows the Federal permit or license to be issued consistent with any conditions of the certification. Denying certification prohibits the Federal permit or license from being issued. Waiver allows the permit or license to be issued without state comment. States make their decisions to deny, certify, or condition permits or licenses based in part on the proposed project's compliance with USEPA-approved water quality standards.

4.7 COASTAL ZONE

Maryland's coastal zone extends from the inland boundaries of the 16 counties and the City of Baltimore that border the Atlantic Ocean, Chesapeake Bay, and Potomac River, to the District of Columbia. It extends seaward to a distance of 3 miles into the Atlantic Ocean. The entirety of the APG installation lies within Maryland's coastal zone.

As required by the Federal Coastal Zone Management Act (CZMA) of 1972, Maryland established its Coastal Zone Management Program (CZMP), which was approved in 1978. Maryland's CZMP was established to protect the state's coastal zone through a network of state laws and policies. The CZMA requires that Federal actions likely to affect any land or water use or natural resource within the coastal zone must be enacted to the maximum extent practicable with the state's CZMP. These actions must also go through a federal consistency review (USACE, 2014).

4.7.1 Federal Consistency

Federal consistency refers to the review process mandated by Section 307 of the CZMA. This process includes submission of a consistency determination and supporting materials by the Federal proponent to the state. In Maryland, this process is carried out by the Coastal Zone Consistency Division of the Wetlands and Waterways Program of the Water Management Administration (WMA) within MDE. Although the WMA is responsible for the official consistency decision, other agencies within the CZMP network will also often provide findings that are considered in the decision (EA Engineering, 2014).

APG is entirely within Maryland's Coastal Zone Management CZMP area, which includes the Chesapeake Bay. Federal agencies are required to determine whether their activities are reasonably likely to affect any coastal use or resource and to conduct such activities in a manner consistent to the maximum extent practicable with the goals and objectives of Maryland's CZMP. The Proposed Action would be subject to these requirements as it is located within the Maryland defined Critical Area and per the Memorandum of Agreement between the State of Maryland and the DoD for the protection of Maryland's coastal resources.

A list and description of the specific enforceable policies for Federal Consistency determination for the State of Maryland can be seen in Article II of the recently signed Memorandum of Agreement between Maryland and the DoD. Please see Appendix B for a full list of these policies

and a description of the actions that would be taken for consistency with the MD CZMA enforceable policies.

4.7.2 Chesapeake Bay Critical Area

Maryland's federally approved CZMP incorporates implementation of the Maryland Chesapeake Bay Critical Area Act (Critical Area Act). In 1984, the Maryland General Assembly conducted the Chesapeake Bay Critical Area Protection Act to help protect the Bay's environment. It also created a statewide Critical Area Commission to oversee development and implementation of local land use programs directed toward the Critical Area. The land immediately surrounding the Chesapeake Bay and its tributaries has the greatest potential to affect its water quality and wildlife habitat; therefore, all lands within 1,000 feet of the tidal waters' edge or from the landward edge of adjacent tidal wetlands and the lands under them are designated as the Chesapeake Bay "Critical Area".

The Maryland Critical Area Commission does not permit new development activities within a 100-ft buffer of natural vegetation established landward from the mean high water line of tidal waters, tributary streams, and tidal wetlands, except those necessarily associated with water-dependent facilities. The Maryland Critical Area Commission developed criteria used by local jurisdictions, including Harford County, to develop individual Critical Area programs and amend local comprehensive plans, zoning ordinances, and subdivision regulations.

APG is developing a coastal zone and critical area management plan and a shoreline protection plan to prevent facility loss and enhance Chesapeake Bay habitat. Goals of the coastal zone management plan include minimizing impacts on water quality; conserving fish, wildlife, and plant habitat; maintaining, and if possible increasing the amount of forested area within the coastal zone at APG; and monitoring and controlling development within the Critical Area (EA Engineering, 2014).

4.8 BIOLOGICAL RESOURCES

Biological resources include native or naturalized plants and animals, as well as federally protected species and the habitats in which they live. Protected biological resources include plants and animal species listed by the State of Maryland as rare, threatened, or endangered, or by the USFWS as threatened or endangered. Special concern species are not afforded the same level of protection as the protected species, but their presence is taken into consideration by resource agency biologists involved in reviewing projects and permit applications (USACE, 2014).

4.8.1 Vegetation

Vegetative cover at APG consists of forest land, open land/meadow, and developed areas with maintained turf, and street trees. Approximately 35 percent of the total APG acreage is comprised of upland areas. Upland areas are dominated by forest vegetation, but also include maintained lawn/landscaped areas, fields, and developed areas (buildings and roads). The plants of APG are generally those typical of the Atlantic Plain physiographic province. A number of species are near the northern edge of their ranges. The variety of habitats on APG supports a variety of plants. Vegetation around most buildings at APG is "maintained habitat" in the form of lawn, primarily grass. Although much secondary forest growth and many wetlands are present on the installation, these are mainly located on the range areas of the installation. Major plant community types on

the land areas of APG include mixed deciduous forests, wetlands, meadows, and a variety of developed areas. Though most (as much as 90 percent) APG lands were farmland prior to military use, forests now cover approximately 15,862 acres of the land area at APG.

APG protects forested areas to the maximum extent practical in accordance with the Forest Conservation Act (FCA) while continuing to sustain and support current and future missions. APG manages its forest conservation program in accordance with the MDNR. In keeping with the FCA standards, mitigation for forest disturbances is determined by the Forest Conservation Plan, and ratios in the Maryland defined Critical and non-Critical Area (USACE, 2014).

4.8.2 Submerged Aquatic Vegetation

Submerged aquatic vegetation (SAV) is a diverse group of rooted aquatic plants found in shallow water areas of the Chesapeake Bay. This group of plants performs a number of irreplaceable ecological functions, which range from chemical cycling and physical modification of the water column and sediments, to providing food and shelter for commercial, recreational, and ecologically important organisms.

Since 1980, poor water quality, disturbance of SAV beds, and the alteration of shallow water habitats have contributed to the decline of SAV. The decline of SAV is commonly identified as one of the major ecological issues facing the Chesapeake Bay. Many shallow water areas around APG provide suitable habitat for SAV.

The Virginia Institute of Marine Sciences conducts annual aerial surveys to photograph and map SAV in the Chesapeake Bay. APG supports these efforts with ground surveys used in conjunction with the photography interpretation. The dominant species of SAV in the APG area include native species: wild celery (*Vallisneria Americana*), water stargrass (*Heteranthera dubia*), coontail (*Ceratophyllum demersum*), and Redhead Grass (*Potamogeton perfoliatus*) (USACE, 2014).

4.8.3 Wildlife Resources

Due to its diverse habitat, large expanses of undeveloped land, and location, APG is important to many bird groups, ranging from waterfowl, to raptors, to neotropical migrants. It is also home to a number of Forest Interior Dwelling Species, or FIDS (USACE, 2014). FIDS require large forest areas to breed successfully and maintain viable populations. This diverse group includes songbirds such as tanagers and warblers, as well as residents and short-distance migrants such as woodpeckers, hawks, and owls.

Approximately 250 species of birds may occur at APG throughout the year, including 108 species of non-migratory or waterfowl bird species. The installation also provides breeding, foraging, and wintering habitat for many of the 29 species of waterfowl that use the Chesapeake Bay, including mallards, black ducks, wood ducks, blue-winged teals, hooded mergansers, and Canada geese. Colonial waterbirds can be found seasonally at APG; they include: the great blue heron, snowy egret, common egret, green heron, and the black-crowned night heron. There are several great blue heron rookeries, two of the largest occurring at the head of Romney Creek and on Poole's Island.

As a participant in the North American Waterfowl Management Plan, the Army has established the APG Waterfowl Sanctuary System, which includes approximately 600 acres of important

nesting and feeding areas that are closed to waterfowl hunting. APG is located on the upper Chesapeake Bay and Atlantic Flyway, which is a major bird migratory route (USACE, 2014).

There are over 40 species of reptiles and amphibians on APG property. Most of these species inhabit the forests, wetlands, ponds, and streams. The most common reptile species include the Eastern box turtle and Eastern garter snake. Other common amphibians present include: the bullfrog, green frog, Northern spring peeper, Southern leopard frog, Fowler's toad, and the red-backed salamander.

Twenty-four mammalian species have been recorded as living on APG including the red fox, white-tailed deer, eastern cottontail rabbit, muskrat, gray squirrel, striped skunk, groundhog, and beaver. Aquatic fauna are found in APG's high quality water habitats. Freshwater fish species include: largemouth bass, pumpkinseed, bluegill, yellow perch, brown bullhead, channel catfish, white catfish, and carp. Additionally, the American shad, hickory shad, alewife, blue-back herring, striped bass, and white perch live in the brackish portions of APG and may potentially utilize the aquatic habitat. Atlantic sturgeon and short-nose sturgeon may potentially utilize the waters of APG. Blue crabs inhabit APG waters during their juvenile stages and parts of their adult stages. During their juvenile stages, blue crabs avoid predators and find food sources in the extensive beds of SAV in APG's waters. Blue crabs are critical to the economic health of Chesapeake Bay and depend on its ecological health to mature and thrive (USACE, 2014).

4.8.4 Bald Eagle

The bald eagle is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The bald eagle is no longer listed on the Endangered Species Act, so no critical habitat is designated for the species.

APG is located in the Upper Chesapeake Bay bald eagle concentration area, and supports breeding, migratory, and wintering eagle populations. APG supports an estimated 10 percent of the Maryland breeding population of bald eagles, and it supports one of the highest density of bald eagles in the Chesapeake Bay region. The breeding population of bald eagles at APG has increased from one known pair in 1977 to approximately 50 territorial pairs in 2007 (USACE, 2014).

Bald eagles typically like to nest in large trees with a clear view of shoreline foraging areas, or if nesting inland, within one mile of suitable foraging areas. They also typically use the same nesting territories year after year. All tidal waters within APG provide potential foraging habitats for bald eagles. They are mostly isolated from human disturbance, have an abundant supply of prey – both fish and waterfowl, and contain suitable trees for perching along the shoreline.

In late spring and early summer, post-nesting and sub-adult eagles migrate north from Florida and other southeastern states to spend the summer months in the Chesapeake Bay area, while eagles from northeastern Canada and the U.S. migrate to the area during late fall and early winter. APG is often a site with the highest summer and winter eagle populations in the upper Chesapeake Bay (USACE, 2014).

Non-breeding eagles are typically gregarious and establish communal roosts (areas where eagles gather and perch overnight). Communal roosts are typically positioned near major foraging areas

(large bodies of water), isolated from human disturbance, contain sustainable substrate for roosting, positioned in areas protected from harsh weather, and have a clear movement corridor between the roost and primary foraging areas. Communal roosts at APG have been documented along several creeks including Woodrest Creek, Mosquito Creek, Romney Creek, and Cooper's Creek. Many areas on the installation contain suitable communal roosting habitat.

APG has a Bald Eagle Management Plan (BEMP), which was approved by the USFWS in 2009. Habitat preservation is the cornerstone of the APG BEMP. However, this goal becomes increasingly challenging as the number of bald eagles utilizing APG lands increases, and eagles move into more developed areas. To protect the nesting habitat, a 500-meter (1640 feet) radius buffer is established around each bald eagle nest. Within this protective buffer, habitat modification (land clearing, timber harvesting, and vegetation removal) is strictly limited. Human activity and activities related to the military mission are also limited based on the nest location and the judgment of the Garrison Bald Eagle Biologist. An adaptive management strategy is employed to address allowable activities within buffers. Generally, nests located in remote areas are managed more conservatively than nests located in more developed areas that have higher levels of human activity. A similar protective buffer is established around known roost areas. Shoreline habitat is managed to minimize the loss of large shoreline trees that are used as perch trees by foraging bald eagles. At the time of the authoring of this document APG has submitted a Draft Environmental Assessment and FNSI for a Programmatic Permit for incidental take of eagles for public comment. The Programmatic Permit is under review by the United States Fish and Wildlife Service and would supersede the incidental take allowance, terms, and conditions of APG's 2006 Biological Opinion. The Programmatic Permit would be valid for five years, with an option to renew every five years.

Another component of the BEMP is to maintain protective measures (spinning reflectors, insulating covers) on overhead electrical lines, and to bury existing infrastructure and any new infrastructure in areas deemed to pose the highest risk to eagles. Electrical utility wires pose risks to eagles that may fly into the lines or be electrocuted from perching on lines or poles. APG has installed industry standard protective measures including spinning reflectors on lines ("flappers"), and insulating covers on transformer bushings, cutouts, jumper wires, and insulators. APG will continue to maintain these protective measures (USACE, 2014).

4.8.5 Rare, Threatened, and Endangered Species

Under the Endangered Species Act (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. The ESA also provides for recovery plans to be developed describing the steps needed to restore a species population.

The ESA requires APG to protect any endangered or threatened species found on its property, and APG must consult with USFWS on any action that may affect endangered or threatened species or that may adversely impact critical habitat.

Critical habitats, as defined by the ESA, are areas with physical or biological features essential to the preservation of a species that may require special management or protection. Federal agencies

are required to take precautions to not destroy or harm areas designated as critical habitat. The following considerations are made when determining critical habitat for a species: space for individual and population growth and normal behavior; cover or shelter; food, water, air, light, minerals, or other nutritional or physiological requirements; sites for breeding and rearing offspring; and habitats that are protected from disturbances or are representative of the historic geographical and ecological distributions of a species (USACE, 2014).

For this PEA, lists of federal and state listed Rare Threatened and Endangered species include species that are known to occur or have the potential to occur because requisite habitat occurs on the installation. A total of 22 federal and/or state listed species are found, or have the potential to occur, at APG. Table 4-7 lists these species (EA Engineering, 2014). Of the 14 federal and/or state listed animal species that may potentially exist on APG, only two are considered to occur on APG: Atlantic sturgeon and short-nose sturgeon. The remaining animal species have not yet been documented or were last documented over 14 years ago.

Table 4-7: Federal and State Listed Rare, Threatened, and Endangered Species that Occur or have the Potential to Occur at APG

| Scientific Name | Common Name | Status |
|---------------------------------|--------------------------|--------|
| Mammals | | |
| <i>Myotis sodalis</i> * | Indiana bat | FE |
| | | SE |
| <i>Myotis septentrionalis</i> * | Northern Long-Eared Bat | FT |
| | | --- |
| Reptiles and Amphibians | | |
| <i>Ambystoma tigrinum</i> | Eastern Tiger Salamander | --- |
| | | SE |
| <i>Glyptemys muhlenbergii</i> * | Bog Turtle | FT |
| | | ST |
| Birds | | |
| <i>Laterallus jamaicensis</i> * | Black Rail | --- |
| | | SE |
| <i>Sternula antillarum</i> | Least Tern | --- |
| | | ST |
| <i>Cistothorus platensis</i> * | Sedge Wren | --- |
| | | SE |
| <i>Ammodramus henslowii</i> | Henslow's Sparrow | --- |
| | | ST |
| Fish | | |
| <i>Acipenser brevirostrum</i> | Short-nose Sturgeon | FE |
| | | SE |
| <i>Acipenser oxyrinchus</i> | Atlantic Sturgeon | FE |
| | | --- |
| <i>Etheostoma sellare</i> * | Maryland Darter | FE |
| | | SE |
| Insects | | |

| | | |
|--------------------------------------|---------------------------------|-----|
| <i>Cicindela dorsalis dorsalis</i> * | Northeastern Beach Tiger Beetle | FT |
| | | SE |
| <i>Cicindela puritan</i> * | Puritan Tiger Beetle | FT |
| | | SE |
| Shellfish | | |
| <i>Alasmidonta heterodon</i> * | Dwarf Wedgemussel | FE |
| | | SE |
| Plants | | |
| <i>Ceratophyllum echinatum</i> | Prickly Hornwort | --- |
| | | SE |
| <i>Hottonia inflata</i> | Featherfoil | --- |
| | | SE |
| <i>Iris prismatica</i> | Slender Blue Flag | --- |
| | | SE |
| <i>Juncus torreyi</i> | Torrey's Rush | --- |
| | | SE |
| <i>Lathyrus palustris</i> | Vetchling Peavine | --- |
| | | SE |
| <i>Lycopodium carolinum</i> | Slender Clubmoss | --- |
| | | SE |
| <i>Lysimachia hybrida</i> | Lowland Loosestrife | --- |
| | | ST |
| <i>Potamogeton foliosus</i> | Leafy Pondweed | --- |
| | | SE |
| <i>Rhynchospora globularis</i> | Grass-like Beakrush | --- |
| | | SE |

(EA Engineering, 2014)

*Species have not been documented at APG, but appropriate habitat exists.

Note: Federal Status – Determined by the U.S. Fish and Wildlife Service

FE – Endangered – Species in danger of extinction throughout all or a significant portion of their range.

FT – Threatened – Species likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

FC – Candidate – Taxa for listing for which the Fish and Wildlife Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened. State Status – Determined by MDNR

SE – Endangered – A species whose continued existence as is determined to be in jeopardy.

ST – Threatened – A species which appears likely to become endangered in the State.

4.9 CULTURAL RESOURCES

Cultural resources are defined as prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for traditional, religious, scientific, or any other reason. Cultural resources include, but are not limited to buildings, structures, prehistoric and historic archaeological sites, native sacred sites, and cemeteries (EA Engineering, 2014).

APG manages historic properties through its Integrated Cultural Resources Management Plan (ICRMP). This plan identifies all previous and current cultural resource management activities and

needs that have occurred and continue at the installation; along with addressing and documenting all Federal historic preservation legislation and U.S. Army regulations pertinent to protecting these historic properties. Guidance and SOPs within the ICRMP allow APG to efficiently manage all known and unknown historic properties within the military mission. (EA Engineering, 2014).

4.9.1 Archaeological Resources

Archaeological resources consist of locations where prehistoric or historic activity measurably altered the earth or produced deposits of physical remains. According to APG's 2008 ICRMP, APG has one archaeological site eligible for listing in the National Register of Historic Places (NRHP) (USACE, 2014).

Because only a small percentage of APG's land (less than 1%) has been subject to systematic field survey, there are likely many additional archaeological sites within the installation's boundaries. The locations and contents of these sites can be predicted based on regional prehistoric site distribution and historic data sources. However, natural processes and human activities have heavily disturbed many areas that have a high potential for prehistoric or historic remains resulting in the loss of integrity for the site (APG, 2009).

4.9.2 Architectural Resources

Architectural resources include standing buildings, districts, bridges, dams, and other structures of historic significance. According to the 2008 ICRMP for APG, there are 17 architectural resources that are eligible for listing in the NRHP on APG (USACE, 2014).

Buildings on APG are assessed as specific groups on a case-by-case basis, but many have been inventoried previously. A number of buildings with potential historic significance have been adversely altered due to repairs and renovations in the past, resulting in the loss of integrity.

4.9.3 Native American Resources

Native American resources can include, but are not limited to, archaeological sites, burial sites, ceremonial areas, caves, mountains, water sources, trails, plant habitat or gathering areas, or any other natural area important to a culture for religious or heritage reasons. NRHP-eligible traditional sites are subject to the same regulations, and afforded the same protection, as other types of historic properties.

Many Native American groups either occupied or traveled through the area which is now APG. During the Contact Period (A.D. 1500-1764), the Susquehannocks dominated the area. Groups of Delaware, Mingo, Massawomans (most likely Mohawks), Powhatans, Nanticoke, Piscataway, Senecas, Oneidas, and others mostly likely traveled through the area. In 1999, the USACE, Baltimore District, completed an ethnohistory of APG. Comments received from Native American groups during public meetings in 1999 were incorporated into the draft ethnohistory, and additional research, including oral interviews, were conducted. Native American resources identified included two Native American burials on a Late Woodland site and a traditional use area (hunting grounds) along Deer Creek, northwest of APG (USACE, 2014).

APG will initiate consultation with federally recognized Native American groups that may be affected by any Proposed Action, pursuant to 36 CFR 800.2. To ensure that any sites of traditional

cultural value are identified and adequately considered under any future projects, APG will send correspondence to the tribes announcing the Proposed Action and requesting their concerns.

4.10 HAZARDOUS, TOXIC, AND RADIOACTIVE SUBSTANCE

A hazardous substance is defined as any substance that is 1) listed in Section 101(14) of CERCLA; 2) designated as a biologic agent and other disease causing agent which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such persons or their offspring; 3) listed by the U.S. Department of Transportation as hazardous materials under 49 CFR 172.101 and appendices; or 4) defined as a hazardous waste per 40 CFR 261.3 or 49 CFR 171.

OSHA's definition includes any substance or chemical which is a "health hazard" or "physical hazard," including: chemicals which are carcinogens, toxic agents, irritants, corrosives, sensitizers; agents which act on the hematopoietic system; agents which damage the lungs, skin, eyes, or mucous membranes; chemicals which are combustible, explosive, flammable, oxidizers, pyrophorics, unstable-reactive or water-reactive; and chemicals which in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists or smoke which may have any of the previously mentioned characteristics. (Full definitions can be found at 29 Code of Federal Regulations (CFR) 1910.1200.)

EPA incorporates the OSHA definition, and adds any item or chemical which can cause harm to people, plants, or animals when released by spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. (40 CFR 355)

DOT defines a hazardous material as any item or chemical which, when being transported or moved in commerce, is a risk to public safety or the environment, and is regulated as such under its Pipeline and Hazardous Materials Safety Administration regulations (49 CFR 100-199), which includes the Hazardous Materials Regulations (49 CFR 171-180). In addition, hazardous materials in transport are regulated by the International Maritime Dangerous Goods Code; Dangerous Goods Regulations of the International Air Transport Association; Technical Instructions of the International Civil Aviation Organization; and U.S. Air Force Joint Manual, Preparing Hazardous Materials for Military Air Shipments.

The NRC regulates materials that are considered hazardous because they produce ionizing radiation, which means those materials that produce alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. This includes "special nuclear material," by-product material, and radioactive substances. (See 10 CFR 20).

Regulatory Background APG fulfills all requirements of the following federal, state, and Army regulations including:

- APG Pollution Prevention Plan
- APG Regulation 200-60 Hazardous Waste Management
- Comprehensive Environmental Response, Compensation, and Liability Act
- Superfund Amendments and Reauthorization Act (SARA)
- Toxic Substances Control Act
- Occupational Safety and Health Administration Hazard Communication Standard
- 29 CFR 1910.1200, Hazard Communication Standard, 2001
- APGR 385-4, APG Safety and Occupational Health Program
- Federal Acquisition Regulation
- AR 700-141, Hazardous Materials Information Resource System
- DoD Directive 4140.25M, Procedures for the Management of Petroleum Products
- DoD Directive 4150.7, Pest Management Program
- DoD Directive 5030.41, Oil and Hazardous Substances Pollution Prevention and Contingency Program
- EO 12580. Superfund Implementation
- Hazardous Waste Regulations (40 CFR Parts 260-279)
- Superfund Amendments and Reauthorization Act (Public Law 99-499)
- Spill Prevention, Control, and Countermeasure Rule (40 CFR Part 112)
- Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response standard (29 CFR 1910.120 and 1926.65)
- DoD Directive 4145.26M, DoD Contractors' Safety Manual for Ammunition and Explosives, 1997
- Explosives Safety Policy for Real Property Containing Conventional Ordnance and Explosives "Army Specific" HQDA Letter 385-00-2
- DoD Directive 6055.9, DoD Explosives Safety Board and Component Explosives Safety Responsibilities, July 29, 1996, Chapter 12, "Real Property Contaminated with Ammunition, Explosives or Chemical Agents"

Specific hazardous material guidance is also covered in AR 200-1 which establishes policies and procedures to protect the environment, including environmental responsibilities for the Department of the Army (DA), major commands, and installations. It directs Army staff to follow applicable environmental regulations of final governing standards and Army environmental quality policies pertaining to the Emergency Planning and Community Right-to-Know Act (EPCRA), RCRA, and CERCLA, also known as the Federal Superfund Law. It also defines the Army's goal of continually managing and reducing the generation of hazardous waste, through waste identification and disposal, records management, and training programs.

4.10.1 Environmental Compliance Management Plans

APG follows the U.S. Army's Hazardous Materials Management Policy (HMMP) that fulfills the requirements of the Federal, state, and Army regulations as specified therein (DA, 2010). The manual includes procedures for maintaining inventory data and for procuring, receiving, and tracking hazardous materials. In addition, APG policies and regulations include:

- APG Regulation 200-1 Environmental Quality Control
- APGR-200-50 Solid Waste Management Regulation,

- Guidance for Proper Management of Excavated Soil,
- APG Lead Hazard Management Program – Lead and Waste Characterization and Disposal Plan,
- APGR-200-30 Air Quality Regulations,
- APG-Asbestos Management Program – Asbestos Notification Form MDE-259, and
- APG 200-60, Hazardous Waste Management.
- APG Regulation 200-41 Water Quality Management
- APG Regulation 200-7 Source Water Protection Area Management Strategies
- APG Regulation 200-30 Air Quality Management Aberdeen Proving Ground
- DPW 01 Aberdeen Proving Ground (APG) guidance for Code of Maryland COMAR listing and Delisting for Chemical Agent Wastes
- DPW 03 Pollution Prevention Policy
- DPW 05 Paints and Coatings Policy
- DPW 07 APG Environmental Policy
- DPW 10 APG Policy on Coordinating Environmental Issues with Federal, State and Local Officials
- DPW 11 Special Medical and Related Veterinary, Toxicology/ and Biotechnology Wastes Management
- DPW 17 Aberdeen Proving Ground (APG) National Environmental Policy Act (NEPA) Policy
- DPW Plan Chapter 8, Environmental Release Prevention and Response Plan to the APG Emergency Response Plan

APG also maintains a Hazardous Waste Tracking System to track all generated hazardous wastes from their generation through off-site disposal.

The APG Hazardous Waste Regulation (APGR) 200-60 specifies policies, assigns responsibilities, and establishes procedures for the management and disposal of hazardous waste generated at APG.

The APG Spill Prevention, Contingencies and Countermeasures Plan (SPCCP) addresses requirements, response, organization, assessment, establishment of priorities, environmental considerations, recommended cleanup techniques, training, and preventative maintenance.

The Aberdeen Proving Ground Pollution Prevention Plan (P2 Plan) establishes the Installation's commitment to environmental leadership in pollution prevention and outlines the concepts and practices necessary to reduce the use of hazardous materials and the release of pollutants to as near zero as is feasible.

4.10.2 Hazardous Materials Use

Hazardous materials are utilized at APG during research, development, and testing activities. APG's primary goal is to reduce toxic and hazardous materials and waste generation through the identification of proven substitutes and established facility management practices (e.g., pollution prevention). APG's HMMP and Hazardous Materials Management Procedures Manual provide the baseline hazardous materials requirements for all Garrison, tenant activities, and contractors.

Reporting of hazardous chemical storage quantities and locations is required under and conducted in accordance with EPCRA. Physical and/or virtual HAZMARTs serve as the primary point of entry for hazardous materials data, provide hazardous material inventory reporting, facilitate the sharing of excess materials among Installation activities, generate reports to guide P2 activities, and maintain Safety Data Sheets (SDS). Multiple automated systems track all Installation HAZMAT inventories for those hazardous materials used and stored on-site.

4.10.3 Hazardous Waste Treatment, Storage and Disposal

APG is regulated as a large quantity generator by the MDE. Typical hazardous waste generation for APG is 300,000 to 500,000 pounds annually, with special projects and restoration activities that typically contribute additional quantities. A wide variety of hazardous wastes are generated primarily from research, development, and testing activities performed by tenants (e.g., at the Edgewood Chemical Biological Center) and ongoing remediation activities. Other hazardous waste streams are generated from facility, motor vehicle, aircraft and electronic systems maintenance. The Installation also generates large quantities (i.e., typically greater than one million pounds per year) of industrial wastes that do not meet hazardous waste criteria; however, these wastes require special management and disposal to protect human health and the environment.

Hazardous waste generators at APG are required to properly collect, manage, and characterize their wastes at the point of generation. Waste-generating activities accumulate small quantities of hazardous waste at close to 300 satellite accumulation sites (SASs) located throughout the Installation. Most are found in research laboratories. The Installation also operates 12 each, 90-day storage sites designed for the accumulation and receipt of larger quantities of waste. From these sites, hazardous wastes are turned over to the Directorate of Public Works (DPW) Hazardous Waste Branch (HWB) for interim storage and off-site contract disposal at authorized commercial treatment, storage and disposal facilities located around the Country. Due to its research, development, test and evaluation activities, APG operates 9 units, or facilities, for the on-site treatment and/or long-term (up to one year) storage of certain toxic and explosive wastes. The MDE and US EPA Region 3 have issued hazardous waste and organic air emissions control permits, respectively, to tightly control their activities. Inspection cadre from the DPW-HWB and larger tenant organizations conduct daily, weekly, quarterly, semi-annual and annual inspections of different aspects of APG hazardous waste management program to ensure compliance with state and federal regulations.

4.10.4 Existing Contamination

Historical testing, training manufacturing, and disposal activities at APG have led to numerous sites with contaminated soil, sediments, groundwater, and/or surface water. Chemical research programs and manufactured chemical agents as well as testing, storage, and disposal of toxic materials have previously occurred on the Edgewood Area. Primary contaminants of concern include asbestos, chemical weapon munitions, chemical agents, dioxins/dibenzofurans, explosives, herbicides, metals, munitions and explosives of concern, munitions constituents, perchlorate, pesticides, petroleum oil and lubricants, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), radionuclides, semivolatile organic compounds (SVOCs), VOCs, and white phosphorus. Soil contamination from historical activities includes VOCs, metals, and

unexploded ordinances (UXO). Surface water contamination from historical activities includes metals, pesticides, phosphorus, and VOCs (USEPA, 2011). Groundwater plumes are also located across both the Aberdeen and Edgewood areas, with some plumes highly contaminated with VOCs. As such, vapor intrusion into buildings is a concern throughout the Installation.

4.10.5 Installation Restoration Program

The DoD's Installation Restoration Program (IRP) was established to provide guidance and funding for the investigation and remediation of hazardous waste sites caused by historical disposal activities at military installations. The fundamental goal of the APG IRP is to protect human health, welfare, safety, and the environment, to include ecological receptors. APG has participated in the Army's IRP since 1976, when the key Army agency conducting IRP actions at APG was the U.S. Army Toxic and Hazardous Materials Agency [(THAMA), now known as the U.S. Army Environmental Command (AEC)]. In 1983, APG assumed total management responsibility of its IRP projects. In 1984, the Defense Appropriation Act established a transfer account to fund the IRP for DoD installations. In 1989, Michaelsville Landfill in APG-AA was listed on the National Priorities List (NPL), while in 1990 all of APG-EA was listed on the NPL, whereby the NPL is a compilation of private and Federal hazardous waste sites determined by USEPA for prioritized action based on a release or potential for release of contaminants.

In March 1990, a Federal Facilities Agreement (FFA) between the U.S. Army, APG and the EPA Region 3 for APG was signed. An FFA is a formal agreement between EPA, the State, and the Army that establishes objectives, responsibilities, procedures, and schedules for remediation. Although not a formal partner in the FFA, the State of Maryland is actively involved in all aspects of the IRP via coordination between APG and the Maryland Department of the Environment. The FFA establishes a procedural framework and schedule for compliance with all applicable and relevant and appropriate requirements with regard to CERCLA study and remediation of 13 identified study areas in APG-AA and APG-EA. The IRP is implemented subject to and in a manner consistent with CERCLA (1980) as amended by SARA (1986) and CERCLA's implementing regulation, the NCP. APG's IRP includes over 252 sites in 13 study areas encompassing both APG-AA and APG-EA. Of these sites, 149 are considered "Response Complete" requiring no further action. Natural resources management is limited on IRP sites as long as remediation efforts at these sites are ongoing.

4.10.6 Pesticides

APG's Directorate of Public Works is responsible for the Pest Management Program at APG. The APG Pest Management Program details, identifies, and assigns priorities to the pests and their destructive effects so decisions can be made for any particular level of protection. Program priorities are: 1) control disease vectors and reservoirs of medical importance; 2) control real property pests; 3) control of stored product pests; 4) control general household and nuisance pests; 5) control ornamental and turf pests; 5) control miscellaneous pests; 6) control quarantine pests; 7) control weeds; 8) carcass disposal; and 9) golf course pest control activities. The Secretary of Defense mandated that installations reduce pesticide usage 50 percent by the year 2000, and APG has met this target.

The current program to reduce pesticide usage is managed by the APG Entomologist who is responsible for implementing the APG Integrated Pest Management Plan (IPMP). The IPMP

provides a framework through which pest problems can be effectively addressed at APG. Elements of the program, including health and environmental safety, pest identification, pest management, pesticide storage, transportation, use and disposal are defined within the plan. Used as a tool, the IPMP reduces reliance on pesticides, enhances environmental protection, and maximizes the use of integrated pest management techniques. Pesticides are stored at the entomology building, and used on APG in accordance with all applicable Federal, State, and Installation guidelines.

4.10.7 UXO

The DoD recognizes its responsibility to protect the public from the potential hazards associated with military operations, both past and present. This is particularly true with regard to DoD's use of military munitions in training and testing. To minimize the risk of UXO detonation, all areas suspected of having UXO are subject to specific digging clearance procedures and physical security measures preventing access.

In accordance with APGR 385-7, Excavation Permit Program, all excavation/earth disturbance activities within the boundaries of APG require the preparation of an excavation permit. UXO clearance requirements are to be evaluated and documented in the excavation permit.

4.11 UTILITIES

Utilities at APG consist of potable water supply and distribution, wastewater systems, stormwater systems, energy sources, communications, and solid waste. Harford County, Maryland and the Cities of Aberdeen and Edgewood provide several services to the Installation. Many utility services for APG are privatized or in the process of being privatized.

The potable water delivery systems within APG-AA and APG-EA are two separate systems. The Aberdeen Area water system is privatized by agreement with the City of Aberdeen, whereas the Edgewood Area is not; however, privatization of the system could occur within the next two years.

Baltimore Gas and Electric (BGE) supplies APG with electricity via a 110-kilovolt transmission line from BGE's Perryman Island Power Plant to the Aberdeen Area's Harford substation in the northwest corner of the APG-AA Cantonment and Edgewood's Magnolia substation in the northwest corner of the APG-EA Cantonment. APG-AA and APG-EA have a capacity of 30 megavolt-amperes. APG-AA is close to meeting full capacity, but APG-EA has adequate capacity with approximately 40 percent spare capacity.

Operations and Maintenance Division (OMD) is responsible for management of the Energy Conservation Program on the Installation, and APG has partnered with BGE to manage and perform energy efficient lighting retrofits for interior lighting systems. This program will help APG meet its commitment to the EPA Green Lights Program (U.S. Army Garrison 2008). The electric system at APG is privatized; BGE owns the main substations entering the Installation. There is one main substation in APG-EA (Magnolia Substation) and two in APG-AA (Harford Substation and Aberdeen Substation). Once the transmission lines leave the substations, they are the property of City, Light and Power.

Some buildings on APG were serviced by a combination of sanitary sewers and chemical sewers/storm drains. Laboratories on APG could include chemical sewer systems, which represent

potential sources of contamination from agent-related work on the site. A characterization report would be completed in order to determine the presence of chemical sewers prior to demolition and the removal of utilities.

4.11.1 Regulatory Framework

Utilities include energy sources, potable water, wastewater systems, stormwater systems and solid waste management. Applicable federal, state, and DA regulations include (U.S. Army Garrison 2008):

- CWA Regulations (33 CFR 320-330, 335-338; 40 CFR 104-140, 230-233, 401-471)
- RCRA I
- Safe Drinking Water Act Regulations (40 CFR 141-149)
- MDE Regulation of Water Supply, Sewage Disposal, and Solid Waste (COMAR Title 26, Subchapter 4)
- Oil Pollution and Tank Management (COMAR Title 26, Subchapter 10)
- DoD Directive 4165.60, Solid Waste Management – Collection, Disposal, Resource Recovery and Recycling Program

4.11.2 Stormwater

Stormwater is defined as rainwater that flows overland; accumulates in gutters, ditches, and culverts; and travels through storm drains to streams (APG, 2011a). The stormwater drainage systems within developed areas of APG are managed by a series of catch basins and storm sewers; in less developed areas the storm sewer systems are comprised of piped storm drainage networks, drainage ditches, and swales (APG, 2011a). APG-AA has stormwater retention ponds to control stormwater runoff.

Provisions of COMAR 26.17.02.01 require that all jurisdictions in Maryland implement a stormwater management program to control the quality and quantity of stormwater runoff resulting from new development (MDE, 2010). The primary goals of the state and local stormwater management programs are to maintain after development, as nearly as possible, the predevelopment runoff characteristics, and to reduce stream channel erosion, pollution, siltation and sedimentation, and local flooding by implementing environmental site design to the maximum extent practicable and using appropriate structural best management practices only when necessary.

COMAR Title 26.17.02.05 (when stormwater management is required) exempts any developments that do not disturb more than 5,000 SF of land area or 100 cubic yard (CY) of earth. Conversely, developments disturbing more than 5,000 SF of land or 100 CY of earth require stormwater management. The Stormwater Management Plan requirements are outlined in COMAR 26.17.02.09.

4.11.3 Solid Waste

DPW-Environmental Division (DPW-ED) is responsible for management of solid waste and recycling programs. All solid wastes are removed by a private contractor while APG records and manages disposal by fulfilling the Quality Reporting Requirement. APG Complies with the AR

200-1, *Environmental Quality*; AR 420-49, *Utility Services*; and the applicable elements of federal, state, and local regulations which set forth direction and general policy for solid waste management. APG maintains an Integrated Solid Waste Management Plan that reflects Army Policy regarding solid waste diversion goals for municipal solid waste and construction and demolition waste. Currently the 2004 Integrated Solid Waste Management Plan is being updated and for the next 10 years it will emphasize recycling and reuse as well as source reduction to meet the new Army goals.

Kirk U.S. Army Health Clinic (KUSAHC) obtains medical waste disposal services through a U.S. Army Medical Command (MEDCOM) contract. Edgewood Chemical Biological Center, US Army Public Health Center, 1st Area Medical Lab, and Army Research Lab receive services through the DPW-managed Hazardous and Industrial Waste Disposal contract. All medical waste is collected by private contractors and either incinerated or autoclaved (followed by landfill disposal) offsite at appropriately permitted and authorized solid waste disposal facilities.

4.12 TRANSPORTATION

APG-EA is located in Baltimore and Harford Counties and APG-AA is located in Harford County. The installation lies approximately 20 miles northeast of the city of Baltimore. Baltimore-Washington Airport in Baltimore Maryland is the nearest major airport. The nearest major population center is Aberdeen, Maryland which is four miles and a 10 minute drive to the main gate at APG. The APG installation includes APG-AA and the APG-EA, as well as, other parts of APG not attached to the main installation including the Churchville Test Area in Harford County, and the Carroll Island and Graces Quarters Areas in Baltimore County, Maryland.

All entrances to APG are accessible regionally from Interstate 95 (I-95), which is located three miles northwest of APG and is a national freeway. It connects APG to Baltimore Maryland, Washington, D.C., and other points south; and Philadelphia, Pennsylvania, Wilmington, Delaware, and other points north. U.S. 40 runs parallel to I-95 and is closer in proximity to APG. Major state highways provide access to the main APG gates (the Magnolia Road Gate, the Wise Road Gate, and the Hoadley Road Gate) from I-95 and U.S. 40, including MD 22 (Aberdeen Thruway/Harford Boulevard), MD 715 (Shore Lane/Maryland Boulevard), MD 755 (Edgewood Road), MD 24 (Emmorton Road), and MD 152 (Magnolia Road).

4.13 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE AND PROTECTION OF THE CHILDREN

Socioeconomics describes a community by examining its social and economic characteristics. Demographic variables such as population size, level of employment, and income range assist in analyzing the fiscal condition of a community and its government, school system, public services, healthcare facilities and other amenities. Socioeconomic information can be seen in Table 4-8.

4.13.1 Employment

During the day, the population at APG consists of military personnel, military family members residing on the Installation, DoD civilians, and civilian contractors. The total population at APG prior to the start of BRAC was 15,841 (ASIP COP Report, 2013), and the population increase as a result of BRAC resulted in a current total workforce of approximately 21,412.

4.13.2 Economy

The regional economic activity for Anne Arundel, Baltimore City, Baltimore, Carroll, Cecil, Harford, Howard, and Queen Anne's Counties is influenced by APG. Harford and Cecil Counties realize the greatest social and economic effects from the installation's presence and serve as the primary region of influence for the social and economic environment. APG has long been a major economic source in northeastern Maryland and is the single-largest employer in Harford County, employing 4.5% of the Harford County's labor force of 244,826 people. Only 5,300 of the APG workforce live in Harford County, with the remainder commuting into the area.

4.13.3 Housing

Family housing on Aberdeen Proving Ground has been privatized under the Residential Communities Initiative and is managed by Corvias (DA, 2014). Housing is located across from the Research Development and Engineering Command Buildings 3071, 3072, and 3073, as well as on Plumb Point Loop (U.S. Army Garrison, 2008). On APG-EA, family housing is located along the northern edge of the Installation, along Everette Road, and in the southwestern corner of the Installation west of the 4400 Block (APG, 2014).

4.13.4 Environmental Justice

Environmental justice at APG pertains to three Presidential Executive Orders: EO 12898, *Federal Actions to address Environmental Justice in Minority and Low-Income Populations*; EO 13084, *Consultation and Coordination with Indian Tribal Governments*; and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. The purpose of each of these Executive Orders is to avoid disproportionately high and adverse environmental, economic, social, or health impacts from federal actions and policies on these population groups.

On February 11, 1994, President Clinton issued Executive Order 12898, the purpose of which was to avoid the disproportionate placement of adverse environmental, economic, social, or health impacts from federal actions and policies on minority and low-income populations or communities. An element emanating from this Executive Order was the creation of an Interagency Federal Working Group on Environmental Justice composed of the heads of 17 federal departments and agencies, including the Army. Each department or agency is to develop a strategy and implementation plan for addressing environmental justice.

It is the Army's policy to comply fully with Executive Order 12898, dated February 11, 1994 (Environmental Justice in Minority Populations), and requires that proponents of Federal projects assess potential impacts of proposed project on low income or minority populations. Information on minority and low income populations in the project are as follows.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires Federal agencies to identify, assess, and address disproportionate environmental health and safety risks to children from federal actions.

The Proposed Action region of influence encompasses the entire APG boundary, thus the primary source for identifying socioeconomic data was Census Tract 3065 which covers the same area. The term minority refers to people who classified themselves as African Americans, Asian or

Pacific Islanders, American Indians, Hispanics of any race or origin, or other non-white races. Minority communities may be defined as areas where racial minorities comprise 50 percent or more of the total population or minority races comprise less than 50 percent of the total population. Low-income communities may be defined as those where 25 percent or more of the population is characterized as living in poverty (U.S. Census Bureau, 2012). Table 4-8 provides statistics that characterize the minority and low-income populations within the Region of Influence as captured in U.S. Census.

Table 4-8: Socioeconomic Figures

| Socioeconomic Topic | Value |
|--------------------------------|--------------|
| Median Household Income | \$66,708 |
| Total Population | 2,194 (5%) |
| Total Number of Houses | 754 |
| Total number of Vacancy Houses | 432 |
| Total Child Population | 727 |
| Poverty level | 110 (14%) |
| Minority | 1,108 (50%) |
| Hispanic | 308 (14%) |

Source: Census Bureau 2012 American Community Survey 5 year data

5.0 SUMMARY OF ENVIRONMENTAL IMPACTS

The following section describes the anticipated environmental impacts associated with implementing the Proposed Action and the No Action Alternative. The No Action alternative acts as a baseline condition, assuming that the Proposed Action would not take place and facilities or associated infrastructure contaminated with CWM, BWM, radiological material and MEC would not be demolished.

The method used to evaluate the overall importance of each impact was based on the following criteria:

1. **Nature** (beneficial or adverse, direct or indirect)

The nature of the impact can be described as positive (beneficial) or negative (adverse). Positive impacts enhance the quality or access to a resource, while negative impacts degrade the quality or limit access to the resource. Impacts are also described as direct or indirect. A direct impact is as an immediate result of an activity. An indirect impact arises from a project activity at the secondary level.

2. **Duration** (temporary or permanent)

The duration of an impact can be temporary or permanent.

3. **Areal extent** (regional, local, or isolated)

The areal extent of an impact refers to its area of influence and can be regional, local, or isolated to a particularly small and well defined area. An impact of regional extent exerts an influence far beyond the surroundings of the project area. The local area of influence refers to the communities located near APG that could be affected by the project. An isolated impact is limited in extent to a small, readily defined area.

4. **Intensity** (low, moderate, or high)

The intensity of an impact concerns the scale or size of the impact on a resource. Intensity is evaluated as negligible, minor, moderate, or significant. A description of each measure of intensity is as follows:

- *Negligible*: This term indicates that the environmental impact is barely perceptible or measurable, remains confined to a single location, and would not result in a sustained recovery time for the resource impacted (days to months).
- *Minor*: This term indicates that the environmental impact is readily perceptible and measurable; however, the impact would be temporary and the resource should recover in a relatively short period of time
- *Moderate*: This term indicates that the environmental impact is perceptible and measurable, and may not remain localized, impacting areas adjacent to the Proposed Action. Under the impact, recovery of the resource may require several years or decades.

- *Significant:* This term indicates significant impacts would occur. Under a significant impact, a resource may not recover and mitigation measures are considered to minimize the impact.

This section is organized by resource area following the same sequence as in the preceding Section 4.0. However, this section also includes a discussion of other environmental effects, including cumulative impacts and irretrievable commitment of resources that requires mitigation.

5.1 LAND USE

5.1.1 Environmental Criteria

The Proposed Action would be considered to have a significant effect on land use if:

- It is inconsistent with existing land use plans or policies;
- It prohibits the viability of existing land use;
- Surrounding land use would be expected to substantially change in the short or long term;
- It conflicts with adjacent land use to the extent that public health or safety is threatened; and
- It is incompatible with planning criteria that ensures the safety and protection of human life and property.

5.1.2 Impacts from the Proposed Action

The Proposed Action would not result in significant adverse impacts to land use. Demolition of contaminated buildings would allow room for future mission use by removing unused hazardous structures that are potentially preventing future APG land development. The Proposed Action would not create a land use incompatibility and is anticipated to comply with APG's overall land use plan.

The Proposed Action would have either negligible or long-term beneficial impacts on land use. Future demolition projects are often in areas that are planned areas of development, or already highly developed. The demolition of contaminated buildings would free areas for future mission related activities and cause a long-term beneficial impact. During the demolition process short-term minor impacts could occur to land use through the use of construction vehicles, but would cease once demolition was complete. Future use of the parcels affected by the Proposed Action is not considered in this PEA; any future construction of buildings would be considered under a separate NEPA analysis to be determined by APG.

5.1.3 Impacts from the No Action Alternative

The No Action Alternative would not demolish contaminated unused, obsolete, and structurally unsound structures and thus limit the ability to maximize effective land use in developed areas, and cause moderate adverse long-term impacts to land use.

5.2 VISUAL IMPACTS

5.2.1 Environmental Criteria

The Proposed Action would be considered to have a significant effect to visual impacts if:

- Long term alteration of the viewshed that would require mitigation would occur;
- Negative alterations to the viewshed of a historical resource would be expected; and
- Not compliant with the overall viewshed of adjacent areas.

5.2.2 Impacts from the Proposed Action

The Proposed Action would not result in significant adverse impacts to visual aesthetics. The Proposed Action is almost entirely limited to previously disturbed and built environments, and the completed action would not conflict with the overall viewshed of APG.

Short term minor impacts are expected under the Proposed Action during the demolition process. After demolition, many debris and construction equipment will be present; however, as debris and materials are removed the visual impacts will dissipate. Visual impacts would be mostly limited to areas in the near vicinity of the demolition, only fugitive dust and smoke associated with the demolition process could be able to be seen off Post.

The Proposed Action would result in either negligible or long-term beneficial impacts to the overall APG viewshed. Buildings that are targeted for demolition are in various states of decay and could appear unsightly. After the building slated for demolition is removed it is expected to improve visual impacts by replacing dilapidated buildings with new construction and/or landscaping. New construction projects are subject to current standard building codes and APG installation design guide and regulations that may incorporate aesthetics while older structures did not have such concerns.

5.2.3 Impacts from No Action Alternative

The No Action alternative would result in long-term negative impacts to aesthetic and visual resources. Under the No Action alternative buildings would not be demolished and would continue to deteriorate, causing more unsightly structures within APG.

5.3 GEOLOGY, SOILS AND TOPOGRAPHY

5.3.1 Environmental Criteria

The Proposed Action would be considered to have a significant effect to geology, soils and topography impacts if:

- It causes the substantial loss of soils, or compaction to the extent that makes it impossible to establish native vegetation within two growing seasons;
- It disturbs a land area larger than 1,000 acres;
- It causes a permanent loss of soil productivity that results from converting previous soils into impervious ground on more than 5 percent of installation land;
- It results in topography that does not comply with the overall topography of adjacent land; and
- It removes or alters soils and causes structural instability to surrounding buildings or infrastructure.

5.3.2 Impacts from the Proposed Action

The Proposed Action would not result in a significant adverse effect to soils. The Proposed Action is not expected to increase the impervious surfaces on the base. After demolition and slab removal, the affected area could return to a vegetative state until a future facility or purpose is identified. The Proposed Action is not expected to cause substantial soil loss, or decrease soil productivity; therefore no significant adverse impacts to soils are anticipated.

A short-term minor adverse effect on soils would be expected from implementing the Proposed Action. Ground disturbance and soil compaction would be expected from using equipment during the demolition of facilities, slabs and associated infrastructure. The extent of the disturbance would depend on the size and configuration of the building, slab or associated infrastructure being removed, any associated structure that would be removed along with it (e.g., parking lot), and the manner in which the building is demolished (e.g., conventional demolition, deconstruction). Long term beneficial impacts are also expected due to the removal of BWM, CWM, radiological and explosive contaminants. The removal of contaminants will eliminate potential releases into the environment and therefore provide long term beneficial impacts to soils.

APG would obtain all necessary state and local permits to perform each building demolition (or, if appropriate, a permit to cover multiple building demolition actions at the installation). Specifically, any building that disturbed more than 5,000 square feet or more than 100 cubic yards of soil would need to submit an Erosion Sediment Control Plan (ESCP). The ESCP would be designed in accordance with MDE regulations as published in the “2011 Standards and Specifications for Soil Erosion and Sediment Control” (MDE, 2011). Standard erosion and sediment control techniques include using vegetative and structural protective covers (e.g., permanent seeding, groundcover), sediment barriers (e.g., straw bales, silt fence, brush), constructing water conveyances (e.g., slope drains, check dam inlet, and outlet protection), and repairing and stabilizing bare and slightly eroded areas quickly. Maryland’s “2010 Stormwater Management Guidelines for State and Federal Projects” would be followed to minimize adverse stormwater impacts from any work (MDE, 2010). APG would abide by state and local construction site permit requirements. Demolition site plans would include measures to minimize the total area of land disturbed, prevent soil erosion and sediment runoff on the site, and re-stabilize the site with vegetation following building demolition.

No Impacts to geology or topography are expected under the Proposed Action. The Proposed Action would not penetrate the earth to the depth in which a disturbance to the local geology would be anticipated. After demolition, slab removal and infrastructure removal, the land would be graded in order to be consistent with the surrounding topography.

5.3.3 Impacts from the No Action Alternative

No effect on soils would be expected as a result of the No Action Alternative. Under the No Action Alternative, no buildings would be demolished and no ground disturbance would occur; therefore, no soils, geology or topography would be disturbed or changed. Long term moderate negative effects could also be possible by the continued deterioration of contaminated facilities slabs and infrastructure. Deterioration of facilities and infrastructure could release previously contained hazardous materials and substances that volatilize over time and could be expected to create hazardous conditions to the surrounding soil.

5.4 AIR QUALITY AND GREENHOUSE GASSES

5.4.1 Environmental Criteria

The Proposed Action would be considered to have a significant effect on air quality and greenhouse gas impacts if:

- The impact exceeds the *de minimis* levels for a pollutant; and
- It leads to a violation of an air operating permit.

5.4.2 Impacts from the Proposed Action

A General Conformity Applicability Analysis was performed for the Proposed Action, which estimated the level of potential air emissions (CO, NO_x, VOC, SO₂, and PM_{2.5}). It is not anticipated that the Proposed Action would result in a significant adverse impact to Air Quality. Table 5-1 below shows the estimated emissions for demolitions within a 12 month period for each fiscal from 2016 to FY 2023. Calculations were derived from estimated square footage to be demolished in each fiscal year, with an additional 10% contingency added to accommodate changes in mission and unanticipated accelerated schedules.

Table 5-1: Estimated Emissions from a Large Demolition Project

| | Estimated Demolitions in Square Feet | VOC* | NO_x* | CO* | SO₂* | PM-10* | PM2.5* |
|--------------------------|---|-------------|------------------------|------------|------------------------|---------------|---------------|
| FY 16 | 523,639 | 0.77 | 7.40 | 3.92 | 0.20 | 20.10 | 3.63 |
| FY 17 | 278,044 | 0.58 | 5.57 | 2.95 | 0.14 | 15.09 | 2.73 |
| FY 18 | 208,857 | 1.50 | 14.33 | 7.59 | 0.37 | 38.90 | 7.03 |
| FY 19 | 538,297 | 1.50 | 14.32 | 7.58 | 0.37 | 38.87 | 7.03 |
| FY 20 | 538,021 | 0.81 | 7.80 | 4.13 | 0.21 | 21.18 | 3.83 |
| FY 21 | 293,009 | 1.38 | 13.12 | 6.94 | 0.34 | 35.61 | 6.44 |
| FY 22 | 492,809 | 1.14 | 10.92 | 5.79 | 0.29 | 29.66 | 5.37 |
| FY 23 | 410,456 | 0.26 | 2.56 | 1.35 | 0.07 | 6.94 | 1.25 |
| <i>de minimis levels</i> | | 50 | 100 | 100 | 100 | 100 | 100 |

**includes 10% contingency*

It is not anticipated that the Proposed Action will result in adverse effects to Air Quality. As demonstrated, each individual fiscal year is well below the *de minimus* threshold. However, due to the variability of each facility, contamination, demolition and remediation method, a Record of Non-Applicability should be prepared before each demolition to ensure estimations of emissions are accurate and compliance with the *de minimus* threshold. Schedule of demolitions should also be considered in order to not exceed APG's air operating permit.

The preferred alternative would create a short-term temporary impact on air quality from fugitive dust generated through the duration of the demolition. All demolition activities would be required to comply with federal, state, and current APG versions of regulations designed to support compliance with CAA, Occupational Safety and Health Administration (OSHA), and TSCA. Demolition is an activity that is specifically covered within the APG Air Quality Regulation (APGR 200-30). Mitigation measures that are required by the regulation include reasonable precautions to prevent particulate matter from becoming airborne. In addition, APGR 200-30 also covers activities related from demolition such as the use of generators, and demolition by open fire, which requires an air permit. All persons responsible for the operation, process, and handling of transportation of materials that could result in fugitive dust would take reasonable precautions to prevent such dust from becoming airborne.

Contaminated buildings are of special concern and may require special actions in order to control potential airborne emissions during decontamination operations. Each proposed demolition would calculate the expected air emissions for all potential pollutants and demonstrate conformity under the CAA. Sites that are proven contaminated will be monitored to establish base line conditions, and continue to be monitored throughout the demolition process in order to ensure emissions are below conformity levels under the CAA. Structures and associated infrastructure that are deemed contaminated will be evaluated prior to demolition in order to determine which decontamination measure should be implemented. Decontamination via high temperature thermal systems involves the use of specialized equipment to heat the inside of the building to temperatures that destroy chemical and biological agents and explosive residues. The exhaust emissions from the heating units themselves typically satisfy *de minimus* concentration levels (PIKA, Inc., 2008), and in some cases the technology may be capable of completely destroying the target chemicals without producing any detrimental emissions. All decontamination measures will use best management practices in order to reduce emissions and if necessary will utilize emission control technologies and other required mitigation technologies.

The Proposed Action is expected to comply with all air emission requirements and will follow the National Emissions Standards for Hazardous Air Pollutants (NESHAP). If regulated material is found within the building such as lead and asbestos, best management practices outlined in the 2009 Building Demolition PEA will be followed.

CEQ guidance, based on many previous NEPA analyses, suggest that individual project scale GHG emissions typically have small potential environmental effects (CEQ, 2010). According to the EPA an emission report must be filed if a Proposed Action generates CO₂ emissions that are above 25,000 metric tons. As a military base, Aberdeen Proving Ground already reports their emissions to the EPA, reporting a total of 33,282 Carbon Dioxide and Equivalents, (CO_{2e}) in 2013 (EPA, 2013). It is anticipated that the project would not cause a perceivable impact when compared to APG's overall CO_{2e} emissions. Mitigation efforts could be implied by maintaining emission control technology on construction equipment.

5.4.3 Impacts from the No Action Alternative

Under the No Action Alternative no demolitions activities would take place and general emissions would stay at their current rate.

Under the No Action Alternative unused facilities would be minimally maintained and would be expected to deteriorate over time. Deterioration of buildings and their hazardous materials could volatilize over time and would be expected to create hazardous air quality conditions inside some buildings resulting in a minor long term adverse impact.

5.5 NOISE

5.5.1 Environmental Criteria

The Proposed Action would be considered to have a significant effect to noise impacts if:

- It would raise the ambient noise level to such a state that it would be seriously incompatible with adjacent noise receptors; and
- It would substantially increase the number of people disturbed by the heightened noise levels on APG and off-post areas.

5.5.2 Impacts from the Proposed Action

A significant adverse impact on noise is not anticipated for the Proposed Action. Under the Proposed Action short-term negative effects are expected to occur throughout the demolition. The short-term negative effects would include temporary increases in noise levels resulting from demolition, heavy equipment and machinery that could affect personnel sensitive noise areas.

Noise due to demolition will vary depending on the demolition method, the types of construction equipment employed during demolition, the amount of each type of construction equipment, and the duration of construction equipment use. Heavy equipment produces the greatest amount of noise disturbances, and should be of special concern. Noise levels under the Proposed Action are expected to be consistent with operations at a military post, and are not expected to exceed the threshold limit values outlined in APG's ONMP. If the proposed demolition site is within 800 feet of a noise sensitive receptor, mitigation efforts could include limiting the Proposed Action activities to weekday business hours or using BMPs to minimize off-post noise.

Most demolition actions would not require blasting. If blasting was considered warranted, it would occur during regular operating business hours. Blasting noise would be clearly audible and intrusive to areas that are adjacent to the demolition site. There would be airborne as well as ground-borne vibrations for demolitions that require blasting. The amount of blasting would differ depending on the unique situation of each structure and steps would be taken to ensure impacts from noise would remain less than significant. A blasting plan would be prepared in order to ensure safety and to minimize adverse effects due to noise and vibration. Baseline vibration levels would be established, vibrations would be monitored, and thresholds for structural damage would be strictly adhered to during blasting activities. Appropriate safety procedures would be followed during excavation activities to minimize potential contact with UXO materials that may be present at the construction site. Any UXO materials uncovered will be disposed of in accordance with all current Army regulations and standard operating procedures. Special attention would be given to any nearby historic structures during blasting phases of demolition.

No additional noise evaluation would be required under NEPA, unless the project would have demolition activities 800 feet from the installation boundary for more than one year, or if the

proposed demolition would require blasting activities and a blast management plan has not been prepared.

5.5.3 Impacts from the No Action Alternative

No effect on the noise environment would be expected under the No Action Alternative. No demolition activities would be undertaken, and thus no changes in operations or increases to overall noise levels would take place.

5.6 WATER RESOURCES

5.6.1 Surface Water and Ground Water

5.6.1.1 Environmental Criteria

The Proposed Action would be considered to have a significant impact on surface water or groundwater if:

- It could cause an exceedance of a Total Maximum Daily Load;
- It could cause a change in the impairment status of a surface water; or
- It could cause an unpermitted direct impact on a water of the United States.

5.6.1.2 Impacts of the Proposed Action

Provided that a construction general permit for stormwater has been approved and implemented, runoff of stormwater and pollutants from a demolition site is considered to be in compliance with regulatory requirements and to not cause an impairment of surface waters or groundwater. Building demolitions under the Proposed Action, therefore, would not be expected to cause a Total Maximum Daily Load exceedance, a change in the impairment status of surface water, or an unpermitted direct impact on a water of the United States. The Proposed Action would therefore not be expected to have an adverse effect on a water resource.

The Proposed Action would result in long-term beneficial effects on groundwater and surface water, in most instances from removing impervious surface area (buildings and their foundations and other structures). Removing impervious surface area would increase soil infiltration, thus reducing the quantity of stormwater runoff. Where the action consists of removing an underground storage tank or some other type of small structure, the effect on groundwater and surface water would be negligible. Contaminants present in stormwater runoff from remediation and demolition operations would be contained at the worksite by using BMPs recommended or required by the state. Removal of contaminated underground infrastructure would result in long term beneficial impacts to ground water. Removal of the contaminated infrastructure would remove the risk of a potential release caused by decaying infrastructure and thus cause long lasting positive impacts to groundwater.

Additional evaluation under NEPA for water resources would be required if the project was within the buffer zone or riparian area of a surface water.

5.6.1.3 Impacts from the No Action Alternative

Long term moderate negative effects could be possible by the continued deterioration of contaminated facilities slabs and infrastructure. If left in place, deterioration of facilities and

infrastructure could release previously contained hazardous materials and substances that volatilize over time and could be expected to create hazardous conditions to surface and ground water.

Under the No Action Alternative, no facilities would be removed, so no ground or soil disturbance that could lead to sediment deposition in surface waters would occur, and no wetlands adjacent to the buildings would be disturbed. Additionally, no demolition equipment that could leak pollutants would be used. The amount of impervious area would not change under the No Action Alternative.

5.6.2 Floodplains

5.6.2.1 Environmental Criteria

The Proposed Action would be considered a significant adverse impact if it:

- Reduces water availability or supply to existing users;
- Overdrafts groundwater basins;
- Exceeds safe annual yield of water supply sources;
- Threatens or damages unique hydrologic characteristics;
- Endangers public health by creating or worsening health hazard conditions; or
- Violates established laws or regulations adopted to protect floodplains.

5.6.2.2 Impacts of the Proposed Action

The Proposed Action will take into consideration of the location of the 1-percent annual chance floodplain, and it will be incorporated into the planning of the demolition of contaminated buildings and their associated infrastructure. Measures will also be taken to avoid these areas or minimize impacts wherever possible.

EO 11988 directs that any new construction must avoid the floodplains as much as possible, and if construction in the floodplain cannot be avoided, flood protection measures must be undertaken to reduce the risk of flood-associated damages.

The Proposed Action involves demolition of existing buildings; therefore, negligible impacts on floodplains are expected under the Proposed Action. And no significant impacts to this resource are anticipated.

5.6.2.3 Impacts from the No Action Alternative

The No Action alternative would have no impacts to flood plains.

5.6.3 Wetlands

5.6.3.1 Environmental Criteria

Significant adverse impacts to wetlands would occur as a result of the Proposed Alternative if it:

- Fills or alters a portion of wetland that would cause irreversible negative impacts to species or habitats of high concern;
- Irreversibly degrades the quality of a unique or pristine wetland; and
- Results in reductions of population size or distribution of species of high concern.

5.6.3.2 Impacts of the Proposed Action

If a wetland could be affected by a facility removal action, a section 404 permit from the USACE would be required. The permit would specify how the affected wetlands are to be protected and any required mitigation, which could include compensatory action to protect or create wetlands elsewhere. Provided that the Proposed Action proponent meets the permit requirements, the action would be considered to have no net effect on wetlands.

Because any potential impact on wetlands would be permitted, no significant adverse impacts on wetlands would be expected under the Proposed Action.

5.6.4 Impacts from the No Action Alternative

There would be no impact on wetlands as a result of the No Action Alternative. Under the No Action Alternative, no facilities would be removed, so no ground or soil disturbance that could lead to sediment deposition into wetlands would occur, and no wetlands adjacent to the buildings would be disturbed.

5.6.5 Water Quality Certification

5.6.5.1 Environmental Criteria

Significant adverse impacts to water quality certifications would occur as a result of the Proposed Alternative if:

- Compliance with EPA-approved water quality standards would not be met.

5.6.5.2 Impacts of the Proposed Action

As part of compliance with the CWA, consideration of water quality will be incorporated into the planning of the demolition actions, and measures will be taken to minimize impacts wherever possible. A Water Quality Certification would be requested through the Joint Permit Application under Section 404 of the Clean Water Act, and would be prepared by MDE.

Provided that the Proposed Action is in compliance with EPA-approved water quality standards, there are no expected adverse impacts to water quality certification from the Proposed Action.

5.6.5.3 Impacts of the No Action Alternative

Under the No Action Alternative, no demolition work would be done, so no permits would be needed, and in turn, no water quality certification would be needed. Therefore, there would be no impacts to water quality certification from the No Action Alternative.

5.7 COASTAL ZONE

5.7.1 Environmental Criteria

Significant adverse impacts to costal zones would occur as a result of the Proposed Action if:

- Permits and mitigation required for construction within costal zones were not obtained.

5.7.2 Impacts from the Proposed Action

Factors considered in evaluating coastal zone management impacts include the potential for the Proposed Action to be inconsistent with the Federal and state enforceable policies.

As part of compliance with the Federal CZMA, the State of Maryland's CZMP and Maryland's Chesapeake Bay Critical Area Protection Act, consideration of the location of coastal zone and critical areas will be incorporated into the planning of the demolition actions, and measures will be taken to avoid these areas or minimize impacts wherever possible. Further analysis and a description of the Proposed Action's compliance with the Maryland CZMA is provided in Appendix B.

Because any demolition would only impact the existing building footprints and immediately surrounding areas, potential impacts to the coastal zone would be minimal and no significant adverse impacts are anticipated.

5.7.3 Impacts from the No Action Alternative

Under the No Action Alternative, there would be no disturbance of groundwater or surface water within the coastal zone; therefore, there would be no adverse impacts.

5.8 BIOLOGICAL RESOURCES

5.8.1 Environmental Criteria

The Proposed Action would be considered to have a significant impact on the biological environment if:

- It could result in a permanent net loss of habitat at a landscape scale;
- It could cause a long-term loss or impairment of a substantial portion of local habitat on which native species depend; or
- It could result in the unpermitted "take" of bald eagles or a threatened or endangered species.

5.8.2 Impacts from the Proposed Action

The Proposed Action would be implemented primarily in built environments on Army installations, and therefore no habitat disturbance or loss of habitat would be expected under the Proposed Action. Short term negative effects during demolition are possible due to noise disturbances, but would cease on the completion of demolition, and wildlife could return to their original habitats.

Long-term minor beneficial effects on flora and fauna could be possible if the Proposed Action was implemented. If the selected parcel would be revegetated with native vegetation, it could be of some benefit to the local flora and fauna. Therefore, there would be no adverse impacts to vegetation. Additionally, as these buildings are not located in areas where submerged aquatic vegetation (SAV) would be located, there would be no adverse impacts for SAV under the Proposed Action.

No significant adverse effects on bald eagles or on rare, threatened, or endangered species would be expected if the Proposed Action was implemented. For any structure to be demolished that falls within an eagle buffer, the project management team would be required to coordinate in advance

with the Garrison Bald Eagle Biologist for any required measures to avoid or minimize "take" or disturbance to eagles. An unpermitted "take" of a rare, threatened, or endangered species would not occur under the Proposed Action. If a Federal or state protected species was found in a facility to be demolished, the installation would consult with the USFWS, the National Marine Fisheries Service, or the responsible state agency (as appropriate) and appropriate steps would be taken to ensure the species was not harmed.

Such steps should include scheduling the demolition outside the breeding and nesting seasons or relocating the animal. It is highly unlikely that the Proposed Action would affect endangered or threatened plant species because the existing buildings that would be demolished are unlikely to provide habitat for these species. No adverse impacts on protected species, therefore, would be expected under the Proposed Action.

As of April 2, 2015 the Northern Long Eared Bat was listed as a federally threatened species. The range of the Northern long-eared bat encompasses both Baltimore and Harford Counties, and could therefore be encountered on APG. Northern long-eared bats winter in caves and mines, none of which are present on APG; however, in the late spring and summer the bats migrate to wooded areas and roost under loose tree bark on living or dead trees. APG has large forest stands that are suitable for roosting during the late spring and summer months. To ensure that no adverse effects occur to the Northern long-eared bat, potential demolition sites should be screened according to the IMCOM NLEB Programmatic Consultation Screening Criteria included in Appendix C. If the screening proves that conditions are favorable for the northern long eared bat, conservation measures outlined in Appendix C will be implemented and strictly adhered to as it is appropriate.

5.8.3 Impacts from the No Action Alternative

Under the No Action Alternative, there would be no disturbances that could impact vegetation, submerged aquatic vegetation, wildlife, bald eagles, or rare, threatened, or endangered species; therefore, there would be no adverse impacts.

5.9 CULTURAL RESOURCES

5.9.1 Environmental Criteria

Adverse effects on historic properties as a result of the Proposed Action include the following:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous substance remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within its setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features; and

- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

5.9.2 Impacts from the Proposed Action

APG will coordinate with the State Historic Preservation Office for buildings eligible or potentially eligible for inclusion on the NRHP, and all required mitigation would be completed before demolition would occur.

Demolition has the potential to damage known and unknown archeological sites that may be near or underneath the building. In the event that such a site was discovered during a demolition action, Standard Operating Procedures in the installation ICRMP would be followed to comply with the NHPA.

Additional evaluation under NEPA for cultural resources will be required if the project disturbed an archaeological resource (USACE, 2014). Because all State and National Historic offices would be consulted before any demolitions, significant adverse impacts to cultural resources are not expected.

5.9.3 Impacts from the No Action Alternative

Under the No Action Alternative, there would be no ground disturbance that could impact archaeological, architectural, or Native American resources; therefore, there would be no adverse impacts.

5.10 HAZARDOUS, TOXIC, AND RADIOACTIVE SUBSTANCES

5.10.1 Environmental Criteria

The Proposed Action would result in significant adverse impacts to the environment if planned demolition activities resulted in: a long-term (i.e., period of 5 years or more beyond completion of the legacy contaminated structure demolition) increase in the amount of hazardous materials or wastes to be handled, stored, used or disposed of; non-compliance with applicable federal and state regulations; and/or increased site contamination that could preclude future use of the proposed site.

5.10.1.1 Hazardous Materials

Products containing hazardous materials would be procured or produced during the proposed remediation and demolition activities. Only some decontamination would require the procurement of hazardous materials (eg: chlorine and super tropical bleach and other approved decontaminate agents), and it is anticipated that the required amount would be minimal and the use would be short in duration. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with federal and state regulations. Therefore, hazardous materials management at APG would not be impacted by the proposed activities. Because all materials would be handled in accordance with federal and state regulations, the Proposed Action is not anticipated to cause significant adverse impacts to hazardous materials.

5.10.1.2 Hazardous Wastes

Implementing the Proposed Action would not affect the management of hazardous material or hazardous waste. It is anticipated that the Proposed Action will result in a substantial quantity of construction and demolition (C&D) debris. A minority portion of this debris will be classified and/or handled as hazardous or industrial waste depending on the outcome of its pre-removal characterization. Contractors, with government oversight and coordination, would be legally responsible for the proper disposal of these wastes in accordance with all federal, state and APG regulations. The volume, type, classifications, and sources of hazardous wastes generated by the Proposed Action would result in moderate adverse impacts to the generation of hazardous wastes at APG.

5.10.1.3 Radiological Waste

In situations involving radiological material, the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) will be followed in order to demonstrate compliance with dose or risk based regulations or standards. MARSSIM provides a consistent approach for planning, performing, and assessing building surface and surface soil final status surveys to meet established dose or risk based release criteria, while at the same time encouraging an effective use of resources (MARSSIM, 2000). If radiological material is found after the survey, remediation will require a demonstration to the responsible Federal or State agency that the cleanup effort was successful and that the release criterion (a specific regulatory limit) was met.

5.10.1.4 Pesticides and Other Regulated Material

No impact to pesticides or other regulated material is anticipated. Remediation methods outlined within the 2009 Building Demolition PEA would be followed, and would be handled in accordance with federal, state and APG regulations. Pesticides and ORM are normally well controlled and are subject to rigorous management controls thus the Proposed Action is not anticipated to result in significant adverse impacts from Pesticides and ORM.

5.10.1.5 Installation Restoration Program

No significant adverse impacts are anticipated to the Installation Restoration Program sites under the Proposed Action. All precautions and standards will be followed in order to severely limit the risk of any accidental release of hazardous wastes. Short term, minor adverse impacts are not expected, but are possible if hazardous materials or waste spills occur. Depending on the type and severity of a release, an action that resulted in a release, or a discovery of a previous contamination, would have to be added to the IRP and could be subject to the CERCLA process. APG has an IRP due to historical disposal activities. If a release does not occur, no impacts are expected from the Proposed Action. Any spills that have the potential to occur would be properly handled under state, federal and APG guidelines.

5.10.1.6 Unexploded Ordinance

It is probable that when removing contaminated slabs and associated infrastructure UXO mitigation would be required. Removal of UXO is necessary in any areas where the soil would be

disturbed if the Proposed Action were to be implemented. To minimize the risk of UXO detonation, all areas suspected of having UXO are subject to specific digging clearance procedures and physical security measures preventing access. Long term beneficial impacts are expected if UXO are discovered and removed from the sites.

Regulatory requirements and guidance applicable to management of potential CWM include the following:

- Interim Guidance for Chemical Warfare Material (CWM) Responses, 1 April 2009;
- DOD 6055.9-STD,
- DOD 6055.9-M, Volumes 1-8
- DA PAM 385-61, Toxic Chemical Agent Safety Standards, 20 July 2009
- DA PAM 385-65 Explosive and Chemical Site Plan Development and Submission
- DA PAM 385-63, Range Safety, 16 March 2014

In accordance with these documents, the Chemical, Biological, Radiological, Nuclear and high yield explosives (CBRNE) Analytic and Remediation Activity (CARA) would perform an investigation and clear the site of potential UXO. All soil removed from the first 12 feet would be removed in 2-foot increments and screened with a magnetometer to determine if UXO is present. If suspected UXO were uncovered by CARA, the site would be secured and vacated and 911 would be called (on-site), in accordance with APG procedures. CARA would take responsibility for removing the ordnance from that point. All UXO material uncovered would be disposed of in accordance with current Army regulations and standard operating procedures (SOPs). No significant adverse impacts are anticipated under the Proposed Action because all regulatory requirements and guidance would be followed.

5.10.2 Impacts from the No Action Alternative

Under the No Action Alternative, no demolitions would occur and therefore no effects to hazardous materials, hazardous wastes, pesticides, the installation restoration plan, or unexploded ordinances.

5.11 UTILITIES

5.11.1 Environmental Criteria

The Proposed Action would result in significant adverse impacts to utilities if:

- It reduces water availability or supply to existing users;
- It results in noncompliance with the existing APG solid waste management plan;
- It overdrafts ground water basins; and
- It exceeds safe annual yield of water or energy supply sources.

5.11.2 Impacts from the Proposed Action

5.11.2.1 Utilities

No significant adverse impacts to utilities are anticipated under the Proposed Action. Implementing the Proposed Action would not be expected to result in the need for any upgrades in utilities that service APG. The Proposed Action would not increase the long-term demand for public utility services and would not affect regional or local water or energy supplies. When facilities that are removed are consuming utilities such as energy and water to maintain proper safety levels, removal would reduce APG's long-term demand for utilities and thus cause a long term beneficial effect.

Short-term use of utilities would be expected while preparing a structure for demolition and during both the demolition effort and the post-demolition work to re-vegetate the parcel. Due to the increase in utility use, a short term negligible effect may be experienced when the demolition process is taking place.

Prior to demolition all underground utility within the work perimeter would be located. Building demolition also involves permanently capping and removing portions of all underground utilities such as sewer and water lines. APG contains chemical sewer lines that surround certain laboratory buildings that may be contaminated with hazardous constituents. All standard protocols will be followed in order to remove the chemical sewers; however, if a release should occur long term minor adverse impacts would occur. Utilities would be disconnected and properly terminated by the contractor. All utilities would be identified and clearly marked throughout the demolition.

5.11.2.2 Stormwater

No significant adverse impacts to stormwater are anticipated from the Proposed Action. All actions would take place in current building foot prints within a built environment. All stormwater regulations would be implemented and any potential effects would be properly mitigated, therefore negligible impacts to stormwater are anticipated through the Proposed Action.

5.11.2.3 Solid Waste

No significant adverse impacts to solid waste are anticipated under the Proposed Action. Solid waste generated by the Proposed Action would include building debris such as solid pieces of concrete, metals, and lumber. Demolition would create a temporary minor negative impact by increasing the volume of solid waste produced on post while the demolition process takes place. Contractors would comply with federal, state, and APG regulations which mitigate solid waste through recycling, reuse and management of the waste stream where possible. Although additional waste would be generated, it is anticipated that it would not affect the APG existing solid waste management program, and therefore would have a short term minor effects on solid waste.

5.11.3 Impacts from the No Action Alternative

Under the No Action Alternative there would be a long term minor negative effect due to continued expense of providing utility services to buildings that remain unused. No effects to stormwater or solid waste would be experienced under the No Action Alternative.

5.12 TRANSPORTATION

5.12.1 Environmental Criteria

The Proposed Action would result in significant adverse impacts to transportation if it:

- Contributes to a long term increase in vehicle traffic that could not be accommodated by the existing roadway network; and,
- Results in long term traffic circulation problems within APG and off-post.

5.12.2 Impacts from the Proposed Action

Short term minor adverse effects on transportation would be expected if the Proposed Action was implemented. Construction and day labor traffic during the demolition period would cause short-term traffic delays. Approximately 530 additional trips due to demolition are anticipated. Contractors would route and schedule demolition vehicles to minimize conflicts with other traffic, and strategically locate staging and stockpiling areas to minimize traffic impacts.

5.12.3 Impacts from the No Action Alternative

No effects on traffic and transportation would be expected if the No Action Alternative was implemented. No demolition would occur and no long-term changes in transportation would take place. Traffic and transportation conditions would remain unchanged.

5.13 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE AND PROTECTION OF THE CHILDREN

5.13.1 Environmental Criteria

Significant environmental impacts to Socioeconomics, Environmental Justice and Protection of the Children would occur if:

- It results in a disproportionate share of adverse environmental or social impacts would be borne by minority or low-income populations;
- Health, safety, social structure or economic viability of an environmental justice population are affected;
- Mitigation efforts could not eliminate disproportionate effects to minority or low-income populations; and
- Activities would disproportionately raise risks to children through environmental or health hazards.

5.13.2 Impacts from the Proposed Action

The Proposed Action is expected to result in both minor short term positive and negative impacts to socioeconomics. Minor short term impacts are expected by the stimulation of the local economy caused by the increase of employment and income generated by the Proposed Action. Temporary adverse impacts to socioeconomics are expected due to the slight increase in noise and traffic. Noise and traffic impacts are expected to be minimal, but can cause minor negative impacts due to temporary increased ambient noise levels and traffic congestion. Minor long term positive impacts can also be expected from the Proposed Action. The removal of dilapidated buildings and structures could improve the overall quality of life by improving living and working conditions as well as improving the general aesthetic appeal of APG.

An environmental justice analysis determines whether a disproportionate share of adverse environmental or social impacts from implementing a federal action would be borne by minority or low-income populations. Even though the census tract is defined as a high minority population, implementation of the Proposed Action would not be expected to adversely impact any demographic group working or living in the economic region of influence. The Proposed Action would not cause changes in population, regional industrial or commercial growth. Most of the demolition projects are in areas that are previously developed on APG and would not extend beyond the original footprint and therefore not affect minority communities or Native American tribes.

The Proposed Action would not be expected to impact children's safety. Demolitions could be completed within one mile of the child development center; however, standard safety protocols would be strictly adhered to, advanced notice would be provided, and no adverse effects to children are predicted. All applicable local jurisdictional safety requirements would be implemented during demolition to ensure the protection of the public, including children. All proposed construction and the operational exercise of the Proposed Action would be carried out in areas where few children reside or visit. In all cases, proper precautions including the placement of fencing, public broadcast and other types of barriers would be used to prevent potential harm to all civilians, including children.

5.13.3 Impacts from the No Action Alternative

Under the No Action alternative, demolition of contaminated buildings would not occur. Therefore, the No Action alternative would have no impact on local or off-Post economic activity. Long-term minor effects to the on-Post community could be expected from the continued deterioration of buildings/structures on-Post, and the expense of maintaining unused, vacant contaminated buildings.

5.14 CUMULATIVE EFFECTS

The CEQ regulations (40 CFR 1508.7) require assessment of cumulative impacts in the decision making process for federal projects.

For the purposes of this EA, cumulative impacts result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable actions, regardless of who undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. Given the extent of the Proposed Action across a large portion of APG lands, the Proposed Action's Region of Influence (ROI) for cumulative effects consists of APG and adjacent lands, including communities around the Installation. This ROI includes areas where the Proposed Action's effects would most likely contribute to cumulative environmental effects.

The Army considered a wide range of past, present, and reasonably foreseeable future actions in the ROI that could contribute to cumulative environmental effects, regardless of the nature of the actions or the Army's jurisdiction.

Each resource section addresses cumulative effects for each alternative. This analytical approach provides a more complete understanding of resource conditions that the Proposed Action could magnify, amplify, exacerbate, or benefit.

Past, present, and reasonably foreseeable projects that may have a cumulative impact in combination with the Proposed Action are listed in Table 5-2. The information in this table represents a review of credible online sources, local planning documents, and communication with the local planning agencies responsible for lands or projects within the ROI. Only “reasonably foreseeable” projects (well-developed, in mature planning stages, and/or with secure funding) are considered in the cumulative impact analysis (See Table 5-2). "Reasonably foreseeable" is defined as those projects that are well-developed, in mature planning stages, and/or have funding secured. Conceptual projects, broad goals, objectives, or ideas listed in planning documents that do not meet the above criteria are not considered reasonably foreseeable for the purposes of this analysis.

Table 5-2: Cumulative Actions at APG

| Project | Description | Timeframe | |
|---|---|-----------|-----------|
| | | 2011-2015 | 2015-2019 |
| Defense Base Realignment and Closure (BRAC) | The BRAC Commission recommends the realignment and relocation of a number of agencies and related functions/activities to APG to facilitate continuation of essential mission functions, and to improve the ability of the nation to respond rapidly to military challenges of the 21st century. APG is in the process of implementing all BRAC Commission recommendations through a combination of new construction and renovation and reuse of existing facilities to accommodate incoming BRAC missions. Significant impacts to socioeconomic factors, transportation, and potentially to cultural resources. Mitigation measure proposed in the 2007 EIS. | X | |
| Medical Research Institute of Chemical Defense New Facility Complex | US Army Medical Research Institute of Chemical Defense proposes to consolidate and centralize a portion of existing operations within APG-EA with the construction and operations of a new facility complex comprised of a new state-of-the-art laboratory and support facilities. FNSI Issued. | X | |
| Installation Information | APG recently installed approximately 25 miles of underground fiber optic line and constructed three | X | |

| Project | Description | Timeframe | |
|--|--|-----------|-----------|
| | | 2011-2015 | 2015-2019 |
| Infrastructure Modernization Program (I3MP) Fiber Optic Cable Installation | surface communication utility structures over 29 acres in APG. | | |
| Joint Receipts Facility, E3401 E3163 and E3844 | The Edgewood Chemical Biological Center proposes to operate and construct a state of the art facility known as the Sample Receipt Facility within the Edgewood Area. The facility allows for the safe handling, evaluation, analysis, storage, and treatment of a variety of potentially lethal chemical, biological, radiological and/or explosive-containing samples. FNSI issued. | X | |
| Real Property Master Plan | The Army proposes to adopt and implement a Real Property Master Plan (RPMP), to respond to changing conditions at APG in compliance with Army Regulation (AR) 210-20, <i>Real Property Master Planning for Army Installations</i> , which mandates updating existing plans as circumstances require. The RPMP would guide long-term and short-term planning and development to accommodate the existing, currently planned, and future requirements for development and maintenance of real property assets at APG through 2031 including the construction and addition of new buildings, building complexes, building expansions and additions, utility upgrade stations, road improvements, and an increase in the overall workforce. The development of a Programmatic Environmental Assessment (PEA) is required. If the project is determined to require a more detailed or broader review, it would be subject to the stand-alone EA or EIS process. | X | X |
| Wastewater Treatment Plant Enhanced Nutrient Removal Upgrade | APG proposes to upgrade the existing Edgewood Area wastewater treatment plant by altering, replacing, or constructing new facilities. Old, obsolete facilities would be removed or repurposed when possible. FNSI issued | | X |

| Project | Description | Timeframe | |
|--|---|-----------|-----------|
| | | 2011-2015 | 2015-2019 |
| Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) | APG recently constructed and currently operates two aerostats (tethered helium-filled aircraft) and support facilities on APG for a three-year homeland defense operational exercise. Two sites were constructed on APG, Graces Quarters in Baltimore County and G-Field at the APG Edgewood Area. Approximately 17 acres at each location would be impacted by construction activities. FNSI Issued. | X | |
| Electrical Privatization PEA | APG proposed to upgrade and privatize the existing electrical infrastructure at both the Aberdeen and Edgewood areas of APG. A combination of above ground and underground power lines, and the replacement and construction of new substations and switching stations were proposed. | X | |
| 99 th Regional Support Command | U.S. Army proposes to construct and operate a 500-member U.S. Army Reserve Center on an approximate 15 acre land plot at APG-EA to support the training and mobilization of ten U.S. Army Reserve units to meet current requirements. FNSI issued. | | X |
| US Army Public Health Command (USAPHC) Headquarters Campus | USAPHC proposes to consolidate and centralize existing operations at the APG-EA with the construction and operation of a new facility complex, required to locate USAPHC activities at the center of their customer base within flexible, modern facilities housing state-of-the-art equipment. FNSI issued. | | X |

| Project | Description | Timeframe | |
|--|---|-----------|-----------|
| | | 2011-2015 | 2015-2019 |
| Harford County Development | Ongoing residential, commercial, and industrial development in Harford County is projected to increase. The Harford County Department of Planning and Zoning and Harford County Office of Economic Development have issued updated reports providing an inventory of past, present, and future planned residential, commercial, and industrial development in Harford County. Approximately 450,000 square feet of real estate were developed in the county between 2011 and 2013, along with an additional 550,000 square feet of ongoing construction. Planned development includes office parks, warehouses, shopping centers and minor retail development, single family homes, and apartment complexes. Specifically, approximately 68 acres of warehouse, business parks and distribution centers are planned less than five miles north-west of APG's boundary south of Route 40(Harford County, 2013a-d). | X | X |
| US-40/MD-715 Interchange Improvement Project | Improvements included relocating and widening the ramp from U.S. 40 East to Maryland 715 South, and providing a new spur from the ramp to Maryland 715 North. | X | |
| I-95/MD-24 Interchange Improvement Project | Construction improvements to the I-95/MD 24 interchange, including upgrades to MD 24 and the reconstruction of the MD 24/MD 924 intersection to a grade-separated interchange. FNSI Issued. | X | |

5.14.1 Land Use

The major foreseeable construction at APG is outlined in the RPMP. The Proposed Action contributes in a small, yet beneficial way, to APG's redevelopment by removing unused hazardous structures that are currently precluded from land development. The Proposed Action is in compliance with the Real Property Master plan. No significant changes to land use are planned due to the Proposed Action; therefore, no cumulative impacts related to land use are anticipated.

5.14.2 Visual Aesthetics

Short term, minor adverse impacts are anticipated as a result to construction activities and demolition work. Only construction would disturb the current viewshed, since demolition projects would be vegetated or replaced with similar structures.

The aesthetic setting of the military installation has been altered over the course of APG history and would likely continue to change as new military initiatives are carried out within its boundaries. Viewers of the Installation are limited to personnel, contractors, resident and visiting families and civilians working on or visiting the Installation. These viewers are cognizant of the missions that occur at or near APG and have become accustomed to scenery characteristic of military installations. From outside the maritime portion of the restricted area, trees, water towers, and a few structures close to the shore line are visible. There are a few locations west of the garrison where views inside the garrison are possible due to terrain; these vistas are located in residential and light commerce areas surrounding APG.

5.14.3 Geology, Soils and Topography

Past, present, and reasonably foreseeable future projects on APG have and would likely continue to convert land within and around the project sites from open space to a variety of military uses. The Proposed Action is expected to only disturb previously disturbed soils since impacts would be limited to current building and associated infrastructure footprints. Buildings would be placed on demolition sites; therefore, no cumulative impacts to geology, soils or topography are anticipated.

5.14.4 Air Quality

Remediation and demolition activities associated with the Proposed Action would result in minimal adverse cumulative impacts related to air quality. Short term impacts are expected through increased traffic, but would be negligible and therefore no long-term cumulative impacts are anticipated.

5.14.5 Noise

The noise resulting from remediation and demolition activities and construction equipment is an unavoidable condition. Although construction noise would occur under the Proposed Action, noise would be temporary and cease upon the completion of the demolition project. Implementation of BMPs during construction would limit potential impacts resulting from construction activities.

5.14.6 Water Resources

Since it would be unusual for demolition projects to affect water resources beyond the original building and infrastructure footprint, the Proposed Action is not anticipated to have a cumulative effect on water resources. Cumulative impacts to groundwater are also not anticipated because the Proposed Action and other associated planned activities would not involve storage or appreciable use of materials that could degrade groundwater quality. Beneficial effects are possible through the remediation of piping or wastewater troughs which are potentially contaminated with CWM, BWM, radiological or MEC materials. Additionally, the remediation of ORM in buildings may

prevent future environmental releases when the structural integrity of these buildings degrades to where environmental releases could be possible.

5.14.7 Wetlands

Throughout project construction and operation, impacts to wetlands would be avoided where possible, and mitigated in circumstances in which avoidance is not possible. Since the Proposed Actions would be completed within original building footprints it is not likely that wetlands would be affected, and thus cumulative impacts to wetlands are not expected.

5.14.8 Coastal Zone

The Proposed Action takes place almost exclusively within the built environment. Therefore, cumulative impacts to the coastal zone are not anticipated. A full list of Coastal Zone enforceable policies as well as a description of the compliance of the Proposed Action with the Maryland CZMA is provided in Appendix B.

5.14.9 Chesapeake Bay Critical Area

The Proposed Action takes place almost exclusively within the built environment. Therefore, cumulative impacts to the Chesapeake Bay Critical Area are not anticipated.

5.14.10 Biological Resources

The Proposed Action takes place almost exclusively within the built environment. Species that currently occupy potential project sites are most likely highly adaptable and are expected to remain after demolition as suburbanization continues within APG. Site grading associated with demolition would remove minimal vegetation. The affected sites are already heavily disturbed and do not currently provide suitable habitat for many species. No substantial habitats would be disturbed by the Proposed Action and therefore no cumulative impacts on this resource are reasonably foreseeable.

5.14.11 Cultural Resources

No archaeological, architectural, or Native American resources were located within currently developed sites.

Anticipated viewshed impacts will be coordinated with Maryland Historic Trust (MHT) for potential short term, minor impacts to the viewshed at sites listed on the National Register of Historic Places within a five mile radius.

There are no direct impacts on Cultural Resources resulting from the Proposed Action, and consequentially, no foreseeable cumulative effects are expected. Hazardous, Toxic, and Radioactive Substances

5.14.12 Hazardous, Toxic and Radioactive Substances

The Proposed Action would generate additional hazardous, industrial and possibly radioactive wastes. While the total volume of hazardous and industrial wastes could be significant when evaluated over several years of demolition activities, the quantity of these wastes in a given year

would only slightly or moderately impact APG's overall waste generation quantities and would be readily managed under the Installation's current hazardous waste program.

5.14.13 Utilities

There are no direct or foreseeable cumulative effects on the infrastructure and utilities, including potable water, sanitary sewer system and power at either side as a result of the Proposed Action. The dismantling of utilities to unused and deteriorating site within APG would pose a long term benefit. No cumulative effects on this resource are anticipated.

5.14.14 Stormwater and Drainage

Stormwater Management (SWM) requirements must be strictly adhered to in order to prevent cumulative impacts. The Proposed Action takes place almost exclusively within the built environment. Therefore, cumulative impacts to the stormwater and drainage are not anticipated.

5.14.15 Traffic and Transportation

The Proposed Action would contribute to cumulative effects in regards to the transportation system within APG. However, there would be no overall cumulative impacts as a result of the remediation and demolition efforts on the larger transportation network.

5.14.16 Socioeconomics, Environmental Justice, and Protection of the Children

No long term direct impacts to the socioeconomic conditions are anticipated for the Proposed Action. Short term beneficial impacts are anticipated during construction as there would be a temporary increase in the construction workforce in the area. While this may result in a positive impact as the construction personnel patronize nearby businesses, this impact would be both minor and short term, and would not contribute to an overall cumulative effect of socioeconomic conditions in the area.

6.0 CONCLUSION

This Programmatic Environmental Assessment (PEA) analyzes the demolition of buildings and associated infrastructure that are deemed contaminated with legacy chemical warfare materials (CWM), biological warfare materials (BWM), radiological materials, and potentially munitions and explosives of concern (MEC) used for research and associated with mission-based activities at Aberdeen Proving Ground (APG). The demolition of unused, underutilized, and obsolete buildings will benefit APG by reducing fixed facility costs, reducing risk caused by structural deterioration, and clearing these areas within APG for redevelopment and future land uses, as well as eliminate the safety hazards posed by deteriorating and contaminated buildings.

The purpose of the Proposed Action is to reduce or eliminate excess potentially contaminated facilities, slabs and infrastructure associated with mission-based activities at APG. Implementing the Proposed Action would reduce fixed facility costs, reduce risk caused by structural deterioration, and clear these areas within the already developed infrastructure of APG for redevelopment for future designated land uses. APG prepared the *Programmatic Environmental Assessment for Building Demolition, Construction and Renovation at Aberdeen Proving Ground* in May 2009. The 2009 PEA, considers the potential environmental consequences of routine construction, demolition and renovation activities or uncontaminated buildings within APG. The 2009 PEA does not adequately cover the demolition of facilities, slabs or infrastructure which may be contaminated with CWM, BWM, radiological material and MEC and not be readily removed using standard demolition methods, or require decontamination prior to demolition.

The EA was prepared in accordance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ) and 32 Code of Federal Regulations (CFR) Part 651.

The Proposed Action would result in short term minor impacts to land use, visual aesthetics, geology, soils and topography, air quality, noise, wildlife, and transportation. The Proposed Action would result in negligible impacts to floodplains, wetlands, coastal zone and critical areas, vegetation, submerged aquatic vegetation, bald eagles, rare, threatened or endangered species, cultural resources, stormwater and drainage. Long term beneficial impacts provided by the Proposed Action would be to land use, visual aesthetics, surface waters, ground waters, and utilities. Slight to moderate temporary impacts are expected to hazardous, toxic and radioactive substances based on the generation of contaminated C&D debris under the Proposed Action.

Under the No Action Alternative, no demolition activities or removal of slabs and associated infrastructure would occur. The No Action Alternative would result in long term moderate adverse impacts to land use and visual aesthetics. Minor long term adverse impacts to utilities and air quality are anticipated under the No Action Alternative. The No Action Alternative would have no effect on geology, soils and topography, noise, surface water, ground water, floodplains, wetlands, coastal zone and critical areas, vegetation, submerged aquatic vegetation, wildlife, bald eagles, rare, threatened or endangered species, cultural resources, hazardous toxic and radioactive substances, stormwater and drainage, transportation and socioeconomics.

Based on the evaluation of environmental effects described in Chapter 5 and summarized in Table 6-1, the Proposed Action will not result in a significant impact to the environment. Therefore, an EIS will not be necessary for this Proposed Action. This conclusion is documented in the FNSI found at the beginning of this report.

Table 6-1: Summary of the Effects of the Proposed Action and No Action Alternative

| Resource Area | Expected Impacts for the Proposed Action | Expected Impacts for the No Action Alternative |
|--|---|---|
| Land Use | Negligible or long term beneficial impacts, possible short term minor adverse effects | Long term moderate adverse impacts |
| Visual Aesthetics | Short term minor adverse impacts, long term beneficial impacts | Long term moderate adverse impacts |
| Geology, Soils and Topography | Short term minor adverse impacts, long term beneficial impacts | Possible long term moderate adverse effect, no effect |
| Air Quality | Short term minor adverse impacts | Minor long term adverse impacts |
| Noise | Short term temporary minor adverse impacts | No effect |
| Surface Water | Long term beneficial impacts | Possible long term moderate adverse effect, no effect |
| Groundwater | Long term beneficial impacts | Possible long term moderate adverse effect, no effect |
| Floodplains | Negligible impacts | No effect |
| Wetlands | Negligible impacts | No effect |
| Coastal Zone and Critical Area | Negligible impacts | No effect |
| Vegetation | Negligible impacts | No effect |
| Submerged Aquatic Vegetation | Negligible impacts | No effect |
| Wildlife | Short term minor adverse impacts | No effect |
| Bald Eagle | Negligible impacts | No effect |
| Rare, Threatened or Endangered Species | Negligible impacts | No effect |
| Cultural Resources | Negligible impacts | No effect |
| Hazardous, Toxic, and Radioactive Substances | Short-term moderate adverse impacts | No effect |

| Resource Area | Expected Impacts for the Proposed Action | Expected Impacts for the No Action Alternative |
|-------------------------|--|---|
| Utilities | Long term beneficial impacts, possible long term minor adverse effects | Possible long term minor adverse effect, no effect |
| Stormwater and Drainage | Negligible impacts | No effect |
| Solid Waste | Short term minor adverse impacts | No effect |
| Transportation | Short term minor adverse impacts | No effect |
| Socioeconomics | Short term minor beneficial and adverse impacts | No effect |

DRAFT

7.0 REFERENCES

- Aberdeen Proving Ground (APG). 2006. Aberdeen Proving Ground Operational Noise Management Plan (ONMP). July 2006.
- APG 2007. Hazardous Waste Management. U.S. Army Aberdeen Proving Ground. 31 July 6 2007.
- APG. 2009. *Final Programmatic Environmental Assessment for Building Demolition, Construction and Renovation at Aberdeen Proving Ground*. U.S. Army Aberdeen Proving Ground, Directorate of Public Works, Environmental Division. May.
- APG. 2011a. *Record of Decision OEA Wright Creek Investigation Area Aberdeen Proving Ground, Maryland*. May 2011.
- APG. 2011b. *FY2011 Aberdeen Proving Ground Army Defense Environmental Restoration Program, Installation Action Plan*. Aberdeen Proving Ground, MD.
- APG 2013. ASIP Common Operating Picture Report. December.
- APG. 2014. Final Aberdeen Proving Ground Real Property Master Plan Programmatic Environmental Assessment. October 2014.
- Army Material Command (AMC) 2014. *Final Programmatic Environmental Assessment for the U.S. Army Materiel Command Building Demolition Program*. March 2014.
- Atkins. 2012. *Real Property Master Plan Update Long Range Component (LRC), Aberdeen Proving Ground, Maryland*. Final. May.
- Army Regulation (AR) 200-1. Environmental Protection and Enhancement. Headquarters Department of the Army. Washington, DC. December 2007.
- CEQ. 1981. *Memorandum: Scoping Guidance*. April.
- CEQ. 1983. *Memorandum: Guidance Regarding NEPA Regulations*.
- CEQ. 1993. *Memorandum: Pollution Prevention and the National Environmental Policy Act*. January.
- CEQ. 1997. *Considering Cumulative Effects under the National Environmental Policy Act (Handbook)*. January.
- CEQ. 2005. *Memorandum: Guidance on the Considerations of Past Actions in Cumulative Effects Analysis*. June.

CEQ 2010. Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions. 18 February 2010.

Clean Air Act (CAA) of 1970 (42 USC 7401 *et seq.*; 40 CFR Parts 50-87) (amended 1990 through Public Law 108-201).

Code of Maryland Regulation (COMAR). 2014. Environmental Noise Standards 26.02.03.02. 29 Accessed June 6, 2015 at <http://www.dsd.state.md.us/COMAR/getfile.aspx?file=26.02.03.02.htm>

Code of Maryland Regulation (COMAR). 2014. Environmental Noise Standards 26.02.03.02. Accessed June, 2015 at <http://www.dsd.state.md.us/comar/getfile.aspx?file=26.02.03.02.htm>

Department of the Army (DA). 1985. *Disposal of Real Estate*. AR 405-90. May 10.

DA 2006. *Utilization of Real Property*. AR 405-70. June 26.

DA. 2007. *Final Environmental Impact Statement (EIS) BRAC Actions at Aberdeen Proving Ground*. U.S. Army Corps of Engineers, Mobile District. Planning and Environmental Division.

DA. 2007a. *Environmental Protection and Enhancement*. AR 200-1. December 27.

DA. 2002. *Final Rule. Environmental Analysis of Army Actions*. 32 CFR Part 651. March 29.

DA. 2007b. *Final EIS. BRAC Actions at Aberdeen Proving Ground, Harford and Baltimore Counties, Maryland*. July 2007.

DA 2007c. *The Army Safety Program*. AR 385-10. September 23.

DA. 2010. *Hazardous Materials Management Policy*. U.S. Army Aberdeen Proving Ground. 26 May. Memorandum.

Department of Defense (DoD). 2015. *Strategic Sustainability Performance Plan FY15*. Website: <http://www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY15-Final.pdf>. Accessed: February 1, 2016.

EA Engineering. 2014. *Real Property Master Plan Update, Programmatic Environmental Assessment, Aberdeen Proving Ground, Maryland*.

US Environmental Protection Agency (EPA) 2011. *Mid-Atlantic Superfund Website: Aberdeen Proving Ground – Edgewood Area*
Site: <http://www.epa.gov/reg3hwmd/npl/MD2210020036.htm>.

Executive Order (EO) 11988. 1977. Floodplain Management

EO 11990. 1977. Protection of Wetlands

EO 12088. 1978. Federal Compliance with Pollution Control Standards

EO 12580. 1987. Superfund Implementation

EO 12898. 1994. Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

EO 13045. 1997. Protection of Children from Environmental Health Risks and Safety Risks

EO 13175. 2000. Consultation and Coordination with Indian Tribal Governments

EO 13508. 2009. Chesapeake Bay Protection and Restoration

EO 13693 2015. Planning for Federal Sustainability in the Next Decade.

Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. Federal Transit Administration, Office of Planning and Environment. Washington, D.C.FTA-VA-90-1003-06.

Harford County. 2013a. Demographic Data and Growth Trends. Department of Planning and Zoning. Revised June 2013. Available online at:
<http://www.harfordcountymd.gov/PlanningZoning/Download/142.pdf>.

Harford County. 2013b. Industrial Flex Buildings Available Space Report. Harford County Office of Economic Development. May 10, 2013. Available online at:
<http://www.harfordbusiness.org/Download/275.pdf>.

Harford County. 2013c. Office Available Space Report. Harford County Office of Economic Development. May 10, 2013. Available online at:
<http://www.harfordbusiness.org/Download/634.pdf>.

Harford County. 2013d. Retail Available Space Report. Harford County Office of Economic Development. May 10, 2013. Available online at:
<http://www.harfordbusiness.org/Download/1083.pdf>.

International Panel on Climate Change (IPCC). 2007. *Climate Change 2007: The Fourth Assessment Report of the Intergovernmental Panel on Climate Change*.

Maryland Department of the Environment. Issued Part 70 Permits.
http://www.mde.state.md.us/programs/Permits/AirManagementPermits/TitleVProgramInformation/Pages/title5_issued_permits.aspx

- Maryland Department of the Environment (MDE), 2010. 2010 Stormwater Management Guidelines for State and Federal Projects. [Online]. Available: <http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/GuidelinesforStateandFederalProjects/Documents/Statepercent20andpercent20Federalpercent20SWMpercent20Guidelinespercent20final.pdf>
- Maryland Department of the Environment, 2011c. *2011 Maryland Standards and Specification for Soil Erosion and Sediment Control*. [Online]. Available: <http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/SoilErosionandSedimentControl/Documents/2011percent20MDpercent20Standardpercent20andpercent20Specificationspercent20forpercent20Soilpercent20Erosionpercent20andpercent20Sedimentpercent20Control.pdf>
- MDE 2013. *Baltimore Nonattainment Area 8-Hour Ozone State Implementation Plan and Base Year Inventory*. SIP No. 13-07. Baltimore, MD: Maryland Department of the Environment. Retrieved June 6, 2015 from: <http://www.mde.state.md.us/programs/Air/AirQualityPlanning/Documents/SIPDocuments/FINAL%20BNAA%20O3%20SERIOUS%20BumpUp%20SIP.pdf>
- MDE 2015. *Baltimore Nonattainment Area 8-Hour Ozone State Implementation Plan and Base Year Inventory*. SIP No. 13-07. Baltimore, MD: Maryland Department of the Environment. Retrieved June 6, 2015 from: <http://www.mde.state.md.us/programs/Air/AirQualityPlanning/Documents/SIPDocuments/FINAL%20BNAA%20O3%20SERIOUS%20BumpUp%20SIP.pdf>
- Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). August 2000 Revision 1. <http://rais.ornl.gov/documents/marssim.pdf>
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, as amended (Public Law 101-601; 25 USC 3001-3013).
- National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190; 42 USC 4321 and 331-4335)
- National Historic Preservation Act (NHPA) of 1966, as amended (Public Law 89-665; Public Law 102-575; 16 USC 470 *et seq.*).
- Natural Resource Conservation Service (NRCS). 2013. *NRCS Soils Website*. Custom Soil Resource Report for Harford County, Aberdeen Proving Ground, MD, Accessed June 2015. Website link: <http://soils.usda.gov>
- Noise Control Act of 1972, as amended (Public Law 92-574).
- PIKA, Inc. 2008. Thermal Decontamination of Contaminated Structures Using Thermal Convection System. Fact sheet.

- Potomac-Hudson Engineering, Inc (PHE) 2014. *Preliminary Draft Environmental Assessment for Upgrading Electrical Infrastructure Associated with Utility Privatization at Aberdeen Proving Ground Maryland*. September 2014.
- US Army Garrison. 2008. *Baseline Affected Environment Resource Report for Aberdeen Proving Ground, Maryland*. Final. September.
- U.S. Army Corps of Engineers (USACE). 2014. *Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) Environmental Assessment*. USACE, Baltimore District, Baltimore, MD.
- U.S. Army Environmental Command (USAEC) 2014. *Supplemental Programmatic Environmental Assessment for Army 2020 Force Structure Realignment*. June 2014.
- U.S. Army Materiel Command (AMC). 2014. *Final Programmatic Environmental Assessment for the U.S. Army Materiel Command Building Demolition Program*.
- U.S. Environmental Protection Agency (USEPA). 1980. *Identification and Listing of Hazardous Waste*. 40 CFR 261.
- USEPA. 2015. National Ambient Air Quality Standards.
<http://www3.epa.gov/ttn/naaqs/criteria.html>
- USEPA 1998. *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions*. 40 CFR 93
- USEPA 2013. 2013 Greenhouse Gas Emissions from Large Facilities.
<http://ghgdata.epa.gov/ghgp/main>
- Whitman, Requardt & Associates (WRA). 2013. *Draft Environmental Assessment for Wastewater Treatment Plant Enhanced Nutrient Removal Upgrade in the Edgewood Area of Aberdeen Proving Ground, Maryland*.

8.0 ACRONYMS AND ABBREVIATIONS

| | |
|--------|---|
| ACM | Asbestos-containing material |
| AEC | U.S. Army Environmental Command |
| AMSL | above mean sea level |
| APG | Aberdeen Proving Ground |
| APG-AA | Aberdeen Proving Ground Aberdeen Area |
| APG-EA | Aberdeen Proving Ground Edgewood Area |
| ARPA | Archaeological Resources Protection Act |
| AR | Army Regulation |
| BACT | best available control technology |
| BEMP | Bald Eagle Management Plan |
| BGE | Baltimore Gas and Electric |
| BMP | best management practice |
| BWM | Biological Warfare Materials |
| BRAC | Base Realignment and Closure |
| C4ISR | Command, Control, Communications, Computers Intelligence, Surveillance and Reconnaissance |
| CAA | Clean Air Act |
| CARA | CBRNE Analytic and Remediation Activity |
| CBRNE | Chemical, Biological, Radiological, Nuclear, and high-yield Explosives |
| CEQ | Council on Environmental Quality |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| COMAR | Code of Maryland Regulations |
| CWA | Clean Water Act |
| CWM | Chemical Warfare Materials |
| CY | cubic yard |
| CZMA | Coastal Zone Management Act |
| CZMP | Coastal Zone Management Program |
| DA | Department of the Army |
| dB | decibel |
| dba | decibel (acoustic) |
| DoD | Department of Defense |
| DPW-ED | Department of Public Works – Environmental Division |
| EO | Executive Order |
| EPCRA | Emergency Planning and Community Right-to-Know Act |
| ESA | Endangered Species Act |
| ESP | Explosive Site Plan |
| FCA | Forest Conservation Act |
| FEMA | Federal Emergency Management Agency |
| FFA | Federal Facilities Agreement |
| FIDS | Forest Interior Dwelling Species |
| FIRM | Flood Insurance Rate Map |
| FNSI | Finding of No Significant Impact |

| | |
|---------|--|
| FRP | Facility Reduction Plan |
| GCR | General Conformity Rule |
| GHG | Greenhouse Gas |
| gsf | Gross Square Foot |
| GWP | Global Warming Potential |
| HAP | Hazardous Air Pollutant |
| HITS | Hazardous Inventory Tracking System |
| HMMP | Hazardous Materials Management Policy |
| IAP | Installation Action Plan |
| ICRMP | Integrated Cultural Resources Management Plan |
| IONMP | Installation Operational Noise Management Plan |
| IPMP | Integrated Pest Management Plan |
| IRP | Installation Restoration Program |
| KUSAHC | Kirk U.S. Army Health Clinic |
| kV | kilovolts |
| LUPZ | Land Use Planning Zone |
| MARSSIM | Multi-Agency Radiation Survey and Site Investigation Manual |
| MBIAQCR | Metropolitan Baltimore Intrastate Air Quality Control Region |
| MDE | Maryland Department of the Environment |
| MDNR | Maryland Department of Natural Resources |
| MEDCOM | U.S. Army Medical Command |
| MEC | Munitions and Explosives of Concern |
| MRICD | Medical Research Institute for Chemical Defense |
| MSDS | Material Safety Data Sheet |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NESHAP | National Emissions Standards for Hazardous Air Pollutants |
| NHPA | National Historic Preservation Act |
| NLR | noise level reduction |
| NPL | National Priorities List |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NWI | National Wetland Inventory |
| NZ | Noise Zone |
| ONMP | Operational Noise Management Plan |
| ORM | Other Regulated Material |
| OSHA | Occupational Safety and Health Administration |
| OTR | Ozone Transport Region |
| PAAF | Phillips Army Airfield |
| PAH | polycyclic aromatic hydrocarbon |
| PCB | polychlorinated biphenyl |
| PEA | Programmatic Environmental Assessment |
| PHC | Public Health Command |
| ppt | parts per thousand |
| RCRA | Resource Conservation and Recovery Act |
| REC | Record of Environmental Consideration |

| | |
|-------|--|
| ROI | Region of Influence |
| RPMP | Real Property Master Plan |
| SAV | Submerged Aquatic Vegetation |
| SIP | State Implementation Plan |
| SOP | Standard Operating Procedure |
| SPCCP | Spill Prevention, Contingencies and Countermeasures Plan |
| SVOC | Semi-volatile Organic Compounds |
| THAMA | U.S. Army Toxic and Hazardous Materials Agency |
| TMDL | Total Maximum Daily Load |
| tpy | tons per year |
| TSCA | Toxic Substance and Control Act |
| TSDF | treatment/storage/disposal facility |
| US | United States |
| USACE | U.S. Army Corps of Engineers |
| USAG | U.S. Army Garrison |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| UXO | Unexploded Ordnance |
| VOC | Volatile Organic Compounds |
| WMA | Water Management Administration |
| WTE | waste-to-energy |

DRAFT

**APPENDIX A:
Agency Coordination**

DRAFT

**APPENDIX B:
Coastal Zone Consistency Determination**

Determination of Consistency with Maryland's Coastal Zone Management Program

In accordance with Section 307 of the Coastal Zone Management Act of 1972 (CZMA) as amended, this document serves as a Federal Consistency Determination for the demolition of potentially contaminated buildings on Aberdeen Proving Grounds (APG).

In its entirety, APG occupies approximately 72,500 acres of land and water. The Bush River divides the installation into two non-contiguous areas, commonly referred to as the APG-AA, which encompasses 27,600 acres, and the Edgewood Area (APG-EA), which encompasses 9,850 acres. Contiguous waters of APG account for an additional 33,000 acres. Other areas of APG not attached to the main installation account for the remaining acreage, which includes the Churchville Test Area, Van Bibber Water Treatment Plant, Atkisson Reservoir and Dam, and Poole's Island in Harford County, and Graces Quarters and Carroll Island in Baltimore County, Maryland (APG, 2014).

Due to the nature of a Programmatic Environmental Assessment, the project area has been defined as the entire APG base. As facilities, slabs and associated infrastructure present the need to be demolished, the Army project management team will examine each action to ensure the environmental ramifications are within the scope of the Proposed Action and analysis of the PEA and this Federal Consistency Determination. Due to the complexity of issues and variables involved in contaminated building demolition, it is anticipated that a Record of Environmental Consideration (REC) tiered from this PEA will be prepared for each facility before it is demolished.

Maryland's Coastal Zone Management Program (CZMP) was established by executive order and approved in 1978 as required by the Federal CZMA of 1972, as amended. Maryland's Coastal Zone consists of land, water, and sub-aqueous land between the territorial limits of Maryland (including the towns, cities, and counties that contain coastal shoreline) in the Chesapeake Bay, Atlantic coastal bays, and the Atlantic Ocean. All of APG lies within the Maryland Coastal Zone.

The CZMA requires that Federal actions likely to affect land, water, or natural resources in the Coastal Zone be conducted in a manner consistent to the maximum extent practicable with the enforceable policies of a state's federally-approved CZMP. The Coastal Zone Act Reauthorization Amendments of 1990 also clarified that coastal effects include cumulative, secondary, or indirect effects of the activity in the immediate or reasonably foreseeable future.

The Army is required to determine the consistency for its demolition of potentially contaminated buildings and infrastructure affecting Maryland's coastal resources or coastal uses with the CZMP. The Army determined that implementation of the Proposed Action could have a minor impact on the land, water, or natural resources of the Maryland's Coastal Zone. This document represents an analysis of Maryland's CZMP Enforceable Coastal Policies (MDNR, 2011), and reflects the commitment of the Army to comply with the Maryland CZMP.

Description of the Proposed Action

The Proposed Action is to reduce or eliminate excess potentially contaminated facilities, slabs and infrastructure associated with mission-based activities at APG. Implementing the Proposed Action would reduce fixed facility costs, reduce risk caused by structural deterioration, and clear these

areas within the already developed infrastructure of APG for redevelopment for future designated land uses.

The Proposed Action is needed because APG has multiple potentially mission-contaminated facilities and infrastructure that are unused, obsolete, structurally unsound, and need to be demolished. The buildings included under the Proposed Action have been unused for various lengths of time, ranging from several months to years. Many of the buildings are in various stages of disrepair, and in some cases, the structural integrity of the buildings is poor, causing potentially hazardous conditions. Reducing the buildings and infrastructure would reduce operation and maintenance costs, further structural deterioration risks, and would make otherwise idle areas of the installation available for productive reuse. Currently, APG maintains heat, electricity, ventilation and environmental control measures for some abandoned buildings on the base to maintain health and safety requirements. Demolishing these buildings and infrastructures would reduce operation costs associated with the unused buildings and substantially reduce APG's overall operating costs. This could improve the Army's ability to meet their mission requirements under current budgetary constraints. Complete removal of obsolete buildings would make valuable real estate available that could be utilized without converting limited range land or disturbing natural areas within APG. Finally, by demolishing facilities and infrastructure that are not currently in use, APG will be in compliance with Army Regulations 405-70 and 405-90, which state that Army installations should eliminate excess footage that is not in current use.

Required permits will vary depending on the particular demolition site. Required permits could include, but are not limited to: Department of the Army Permit pursuant to Section 404 of the Clean Water Act, Maryland Department of Environment (MDE) Wetlands and Waterways Permit and Water Quality Certification, National Pollutant Discharge Elimination System permit, MDE Stormwater Permit, and approved Erosion and Sediment Control (ESC) Plans by MDE. A Federal Coastal Consistency Determination would be coordinated with the Maryland Federal Consistency Reviewers for concurrence. Prior to the start of demolition, any required demolition-related permits or approvals would be obtained by APG as needed.

Public Participation

Public participation is currently taking place as a part of the Programmatic Environmental Assessment (PEA) that is currently being prepared for the Proposed Action. The PEA serves as the primary document to facilitate environmental review of the Proposed Action by Federal, state and local agencies and the public. Agency consultation is currently being performed as the PEA and a draft Finding of No Significant Impact (FNSI) were submitted for review by state and county agencies through the Maryland State Clearinghouse. Public participation opportunities with respect to the PEA and decision making on the Proposed Action are guided by 32 Code of Federal Regulations (CFR) Part 651. The PEA will be made available to the public for 30 days, along with a draft FNSI. Any comments or responses will be addressed prior to the final EA. APG will sign a FNSI if there are no significant impacts, and will proceed with implementation of the Proposed Action. If there are significant impacts, the Army will publish a Notice of Intent to prepare an Environmental Impact Statement.

A. GENERAL POLICIES

1. **Core Policies** (Relevant policies are detailed below; Not Relevant Policies: 3-5, 7-9, 13, 14)

1. Air Quality: The preferred alternative would create a short-term temporary impact on air quality from fugitive dust generated through the duration of the demolition. All demolition activities would be required to comply with federal, state, and current APG versions of regulations designed to support compliance with the Clean Air Act (CAA), Occupational Safety and Health Administration, and Toxic Substance and Control Act. Demolition is an activity that is specifically covered within the APG Air Quality Regulation (APGR 200-30). Mitigation measures that are required by the regulation include reasonable precautions to prevent particulate matter to becoming air borne. In addition, APGR 200-30 also covers activities related to demolition such as the use of generators, and demolition by open fire, which requires an air permit. All persons responsible for the operation, process, and handling of transportation of materials that could result in fugitive dust would take reasonable precautions to prevent such dust from becoming airborne.

Contaminated buildings are of special concern and may require special actions in order to control potential airborne emissions during decontamination operations. Each proposed demolition would calculate the expected air emissions for all potential pollutants and demonstrate conformity under the CAA. Sites that are proven contaminated will be monitored to establish base line conditions, and continue to be monitored throughout the demolition process in order to ensure emissions are below conformity levels under the CAA. Structures and associated infrastructure that are deemed contaminated will be evaluated prior to demolition in order to determine which decontamination measure should be implemented. Decontamination via high temperature thermal systems involves the use of specialized equipment to heat the inside of the building to temperatures that destroy chemical and biological agents and explosive residues. The exhaust emissions from the heating units themselves typically satisfy *de minimus* concentration levels, and in some cases the technology may be capable of completely destroying the target chemicals without producing any detrimental emissions. All decontamination measures will use best management practices in order to reduce emissions and if necessary will utilize emission control technologies and other required mitigation technologies. See the PEA, Sections 4.4 and 5.4 for further information.

2. Noise: Under the Proposed Action short-term negative effects are expected to occur throughout the demolition. The short-term negative effects would include temporary increases in noise levels resulting from demolition, heavy equipment and machinery that could affect personnel sensitive noise areas. Noise due to construction and demolition will vary depending on the demolition method, the types of construction equipment employed during demolition, the amount of each type of construction equipment, and the duration of construction equipment use. Heavy equipment produces the greatest amount of noise disturbances, and should be of special concern. Noise levels under the Proposed Action are expected to be consistent with operations at a military post, and are not expected to exceed the threshold limit values outlined in APG's ONMP. If the proposed

demolition site is within 800 feet of a noise sensitive receptor, mitigation efforts could include limiting the Proposed Action activities to weekday business hours or using BMPs to minimize off-post noise. See the PEA, Sections 4.5 and 5.5 for further information.

6. Viewsheds: The demolition of potentially contaminated buildings would cause short term temporary impacts to viewsheds while demolition was taking place. However, long term positive impacts are anticipated through the removal of unused and in some cases deteriorating buildings and infrastructure. See the PEA, Sections 4.2 and 5.2 for further information.

10. Public Hearing for Non-Tidal Waters: It is not anticipated that any building demolition would require the fill or dredge of non-tidal waters; however, if a project necessitates impacts to non-tidal waters a public hearing shall be provided. See the PEA, Sections 4.6 and 5.6 for further information.

11. Soil Erosion: Soil disturbance during construction would temporarily increase the potential for soil erosion and impacts to nearby surface waters. An ESC plan would be developed prior to construction and submitted for approval to Maryland Department of the Environment (MDE). A Stormwater Management Plan would be prepared in accordance with Maryland Stormwater Management Act permit regulations and implemented to prevent impacts to nearby surface water bodies. Erosion and sediment controls that could be used during construction include installing silt fencing and sediment traps, revegetating disturbed areas after disturbance, and meeting performance standards established by the Maryland Department of the Environment (MDE). \

12. Controlled Hazardous Substances: APG operates Hazardous Materials and Hazardous Waste Management Programs that set forth procedures for handling and tracking hazardous materials from receipt through use, waste generation and disposal. The Hazardous Materials Management Program includes procedures for maintaining inventory data and for procuring, receiving, and tracking hazardous materials. All hazardous materials needed during demolition activities (i.e., diesel fuel) would be properly stored with secondary containment, as required. All generated hazardous wastes will be disposed of via authorized contractors at appropriately permitted hazardous waste treatment, storage and disposal facilities. Any spills would be cleaned up appropriately, in accordance with the Spill Prevention, Contingencies, and Countermeasures Plan (SPCCP). The Proposed Action would not present a significant impact to the public or the environment resulting from the transport, use, or disposal of hazardous materials wastes. See the PEA, Sections 4.10 and 5.10 for further information.

2. Water Quality (Relevant policies are detailed below; Not Relevant Polices: 2, 3, 5-7, 10, 11)

1. Pollution of waters of the State: Any hazardous substances needed on site (e.g., diesel fuel) would be stored and contained appropriately and disposed of appropriately, with all necessary permits. Any spills would be cleaned up appropriately, in accordance with the SPCCP. All activities will comply and demonstrate consistency with the relevant laws, policies and regulations. See the PEA, Section 4.10, 4.11.2, 5.6, and 5.14.13.

4. Stormwater Discharge Permit: A Stormwater Management Plan and ESC Plan would be prepared in accordance with Maryland Stormwater Management Act permit regulations and implemented to prevent impacts to nearby surface water bodies. The Stormwater Management Plan and ESC plan would be submitted to MDE for approval and for a permit to construct. Methods to minimize erosion and control stormwater runoff both during and after demolition would be employed, such as installing silt fencing and sediment traps, revegetating disturbed areas after disturbance, employing BMPs, and meeting performance standards established by the MDE. See the PEA, Section 4.10, 4.11.2, 5.6, and 5.14.13.

8. Small Scale Non-Structural Stormwater Management Practices: The proposed action may result in redevelopment of parcels after the demolition of contaminated buildings. The redevelopment of parcels is not included in the scope of this PEA, but would be designed with appropriate BMPs and stormwater measures to mimic natural hydrologic conditions to the maximum extent practicable. Net impervious surface would most likely decrease at the installation with the demolition of existing buildings and associated infrastructure.

9. Used Oil Disposal: The potential exists for storage of minor amounts of fuel to maintain and fuel equipment and vehicles; these areas would have primary and secondary containment measures. In addition, waste oil could be generated during demolition of existing substations and transformers. Hazardous materials and waste generated would be disposed of in accordance with the Hazardous Waste Management Plan (HWMP) and in accordance with Federal regulations. See the EA, Section 3.7 for more information.

3. Flood Hazards: (Relevant policies are detailed below; Not Relevant Policies: 2, 3)

1. Additional Flooding: Although some demolition sites might occur within a coastal tidal or non-tidal floodplain, no modifications to the floodplain are expected that would affect flooding upstream or downstream, or would have an adverse impact on water quality.

B. COASTAL RESOURCES

1. The Chesapeake and Atlantic Coastal Bays Critical Area (Relevant policies are detailed below; Not Relevant Policies: 2, 4-6, 9, 11-25, 27-29)

1. Colonial Water Bird Nesting Sites in the Critical Area: Demolition near potential colonial water bird nesting sites (i.e., tidal marshes and wetlands, isolated riparian forest) would be prohibited in the Critical Area areas during the breeding season (i.e., April 1 through September 15), limiting the potential for disturbance to colonial water bird nesting sites.

3. Physical Alterations of Streams in Critical Area: Stream crossings resulting from demolition of buildings and associated infrastructure would be in previously disturbed areas and would not require in-water construction, or physical alteration to streams.

7. Timing of Demolition of Facilities and associated Infrastructure within Buffer: If infrastructure removal is required and will affect streams within the 100-foot buffer, work would be prohibited between March 1 and May 15th.
8. Demolition and Removal of associated infrastructure within Buffer: It is possible that some underground utility removal or building demolition would be required within the 100-foot Critical Area buffer. Demolition of buildings and associated infrastructure would occur in previously disturbed areas and existing ROW to the extent practical. An ESCP would be prepared and implemented if the Proposed Action resulted in more than 5000 square feet or 100 cubic yards of soil disturbance. (See the PEA section 4.6, 4.11, 5.6, 5.11)
10. Buffer Management Plan: If work was necessary within the Critical Area, a buffer management plan would be developed in accordance with standards adopted by the Critical Area Commission.
26. Soil Erosion and Sediment Control Plan in Critical Area: The Proposed Action would incorporate erosion and sediment controls and stormwater BMPs to reduce adverse water quality impacts. If necessary, an Erosion sediment control and Stormwater Management Plan would be prepared and appropriate permits would be obtained from MDE prior to demolition. (See the PEA section 4.6, 4.11, 5.3.2, 5.6, 5.11)
30. Critical Areas Determined to be Areas of Intense Development: Given the developed nature of APG, certain areas can be categorized as Intensely Developed Areas per Code of Maryland Regulations (COMAR) 27.01.02.03. Disturbance to the Critical Area, natural habitat, and forests would be minimized to the maximum extent practicable since most of the demolitions will be taking place within existing building and infrastructure footprints. If tree cutting was required for staging areas in the Critical Area, it would be mitigated on a 1:1 ratio in accordance with the Forest Conservation Plan and/or Critical Area Management Plan. No direct impacts to fish or wildlife are expected in these areas from demolition within the Critical Area or as a result of the Proposed Action. Impacts to plant habitats would be temporary and restored following demolition. An ESCP would be implemented to prevent off-site migration of soils into waterways. Demolition within the Critical Area would not increase or affect the amount of existing impervious surface area. Depending on future use requirements, groundcover could be stabilized and revegetated following demolition. Existing ROW would be utilized to limit the need for tree removal in the Critical Area. (See the PEA section 4.6, 4.11, 5.3.2, 5.6, 5.11)
31. Critical Areas that are not Areas of Intense Development: Disturbance to the Critical Area, natural habitat, and forests are minimized due to the nature of demolition, work is expected to be completed entirely in existing building footprints and right of way. An ESCP would be implemented to prevent off-site migration of soils into waterways. Any forest removal would be replaced in accordance with the Forest Conservation Plan and/or Critical Area Management Plan to be prepared for the project with a 1:1 mitigation ratio for impacted forest. Lot coverage would remain the same or would be reduced in the

event of demolition without immediate building replacement. No demolition on slopes greater than 15 percent would occur.

2. Tidal Wetlands:

1. No work is expected to occur within tidal wetlands, all areas of demolition are expected to be completed on existing ROW and building footprints. No direct impacts to tidal wetlands are expected to occur.

3. Non-Tidal Wetlands:

1. No impacts to non-tidal wetlands are expected to occur. All demolition work is expected to be completed in existing ROW.

4. Forests: (Relevant policies are detailed below; Not Relevant Policies: 1-4)

5. Roadside Trees: Roadside trees may need to be cut to maintain ROW access so as to allow for maintenance of the electrical system, eliminate potential hazard to the electrical system, and promote public safety.

6. Sediment and Erosion Control: The Proposed Action includes an Erosion and Sediment Control Plan as described in Section A.11 above.

5. Historical and Archaeological Sites: (Relevant policies are detailed below; Not Relevant Policies: 2, 3)

1. Based on predictive modeling for both prehistoric and historic (pre-military) resources, APG has a high probability of containing prehistoric sites; however, no known archaeological or Native American resources are located within or adjacent to the previously disturbed project areas. As the Proposed Action would involve limited surface disturbance within previously disturbed locations, it is unlikely that significant adverse effects would occur to archaeological resources. If cultural resources are encountered during demolition, all work in the area of the discovery would cease immediately and the APG Cultural Resources Manager and the State Historic Preservation Officer (SHPO) would be notified.

6. Living Aquatic Resources: (Relevant policies are detailed below; Not Relevant Policies: 2-6, 8-14)

1. Threatened and Endangered Species: Due to the nature of the Proposed Action, no threatened or endangered species are expected to be affected. Work would be limited to the existing built environment, and areas immediately surrounding previously disturbed areas. It is not expected that any habitat would be eliminated due to the Proposed Action. As explained in Section 5.8.2 of the PEA, before demolition would take place the Programmatic Consultation Screening Criteria for the Northern Long Eared bat would be completed and conservation measures would be administered if warranted.

7. Non-Tidal Waters: Impacts to non-tidal wetlands are discussed in B.3.

C. COASTAL USES

1. **Mineral Extraction:** Not Relevant
2. **Electrical Generation and Transmission:** Not Relevant
3. **Tidal Shore Erosion Control:** Not Relevant
4. **Oil and Natural Gas Facilities:** Not Relevant
5. **Dredging and Disposal of Dredged Material:** Not Relevant
6. **Navigation:** Not Relevant

7. Transportation: Not Relevant

8. Agriculture: Not Relevant

9. Development:

1. Erosion and Sediment Control: The Proposed Action would include controls to minimize erosion and keep sediment on site, described in Section A.1.11 above.

2. Avoid and Minimize Impacts to Wetlands, Water Quality and Natural Habitats, Trees and Historical and Archaeological Resources: Disturbances associated with the Proposed Action would occur almost exclusively on previously disturbed areas. No construction is within the scope of the Proposed Action. Utility and slab removal would occur near the footprint of the original building, and would be designed to avoid and minimize impacts when possible. No direct impacts to wetlands are expected under the Proposed Action. Water quality impact would be minimized through the net reduction in impervious surfaces as a result of the Proposed Action, and employing erosion and sediment control, and stormwater management BMPs during the demolition process. Impacts to cultural resources are not anticipated as demolition takes place on previously developed land. (See section B.5.1 above for further discussion on cultural resources).

8. Public Involvement: Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 CFR Part 651. The PEA will be made available to the public for 30 days in order to receive public comments.

10. Sewage Treatment: Not Relevant

D. SUMMARY OF FINDINGS

Based on the above analysis as well as the extended analysis within the PEA, APG personnel would 1) ensure that contractor personnel use and maintain appropriate BMPs, 2) obtain the requisite permits and approvals for demolition and operational work, and 3) implement measures to mitigate potential environmental impacts. APG has conducted a Coastal Zone Management Federal Consistency review of the Proposed Action and has determined that the Proposed Action is consistent, to the maximum extent practicable, with the policies of Maryland's federal approved Coastal Zone Management Program.

DRAFT

APPENDIX C:
Northern Long Eared Bat Programmatic Consultation Screening Criteria

15 July 2015 Final IMCOM NLEB Programmatic Consultation Screening Criteria

This document is intended to compliment and facilitate the implementation of the IMCOM Programmatic Consultation by allowing individual installations to screen areas or projects for applicable conservation measures for the NLEB. For all projects screened with this criteria ensure you document the location, size, and disposition for annual reporting purposes.

1) Does your area or activity occur within one of the following categories?

- a. Occurs outside the known range of the NLEB (see Section V for details)
- b. Occurs within the known range of the NLEB but does not occur within suitable NLEB habitat. (see Section V and the Glossary in Section X for details)
- c. Occurs within a highly developed urban area that is <1000' from suitable NLEB habitat. (see Section V for details)
- d. An area with NLEB verified absence through USFWS Protocol survey(s).
- e. An activity that is conducted under a separate site specific consultation with the local USFWS Field Office.
- f. A military training activity such as but not limited to: air operations, water operations, field training operations, live munitions training, demolition, and research, development, testing, and evaluation (RDTE). (see Section VI-A for details)
- g. Aircraft activities such as but not limited to: fixed wing, rotary wing, drone, etc...(see Section VI-B for details)
- h. Outdoor recreation such as but not limited to: hunting, fishing, trapping, hiking, mountain biking, camping, horseback riding, wildlife watching, and other consumptive/non-consumptive activities. (see Section VI-J for details)

➤ **NO**

Continue to question 2.

➤ **YES**

No further action is necessary to comply with Endangered Species Act protections for the northern long-eared bat.

2) Does your activity utilize military smoke or obscurants?

➤ **NO**

Continue to question 3.

➤ **YES**

Implement the following applicable conservation measures. (see Section VI-C for details)

1. M18 colored smoke grenades will not be used within 50m of forested suitable NLEB during the active season (see PBE Table 2 Below). Or within 50m of known roost trees during the active season if USFWS protocol surveys have been completed

2. Fog oil will not be released within forested suitable NLEB habitat during the active season (see PBE Table 2 Below).
3. WP will not be released within 200 meters of forested suitable NLEB habitat during the active season (see PBE Table 2 Below). Or within 200m of known roost trees during the active season if USFWS protocol surveys have been completed.
4. Other smoke/obscurants will not be employed during the NLEB active season (see PBE Table 2 Below).
5. No smoke or obscurants will be released within 0.5 miles of known hibernacula outside of the active season as defined in PBE Table 2 Below.

3) Does your activity require construction?

➤ **NO**

Continue to question 4.

➤ **YES**

Implement the following applicable conservation measures. (see Section VI-D for details)

1. If there is a need to remove a single or small cluster of trees during the active season, the installation will follow procedures listed question 6.
2. Will not occur within forested suitable NLEB habitat during the active season (see PBE Table 2 Below).
3. No known roost trees will be felled, unless there is a human health and safety concern. If there is a need to remove a known roost tree, the installation will follow procedures listed in Section VI.G. to determine if such removal can be done with insignificant or discountable effects on NLEB.
4. Consult with USFWS for projects within 0.25 miles of known roost trees. Buffers may also take into account factors such as the surrounding landscape, habitat connectivity, and distance to other roosts, distance to known foraging areas.
5. Implement a 0.5 mile buffer around “known” hibernacula where additional consultation is required.
6. For structure, sign, utility, & bridge maintenance: if needed during the active season, conduct in manner that does not bother roosting bats in any way (e.g., activity away from roosts inside common rooms in structures, normal cleaning and routine maintenance). If needed outside of the active season, conduct in manner that does not alter roosting potential for bats.
7. Tree removal outside the active season (see PBE Table 2 Below), that is entirely within 100’ of an existing road surface has no acreage limit. This would include roads within cantonment, state, local roads, paved roads, and developed hard packed roads, but does not include trails or other travel corridors in training areas)
8. Tree removal outside the active season (see PBE Table 2 Below), that is >100’ of an existing road surface has a 10 acre per project limit.
9. Flagging or signs will be used to demarcate areas to be cleared vs. not cleared prior to any construction activities for a given project. Flagging will be removed upon completion of the project.

10. Via Scope of Works, Contracts, etc., all personnel responsible for construction activities will be informed about the need to follow design plans, stay within flagging, and minimize impacts to wildlife and other environmental concerns.
11. Outdoor Lighting Minimization. For all future projects, IMCOM will evaluate the use of outdoor lighting and seek to minimize light pollution by angling lights downward or via other light minimization measures.
12. Demolition. If the building has pre-existing known NLEB colonies, then the environmental contact of the IMCOM installation must be contacted before demolition is to occur. If during the course of demolition, NLEB are discovered, then all work must cease and USFWS must be immediately contacted. If the structure is safe to leave as is, then it will be left until after October 15, or until bats have stopped using the structure. If the structure is unsafe and poses a risk to human health and safety, IMCOM will attempt to exclude the bats immediately. If this is not possible, or NLEB are found to be using the structure during the maternity season when pups are not volant, IMCOM will contact USFWS to discuss the most appropriate next course of action.
13. Water Quality BMPs will be established for each construction site in accordance with the appropriate federal laws and state permits.

4) Does your activity involve Forest Management, not including Prescribed Burning?

➤ **NO**

Continue to question 5.

➤ **YES**

Implement the following applicable conservation measures. (see Section VI-E for details)

1. IMCOM will screen projects that required tree removal for forest management activities the same as identified for construction.
2. If there is a need to remove a single or small cluster of trees during the active season, the installation will follow procedures listed in that section below.
3. Will not occur within forested suitable NLEB habitat during the active season (see PBE Table 2 Below).
4. No known roost trees will be felled, unless there is a human health and safety concern. If there is a need to remove a known roost tree, the installation will follow procedures listed in Section VI.G. to determine if such removal can be done with insignificant or discountable effects on NLEB.
5. Implement a 0.25-mile buffer around known roost trees where additional consultation is required for clearcutting or similar harvest. Overstory roost tree removal is also not authorized within 100 meters of documented maternity roost trees without further consultation with the USFWS. Tree thinning/removal will also take into account factors such as the surrounding landscape, habitat connectivity, and distance to other roosts, distance to known foraging areas.
6. Implement a 0.5 mile buffer around “known” hibernacula where additional consultation is required.

7. Tree removal outside the active season (see PBE Table 2 Below), that is entirely within 100' of an existing road surface has no acreage limit. This would include roads within cantonment, state, local roads, paved roads, and developed hard packed roads, but does not include trails or other travel corridors in training areas)
8. Clear cutting or similar harvest outside the active season (see PBE Table 2 Below), that is >100' of an existing road surface has a 10 acre per project limit. No acreage limit on selective harvest outside the active season.
9. Flagging or signs will be used to demarcate areas to be cleared vs. not cleared prior to any forest management activities for a given project. Flagging will be removed upon completion of the project.
10. Snag Retention. All snags will be left in silvicultural treatments unless there is a safety concern for the contractor or the military units training in the stands (e.g., maneuver corridors), or unless the treatment is a salvage harvest or clearcut.

5) Does your activity involve Prescribed Burning?

➤ **NO**

Continue to question 6.

➤ **YES**

Implement the following applicable conservation measures. (see Section VI-F for details)

1. Will not be conducted within 0.5 miles from "known hibernacula" when bats are present during the inactive season (see Table 2 for active season).
2. Will not occur within forested suitable NLEB habitat during the active season (see PBE Table 2 Below).
3. Prescribed burns will be conducted under a site specific burn plan per the Installation Integrated Wildland Fire Management Plan
4. Whenever possible, all efforts will be made to have all flames extinguished and smoke generation minimized by sunset to reduce potential direct impacts to foraging bats during the active season (see PBE Table 2 Below)
5. Make use of naturally occurring firebreaks or if necessary, establish wet lines 100m around forested known/presumed occupied NLEB habitat during the active season (see PBE Table 2 Below), to preclude fire from entering, to the maximum extent practicable.

6) Does your activity involve Specific Single, Group, of Hazard Tree Removal?

➤ **NO**

Continue to question 7.

➤ **YES**

Implement the following applicable conservation measures. (see Section VI-G for details)

1. Removal of single, multiple, or cluster of trees during the active season, in areas where there are known roost trees, trees that do not pose a risk to human life or property will be analyzed for signs of bats being present (emergence surveys)

prior to removal according to USFWS Indiana bat (and NLEB) summer survey protocols.

2. If known roost tree removal is determined to be necessary, the applicable IMCOM installation will consult with their local USFWS field office.
3. If such tree removal is preferred immediately, the applicable IMCOM installation will consult with their local USFWS field office.
4. If non-ESA bat species are determined present and immediate removal of the tree(s) is necessary, the tree(s) will be removed in a manner that will minimize impacts on the bats such as first disturbing the tree(s) to cause them to abandon the roost.
5. If there are hazard trees that are considered an imminent threat to human life or loss of property occurring in suitable NLEB habitat and need to be removed during the active season, the IMCOM installation will remove such trees and inform the USFWS field office of the action only if NLEB are present on the IMCOM installation will initiate emergency consultation per the procedures in accordance with 50 CFR 402.05.

7) Does your activity involve Pesticide Use?

➤ **NO**

Continue to question 8.

➤ **YES**

Implement the following applicable conservation measures. (see Section VI-H for details)

1. Only pesticides registered by the EPA and State of use may be applied and only in accordance with their label.
2. Aerial applications will occur outside the active season (see PBE Table 2 Below) and between the hours of sunrise and one hour before sunset. When utilizing helicopters for application they should employ large droplet technology through special nozzles on drop tubes to ensure the herbicide stays on target.
3. Whenever possible, herbicides that have low toxicity to mammals will be utilized with the tow behind power blowers. Herbicides that may be somewhat toxic to mammals will be mixed and applied at a rate that should minimize any potential exposure concerns.
4. Application of pesticides from ground mounted vehicles (i.e., ATVs, tractors) that spray chemicals directly onto the ground and do not result in broad dispersal will be conducted at least 100 ft (30 m) from known roost trees during the active season (see PBE Table 2).
5. Application of pesticides that result in broad dispersal (e.g., tow behind power blowers) will be conducted at least 250 ft (76 m) away from known roost trees during the active season (see PBE Table 2 Below) and will be applied between sunrise and one hour before sunset.
6. Location-specific applications (i.e. hatchet or stem injections of trees, individual application to specific plants) may be used within 50 ft (15 m) of known roosts.

7. Pesticides applied from tow behind power blowers will use appropriate nozzles and drift control additives, and will be applied using low pressure to reduce drift and potential swirling motion from the blower. All efforts will be made to only spray 10 feet from ground level or below.
8. Pesticides will not be applied outdoors when the wind speed exceeds 8 mi/hr for all applications except power mist blowers. Pesticides applied via power mist blower will only be applied with wind speeds <5 mi/hr.
9. If a bat colony is found roosting in a building, then insecticides will be used sparingly and no foggers will be used. This will minimize impacts to roosting northern long-eared bats if they are found within a building.

8) Does your activity involve Pest Control?

➤ **NO**

Continue to question 9.

➤ **YES**

Implement the following applicable conservation measures. (see Section VI-I for details)

1. No Lethal Control. No lethal control methods are permitted for bats unless there is a suspected human health risk for exposure to rabies or other disease. If individual bats are in buildings and there is no evidence of maternity use, then all efforts will be made to safely capture and release individual bats. Or, the bats will be excluded by establishing one-way valves over the roost's exit (if feasible).
2. Exclusion will only be done during times of the year when pups are not present or when they are volant (i.e., August - early May). Sealing cracks and crevices in buildings will also be done during the late fall or early spring.
3. No adhesive traps used for rodents or insects will be placed in such a manner that they could capture bats—glue traps will not be placed in any crawl space or attic compartment within buildings or in areas where bats are known to occur.
4. Chemical Measures. Any use of insecticides will be utilized in accordance with the conservation measure associated with “Pesticide Use”.

9) If your activity was not identified through the previous screening questions or cannot be completed within the identified conservation measures, contact your local USFWS Field Office for additional guidance.

Table 2: Active Season Dates for the Northern Long-eared Bat based on Table 1 of the Northern Long-Eared Bat Conference Guidance (USFWS 2014). Individual IMCOM installations should confirm dates with their local USFWS Field Office.

| State/Region | Active Season |
|---------------------|----------------------|
| Alabama | Apr 1-Nov 30 |
| Illinois | Apr 1-Nov 15 |
| Kansas | Apr 1-Nov 1 |
| Kentucky | Apr 1-Nov 15 |
| Massachusetts | Contact FO |
| Maryland | Contact FO |
| Michigan | Apr 1-Oct 1 |
| Missouri | Apr 1-Nov 15 |
| New Jersey | Apr 1-Nov 15 |
| New York | Apr 1-Oct 30 |
| Pennsylvania | Contact FO |
| Virginia | Apr 1-Nov 15 |
| Wisconsin | Apr 1 - Oct 15 |

DRAFT