

*FINAL*  
**ENVIRONMENTAL ASSESSMENT**  
**ADDRESSING THE ROTARY WING**  
**TESTING AND EVALUATION HANGAR REPLACEMENT**  
**AT NAVAL AIR STATION PATUXENT RIVER, MARYLAND**  
**(MILCON P131)**



**AUGUST 2017**



**FINAL**  
**ENVIRONMENTAL ASSESSMENT ADDRESSING THE**  
**ROTARY WING TESTING AND EVALUATION HANGAR REPLACEMENT AT**  
**NAVAL AIR STATION PATUXENT RIVER, MARYLAND (MILCON P131)**

**AUGUST 2017**

**Lead Agency:** U.S. Department of the Navy

**Title of Proposed Action:** Environmental Assessment Addressing the Rotary Wing Testing and Evaluation Hangar Replacement at Naval Air Station Patuxent River (MILCON P131)

**Designation:** Environmental Assessment

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U.S. Department of the Navy

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**ABSTRACT**

Under the Proposed Action, the U.S. Department of the Navy (Navy) proposes to construct a hangar complex to support rotary-wing aircraft research, development, testing, and evaluation (RDT&E). The proposed hangar would provide a new facility to support operations currently conducted in Hangar 111 at Naval Air Station (NAS) Patuxent River. The new hangar would support Navy and Marine Corps aircraft and would accommodate approximately 241 personnel in offices, 246 aircraft maintenance personnel, and 15 rotary-wing aircraft.

In this Environmental Assessment (EA), two action alternatives and the No Action Alternative will be evaluated. Under Alternative 1, the Navy would construct the proposed hangar to meet the Navy's mission needs. The new hangar would be approximately 128,525 square feet (ft<sup>2</sup>) (11,940 square meters [m<sup>2</sup>]) and include hangar bays, maintenance shops, crew spaces, storage areas, and office and laboratory space (NAS PAX 2015). Additionally, 10 structures measuring an approximated total of 4,900 ft<sup>2</sup> (455 m<sup>2</sup>) would be permanently demolished and 2 structures measuring an approximated total of 250 ft<sup>2</sup> (23 m<sup>2</sup>) would be demolished but replaced by construction elsewhere on the installation as part of a separate MILCON action (NAS PAX 2016). All of the affected facilities are within the Flight Test/Tactical Test/NAS Operations Historic District, including the proposed hangar.

Under Alternative 2, the Navy would not construct the proposed hangar complex. Instead, Hangar 111 and Building 111A would be renovated to comply with safety and utilities upgrade requirements. Movable structures would be assembled in proximity to Hangar 111 to alleviate overcrowding in existing office and laboratory spaces.

A No Action Alternative was also considered. Under the No Action Alternative, the hangar would not be constructed and no structures would be demolished. This alternative does not meet the purpose of and need for the Proposed Action; however, it serves as a baseline against which the impacts of the Proposed Action can be evaluated.

The intent of the National Environmental Policy Act (NEPA) is to help decisionmakers make well-informed decisions based on an understanding of the potential environmental consequences of an action.

This EA evaluated the potential environmental consequences of the Proposed Action and alternatives, including the No Action Alternative, on the following general impact topics: noise, air quality, human health and safety, coastal zone management, geological resources, biological resources, water resources, socioeconomics (including environmental justice and protection of children from environmental health risks and safety risks), utilities and infrastructure (including transportation), hazardous materials and wastes, and cultural resources. If the analysis in the EA determines the Proposed Action would not result in any significant impacts, a Finding of No Significant Impact would be prepared. If potentially significant impacts are identified that cannot be reduced to insignificant levels, an Environmental Impact Statement would be prepared or the Proposed Action would be abandoned and no action would be taken.



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**NAVAL FACILITIES ENGINEERING COMMAND  
U.S. DEPARTMENT OF THE NAVY**



**AUGUST 2017**



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**ACRONYMS AND ABBREVIATIONS**

ACHP	Advisory Council on Historic Preservation	NAS	Naval Air Station
ACM	asbestos-containing material	Navy	U.S. Department of the Navy
AQCR	Air Quality Control Region	NEPA	National Environmental Policy Act
APE	Area of Potential Effect	NHPA	National Historic Preservation Act
AT/FP	Anti-Terrorism/Force Protection	NPDES	National Pollutant Discharge Elimination System
BMP	best management practice	NRHP	National Register of Historic Places
CO	carbon monoxide	NO <sub>2</sub>	nitrogen dioxide
CO <sub>2</sub>	carbon dioxide	NO <sub>x</sub>	nitrogen oxide
CAA	Clean Air Act	OPNAVINST	Office of the Chief of Naval Operations Instruction
CEQ	Council on Environmental Quality	OPNAV-M	Office of the Chief of Naval Operations Manual
CFR	Code of Federal Regulations	OWS	oil/water separator
COMAR	Code of Maryland Regulations	PM <sub>2.5</sub>	particulate matter equal to or less than 2.5 microns in diameter
CWA	Clean Water Act	PM <sub>10</sub>	particulate matter equal to or less than 10 microns in diameter
CZMA	Coastal Zone Management Act	PCB	polychlorinated biphenyl
CZMP	Coastal Zone Management Program	ppb	parts per billion
dBA	A-weighted decibel	ppm	parts per million
DoD	Department of Defense	PPE	personal protective equipment
EA	Environmental Assessment	pCi/L	picoCuries per liter
EIS	Environmental Impact Statement	PSD	Prevention of Significant Deterioration
ESA	Endangered Species Act	RCRA	Resource Conservation and Recovery Act
ESD	Environmental Site Design	RDT&E	Research, Development, Testing, and Evaluation
ESQD	Explosive Safety Quantity Distance	RDAT&E	Research, Development, Acquisition, Test, and Evaluation
FONSI	Finding of No Significant Impact	SECNAVINST	Office of the Secretary of the Navy Instruction
ft <sup>2</sup>	square feet	SHPO	State Historic Preservation Office
GHG	greenhouse gas	SO <sub>2</sub>	sulfur dioxide
HERO	Hazards of Electromagnetic Radiation to Ordnance	SWPPP	Stormwater Pollution Prevention Plan
HX-21	Air and Test Evaluation Squadron Two One	tpy	tons per year
ERP	Environmental Restoration Program	TMDL	Total Maximum Daily Load
LBP	lead-based paint	U.S.C.	United States Code
LEED	Leadership in Energy and Environmental Design	USACE	U.S. Army Corps of Engineers
LOS	level of service	USEPA	U.S. Environmental Protection Agency
m <sup>2</sup>	square meter(s)	USFWS	U.S. Fish and Wildlife Service
µg/m <sup>3</sup>	micrograms per cubic meter	VOC	volatile organic compound
mg/m <sup>3</sup>	milligrams per cubic meter	WNS	White Nose Syndrome
MBTA	Migratory Bird Treaty Act		
MDNR	Maryland Department of Natural Resources		
MDE	Maryland Department of the Environment		
MHT	Maryland Historic Trust		
MILCON	Military Construction		
MOU	Memorandum of Understanding		
NAAQS	National Ambient Air Quality Standards		

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# 1. Purpose and Need

## 1.1 Introduction

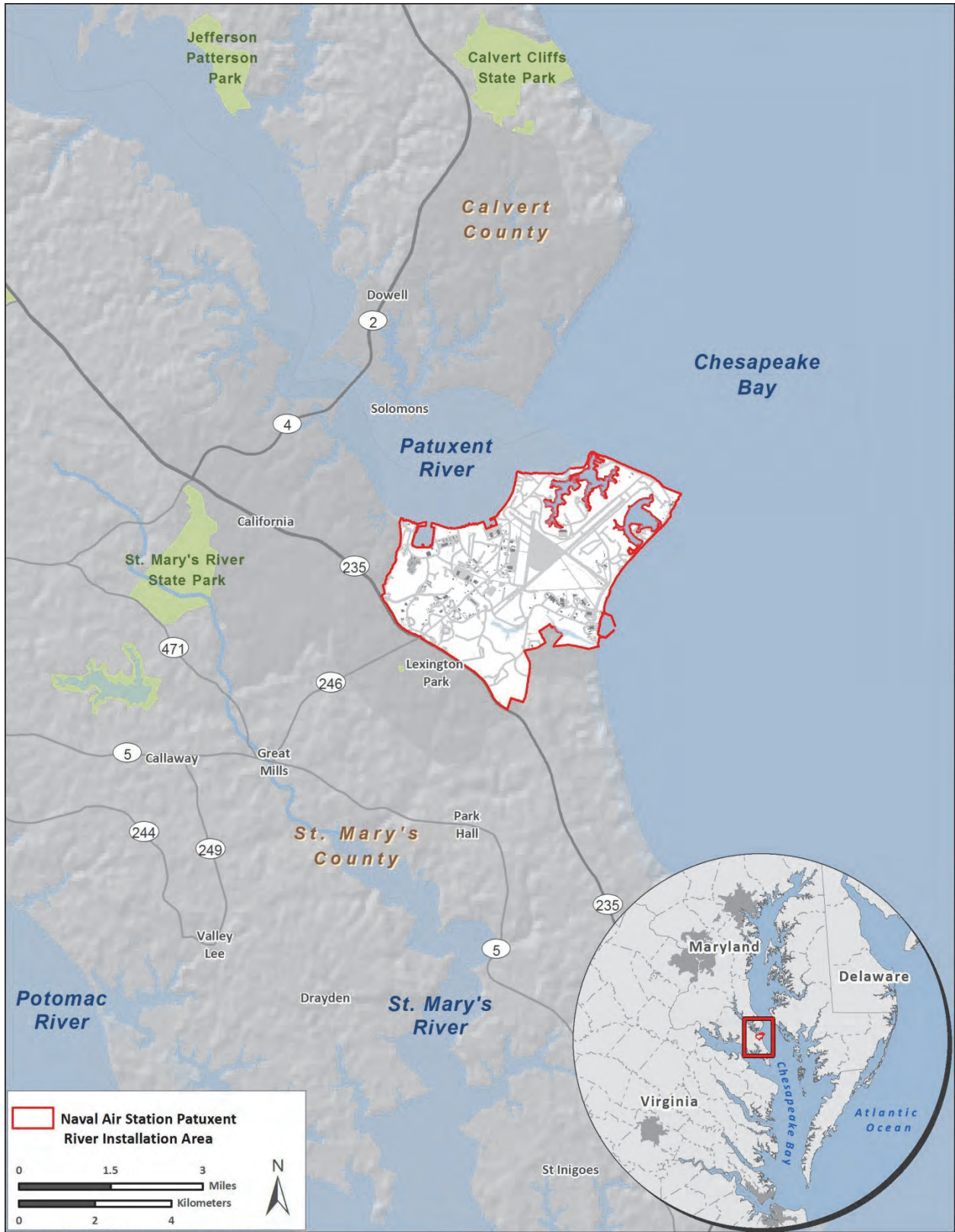
This Environmental Assessment (EA) addresses the proposal by the U.S. Department of the Navy (Navy) to construct a hangar complex to support rotary-wing aircraft research, development, testing, and evaluation (RDT&E) (Military Construction (MILCON) P131). The proposed hangar would be approximately 128,525 square feet (ft<sup>2</sup>) (11,940 square meters [m<sup>2</sup>]) and would provide a new facility to support operations currently conducted in Hangar 111 at Naval Air Station (NAS) Patuxent River. The hangar would support Navy and Marine Corps aircraft and would accommodate approximately 241 personnel in offices, 246 aircraft maintenance personnel, and 21 rotary-wing aircraft. This project also includes the demolition of up to 12 existing facilities measuring an approximated total of 5,150 ft<sup>2</sup> (478 m<sup>2</sup>) within the Flight Test/Tactical Test/NAS Operations Historic District (NAS PAX 2015). Of these, 10 would be permanently demolished (measuring an approximated total of 4,900 ft<sup>2</sup> [455 m<sup>2</sup>]), and 2 buildings (measuring an approximated total 250 ft<sup>2</sup> [23 m<sup>2</sup>]) would be demolished and replaced by construction elsewhere on the installation as part of a separate MILCON action (NAS PAX 2016). Hangar 111 and Building 111A are contributing resources to the Flight Test/Tactical Test/NAS Operations Historic District; the proposed hangar would be constructed within this district.

The EA has been prepared pursuant to Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] Sections 4321–4370h); the regulations issued by the President’s Council on Environmental Quality (CEQ) for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508); and Office of the Secretary of the Navy Instruction (SECNAVINST) 5090.6A, *Environmental Planning for Department of the Navy Actions*, (DoN 2006), Chief of Naval Operations Instruction (OPNAVINST) 5090.1D, *Environmental Readiness Program* (DoN 2014a) and its accompanying OPNAV-Manual (OPNAV-M) 5090.1, *Environmental Readiness Program Manual* (DoN 2014b).

## 1.2 Background

NAS Patuxent River occupies 6,348 acres and is in St. Mary’s County, Maryland, near the mouth of the Patuxent River and the Chesapeake Bay (NAS PAX 2013a) (see **Figure 1-1**). NAS Patuxent River was commissioned in 1943 in response to World War II to consolidate many air testing facilities that were established during pre-World War II years. It is home to Naval Air Systems Command Headquarters and the U.S. Naval Test Pilot School (NAS PAX 2013b).

The Air and Test Evaluation Squadron Two One (HX-21) is part of Naval Test Wing Atlantic and Naval Air Systems Command and is located at NAS Patuxent River. The mission of HX-21 is to conduct developmental flight test and evaluation of rotary-wing and tilt-rotor aircraft, airborne systems in support of all Navy and Marine Corps training, operational combat, and operational combat support missions (NAWCAD 2013). HX-21 directly supports aircraft used in Overseas Contingency Operations and includes critical warfighter systems, some of which include night targeting upgrades, laser eye protection upgrades, aircraft survivability upgrades for CH-53E direct infrared countermeasure, and new engine control system and aircraft survivability surrogate platform integration for CH-46. Operations have expanded beyond development to include integrated testing, an amalgamation of contractor testing, developmental testing, operational testing, and follow-on testing increasing the size of test teams accompanying aircraft. To achieve timely and efficient operations, the hangar, maintenance facility, office, laboratory, and storage space should be collocated.



Sources: ESRI StreetMap USA 2010 and Naval Air Station Patuxent River.

**Figure 1-1. Location Map**



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HX-21 completes all of the research, development, and testing of the rotary-wing aircraft at NAS Patuxent River, including the H-1, H-53, and H-57 aircraft. The squadron shares space in numerous buildings; however, Hangar 111 is the center for HX-21 Command Staff. Hangar bays provide maintenance and shop space for three shifts per day for the aircraft.

Hangar 111 and Building 111A are contributing elements to the Flight Test/Tactical Test/NAS Operations Historic District, which was determined eligible for listing in the National Register of Historic Places (NRHP) in 2000. Building 111A was constructed in 1943 as the heating plant for Hangar 111, a seaplane hangar which was completed in 1944. The historic district was determined eligible for the NRHP for its association with the mission of NAS Patuxent River during World War II and the early Cold War, and for its specialized testing facilities. The district has been expanded and currently has 19 contributing discontinuous resources, including the adjacent Hangar 110, which is a landplane hangar. Hangar 111 is a concrete barrel vault hangar with two large bays. The barrel vault hangars constructed at NAS Patuxent River were innovative architectural designs atypical of Navy construction during the 1940s and 1950s. The bays are separated by a row of rooms that include offices, storage, and other utilitarian space; and the northern and southern facades have a row of similarly purposed rooms. Building 111A, originally a rectangular 2-story brick building, has been almost completely sheathed with modern composite siding.

### 1.3 The NEPA Process

NEPA is a Federal statute requiring the identification and analysis of potential environmental impacts associated with proposed major Federal actions before those actions are taken. NEPA established the CEQ, which was charged with the development of implementing regulations and ensuring Federal agency compliance with NEPA. The process for implementing NEPA is codified in Title 40 of the CFR, §§ 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (i.e., CEQ regulations). According to CEQ regulations, the requirements of NEPA must be integrated “with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively” (40 CFR § 1500.2). The NEPA process does not replace procedural or substantive requirements of other environmental statutes and regulations; it addresses them collectively in the form of an EA or Environmental Impact Statement (EIS), which enables the decisionmaker to have a comprehensive view of key environmental issues and requirements associated with a proposed action.

An EA is a concise document that provides sufficient analysis for determining whether the potential environmental impacts of a proposed action are significant, requiring the preparation of an EIS, or not significant, resulting in the preparation of a Finding of No Significant Impact (FONSI). An EIS is prepared for those Federal actions that might significantly affect the quality of the natural or human environment.

The Navy implements NEPA through *Procedures for Implementing the National Environmental Policy Act* (32 CFR Part 775). Additional guidance is found in SECNAVINST 5090.6A, OPNAVINST 5090.1D, and the OPNAV-M 5090.1.

To implement NEPA effectively and prepare quality and consistent environmental planning documents, the Navy conducts environmental planning and decisionmaking using a systematic, interdisciplinary approach that integrates the natural and social sciences where there might be an impact on the environment under NEPA. The Navy considers and evaluates a reasonable range of alternatives to proposed actions that rigorously explores and sharply defines the issues, provides full disclosure of the potential environmental consequences, and provides a clear basis for choice among options by the decisionmaker and the public. In addition, the Navy strives to achieve a balance between resource use and the Navy’s mission and avoid environmental degradation, risk to health and safety, or other

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consequences that are undesirable and unintended; and provides the opportunity for public involvement in the environmental planning process, where applicable (DoN 2014b).

The Navy's policy guidance found in OPNAV-M 5090.1, states that the Navy should give priority to preservation in the management of historic buildings, districts, archaeological sites, and other cultural resources (DoN 2014b). It is Navy policy to use, to the maximum extent feasible, historic properties for the purpose of carrying out its responsibilities. The Navy should consider alternatives, such as adaptive use to maintain usability of historic properties that might no longer be needed for their original purposes. However, when historic structures are involved, the consideration of alternatives shall include an economic analysis that evaluates life-cycle maintenance costs, utility costs, demolition, replacement, mitigation costs, and other pertinent factors for both new construction and rehabilitation. An economic analysis was completed comparing the new construction (Alternative 1) to the renovation and leased relocatables alternative (Alternative 2). The results show that the new construction alternative is less costly than the renovation and leased relocatables alternative over a 32-year period.

## 1.4 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide adequate and properly configured RDT&E hangar space for the development and testing of Navy and Marine Corps rotary-wing and tilt-rotor aircraft and aircraft systems supporting Undersea Warfare, Surface Warfare, Combat Search and Rescue, Naval Special Warfare, Airborne Mine Countermeasures, Logistics, Maritime Supremacy, and Vertical Assault.

The proposed hangar is needed because the existing hangar facility is not configured in a way to meet mission requirements. Hangar 111 has the following deficiencies:

- Hangar 111 has a barrel arch layout that is not configured for the development and testing of modern aircraft. Additional travel lanes have been created inside the hangar to reposition aircraft for testing. This repositioning occurs multiple times a day resulting in approximately 24 hours of labor per day. In addition, accidental collisions occur resulting in a loss of manpower, and increased repairs and expense.
- Hangar 111 does not have sufficient office and laboratory space for all of the personnel that work on aircraft testing. As a result, these personnel work in various facilities on the installation. Engineers transport testing equipment when necessary, which results in an average loss of 1 hour per test. Since approximately 12,000 ground tests occur every year, this totals approximately 12,000 hours of lost time annually.
- HX-21 has three distinct, fully staffed contractor maintenance departments that are geographically dispersed across the installation resulting in personnel redundancies and high and inefficient operating costs. The new construction would be the first step in consolidating operations to optimize personnel requirements and operating costs for the Navy and Marine Corps programs supported at HX-21.

The deficiencies in Hangar 111 result in additional labor hours that are required for tasks such as moving aircraft and making repairs, which make it difficult for HX-21 to meet its mission requirements. The deficiencies in Hangar 111 also result in safety concerns. Some of the specific safety issues include the following:

- The fire protection, electrical, and mechanical systems do not meet current safety standards for Navy hangars.
- The hallways and stairways do not meet current construction codes including those for the International Building Code 2009 and the Architectural Barriers Act.

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- The hangar contains asbestos and lead paint, which require additional safety measures to be implemented during minor repairs.
  - The door supports and ceiling are prone to concrete spalling. The reinforcing bars within the concrete have been exposed to moisture, causing corrosion and resulting in spalling failure. In addition, a large crack formed in the roof after the 2011 earthquake. These structural problems have resulted in large pieces of concrete falling into the maintenance bay.
  - The utility systems (i.e., steam, electrical service, and plumbing) have failed repeatedly resulting in operational delays and additional expenses. In one incident, a steam valve failure resulted in flooding in an office space during non-working hours. The flooding destroyed electronic equipment, project records, and test data. Fifteen people were relocated to temporary offices for 6 months during the repairs.

## 1.5 Agency and Public Involvement

Agency and public involvement in the NEPA process promote open communication between the public and the government and enhance the decision-making process. All persons or organizations having a potential interest in the Proposed Action are encouraged to submit input into the decision-making process.

NEPA and implementing regulations from the CEQ and Navy direct agencies to make their EAs and EISs available to the public during the decision-making process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process.

Through the public involvement process, NAS Patuxent River notified relevant Federal, state, and local agencies of the Proposed Action and requested input on environmental concerns they might have regarding the Proposed Action. The public involvement process provides NAS Patuxent River with the opportunity to cooperate with and consider state and local views in its decision regarding implementing this Federal proposal.

The State and Federal consulting parties contacted during this NEPA effort included the Maryland Historic Trust (MHT), Advisory Council on Historic Preservation (ACHP), Maryland Department of the Environment (MDE) and Maryland Department of Natural Resources (MDNR). The Navy coordinated with the MHT and ACHP regarding the potential for impacts on cultural, archeological, and historic resources. The MHT State Historic Preservation Officer (SHPO) was notified of the Navy's decision to comply with the NHPA through the NEPA process during the early planning stages of the project in 2013; coordination regarding this project was initiated at that time and continued through completion of this EA in July 2017. MDE and MDNR were consulted regarding potential for impacts on coastal zone resources.

A Notice of Availability for the Preliminary Final EA was published in the *Calvert Recorder*, the *Enterprise*, and the *Maryland Independent* newspapers on March 16, 2016. The Preliminary Final EA was made available to the public for a 15-day review and comment period between March 16, 2016 and March 31, 2016. Hard copies of the Preliminary Final EA were provided at the Lexington Park Library Branch and Leonardtown Library Branch within the St Mary's County Public Library System.

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## 2. Proposed Action and Alternatives

This section describes the Proposed Action and alternatives, including Alternative 1, Alternative 2, and the No Action Alternative. The NEPA process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. Reasonable alternatives must satisfy the purpose of and need for the Proposed Action, as defined in **Section 1.2**. In addition, CEQ regulations advocate the inclusion of a No Action Alternative against which potential impacts can be compared. Although the No Action Alternative would not satisfy the purpose or need for the Proposed Action, it is analyzed in accordance with CEQ regulations.

### 2.1 Alternatives Analysis

Under NEPA, reasonable alternatives to implement a proposed action must be considered in an EA. Considering alternatives helps to avoid unnecessary impacts and allows an analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be considered reasonable, which is described as capable of implementation and satisfactory with respect to the purpose of and need for the action.

### 2.2 Screening Criteria to Evaluate Alternatives

The alternatives to construct a hangar complex that would replace current operations conducted in Hangar 111 at NAS Patuxent River must be capable of meeting specified screening criteria to be considered reasonable. The hangar would support Navy and Marine Corps aircraft and would accommodate approximately 241 personnel in offices, 246 aircraft maintenance personnel, and 15 rotary-wing aircraft. A viable alternative would not have a negative impact on aircraft operations during the short-term or long-term phase. To meet these requirements, the facility must meet the following three criteria:

1. The facility must be collocated with established helicopter programs in hangar facilities 101 and 109 in the Rotary Wing Center of Excellence, a consolidated mission complex for helicopter operations at NAS Patuxent River.
2. The facility must have a minimum of 128,525 ft<sup>2</sup> (11,940 m<sup>2</sup>) of space to provide a sufficient area to accommodate the maintenance and testing of aircraft, administrative and storage spaces, and communications and control stations.
3. The facility must include an aircraft parking apron, taxiway, and direct access to the airfield. The apron and taxiway must have adequate space to accommodate the safe and efficient transit of aircraft to and from the tarmac and helicopter pad.

### 2.3 Alternatives Carried Forward

Two action alternatives and the No Action Alternative were considered for addressing future mission requirements. Based on the criteria in **Section 2.2**, the two action alternatives were determined to be reasonable alternatives and were carried forward for detailed analysis in this EA. The No Action Alternative, although failing to meet the screening criteria as a reasonable alternative, provides a reliable baseline for assessing the environmental impacts of Alternatives 1 and 2. A comparison of the potential effects on resources from the three alternatives is provided in this chapter to summarize the findings of the analyses discussed in detail in **Chapter 4**, Environmental Consequences.

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## 2.3.1 Alternative 1 (Preferred Alternative)

### Construction of the Proposed Hangar and Supporting Facilities

Under the Proposed Action, a low-rise hangar complex, approximately 128,525 ft<sup>2</sup> (11,940 m<sup>2</sup>), would be constructed to support rotary-wing aircraft RDT&E. The new hangar would include hangar bays, maintenance shops, crew spaces, storage areas, and office and laboratory space. The hangar would be built with steel framing and supported on steel columns and constructed on a concrete slab. The exterior would be clad with pre-finished metal, insulated, sandwich-panel siding; concrete masonry would be incorporated into the exterior for support. Additional components would include concrete pads, curbs, sidewalks, landscaping, and stormwater drainage.

Buildings and pavement that would be constructed under the Proposed Action include the following:

- Hangar, Type I: 1.5 modules
- Hangar, Type I: 2 modules
- Office, Laboratory, and Maintenance Facility
- Shipping, Receiving, and Storage Facility
- Exterior Covered Storage Facility
- Ready Service Locker
- Aircraft Apron
- Vehicle Parking: 251 spaces.

The proposed hangar bays would be constructed in an L-configuration to include combinations of a 1.5-module Type I hangar and a 1-module Type II hangar. A Type I maintenance hangar is primarily designed for carrier aircraft, but is adaptable to meet requirements for rotary-wing and various types of smaller aircraft (DoD 2009).

The proposed hangar bays would be constructed of structural steel framing with a low sloped roof system. The roof of the hangar bays would be supported by steel, clear span trusses, and supported on columns and purlins or steel bar joist framing with a roof deck pitched to provide positive drainage. Support areas would be constructed of structural steel with a sloped insulated standing seam roof system. Supplemental framing could be required for any roof-mounted equipment. The exterior of the facility would be clad with pre-finished metal, insulated, sandwich-panel siding.

Utilities that would be installed under the Proposed Action consist of electrical, mechanical, and information systems. Electrical utilities would include lighting, transformers, and telecommunications. Mechanical utilities would include water lines, plumbing, sewer lines, fire protection systems and supply lines, natural gas, and water consumption management. Information systems would include telephone, computer network, fiber optic, and security and fire alarm systems and infrastructure.

Sustainable design principles would be incorporated in the construction of the project in accordance with Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*, and the Energy Independence and Security Act 2007. The facility would meet the Leadership in Energy and Environmental Design (LEED) Silver rating and comply with the Energy Policy Act of 2005. Additionally, low-impact development would be included where appropriate.

Exterior wall surfaces would be constructed using concrete masonry and the entire facility would be constructed on a concrete slab on grade with a pile foundation system. Building systems would include heating, ventilation, and air conditioning; fire protection and alarm, including an aqueous film-forming foam system in the hangar area; electrical, water, sewer, and communications infrastructure; and intrusion

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detection. Further, the proposed facility's safety features would be constructed and installed in compliance with the current AT/FP regulations and physical security and progressive collapse mitigation (e.g., traffic control gates) in accordance with Department of Defense (DoD) Minimum Anti-Terrorism Standards for Buildings (DoD 2007).

### **Location of the Proposed Hangar Complex**

The proposed location of the new hangar complex, shown in **Figure 2.1**, along Cedar Point Road near rotary-wing Hangars 101 and 109, is the only location that meets the screening criteria presented in **Section 2.2**. This location has adequate space available to meet the requirements for accommodating the modernized hangar configuration, apron space for transit of aircraft to and from the airfield, and office and parking space requirements essential to HX-21's mission. **Figure 2.1** shows the approximate dimensions and landscape positions of the proposed facilities; however, the actual layout will not be known until the final design for construction is completed. The proximity of the proposed hangar to the taxiway is essential to minimize aircrew flight time and to provide efficient access to aircraft maintenance crew and engineers. The proposed apron would cross Cedar Point Road to adjoin the existing aprons between Hangars 101 and 109. This would allow aircraft direct access to Taxiway Bravo and the airfield. This alternative would also provide crosswalks, sidewalks, access roads, and walkways.

The proposed facility would be constructed in a space that is currently composed of numerous support structures, a recreational softball field, parking spaces, a portion of Cedar Point Road, and unused available space (see **Figure 2-1**). The proposed parking lot would be constructed along Saufley Road just west and across the street from the new hangar facility. This area is currently being used for agricultural purposes; however, it is owned by the DoD and farmed under a lease agreement. Approximately 251 spaces would be added to provide sufficient parking with adequate security and safety features. Parking areas north of the proposed hangar site have occupancy rates between 80 to 90 percent and greater than 95 percent (NAVFAC Washington 2012d).

The proposed facilities would bisect Cedar Point Road. Consequently, this road would be terminated north and south of the proposed hangar and permanently closed to north- and southbound traffic in that part of the installation. To accommodate vehicle flow, traffic would be diverted around the new facility from Cedar Point Road onto Saufley Road. A two-way access road would be constructed between the proposed hangar and Saufley Road.

This alternative meets Criteria 1 through 3 that are discussed in **Section 2.2**.

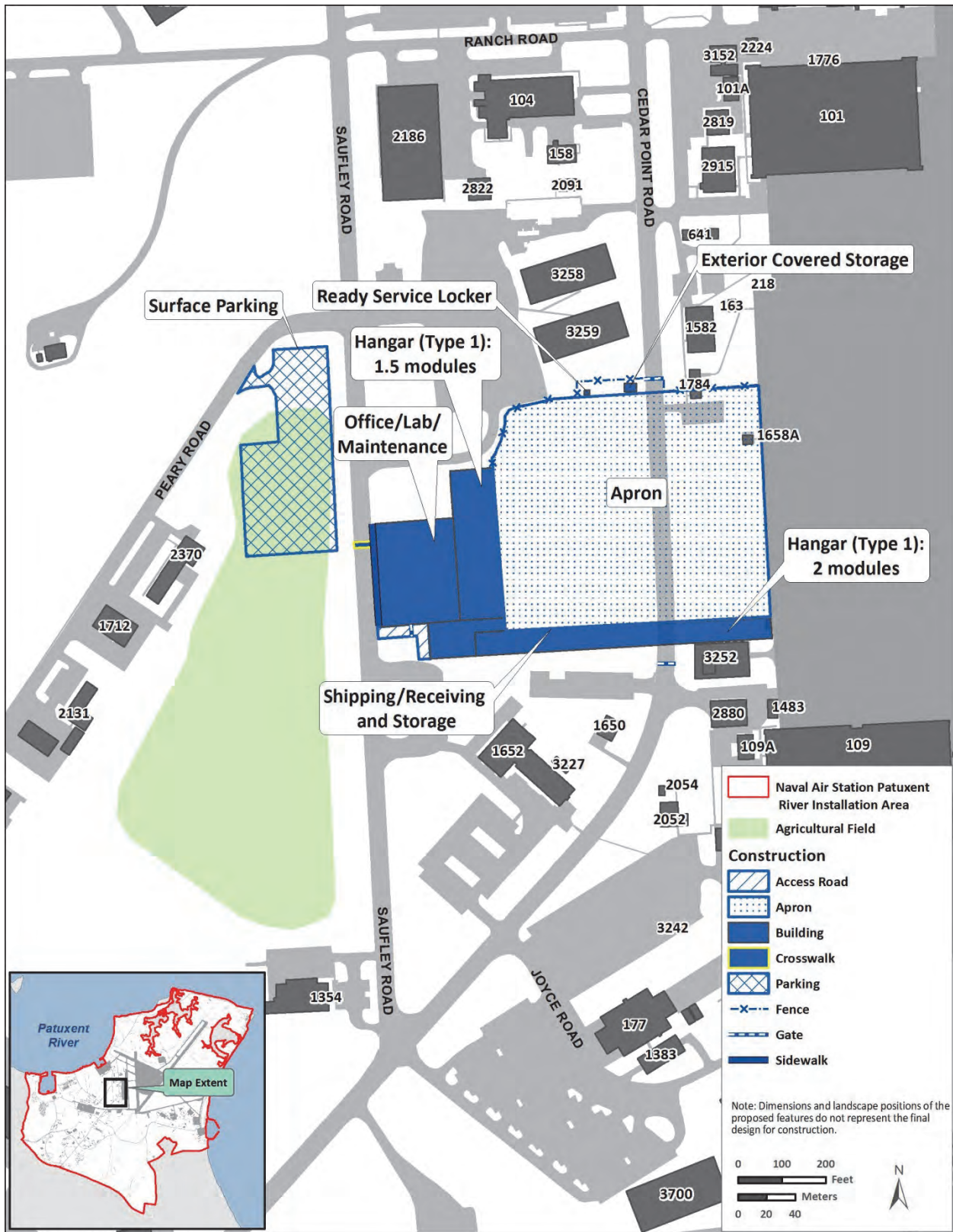
### **Demolition of Non-Historic Structures**

Under Alternative 1, the demolition of facilities would consolidate and remove excess infrastructure. Since the structures to be demolished are on the flight line, it is likely that these areas would be paved and used as an aircraft apron.

Under this alternative, the hangar is proposed west of Taxiway Bravo and east of Saufley Road where several facilities currently exist. Buildings within this region would be demolished because they are within the footprint of the proposed hangar. The buildings proposed for demolition are non-contributing resources to the NRHP-eligible Flight Test/Tactical Test/NAS Operations Historic District.

The following buildings would be demolished:

- Hazardous Flam Storage Facility: Building 163
- Printed Circuit Storage: Building 641



**Figure 2-1. Construction of Proposed Hangar Complex**



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- Technical Services Lab: Building 1582
  - AC Wash Rack: Building 1658
  - Sewage Lift Station: Building 1658A
  - Oil/Water Separator: Building 2250
  - Magazine: Building 231 would be demolished and replaced by construction as part of a separate MILCON

In addition to these facilities, a ball field and parking lot between Cedar Point Road and Saufley Road would be removed (see **Figure 2-2**).

Under Alternative 1, facilities adjacent to the flight line and Hangar 111 would also be demolished (see **Figure 2-3**). These buildings are non-contributing resources to the Flight Test/Tactical Test/NAS Operations Historic District.

The following buildings would be demolished:

- Rotary Wing Storage: Building 129
- Administration Building: Building 1481
- Portable Building: Building 3005
- Portable Building 3006
- Magazine, Ready: Building 225 would be demolished and replaced by construction as part of a separate MILCON

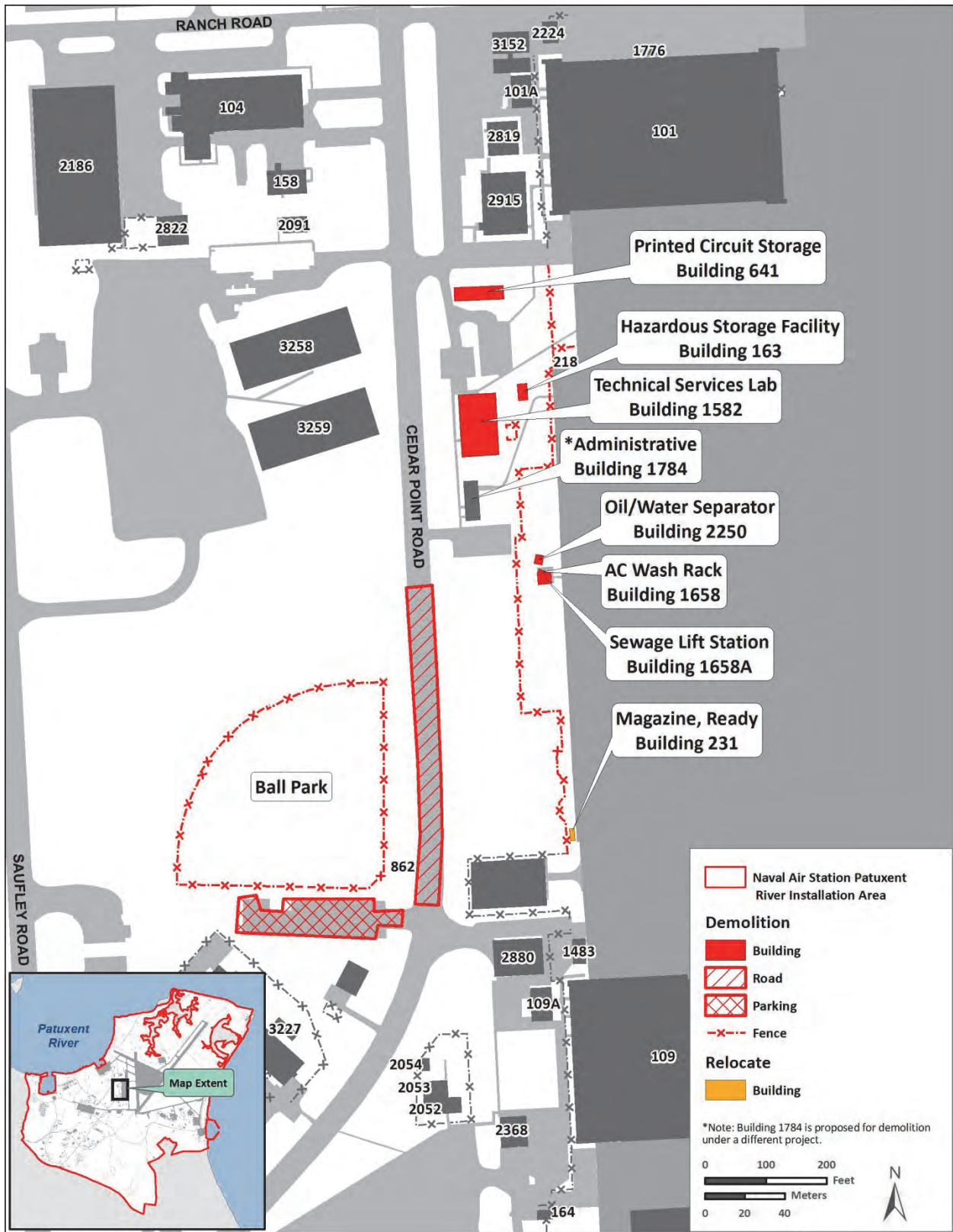
The limit of disturbance for the Proposed Action under Alternative 1 is shown in **Figure 2-4**.

## 2.3.2 Alternative 2

### Renovation and Additional Moveable Structures

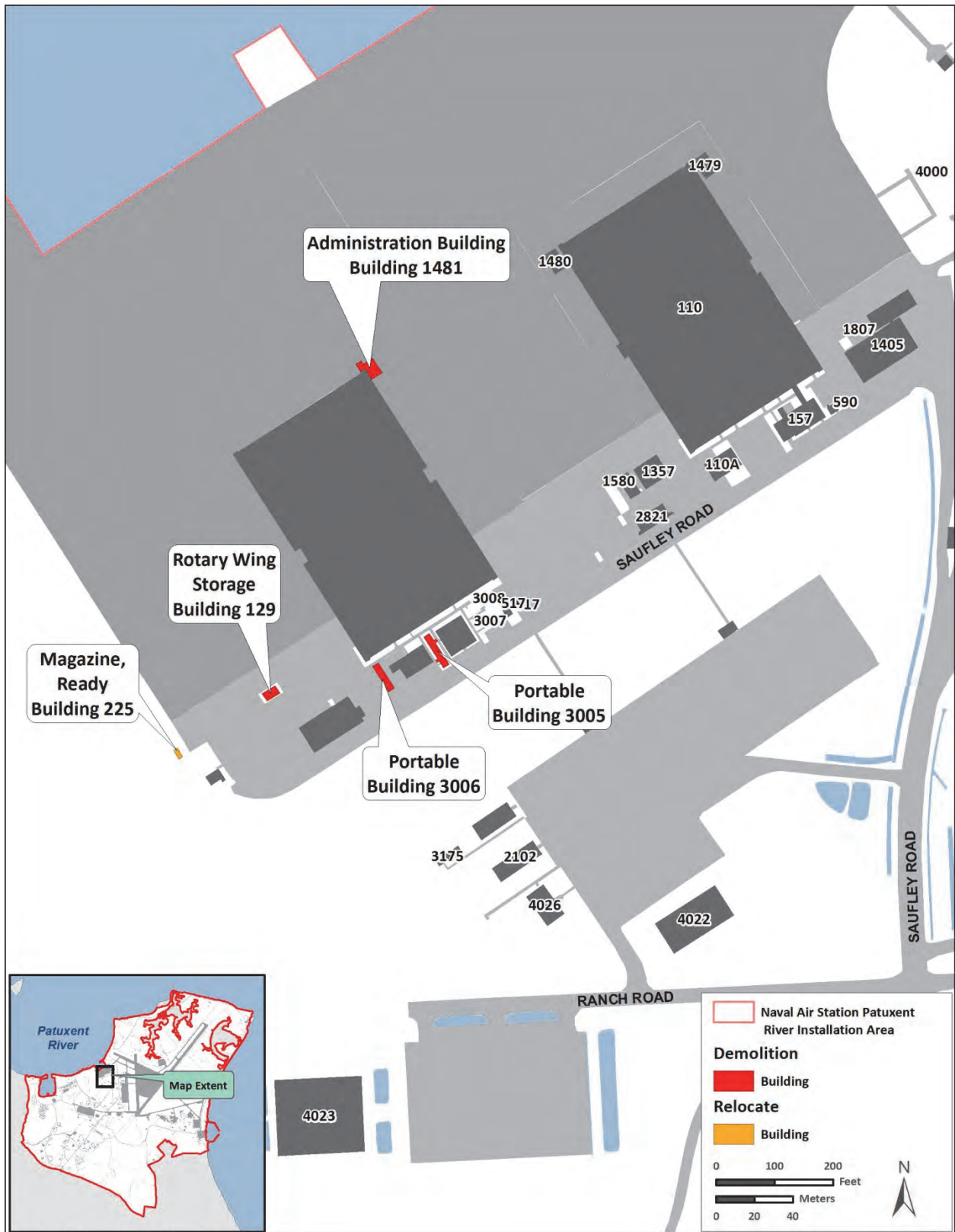
Under Alternative 2, the Navy would not construct the proposed hangar complex. Instead, Hangar 111 and Building 111A would be renovated to comply with safety and utilities upgrade requirements and would incorporate the Secretary of the Interior's standards for historic buildings. Additionally, movable structures (i.e., portable trailers) would be assembled in proximity to Hangar 111. This would alleviate overcrowding in existing office and laboratory spaces; therefore, the Navy's goals for providing adequate space to accommodate the RDT&E mission would be met. However, the movable structures would occupy space along the already restricted apron, further constraining the area used for aircraft storage and aircraft maneuverability. Although this alternative does not specifically meet Criterion 1, the Navy considers this option reasonable and feasible. Additionally, it is possible that the movable structures could be positioned to avoid constraints on aircraft movement along the apron.

This alternative meets Criteria 2 and 3 that are discussed in **Section 2.2**.



Sources: ESRI StreetMap USA 2010 and Naval Air Station Patuxent River.

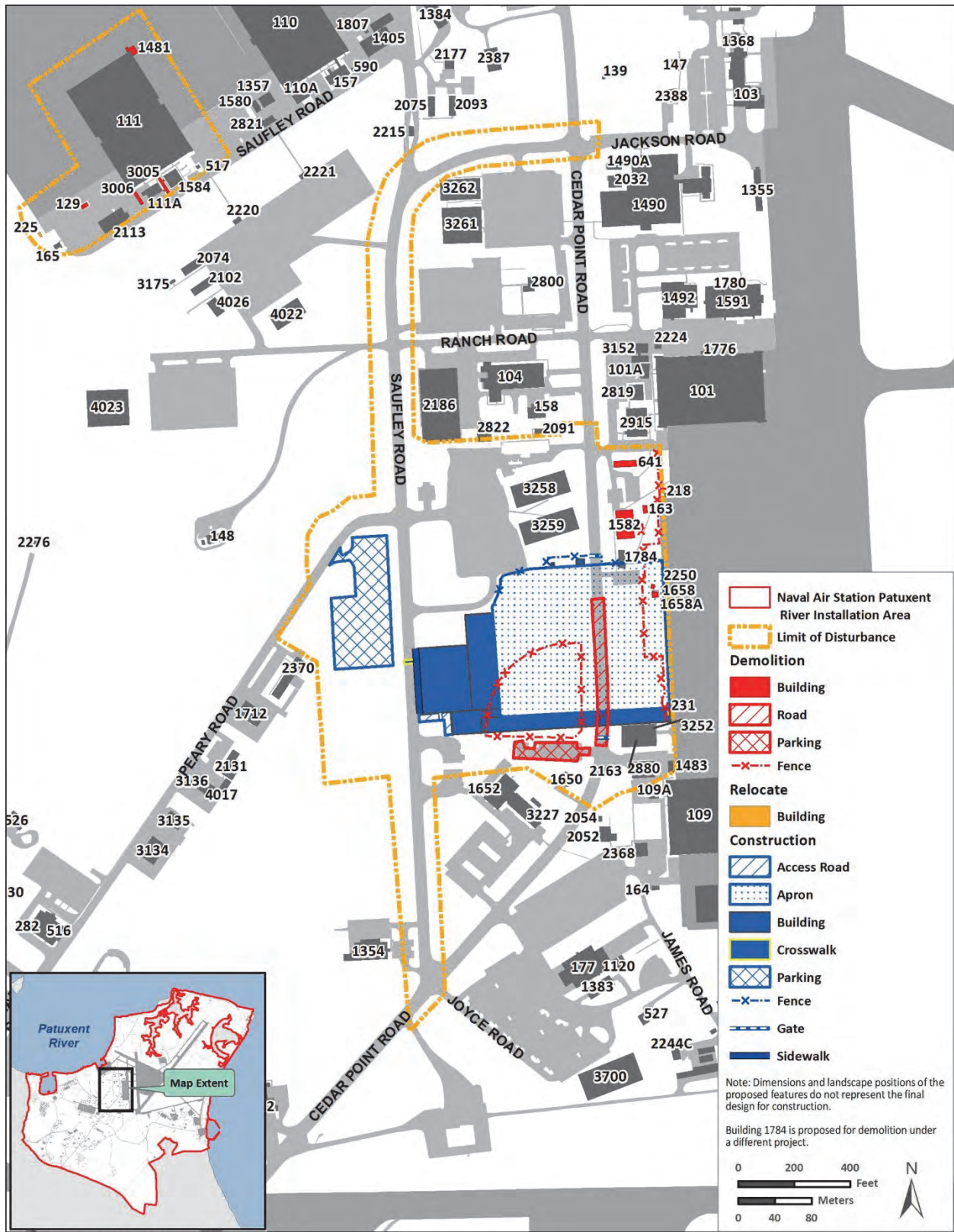
**Figure 2-2. Demolition of Structures at Proposed Hangar Location**



Sources: ESRI StreetMap USA 2010 and Naval Air Station Patuxent River.

Figure 2-3. Demolition of Structures Near Hangar 111





**Figure 2-4. Limit of Disturbance for Proposed Action under Alternative 1**

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### 2.3.3 No Action Alternative

Under the No Action Alternative, NAS Patuxent River would continue to use Hangar 111, Building 111A, and their support structures as the center for HX-21 Command Staff for the Navy and Marine Corps aircraft. A new hangar facility would not be constructed. The building configuration of Hangar 111 requires additional labor hours for tasks such as moving aircraft and making repairs. As a result, the inefficiencies and operational disadvantages of Hangar 111 make it difficult for HX-21 to meet its mission requirements. Consequently, HX-21 would continue to be unable to meet its responsibilities adequately with respect to the Navy and Marine Corps rotary-wing and tilt-rotor RDT&E mission needs.

The No Action Alternative is not compatible with Criteria 1 through 3, and, therefore, cannot be considered reasonable. However, its impacts are evaluated in this EA in accordance with NEPA regulations, which require consideration of the No Action Alternative to provide a baseline against which the impacts of the action alternatives can be assessed.

## 2.4 Alternatives Considered But Dismissed

### **Alternative to Construct the Proposed Hangar Off-Installation**

Relocation of the proposed RDT&E hangar complex off-installation would separate HX-21 from the airfield and its associated facilities. The squadron shares space in numerous buildings; however, Hangar 111 is the center for HX-21 Command Staff for the Navy and Marine Corps aircraft. Moving the Command center off of NAS Patuxent River property would result in additional travel time and would disrupt the program's activities. Additionally, this alternative would conflict with the Navy's goals of improving efficiency and maximizing the use of functional spaces on the installation through consolidation of mission activities and the reduction of shoreline footprint. This alternative meets Criterion 2, but does not meet Criteria 1 or 3 (see **Section 2.3**); therefore, it is not discussed further in this EA.

### **Alternative to Relocate the Proposed Hangar within Existing Facilities**

There are no existing facilities on NAS Patuxent River that could accommodate all of HX-21's aircraft and the requirements for the RDT&E hangar. In addition, NAS Patuxent River currently has a 500,000-ft<sup>2</sup> hangar space deficit. Although existing buildings might have office or laboratory spaces available, they are generally being used for a range of activities that cannot be relocated. Relocation of small groups from Hangar 111 to alternative locations would separate mission teams and cause disruptions to program activities that could create delays. This alternative does not meet Criteria 1 through 3; therefore, it is not discussed further in this EA.

### **Alternative to Construct the Proposed Facility and to Mothball Hangar 111 and Building 111A**

Under this alternative, the Navy would construct the proposed hangar and mothball (secure and close) Hangar 111 and Building 111A. Hangar 111 and Building 111A would not be demolished. The buildings would be mothballed and remain unused for a period of up to 10 years. Mothballing is an option for dealing with antiquated structures when all means of finding a productive use for a historic building have been exhausted or when funds are not currently available to restore the structure into a useable condition. In such a case, it might be necessary to close up the building temporarily to protect it from the elements while owners plan the property's future, or raise money for a preservation, rehabilitation, or restoration project (NPS 1993). The mothballing process involves three steps: (1) documenting the architectural and historical significance of the building and preparing a formal condition assessment; (2) structurally stabilizing the building in accordance with the condition

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assessment, exterminating pests and rodents, and protecting the structure from penetration of moisture; and (3) securing and closing the building, providing adequate ventilation, shutting down existing utilities, and implementing a maintenance and surveillance plan to ensure long-term success. Although Hangar 111 and Building 111A are not structurally deteriorated to a point that would prevent their continued uses into the future, they lack the configuration, capacity, and condition to support HX-21's mission adequately. To meet this need, the building would require costly structural upgrades and modernization efforts that not only would comply with AT/FP, safety, and utility (e.g., electrical and water) upgrade requirements, but also would comply with State Historic Preservation Office (SHPO) requirements for renovations to architecturally historical structures (NAVFAC Washington 2012b). By contrast, mothballing can be achieved at a fraction of the cost of renovation, requiring only about 10 percent of the total rehabilitation budget for the building (NPS 1993).

NAS Patuxent River is operating with existing deficits of hangar and office spaces amid goals to reduce its shoreline footprint by 25 percent. Combined, these factors oblige consolidation of mission activities to improve resource use efficiency and maximize use of functional spaces within the installation. It is neither desirable nor reasonable to maintain 151,254 ft<sup>2</sup> (14,052 m<sup>2</sup>) of unusable building spaces that would require continued maintenance and surveillance for up to 10 years until a new use could be determined or funding could be made available for renovation. Therefore, this alternative is not considered further in this EA.

#### **Alternative to Renovate and Build onto Hangar 111 and Building 111A**

Under this alternative, the Navy would renovate and build onto the existing hangar to meet the minimum space requirements. A new hangar would not be constructed. The size of the existing hangar would be increased to 128,525 ft<sup>2</sup> (11,940 m<sup>2</sup>) to accommodate the space needs for mission support teams, laboratory spaces, and offices. Adding onto the buildings would result in a loss of apron space. This apron is already restricted; this alternative would further constrain the area that is used for aircraft storage and maneuverability. Additionally, this alternative would not address the need to expand the existing parking lot to meet the minimum requirement to accommodate 400 vehicles. This alternative does not meet Criteria 1 through 3; therefore, it is not discussed further in this EA.

## **2.5 Comparison of Alternatives**

**Table 2-1** summarizes the potential environmental consequences of the Proposed Action, alternatives, and the No Action Alternative, based on the impact analyses presented in **Chapter 3**.

**Table 2-1. Summary of Potential Environmental Consequences**

<b>Resource</b>	<b>Alternative 1 (Preferred Alternative)</b>	<b>Alternative 2</b>	<b>No Action</b>
Noise	<ul style="list-style-type: none"> <li>No significant impacts on the noise environment would be expected. Localized short-term and intermittent noise level increases are expected during proposed construction and demolition activities.</li> <li>The same type of aircraft would be used and the number of personnel would not increase during operation of the proposed facilities; therefore, there would be no impacts on the noise environment.</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts on the noise environment would be expected. Localized short-term and intermittent noise level increases are expected during proposed renovation activities.</li> <li>The same type of aircraft would be used and the number of personnel would not increase during operation of the proposed facilities; therefore, there would be no impacts on the noise environment.</li> </ul>	No impact.
Air Quality	<ul style="list-style-type: none"> <li>No significant impacts on air quality would be expected. There would be localized short-term impacts during proposed construction and demolition activities.</li> <li>Emergency generators could be used during proposed operational activities. Estimated emissions would be well below one percent of the Southern Maryland Intrastate Air Quality Control Region (AQCR).</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts on air quality would be expected. There would be localized short-term impacts during proposed renovation activities. Estimated emissions would be well below one percent of the Southern Maryland Intrastate AQCR.</li> </ul>	No impact.
Human Health and Safety	<ul style="list-style-type: none"> <li>No significant impacts on human health and safety would be expected. If buildings proposed for demolition contain asbestos-containing materials (ACMs), lead-based paint (LBP), or polychlorinated biphenyls (PCBs), these contaminants would be handled and disposed of in accordance with applicable Federal, state, and installation policies and procedures. Construction and contractor personnel would be exposed to an increase in demolition- and construction-related hazards; however Occupational Safety and Health Administration and Navy safety standards would be followed to establish and maintain a safe working environment.</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts on human health and safety would be expected. If buildings proposed for renovation contain ACMs, LBP, or PCBs, these contaminants would be handled and disposed of in accordance with applicable Federal, state, and installation policies and procedures. Construction and contractor personnel would be exposed to an increase in demolition- and construction-related hazards; however Occupational Safety and Health Administration and Navy safety standards would be followed to establish and maintain a safe working environment.</li> </ul>	No impact.

<b>Resource</b>	<b>Alternative 1 (Preferred Alternative)</b>	<b>Alternative 2</b>	<b>No Action</b>
Land Use	<ul style="list-style-type: none"> <li>No significant impacts on land use would be expected. The proposed uses would be more compatible with the surrounding land use; a change in categorization would not be required.</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts on land use would be expected. The renovations and moveable structures would be compatible with the surrounding land uses and the categorizations would not change.</li> </ul>	No impact.
Coastal Zone Management	<ul style="list-style-type: none"> <li>The Navy has made a determination that the activities proposed are consistent to the maximum extent practicable with the enforceable policies of the Maryland Coastal Zone Management Program (CZMP). The Coastal Consistency Determination, which notes that Hangar 111 and Building 111A are NRHP-eligible structures, has been provided to the Maryland Department of Environment, Wetlands, and Waterways Program for review and concurrence.</li> </ul>	<ul style="list-style-type: none"> <li>The Navy has made a determination that the activities proposed are consistent to the maximum extent practicable with the enforceable policies of the CZMP. The Coastal Consistency Determination, which notes that Hangar 111 and Building 111A are NRHP-eligible structures, has been provided to the Maryland Department of Environment, Wetlands, and Waterways Program for review and concurrence.</li> </ul>	No impact.
Geological Resources	<ul style="list-style-type: none"> <li>No significant impacts on geological resources would be expected. The soils at project site have generally been previously disturbed. Soil erosion and sediment production would be minimized during construction and demolition activities by following appropriate best management practices (BMPs) and by complying with Section 438 of the Energy and Independence and Security Act.</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts on geological resources would be expected. Little ground disturbance would be associated with proposed renovation activities and placement of movable structures on existing pavement.</li> </ul>	No impact.
Biological Resources	<ul style="list-style-type: none"> <li>No significant impacts on biological resources would be expected. The project would adhere to state guidelines for environmental site design and sediment/erosion control to minimize potential impacts. Wildlife would flee from proposed construction and demolition activities; however, this would be a minor impact and wildlife would relocate to adjacent or nearby suitable habitat. No impacts on Federal or state-listed threatened or endangered species would be expected. There would be no anticipated impacts on migratory bird populations.</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts on biological resources would be expected. Renovation activities would not be expected to result in vegetation or habitat degradation. Movable structures would be established on a previously paved area and would not require new construction. Noise events associated with renovation activities would result in wildlife temporarily fleeing the area. No impacts on Federal or state-listed threatened or endangered species or migratory bird populations would be expected.</li> </ul>	No impact.



Resource	Alternative 1 (Preferred Alternative)	Alternative 2	No Action
Water Resources	<ul style="list-style-type: none"> <li>No significant impacts on water resources would be expected. BMPs would be implemented to maintain 100 percent of the average annual predevelopment groundwater recharge volume for the site, to ensure that soils disturbed during construction and demolition activities would not pollute nearby water bodies, and to protect against potential hazardous material spills. No structures would be built in or over adjacent wetlands and the project area is not within the 100-year floodplain.</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts on water resources would be expected. Renovation activities would not be expected to result in major vegetation removal or soil compaction or alter the natural drainage flow. Movable structures would be established on a previously paved apron.</li> </ul>	No impact.
Utilities, Infrastructure, and Transportation	<ul style="list-style-type: none"> <li>No significant impacts on utilities, infrastructure, and transportation would be expected. A temporary increase in demand for electricity, water, and solid waste management would be related to construction and demolition activities. New electric lines, water and plumbing lines, natural gas lines, sanitary sewer and wastewater lines, and stormwater infrastructure would be installed and tied to existing systems for the proposed facilities. This new infrastructure would be more efficient than the existing infrastructure associated with Hangar 111.</li> <li>No impacts would be expected from the permanent removal of a portion of Cedar Point Road because the road would be designed to handle the required volume of traffic.</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts on utilities, infrastructure, and transportation would be expected. Renovation activities could raise the installation figure of merit rating of the buildings and would include upgrades to electrical, water, natural gas, sanitary sewer, and wastewater lines to meet current standards within the historical structure.</li> <li>No impacts on roadways or traffic levels of service would be expected during the proposed renovations. Minor, adverse impacts would continue from the lack of available parking areas near Hanger 111.</li> </ul>	No impact.

Resource	Alternative 1 (Preferred Alternative)	Alternative 2	No Action
Hazardous Materials and Waste	<ul style="list-style-type: none"> <li>No significant impacts from hazardous materials and waste would be expected. Proposed construction and demolition activities would require the delivery and use of minimal amounts of hazardous materials and petroleum products and would generate minimal amounts of hazardous wastes. Appropriate measures and policies would be followed for the removal and disposal of ACMs, LBP, and PCBs during demolition activities.</li> <li>There would be no increase of hazardous materials used or wastes produced from the operation of the new proposed hangar and facilities.</li> </ul>	<ul style="list-style-type: none"> <li>No significant impacts from hazardous materials and waste would be expected. Proposed renovation activities would require the delivery and use of minimal amounts of hazardous materials and petroleum products and would generate minimal amounts of hazardous wastes. Appropriate measures and policies would be followed for the removal and disposal of ACMs, LBP, and PCBs during renovation activities.</li> <li>There would be no increase of hazardous materials used or wastes produced from the operation of the renovated hangar and facilities.</li> </ul>	No impact.
Cultural Resources	<ul style="list-style-type: none"> <li>Construction of the proposed hangar and associated facilities would have no adverse effect on historic properties. The new construction would continue the traditional use of the Flight Test/Tactical Test/NAS Operations Historic District. Consultation under Section 106 has been ongoing for concurrence with the Navy's determination.</li> </ul>	<ul style="list-style-type: none"> <li>The proposed renovation of Hangar 111 and Building 111A would result in a long-term positive impact on these historic structures. The placement of portable structures within the historic district would affect the relationship of NRHP-eligible structures at the East Patuxent Seaplane Basin within the Area of Potential Effect (APE), but this would not rise to the level of an adverse effect. Potential AT/FP upgrades to Hangar 111 may result in adverse effects to that historic property. Consultation under Section 106 is ongoing for concurrence with the Navy's determination.</li> </ul>	No impact.

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### 3. Affected Environment and Environmental Consequences

This section presents a description of the environmental resources and baseline conditions that could be affected from implementing the Proposed Action. In addition, this section presents an analysis of the potential environmental consequences of implementing Alternative 1 (Preferred Alternative), Alternative 2, and the No Action Alternative.

**Affected Environment.** All potentially relevant environmental resource areas were initially considered for analysis in this EA. In compliance with NEPA, CEQ, and 32 CFR Part 775 guidelines, the discussion of the affected environment focuses only on those resource areas potentially subject to impacts, and those with potentially significant environmental issues. This section includes noise, air quality, human health and safety, coastal zone management, geological resources, biological resources, water resources, utilities, infrastructure, transportation, hazardous materials and wastes, and cultural resources.

An environmental resource area that is often analyzed in an EA but was not included in this analysis is socioeconomics (including environmental justice and environmental health and safety risks to children). The Proposed Action would not change the number of personnel working at NAS Patuxent River; therefore, it has no potential to impact the local or regional demography or services supporting the residential population. The Proposed Action would occur entirely within the boundaries of NAS Patuxent River. Therefore, the Proposed Action has no potential to disproportionately affect minorities or economically disadvantaged populations protected under Executive Order 12898, *Environmental Justice for Low Income and Minority Populations*. Accordingly, the Navy has not included a detailed examination of socioeconomics in this EA.

This section presents an analysis of the potential direct and indirect effects of each alternative on the affected environment. The following discussion elaborates on the nature of the characteristics that might relate to resources. “Significantly,” as used in NEPA, requires considerations of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant (40 CFR Part 1508.27).

Intensity refers to the severity of impact. The following should be considered in evaluating intensity (40 CFR Part 1508.27):

- Impacts that might be both beneficial and adverse. A significant effect might exist even if the Federal agency believes that on balance the effect will be beneficial.
- The degree to which a proposed action affects public health or safety.
- Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
- The degree to which the effects on the quality of the human environment are likely to be highly controversial.
- The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
- The degree to which the action could establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant

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impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

- The degree to which the action could adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP or could cause loss or destruction of significant scientific, cultural, or historical resources.
- The degree to which the action could adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA).
- Whether the action threatens a violation of Federal, state, or local law or requirements imposed for the protection of the environment.

## 3.1 Noise

### 3.1.1 Definitions

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. Affected sensitive receptors are specific (e.g., schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists.

#### Noise Metrics and Regulations

**Noise Metrics and Regulations.** Although human response to noise varies, measurements can be calculated with instruments that record instantaneous sound levels in decibels. A-weighted decibel (dBA) is used to characterize sound levels that can be sensed by the human ear. “A-weighted” denotes the adjustment of the frequency range to what the average human ear can sense when experiencing an audible event. The threshold of audibility is generally within the range of 10 to 25 dBA for normal hearing. The upper boundary of audibility is normally in the region of 135 dBA and can be painfully loud (USEPA 1981a). **Table 3-1** compares common sounds and shows how they rank in terms of the effects of hearing. As shown, a whisper is normally 30 dBA and considered to be very quiet while an air conditioning unit 20 feet away is considered an intrusive noise at 60 dBA. Noise levels can become annoying at 80 dBA and very annoying at 90 dBA. To the human ear, each 10-dBA increase is perceived to be twice as loud (USEPA 1981b).

### 3.1.2 Existing Conditions

Existing noise sources on NAS Patuxent River stem primarily from aircraft operations, including flight operations and engine maintenance or run-ups. The project area under Alternative 1 is currently composed of numerous aircraft support structures, a recreational softball field, parking spaces, a portion of Cedar Point Road, and unused available space. The area is adjacent to the airfield. Hangar 111 is adjacent to Hangar 110 and other aircraft support facilities.

The State of Maryland has transferred noise regulation authority to local jurisdictions; however, the state continues to be responsible for setting standards and general exemptions. **Table 3-2** lists maximum allowable noise levels for land use categories. In addition to the noise levels shown in **Table 3-2**, noise limits for construction and demolition activities should not exceed 90 dBA at the property line during daytime hours. Nighttime construction and demolition noise limits are the same as listed in **Table 3-2** (St. Mary’s County 2004, COMAR 2014a).

**Table 3-1. Sound Levels and Human Response**

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

Source: USEPA 1981b

Note: \* HDR extrapolation

**Table 3-2. State of Maryland Maximum Allowable Noise Level (dBA)**

	Daytime	Nighttime
Residential districts	65 dBA	55 dBA
Commercial and Mixed Use Districts	67 dBA	62 dBA
Industrial and Marine Districts	75 dBA	75 dBA

Source: St. Mary's County 2004, COMAR 2014a

### 3.1.3 Environmental Consequences

#### 3.1.3.1 Alternative 1

The sources of noise under Alternative 1 that could impact populations include construction activities, operational vehicular noise, and operational equipment. These noise sources are addressed in the following sections.

Building construction and demolition activities can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, saws, and other work equipment. **Table 3-3** lists noise levels associated with common types of construction equipment. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

**Table 3-3. Predicted Levels for Construction Equipment**

<b>Construction Category and Equipment</b>	<b>Predicted Noise Level at 50 feet (dBA)</b>
<b>Clearing and Grading</b>	
Bulldozer	80
Grader	80-93
Truck	83-94
Roller	73-75
<b>Excavation</b>	
Backhoe	72-93
Jackhammer	81-98
<b>Building Construction</b>	
Concrete mixer	74-88
Welding generator	71-82
Pile driver	91-105
Crane	75-87
Paver	86-88

Source: USEPA 1971

Individual equipment used for construction activities would be expected to result in noise levels comparable to those shown in **Table 3-3**. Noise from construction activities varies depending on the type of equipment being used, the area the action would occur in, and the distance from the noise source. To predict how these activities would impact adjacent populations, noise from the probable equipment was estimated. For example, construction usually involves several pieces of equipment (e.g., bulldozers and trucks) that could be used simultaneously. Under Alternative 1, the cumulative noise from the equipment during the busiest day was estimated to determine the total impact of noise from construction activities at a given distance. Examples of expected cumulative construction noise during daytime hours at specific distances are shown in **Table 3-4**. These sound levels were estimated by adding the noise from several pieces of equipment and then calculating the decrease in noise levels at various distances from the source.

**Table 3-4. Estimated Noise Levels from Construction Activities**

<b>Distance from Noise Source</b>	<b>Estimated Noise Level</b>
50 feet	90-94 dBA
100 feet	84-88 dBA
150 feet	81-85 dBA
200 feet	78-82 dBA
400 feet	72-76 dBA
800 feet	66-70 dBA
1,200 feet	< 64 dBA

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Since NAS Patuxent River is on a peninsula, most of it is surrounded by water. However, off-base populations are present to the west and south of the installation. Under Alternative 1, the site of the proposed hangar complex is the closest to these populations; it is about 1½ to 2 miles away (approximately 7,900 to 10,500 feet). Given these distances, it is not likely that off-base populations would be impacted by noise from the proposed construction or demolition activities under Alternative 1.

It is not anticipated that the short-term increase in noise levels from demolition and construction activities would cause significant adverse effects on the surrounding populations. The noise from construction equipment would be localized, short-term, and intermittent during machinery operations. Heavy construction equipment would be used periodically during construction; therefore, noise levels from the equipment would fluctuate throughout the day. The proposed construction would be expected to result in noise levels comparable to those indicated in **Table 3-4**.

Once construction and demolition activities are completed, operational noise levels would be the same as existing noise levels. It is not anticipated that aircraft operational activities would increase. The same type of aircraft would be used and the number of personnel would not increase. Therefore, there would be no impacts on the ambient noise environment from operational activities.

No significant impacts on the environment from the proposed construction and demolition noise would be expected under Alternative 1.

### 3.1.3.2 Alternative 2

Noise levels associated with the proposed renovation and construction activities under Alternative 2 would be similar to those described in Alternative 1. Proposed noise levels would be expected to result in short-term, minor, adverse effects on the noise environment from construction and renovation equipment. Once renovation and construction activities are complete, operational activities would return to existing levels and would not increase. Therefore, there would be no impacts on the ambient noise environment from operational activities. No significant impacts on the environment from noise would be expected under Alternative 2.

### 3.1.3.3 No Action Alternative

Under the No Action Alternative, proposed construction and renovation activities would not occur and the existing conditions would be unchanged. No significant impacts on the environment from noise would occur.

## 3.2 Air Quality

### 3.2.1 Definitions

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere.

**Ambient Air Quality Standards.** Under the CAA, the U.S. Environmental Protection Agency (USEPA) developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM<sub>10</sub>] and particulate matter equal to or less than 2.5 microns in diameter [PM<sub>2.5</sub>]), and lead (40 CFR Part 50). The CAA also gives the authority to states to establish air

quality rules and regulations. The State of Maryland has adopted the NAAQS. **Table 3-5** presents the NAAQS and State Ambient Air Quality Standards.

**Table 3-5. National and State Ambient Air Quality Standards**

Pollutant	Averaging Time	Primary Standard		Secondary Standard
		Federal	Maryland	
CO	8-hour <sup>(1)</sup>	9 ppm (10 mg/m <sup>3</sup> )	Same as Federal	None
	1-hour <sup>(1)</sup>	35 ppm (40 mg/m <sup>3</sup> )	Same as Federal	None
Lead	Rolling 3-Month Average <sup>(2)</sup>	0.15 µg/m <sup>3</sup> <sup>(3)</sup>	Same as Federal	Same as Primary
NO <sub>2</sub>	Annual <sup>(4)</sup>	53 ppb <sup>(5)</sup>	Same as Federal	Same as Primary
	1-hour <sup>(6)</sup>	100 ppb	Same as Federal	None
PM <sub>10</sub>	24-hour <sup>(7)</sup>	150 µg/m <sup>3</sup>	Same as Federal	Same as Primary
PM <sub>2.5</sub>	Annual <sup>(8)</sup>	15 µg/m <sup>3</sup>	Same as Federal	15 µg/m <sup>3</sup>
	24-hour <sup>(6)</sup>	35 µg/m <sup>3</sup>	Same as Federal	Same as Primary
Ozone	8-hour <sup>(9)</sup>	0.070 ppm <sup>(10)</sup>	Same as Federal	Same as Primary
SO <sub>2</sub>	1-hour <sup>(11)</sup>	75 ppb <sup>(12)</sup>	Same as Federal	None
	Annual (Arithmetic Average)	0.03 ppm (80 µg/m <sup>3</sup> )	Same as Federal	None
	24-hour	0.14 ppm (365 µg/m <sup>3</sup> )	Same as Federal	None
	3-hour <sup>(1)</sup>	None	None	0.5 ppm (1300 µg/m <sup>3</sup> )

Sources: USEPA 2014, COMAR 2014b

Notes: Parenthetical values are approximate equivalent concentrations.

- Not to be exceeded more than once per year.
- Not to be exceeded.
- Final rule signed 15 October 2008. The 1978 lead standard (1.5 µg/m<sup>3</sup> as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved. USEPA designated areas for the new 2008 standard on 8 November 2011.
- Annual mean.
- The official level of the annual NO<sub>2</sub> standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of cleaner comparison to the 1-hour standard.
- 98th percentile, averaged over 3 years.
- Not to be exceeded more than once per year on average over 3 years.
- Annual mean, averaged over 3 years.
- Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.
- Final rule signed 12 March 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, USEPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.
- 99<sup>th</sup> percentile of 1-hour daily maximum concentrations, averaged over 3 years.
- Final rule signed 2 June 2010. The 1971 annual (0.3 ppm) and 24-hour (0.14 ppm) SO<sub>2</sub> standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved. USEPA designated certain areas for the new 2010 standard on 25 July 2013, with the remaining designations to occur in the future.

Key: ppm = parts per million; ppb = parts per billion; mg/m<sup>3</sup> = milligrams per cubic meter; µg/m<sup>3</sup> = micrograms per cubic meter



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**Attainment versus Nonattainment and General Conformity.** The USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each AQCR are therefore designated as either “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated nonattainment but is now attainment; and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment. USEPA has delegated the authority for ensuring compliance with the NAAQS in Maryland. The Maryland Department of the Environment, Air and Radiation Management Administration regulates air quality for the State of Maryland. In accordance with the CAA, each state must develop a State Implementation Plan, which is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS.

The General Conformity Rule applies only to significant actions in nonattainment or maintenance areas. This rule requires that any Federal action meet the requirements of a State or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

**Federal Prevention of Significant Deterioration.** Federal Prevention of Significant Deterioration (PSD) regulations apply in attainment areas to a major stationary source, (i.e., source with the potential to emit 100 tons per year [tpy] of any attainment criteria pollutant), and a significant modification to a major stationary source, (i.e., change that adds 10 to 100 tpy to the facility’s potential to emit depending on the pollutant). The 100 tpy PSD major source threshold is applied instead of 250 tpy because NAS Patuxent River has greater than 250 Million British thermal units per hour (MMBTU/hr) in combined heat input capacity for all boilers. Additional PSD major source and significant modification thresholds apply for greenhouse gases (GHGs), as discussed in the Greenhouse Gas Emissions subsection. PSD permitting can also apply to a proposed project if all three of the following conditions exist: (1) the proposed project is a modification with a net emissions increase to an existing PSD major source, and (2) the proposed project is within 10 kilometers of national parks or wilderness areas (i.e., Class I Areas), and (3) regulated stationary source pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 milligram per cubic meter ( $\text{mg}/\text{m}^3$ ) or more (40 CFR 52.21[b][23][iii]). A Class I area includes national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s Class designation (40 CFR 52.21[c]).

**Title V and Other Emissions Control Requirements.** Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A Title V major stationary source has the potential to emit criteria air pollutants and hazardous air pollutants at levels equal to or greater than Major Source Thresholds. Major Source Thresholds vary depending on the attainment status of an ACQR. For NAS Patuxent River, the Title V major source thresholds are: 50 tpy for volatile organic compounds (VOCs); 100 tpy for nitrogen oxide ( $\text{NO}_x$ ),  $\text{SO}_2$ , CO,  $\text{PM}_{10}$ , and  $\text{PM}_{2.5}$ ; 25 tpy for total hazardous air pollutants; and 10 tpy for any individual hazardous air pollutant. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality.

**Greenhouse Gas Emissions.** GHGs are gas emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. This global warming is predicted to produce negative economic and social consequences.

Revised draft guidance from CEQ, dated December 18, 2014, recommends that agencies consider both the potential effects of a proposed action on climate change, as indicated by its estimated GHG emissions, and the implications of climate change for the environmental effects of a proposed action. The guidance also emphasizes that agency analyses should be commensurate with projected GHG emissions and climate impacts, and should employ appropriate quantitative or qualitative analytical methods to ensure useful information is available to inform the public and the decision-making process in distinguishing between alternatives and mitigations. It recommends that agencies consider 27,563 tpy (25,000 metric tpy) of carbon dioxide (CO<sub>2</sub>) equivalent emissions as a reference point below which a quantitative analysis of GHG is not necessary unless it is easily accomplished based on available tools and data.

### 3.2.2 Existing Conditions

NAS Patuxent River is in St. Mary's County, Maryland, which is within the Southern Maryland Intrastate AQCR. St. Mary's County has been designated by the USEPA as unclassified/attainment for all criteria pollutants (USEPA 2013a). However, the Maryland Department of the Environment has designated a lower Title V major source threshold for VOCs at 50 tpy for St. Mary's County based on its location within an Ozone Transport Region. According to 40 CFR Part 81, no Class I air quality protection areas are located within 10 kilometers of the NAS Patuxent River (USEPA undated).

NAS Patuxent River maintains a Title V permit (Permit # 24-037-0017). Air emissions from the installation are primarily produced from fuel burning equipment (e.g., boilers, generators, and jet engine test cells), storage tanks, painting operations, degreasers, gasoline filling stations, and abrasive blasting (MDE 2015). NAS Patuxent River is not listed in any of Maryland's State Implementation Plans as having a specific conformity budget. Emissions from NAS Patuxent River, St. Mary's County, and the Southern Maryland Intrastate AQCR (2011) are listed in **Table 3-6**.

**Table 3-6. NAS Patuxent River and Local and Regional Air Emissions Inventories (2011<sup>b</sup>, 2014<sup>a</sup>)**

	<b>NO<sub>x</sub> tpy</b>	<b>VOC tpy</b>	<b>CO tpy</b>	<b>SO<sub>2</sub> tpy</b>	<b>PM<sub>10</sub> tpy</b>	<b>PM<sub>2.5</sub> tpy</b>
NAS Patuxent River <sup>a</sup>	23.92	16.21	17.27	1.68	0.04	0.004
St. Mary's County <sup>b</sup>	17,503	4,039	1,128	398	926	3,193
Southern Maryland Intrastate AQCR <sup>b</sup>	47,204	11,360	3,637	1,337	7,581	8,299

Source: a-MDE 2015, b-USEPA 2013b

Notes: tpy - tons per year; VOC – volatile organic compound; NO<sub>x</sub> – nitrous oxides

### 3.2.3 Environmental Consequences

The environmental consequences on local and regional air quality conditions from a proposed Federal action are determined based upon the changes in regulated air pollutant emissions, and upon existing conditions and ambient air quality. For this Proposed Action, the majority of emissions increases are temporary construction and demolition activity emissions due to mobile sources; therefore, air permitting impacts are not a major concern.

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### 3.2.3.1 Alternative 1

The proposed construction and demolition activities would generate air pollutant emissions from site-disturbing activities and operation of construction and demolition equipment. Construction and demolition activities would also generate particulate emissions as fugitive dust from ground-disturbing activities and from the combustion of fuels in construction equipment. The quantity of uncontrolled fugitive dust emissions from a construction or demolition site is proportional to the area of land being worked and the level of activity. Emissions from construction and demolition activities would be produced only for the duration of construction and demolition activities, which, for the purposes of this air quality analysis, is conservatively assumed to be 480 workdays or 24 calendar months.

Construction and demolition activities would incorporate best management practices (BMPs) to minimize fugitive particulate matter emissions. Additionally, the work vehicles are assumed to be well-maintained and could use diesel particle filters to reduce emissions. Construction workers commuting daily to and from the job site in their personal vehicles would also create regulated pollutant air emissions.

Air emissions from activities under Alternative 1 are summarized in **Table 3-7**. **Appendix A** contains detailed calculations and the assumptions used to estimate the air emissions. A construction/demolition schedule is not currently available. Therefore, it was assumed that demolition activities would last 6 months and would occur entirely in 2020, and construction activities would require 18 months to complete with 2 months in 2017, 12 months in 2018, and 4 months in 2019. Short-term, adverse effects on air quality would be expected from construction and demolition activities under Alternative 1. The effects would be considered minor since the estimated yearly emissions are well below one percent of the emissions inventory of the Southern Maryland Intrastate AQCR; therefore, it is not expected that emissions would contribute to, or affect, local or regional attainment status with the NAAQS.

Emissions associated with operation of Alternative 1 would be similar to, and consistent with, existing conditions at NAS Patuxent River. The proposed facilities would result in an increase of approximately 123,625 ft<sup>2</sup>. While this increase in space would be considerable, the proposed facilities would use more efficient boilers or heating, ventilation, and air conditioning than the existing facilities; therefore, it is anticipated that operational emissions associated with the proposed facilities would have a negligible impact on the air quality at NAS Patuxent River.

Under Alternative 1, two emergency generators for back-up power could be utilized. Should a generator be required, it would use diesel as fuel, and would be used only for emergencies and as required for monthly testing. Using a conservative estimate, **Table 3-8** lists the estimated emissions for 500 hours of operations per year of a 150-kilowatt and 300-kilowatt generator. It is anticipated that operation of emergency generators could begin in 2019. An emissions calculation spreadsheet is provided in **Appendix A**.

Air construction permits would be obtained prior to construction for any new fuel combustion sources (i.e., boilers, heaters, emergency generators), if the sources trigger Maryland Department of the Environment's thresholds for potential emissions or based on their size or heat input capacity. Based on their estimated level of emissions, it is expected the new generators would not qualify as a PSD major modification. The generators would be required to be added to the Title V permit.

**Table 3-7. Estimated Air Emissions Resulting from Construction and Demolition Activities under Alternative 1 (2017 through 2020)**

Activity	NOx tpy	VOC tpy	CO tpy	SO2 tpy	PM10 tpy	PM2.5 tpy	CO2 tpy
<b>2017 (Construction)</b>							
Combustion Equipment	0.908	0.102	0.396	0.073	0.064	0.062	104.034
Fugitive Dust	-	-	-	-	4.355	0.436	-
Haul Truck On-Road	0.046	0.012	0.033	<0.001	0.002	0.001	25.941
Worker Commuter	0.013	0.015	0.138	<0.001	0.002	0.001	26.563
<b>Total Emissions in 2017</b>	<b>0.967</b>	<b>0.129</b>	<b>0.567</b>	<b>0.073</b>	<b>4.424</b>	<b>0.500</b>	<b>156.538</b>
Percent of Southern Maryland Intrastate AQCR	0.009	0.0016	0.0012	0.001	0.122	0.037	NA
<b>2018 (Construction)</b>							
Combustion Equipment	5.528	0.619	2.412	0.442	0.389	0.378	633.660
Fugitive Dust	-	-	-	-	26.529	2.653	-
Haul Truck On-Road	0.244	0.074	0.181	0.002	0.010	0.007	157.943
Worker Commuter	0.120	0.141	1.259	0.003	0.022	0.014	258.868
<b>Total Emissions (2018)</b>	<b>5.891</b>	<b>0.834</b>	<b>3.852</b>	<b>0.446</b>	<b>26.950</b>	<b>3.052</b>	<b>1,050.471</b>
Percent of Southern Maryland Intrastate AQCR	0.052	0.0100	0.0082	0.006	0.741	0.228	NA
<b>2019 (Construction)</b>							
Combustion Equipment	1.815	0.203	0.792	0.145	0.128	0.124	208.068
Fugitive Dust	-	-	-	-	8.711	0.871	-
Haul Truck On-Road	0.080	0.024	0.060	0.001	0.003	0.002	51.862
Worker Commuter	0.025	0.029	0.258	0.001	0.005	0.003	53.101
<b>Total Emissions (2019)</b>	<b>1.920</b>	<b>0.257</b>	<b>1.110</b>	<b>0.146</b>	<b>8.847</b>	<b>1.000</b>	<b>313.031</b>
Percent of Southern Maryland Intrastate AQCR	0.017	0.0031	0.0024	0.002	0.243	0.075	NA
<b>2020 (Demolition)</b>							
Combustion Equipment	0.228	0.014	0.090	0.019	0.014	0.013	26.541
Fugitive Dust					0.147	0.015	
Haul Truck On-Road	0.007	0.001	0.005	<0.001	<0.001	<0.001	3.413
Worker Commuter	0.033	0.036	0.332	0.001	0.005	0.003	59.504
<b>Total Emissions (2020)</b>	<b>0.267</b>	<b>0.050</b>	<b>0.426</b>	<b>0.019</b>	<b>0.166</b>	<b>0.031</b>	<b>89.458</b>
Percent of Southern Maryland Intrastate AQCR	0.002	0.001	0.001	<0.001	0.005	0.002	NA

Notes: All activities generate emissions from mobile sources unless indicated as stationary sources.

NA = Not Applicable

**Table 3-8. Estimated Air Emissions Resulting from Operation of Emergency Generators (2020)**

<b>NOX tpy</b>	<b>VOC tpy</b>	<b>CO tpy</b>	<b>SO2 tpy</b>	<b>PM10 tpy</b>	<b>PM2.5 tpy</b>	<b>CO2 tpy</b>
1.59	0.11	0.87	0.002	0.50	0.048	194.45

### 3.2.3.2 Alternative 2

Air emissions from activities under Alternative 2 are summarized in **Table 3-9**. **Appendix A** contains detailed calculations and the assumptions used to estimate the air emissions. A schedule to renovate the hangar and assemble the moveable structures is not currently available. It is conservatively assumed that approximately 130,000 square feet would be renovated in Hangar 111 and Building 111A and approximately 65,000 square feet of facilities that could be relocated would be assembled at NAS Patuxent River over a 12-month period.

**Table 3-9. Estimated Air Emissions Resulting from Renovation and Assembly Activities under Alternative 2 (2018)**

<b>Activity</b>	<b>NO<sub>x</sub> tpy</b>	<b>VOC tpy</b>	<b>CO tpy</b>	<b>SO<sub>2</sub> tpy</b>	<b>PM<sub>10</sub> tpy</b>	<b>PM<sub>2.5</sub> tpy</b>	<b>CO<sub>2</sub> tpy</b>
Combustion Equipment	4.75	0.38	2.09	0.38	0.34	0.33	538.21
Fugitive Dust	-	-	-	-	1.69	0.17	-
Haul Truck On-Road	0.03	0.01	0.02	0.00	0.00	0.00	19.71
Worker Commuter	0.05	0.06	0.54	0.00	0.01	0.01	119.41
<b>Total Demolition Emissions</b>	<b>4.83</b>	<b>0.45</b>	<b>2.66</b>	<b>0.38</b>	<b>2.04</b>	<b>0.51</b>	<b>677.32</b>
Percent of Southern Maryland Intrastate AQCR	0.043	0.005	0.006	0.005	0.056	0.038	NA

Notes: All activities generate emissions from mobile sources unless indicated as stationary sources.

NA = Not Applicable

Short-term, adverse effects on air quality would be expected from renovation and assembly activities associated with Alternative 2. The effects would be considered minor since the estimated yearly emissions are well below one percent of the emissions inventory of the Southern Maryland Intrastate AQCR; therefore, it is not expected that emissions would contribute to, or affect, local or regional attainment status with the NAAQS.

### General Conformity

As stated in **Section 3.2.1**, the installation is in an area that has been designated as unclassified/attainment for all criteria pollutants. Therefore, the General Conformity Rule requirements are not applicable. Alternatives 1 and 2 would generate emissions well below 10 percent of the emissions inventory of the Southern Maryland Intrastate AQCR during all years. Therefore, the proposed construction and demolition activities (Alternative 1) or renovation and assembly activities (Alternative 2) would have a negligible impact on air quality at NAS Patuxent River or on regional or local air quality.

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## Greenhouse Gas Emissions

Implementation of Alternative 1 or 2 would contribute directly to emissions of GHGs from the combustion of fossil fuels. Because CO<sub>2</sub> emissions account for approximately 92 percent of all GHG emissions in the United States, they are used for analyses of GHG emissions in this assessment. **Table 3-10** summarizes the anticipated amount of CO<sub>2</sub> emissions by year from Alternative 1 and Alternative 2 and compares these emissions to the CEQ threshold of 25,000 metric tpy. These limited annual emissions of GHGs would not likely contribute to global warming to any discernible extent.

**Table 3-10. Estimated CO<sub>2</sub> Emissions from the Proposed Action (metric tons)**

	<b>CO<sub>2</sub> Equivalent Emissions</b>	<b>Percent of CEQ Reference Point</b>
Alternative 1: 2017	142.0	0.568
Alternative 1: 2018	952.8	3.811
Alternative 1: 2019	283.9	1.136
Alternative 1: 2020	81.2	0.325
Alternative 1: operations	176.366	0.705
Alternative 2: 2018	614.334	2.458

### 3.2.3.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. Existing conditions would remain the same as described in **Section 3.2.1**. No new effects on regional or local air quality would occur.

## 3.3 Human Health and Safety

### 3.3.1 Definitions

A safe environment is one in which there is no, or optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses public safety during construction, demolition, and renovation activities; and during subsequent operations of those facilities. Various stressors in the environment can affect human health and safety. Identification and control or elimination of these stressors can reduce risks to health and safety to acceptable levels or eliminate risk entirely.

**Contaminated Materials.** Contaminated materials commonly found at Navy installations include asbestos, lead, 8-Resource Conservation and Recovery Act (RCRA) metals, and polychlorinated biphenyls (PCBs). Metals that are included in the 8-RCRA are arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Asbestos is regulated by USEPA. Identification of asbestos-containing materials (ACMs) in installation facilities is regulated by the *Occupational Safety and Health Act*, 29 U.S.C. Section 669 et seq. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. Building materials in older buildings are assumed to contain asbestos. Lead is a heavy, ductile metal commonly used in house paint until the Federal government banned the use of most lead-based paint (LBP) in 1978. PCBs are man-made chemicals that persist in the environment and were widely used in construction materials (e.g., caulk) and electrical products prior to 1978. Congress banned

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the manufacture and use of PCBs in 1976, and PCBs were phased out in 1978, except in certain limited uses.

**Ordnance.** OPNAVINST 8020.14, *Department of the Navy Explosives Safety Policy*, defines the Navy Explosives Safety Program. The program includes several elements, including explosive handling guidelines, reporting requirements, inventory management, and disposal procedures (DoN 1999).

**Hazards of Electromagnetic Radiation to Ordnance.** The Navy's Hazards of Electromagnetic Radiation to Ordnance (HERO) program addresses the potential for electromagnetic radiation to unintentionally initiate electro-explosive devices contained within current Navy and Marine Corps ordnance items (Mikoleit 1994). Radio and radar transmitting equipment produce high-intensity electromagnetic fields. Such fields can cause premature initiation of electro-explosive devices contained in ordnance systems. Per OPNAVINST 8023.2C, *U.S. Navy Explosives Safety Policies, Requirements, and Procedures*, planned transmitting and antenna installations must be regularly reviewed, and installations that handle ordnance must identify potential HERO problem areas.

**Explosive Safety Quantity Distance.** Fundamentally, Explosive Safety Quantity Distance (ESQD) arcs determine the distance between ordnance storage, facilities, and inhabitable areas. ESQD arcs are hazard zones that have been established by the DoD for the storage or handling of various quantities and types of ammunition and explosives. OPNAVINST 8020.14, *U.S. Department of the Navy Explosives Safety Policy*, identifies basic munitions and explosives safety standards and minimum ESQD criteria. These criteria apply to military and civilian personnel; units and forces; and to the siting, storage, handling, and transport of munitions and explosives. Minimum safety distances are prescribed for separating explosives from inhabited structures, public roads, and other explosives. In general, these distances are proportional to the quantity of explosives at each location. It is desirable to limit the total quantity of explosives at any one location to minimize the area encumbered by the hazard zone.

**Worker Health and Safety.** Construction site and worker safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices (e.g., industrial hygiene) that reduce risks of illness, injury, death, and property damage. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment (PPE), and availability of Safety Data Sheets. The health and safety of onsite military and civilian workers are safeguarded by DoD and Navy regulations designed to comply with standards issued by the Federal Occupational Safety and Health Administration, USEPA, and state occupational safety and health agencies. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

**Emergency Services and Safety.** Emergency services are organizations which ensure public safety and health by addressing different emergencies. The three main emergency service functions include police, fire and rescue service, and emergency medical service. Many agencies will engage in community awareness and prevention programs to help the public avoid, detect, and report emergencies effectively. The availability of emergency services depends very heavily on location.

**Pedestrian and Vehicular Safety.** Pedestrian and vehicle safety is especially important when road closures or road rerouting could have an impact on the safety of pedestrians and vehicles. Traffic controls, such as traffic signals and crosswalks, are put in place and used to control pedestrian and traffic flow through certain areas, creating a safer environment for pedestrians and traffic.

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## 3.3.2 Existing Conditions

### 3.3.2.1 Alternative 1

**Contaminated Materials.** It is assumed that all structures constructed prior to 1978 potentially contain ACMs, 8-RCRA metals, LBP, and PCB-containing materials (e.g., caulk). The buildings proposed for demolition under the Proposed Action were built prior to 1978 except for Buildings 1658, 1658A, 2113, 2163, and 2250. It is not anticipated that these buildings contain contaminated materials since they were constructed post-1978.

NAS Patuxent River is listed on the USEPA's National Priorities List; however, the National Priorities List site boundary does not overlap the Alternative 1 project boundary. The limit of disturbance for construction of the apron and hangar intersects with NAS Patuxent River Environmental Restoration Program (ERP) Site 19. Site 19 is classified as closed and does not require further analysis. Former Oil Control Site (Site 11) was located on the hill above Hangar 111. See **Section 3.10.2** (Hazardous Materials and Wastes) for further discussion of the ERP sites at NAS Patuxent River (NAVFAC Washington 2012a).

**Ordnance.** Ordnance at NAS Patuxent River is stored on the installation; there are 142 ammunition storage areas. The installation has established measures and programs for the handling and storage of ordnance to ensure it is conducted in compliance with Federal and state environmental laws and regulations. There are two munitions storage areas (Hangar 111 and Building 3252) within the project area under Alternative 1.

**Hazards of Electromagnetic Radiation to Ordnance.** NAS Patuxent River has equipment that emits electromagnetic radiation. The electromagnetic environments of installation facilities can change with new or modified radar, electronic warfare, communications, and navigation transmitter installations. Changes could also occur to ordnance configuration, inventories, and operations. The HERO Program at NAS Patuxent River is managed in accordance with the Navy Technical Manual: NAVSEA OP 3565/NAVAIR 16-1-529 Volume 2 *Electromagnetic Radiation Hazards (U) (Hazards to Ordnance) (U)*. This document prescribes operating procedures and precautions to prevent initiation of electro-explosive devices in ordnance from electromagnetic radiation. The proposed project area is entirely encompassed within the HERO areas.

**Explosive Safety Quantity Distance.** There are 33 ESQD arcs at NAS Patuxent River; 3 are within the project area under Alternative 1.

**Worker Health and Safety.** Contractors performing construction activities at NAS Patuxent River are responsible for following ground safety regulations and workers compensation programs and are required to conduct construction activities in a manner that does not pose any risk to workers or personnel. Industrial hygiene programs address exposure to hazardous materials, use of PPE, and availability of Safety Data Sheets. Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplace operations; to monitor exposure to workplace chemicals (e.g., asbestos, lead, hazardous material), physical hazards (e.g., noise propagation), and biological agents (e.g., infectious waste); to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures. The Department of Public Safety at NAS Patuxent River is responsible for enforcing Occupational Safety and Health standards on the installation. The NAVFAC Safety Officer is responsible for safety during construction and demolition activities. The contractor is required to have a safety plan approved by NAVFAC prior to any construction or demolition activities occurring.



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**Emergency Services and Safety.** The Department of Public Safety is responsible for administering law enforcement, fire response services, the rescue/disaster preparedness program, and the occupational safety and health program. There are two fire stations (Buildings 103 and 443) at NAS Patuxent River that are operated by a total of 64 personnel. Response time to anywhere on the base must be within 5 minutes (NAVFAC Washington 2012a).

**Pedestrian and Vehicular Safety.** One of the primary vehicular routes within the main NAS Patuxent River installation includes Cedar Point Road, which is a four-lane road that is reduced to two lanes as it crosses the installation north of the project area (where the proposed hangar would be built). Saufley Road is also a two-lane road. Pedestrian sidewalks are intermittent throughout NAS Patuxent River. Most sidewalks are found in the housing communities and between parking lots and buildings. Few sidewalks are found along Cedar Point Road and Saufley Road, with the majority in front of Building 1481 and other nearby buildings.

### 3.3.2.2 Alternative 2

Existing conditions for contaminated materials, ordnance, hazards of electromagnetic radiation on ordnance, worker health and safety and emergency services and safety, and pedestrian and vehicular safety would be similar to Alternative 1 although Alternative 2 is limited to the vicinity of Hangar 111. Cedar Point Road and Saufley Road would remain unchanged under Alternative 2.

## 3.3.3 Environmental Consequences

### 3.3.3.1 Alternative 1

**Contaminated Materials.** Buildings proposed for demolition under the Alternative 1 could contain ACMs, LBP, PCBs, or various 8-RCRA metals since the buildings were constructed prior to 1978. Contamination present in the buildings slated for demolition would be handled in accordance with applicable policies and procedures, including inspection by a state-certified inspector prior to commencement of demolition activities. Demolition plans would be reviewed by installation civil engineering personnel to ensure appropriate measures were taken to remove ACMs, 8-RCRA metals, LBP, and PCB-containing materials, and reduce potential exposure to, and release of, asbestos, lead, and PCBs. ACM would be removed by state-certified individuals prior to demolition activities and disposed of at a USEPA-approved landfill. Construction on the hill above Hangar 111 could disturb contaminants potentially remaining in the soil from the former oil control site. If contaminated sediments are detected, they would be handled, stored, and transported to an appropriate waste treatment facility. Construction materials (e.g., caulk) containing PCBs could be disposed of at a non-hazardous waste landfill. Contractors would be required to adhere to Federal and state regulations in addition to installation management plans. The installation has established measures and programs for the management of ACMs, LBP, and PCBs to ensure they are handled and disposed of in compliance with Federal and state environmental laws and regulations. Beneficial impacts would be expected from the removal of buildings containing contaminated materials by reducing potential personnel exposure. No significant impacts on human health and safety would be expected from contaminated materials.

**Ordnance.** No significant impacts on human health and safety would be expected from ordnance.

**Hazards of Electromagnetic Radiation to Ordnance.** Since no new sources of electromagnetic radiation are proposed under Alternative 1, and there are existing sources of electromagnetic radiation covering the project area, it can be assumed that no additional impacts on human health or safety would be expected from electromagnetic radiation.

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**Explosive Safety Quantity Distance.** There are two ESQD arcs within the limits of disturbance under Alternative 1. Personnel working within an ESQD arc could be exposed to an increased risk of explosion. Coordination with the installation Explosive Safety Officer would ensure that handling or transportation of explosives or hazardous materials would not occur within the ESQD arc while construction personnel are working within that area. As a result, no significant impacts on human health and safety would be expected while work is conducted in or near ESQDs.

**Worker Health and Safety.** Under Alternative 1, construction and contractor personnel would be exposed to increased demolition- and construction-related hazards during the average workday. All demolition and construction contractors would be required to follow and implement Occupational Safety and Health Administration and Navy safety standards to establish and maintain a safe working environment. Workers would be required to wear appropriate PPE including ear protection, steel-toed boots, hard hats, and gloves. Proposed demolition or construction would not be expected to pose any new or unacceptable safety risks to workers. Workers would also be potentially exposed to contaminated materials (i.e., ACMs, LBP, PCBs) during demolition activities. If contaminated materials are discovered, they would be characterized and removed by a certified removal specialist and disposed of in a USEPA-approved disposal site. Demolition and construction sites would be appropriately marked and fenced off to protect construction workers and aircraft alike when working near the airfields. Airfield activities and construction activities would be coordinated to avoid or minimize impacts on construction or installation personnel. The proposed hangar complex would meet AT/FP requirements under Alternative 1. No significant impacts on worker health or safety would be expected as a result of demolition and construction related to Alternative 1.

**Emergency Services and Safety.** Emergency response traffic would be routed around Cedar Point Road onto Sauflay Road. A crosswalk signal would be installed on Sauflay Road to allow pedestrians to walk safely from the proposed parking lot to the hangar. The crosswalk signal would not impact emergency response times because emergency vehicles would either trigger traffic signals to green to allow vehicle pass-through or sirens would provide appropriate warning to pedestrians and traffic alike. No impacts on emergency services and safety are expected.

**Pedestrian and Vehicle Safety.** Impacts on pedestrian and vehicle traffic would result from the routing of traffic from Cedar Point Road. Traffic would be diverted onto Sauflay Road, where a crosswalk signal would be added to facilitate pedestrian foot traffic from the proposed parking lot to the proposed hangar. Additional sidewalks, access roads, and walkways would also be constructed, creating a safer pedestrian environment. Buildings would be constructed to ensure compliance with the DoD Minimum Anti-Terrorism Standards for Buildings, creating a safer environment for installation personnel. No significant impacts would be expected on pedestrian and vehicle safety.

### 3.3.3.2 Alternative 2

**Contaminated Materials.** Impacts from contaminated materials would be similar to, but less than, those discussed under Alternative 1 because Alternative 2 would demolish and construct fewer facilities and most of the activities would involve renovation and assembly. Facilities proposed for renovation would be surveyed for ACMs, LBP, and PCB-contaminated materials and would be removed according to applicable regulations. Once the materials were removed, the working environment for NAS Patuxent River personnel would be safer. Beneficial impacts on human health or safety would be anticipated from removal of ACMs, LBP, and PCBs.

**Ordnance.** No significant impacts on human health or safety would be expected.

**Hazards of Electromagnetic Radiation to Ordnance.** Impacts would be the same as those described under Alternative 1. No significant impacts on human health and safety would be expected.

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**Explosive Safety Quantity Distance.** There would be no impacts anticipated from ESQDs under Alternative 2 because the proposed activities would not occur within an ESQD.

**Worker Health and Safety.** Impacts related to worker health and safety would be similar to, but less than, those described under Alternative 1 since most of the activities would involve renovation and assembly.

**Emergency Services and Safety.** Impacts would be similar to, but less than, those described under Alternative 1. No impacts would be expected on emergency services under Alternative 2.

**Pedestrian and Vehicle Safety.** No impacts on pedestrian and vehicle safety would be expected since there would not be any changes to roadways or sidewalks under Alternative 2.

### 3.3.3.3 No Action Alternative

Under the No Action Alternative NAS Patuxent River would continue to use Hangar 111 and associated buildings as they are. Existing conditions for ordnance, electromagnetic radiation, ESQD, and emergency services would remain unchanged as described in **Section 3.3.1**. Impacts from contaminated materials such as ACMs, LBP, PCBs, and the 8-RCRA metals could become worse since existing facilities would continue to degrade over time and contaminated materials could become disturbed. NAS Patuxent River personnel would continue to be potentially exposed to ACMs, LBP, and PCBs and the existing hangar would continue to meet AT/FP requirements insufficiently. Consequently, the No Action Alternative would result in adverse impacts on human health and safety.

## 3.4 Land Use

### 3.4.1 Definitions

The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in installation master planning and local zoning laws. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

In appropriate cases, the location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its permanence. Navy Shore Vision 2035 is the Navy's new vision for shore basing. It includes a substantial reduction of base infrastructure and a model of base layout that zones infrastructure along functional lines. The Navy Shore Vision 2035 uses shore capability areas as categorization for land use areas on Navy installations.

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## 3.4.2 Existing Conditions

### Installation Land Use

NAS Patuxent River is in St. Mary's County, Maryland, near the mouth of the Patuxent River and the Chesapeake Bay. Land Use on NAS Patuxent River was assessed based on the 12 shore capability areas outlined in *Navy Shore Vision 2035* (NAS PAX 2013a). It was determined that eight shore capability areas/land use categories were applicable to NAS Patuxent River, as shown in **Table 3-11** and **Figure 3-1**. Alternatives 1 and 2 would occur within and adjacent to the Aircraft Operations and Research, Development, Acquisition, Test, and Evaluation (RDAT&E) areas (see **Figure 3-1**).

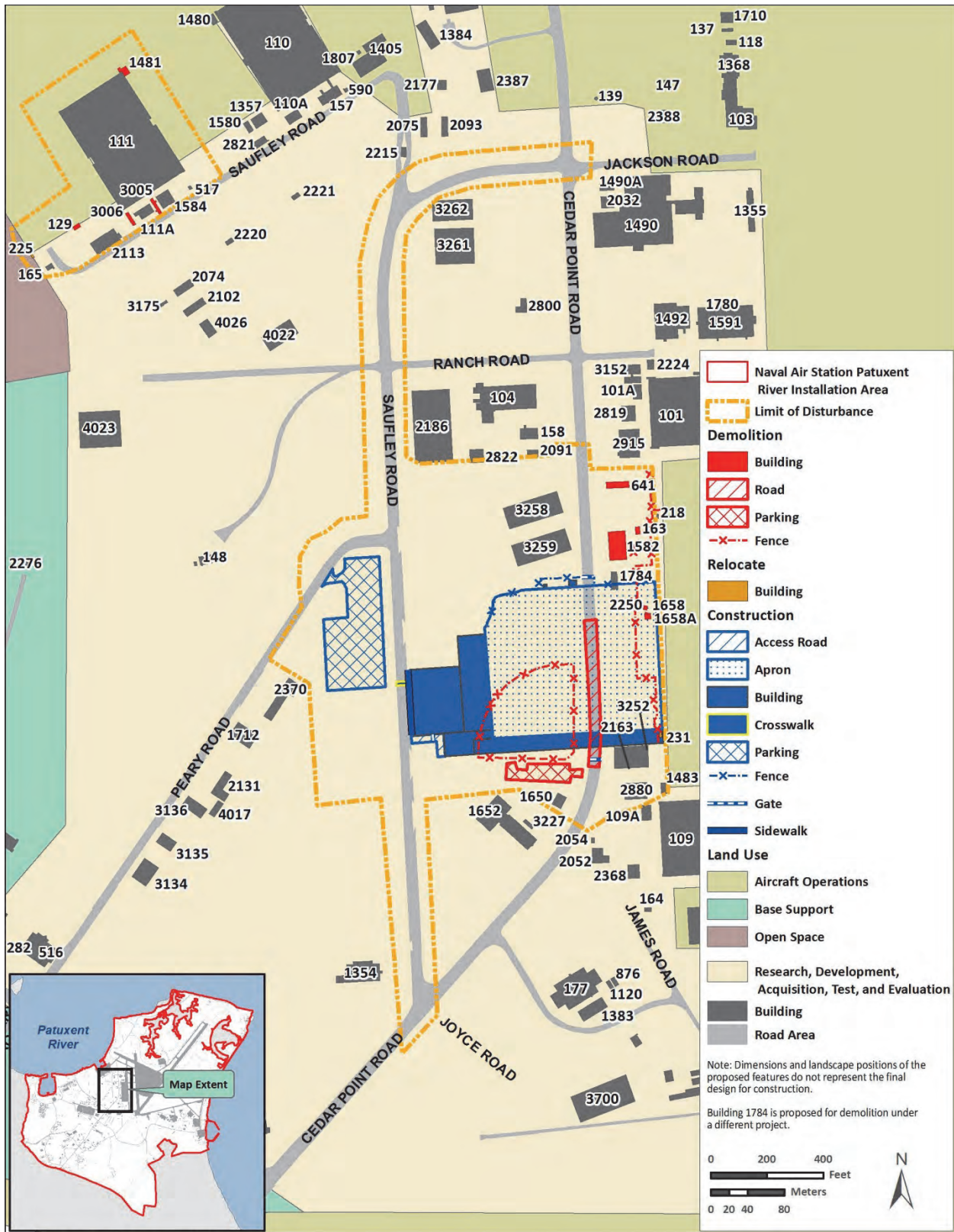
**Table 3-11. Land Use Categories on NAS Patuxent River**

Land Use Category	Percentage of Total
Airfield Operations	31%
Open Space	25%
Sailor and Family Support	20%
Research, Development, Acquisition, Test, and Evaluation (RDAT&E)	16%
Supply and Storage Support	6%
Base Support	2%
Training Support	0.4%
Interim/Depot Level Maintenance Support	0.3%

Source: NAVFAC Washington 2012a

Airfield Operations constitute a large portion of the installation and occupy areas adjacent to the three runways and Taxiway Alpha. RDAT&E facilities occur in clusters around the airfield and are concentrated primarily around RDAT&E hangars and their associated engineer complexes. Core mission land uses are the central component of NAS Patuxent River Main Base's mission. Air Operations and RDAT&E land uses are the highest priority. Their high level of interaction requires adjacent locations and high levels of security (NAVFAC Washington 2012a). The construction and demolition activities under Alternative 1 would occur in the RDAT&E area and adjacent to the Aircraft Operations area. The renovations of Hangar 111 proposed under Alternative 2 would occur in the Aircraft Operations area and the renovations of its associated buildings would occur in the RDAT&E area.

As shown in **Figure 3-1**, there is a baseball field west of Cedar Point Road that would be removed. This field is rarely used because there are other fields that are in better condition in other locations on the installation. In addition, there is an agricultural field (approximately 10 acres) in the area where the proposed surface parking lot would be constructed. The field is on Navy property that is leased to Russell Brothers Farms, LLC. The grain crops grown on the field are sold or used for livestock feed. Typical crops include corn, soybeans, or milo (grain sorghum), with a winter cover crop of wheat, rye, or barley (Rambo 2014).



Sources: ESRI StreetMap USA 2010 and Naval Air Station Patuxent River.

**Figure 3-1. Alternative 1 on NAS Patuxent River Land Use Map**

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### 3.4.3 Environmental Consequences

#### 3.4.3.1 Alternative 1

Of the eight land uses that were identified on NAS Patuxent River, two of the categories, Aircraft Operations and RDAT&E, would be affected under Alternative 1. As shown on **Figure 3-1**, the construction of the proposed hangar and supporting facilities would occur entirely within an RDAT&E land use. The addition of these facilities would not require a change to the land use categorization; therefore, no effects on land use would be expected.

Existing Hangar 111 and associated support facilities are located farther north in Aircraft Operations and RDAT&E land uses. During the demolition phase, numerous support structures, ball fields, the agricultural field, and parking spaces would be removed. Following demolition, the classification of these areas would remain unchanged. Although a ball field and agricultural field would be removed, they are categorized as RDAT&E; therefore, the land use categorization would remain unchanged. Currently the ball field and agricultural field are incompatible with the RDAT&E land use in which they are located. Long-term, minor, adverse impacts on the lessee of the agricultural field would be expected from the field removal and loss of crop land. However, the proposed uses would be more compatible with the surrounding land use and their land use designations; therefore, no significant adverse impacts on land use from Alternative 1 would be expected.

#### 3.4.3.2 Alternative 2

Under Alternative 2, existing buildings (Hangar 111 and Building 111A) would be renovated. These renovations would occur in Aircraft Operations and RDAT&E land uses. In addition, moveable structures would occupy space in proximity to Hangar 111 that is already categorized as either Aircraft Operations or RDAT&E. The renovations and moveable structures would be compatible with the surrounding land uses and the land use categorizations would not change under Alternative 2. Therefore, no effects on land use under Alternative 2 would be expected.

#### 3.4.3.3 No Action Alternative

Under the No Action Alternative, NAS Patuxent River would continue to use Hangar 111, Building 111A, and their support structures as the center for HX-21 Command Staff for the Navy and Marine Corps aircraft. A new hangar facility would not be constructed. No effects on land use would be expected.

## 3.5 Coastal Zone Management

### 3.5.1 Definitions

The Coastal Zone Management Act (CZMA) of 16 U.S.C. Section 1451 et seq., as amended, 15 CFR Parts 921-930 provides assistance to states, in cooperation with Federal and local agencies, for developing land and water use programs in coastal zones. When a state coastal management plan is federally approved, Federal agencies proposing actions with the potential to affect the state's coastal uses or resources are subject to review under the CZMA Section 307 Federal consistency determination requirement. Section 307 mandates that "Federal actions within a state's coastal zone (or outside the coastal zone, if the action affects land or water uses or natural resources within the coastal zone) be consistent to the maximum extent practicable with the enforceable policies of the state coastal management plan" (16 U.S.C. Section 1456(c)(1)(A)). A Memorandum of Understanding (MOU) was created between the State of Maryland and the DoD in 2013 regarding the Federal consistency

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requirements of the CZMA and the application and implementation of Maryland's Coastal Zone Management Program (CZMP) Policies. The MOU outlines the Federal consistency determination process and provides guidelines to demonstrate consistency with Maryland's Enforceable Coastal Policies (DoD 2013).

An enforceable policy is a state policy that is legally binding under state law (e.g., through constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions), and by which a state exerts control over private and public coastal uses and resources, and which are incorporated in a state's federally approved Coastal Management Program [CZMA Section 304(6a) and 15 CFR Part 930.11(h)]. Enforceable policies are given legal effect by state law and do not apply to Federal lands, Federal waters, Federal agencies, or other areas or entities outside a state's jurisdiction unless authorized by Federal law (the CZMA does not confer such authorization).

At the heart of Federal consistency is the "effects test." A Federal action is subject to CZMA Federal consistency requirements if the action will affect a coastal use or resource, in accordance with National Oceanic and Atmospheric Administration regulations.

According to 15 CFR Part 930.11(g), the term "effect on any coastal use or resource" means any reasonably foreseeable effect on any coastal use or resource resulting from a Federal agency activity or Federal license or permit activity (including all types of activities subject to the Federal consistency requirement under subparts C, D, E, F, and I of this part). Effects are not just environmental effects, but include effects on coastal uses. Effects include both direct effects which result from the activity and occur at the same time and place as the activity, and indirect (cumulative and secondary) effects which result from the activity and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects result from the incremental impact of the Federal action when added to other past, present, and reasonably foreseeable actions, regardless of what person(s) undertake(s) such actions.

## 3.5.2 Existing Conditions

### 3.5.2.1 Alternative 1

Maryland has a federally approved CZMP. Maryland's coastal zone is composed of the land, water, and subaqueous land between the territorial limits of Maryland in the Chesapeake Bay, Atlantic Coastal Bays, and the Atlantic Ocean. The Maryland coastal zone extends from 3 miles out in the Atlantic Ocean to the inland boundaries of the 16 counties and Baltimore City that border the Atlantic Ocean, Chesapeake Bay, and the Potomac River up to the District of Columbia (MDNR 2014). The CZMA excludes all Federal facilities like NAS Patuxent River from the legal definition of coastal zone. Federal actions undertaken at NAS Patuxent River that have reasonably foreseeable effects on the coastal zone must be consistent to the greatest extent practicable with Maryland's 19 enforceable policies and with the MOU between the State of Maryland and DoD. The enforceable policies relevant to the Proposed Action include Water Quality, The Chesapeake and Atlantic Coastal Bays Critical Area, and Development (MDNR 2011).

### 3.5.2.2 Alternative 2

The existing baseline for Alternative 2 is identical to the baseline under Alternative 1. The enforceable policies relevant to Alternative 2 include Water Quality, The Chesapeake and Atlantic Coastal Bays Critical Area, and Development (MDNR 2011).

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### 3.5.3 Environmental Consequences

#### 3.5.3.1 Alternative 1

Under Alternative 1, the Proposed Action would not likely adversely affect the coastal uses or resources of Maryland. On February 19, 2016, a Coastal Consistency Determination package, which included a copy of this EA, was submitted to the MDE, Wetlands, and Waterways Program with a request for review and concurrence with the U.S. Navy's Coastal Consistency Determination of no adverse effects on Maryland coastal uses or resources. Following the standard 60 day review period, NAS Patuxent River assumed MDE concurrence with its findings of no adverse effects on coastal zone resources on April 19, 2016. **Appendix B** provides the Coastal Consistency Determination correspondence provided to the MDE.

#### 3.5.3.2 Alternative 2

Alternative 2 would not involve new construction, and moveable structures would be placed on previously paved areas. The enforceable policies of the Maryland CZMP have been reviewed and it has been determined that Alternative 2 would not affect the coastal resources of Maryland.

#### 3.5.3.3 No Action Alternative

Under the No Action Alternative, the hangar would not be constructed and no structures would be demolished; therefore, CZMP consistency determinations would not be required. There would be no effects on any land use, water use, or natural resource of Maryland's coastal zone.

## 3.6 Geological Resources

### 3.6.1 Definitions

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

**Geology.** Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition.

**Topography.** Topography and physiography pertain to the general shape and arrangement of a land surface, including its height and the position of its natural features and human-made alterations of landforms.

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

**Prime Farmland.** Prime farmland is protected under the Farmland Protection Policy Act of 1981. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The land could be cropland, pasture, rangeland, or other land, but not urban built-up land or water. The intent of the



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Farmland Protection Policy Act is to minimize the extent that Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses.

**Geologic Hazards.** Geologic hazards are defined as natural geologic events that can endanger human lives and threaten property. Examples of geologic hazards include earthquakes, landslides, rock falls, ground subsidence, and mass wasting.

## 3.6.2 Existing Conditions

### 3.6.2.1 Alternative 1

**Geology.** NAS Patuxent River and the project site are in the Atlantic Coastal Plain physiographic province of Maryland, specifically in the Upper Coastal Plain. This area is characterized by unconsolidated sediments including gravel, sand, silt, and clay. The sediments in this area generally slope less than one degree toward the east and range in age from the Triassic to Quaternary. This area is underlain by southeastwardly thickening sequence of sediments composed of sand and gravel aquifers interlayered with silt and clay confining units (MGS 2014, MDNR 2005). There are three aquifers from which NAS Patuxent River draws potable water. These aquifers are analyzed under Water Resources, **Section 3.8.3.**

**Topography.** The topography at NAS Patuxent River has low relief, and rises generally from the Chesapeake Bay shoreline westward. Approximately 70 percent of NAS Patuxent River is level but fairly drained. The area proposed for Alternative 1 is generally flat (MDNR 2005, NAS PAX 2013c).

**Soils.** Under Alternative 1, soils would be affected in the vicinity of the proposed demolition and construction sites. The U.S. Department of Agriculture Natural Resources Conservation Service has mapped the soils in the vicinity of the project area and identified three soil types (NRCS 2014).

- *Cut and fill.* Cut and fill land is soil that has been disturbed as a result of previous actions. The typical profile for this type of soil is variable. This soil type is common in urban and developed areas and composes approximately 11 percent of NAS Patuxent River.
- *Evesboro-Westphalia complex, 20 to 45 percent slopes, moderately eroded.* Evesboro-Westphalia complex is composed mostly of roughly 3 feet of loamy sand on top of roughly 5 feet of sand resulting from sandy eolian deposits or fluviomarine sediments. This soil is excessively drained thus there is no flooding or ponding that occurs with this soil type. This soil type occurs on approximately 4 percent of NAS Patuxent River.
- *Matapeake silt loam, 0 to 2 percent slopes.* Matapeake silt loam is composed of fine sandy loam in the top 5 inches, with 2 feet of silt loam below it, followed by sandy loam and loamy sand resulting from silty eolian deposits or fluviomarine sediments. This soil is well-drained and has no threat of flooding or ponding. This soil type occurs on approximately 14 percent of NAS Patuxent River.

Although a portion of the project site is currently leased by DoD for agricultural uses, no prime farmland soils have been mapped within the Alternative 1 project site. No in-water work would be required for this alternative; therefore, marine sediments would not be affected and are not discussed further.

**Geologic Hazards.** Earthquakes occur in Maryland; however, they are not common. According to the U.S. Geological Survey, the hazard rating for St. Mary's County, Maryland, is very low at 0.04 to 0.08 percent of gravity. Maryland's strongest earthquake registered 3.1 magnitude on the Richter scale in 1978 near Hancock, Washington County. However, earthquakes of this magnitude are relatively minor (Reger 2003). Most earthquakes that are felt within Maryland have epicenters outside the state, such as

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the 5.8 magnitude earthquake in Mineral, Virginia, in August 2011. The 2011 earthquake was the largest recorded earthquake in Virginia history and earthquakes of this magnitude are rare by Virginia's standards. On average, Virginia experiences six earthquakes a year, of which only one per year is felt at the surface (DMME 2014).

### 3.6.2.2 Alternative 2

Existing conditions for geology and topography and geologic hazards at the site of Alternative 2 (Hangar 111) would be the same as described for Alternative 1. Soils in the vicinity of Hangar 111 consist of Evesboro-Westphalia complex, 20 to 45 percent slopes, moderately eroded and Cut and Fill. There is no prime farmland present at this site.

## 3.6.3 Environmental Consequences

### 3.6.3.1 Alternative 1

Impacts on geological resources would result from disturbance and compaction of soils, clearing of vegetation, excavation, trenching, grading, and paving. Soil erosion and sediment production would be minimized during construction by following appropriate BMPs and by complying with Section 438 of the Energy Independence and Security Act, which requires implementation of low-impact development. The design of the proposed hangar and associated parking lot would include appropriate features to accommodate the soils mentioned in Existing Conditions, **Section 3.6.2**. The impacts on the DoD-owned agricultural land would not be expected to be significant because this land is not identified as prime farmland by the Natural Resources Conservation Service. This loss of farmland would represent an overall net loss of farmland on the installation; however, it would not be significant.

The impacts from Alternative 1 would not substantially alter geological conditions as most of the soils in the project site have been previously disturbed. Based on the nature of these impacts, no significant impacts on geological resources would be expected under Alternative 1.

### 3.6.3.2 Alternative 2

Under Alternative 2, there would be little ground disturbance except for the renovation of Hangar 111 and Building 111A to comply with safety and utilities upgrades. This disturbance could include the compaction of soils, clearing of vegetation, grading, paving, excavation, or trenching. Moveable structures would be placed on existing pavement and would not likely have any associated ground disturbance. In addition, the DoD-owned agricultural land south of Hangar 111 would not be used under this alternative; therefore, its use would remain unchanged. Consequently, no significant impacts on geological resources would be expected under Alternative 2.

### 3.6.3.3 No Action Alternative

Under the No Action Alternative NAS Patuxent River would continue to use Hangar 111 as is. Existing geological resource conditions would continue as described in **Section 3.6.2**, and no impacts on geological resources would be expected.

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## 3.7 Biological Resources

### 3.7.1 Definitions

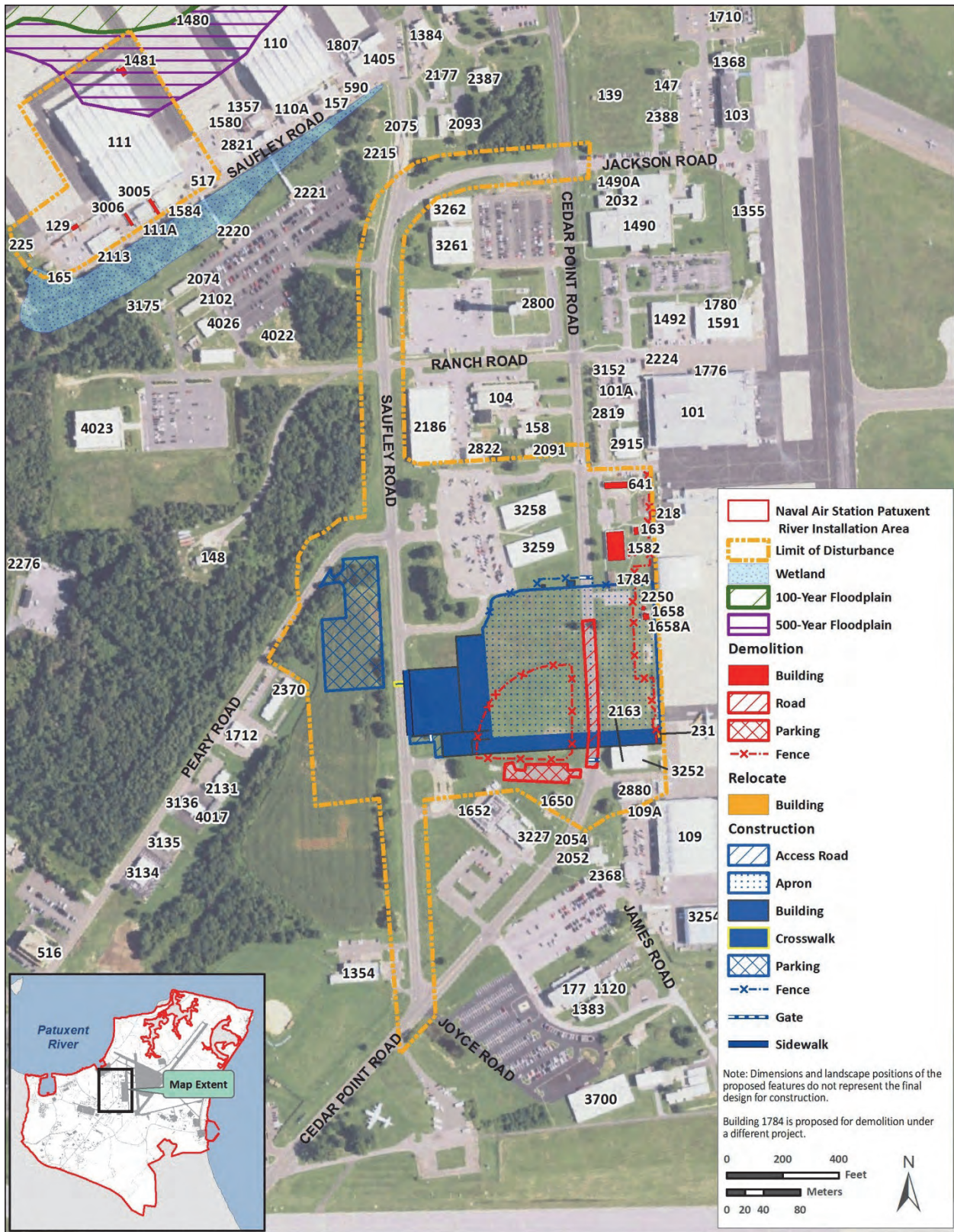
Biological resources include native or naturalized plants and animals and the habitats (e.g., grasslands, forests, and wetlands) in which they exist. Protected and sensitive biological resources include listed (threatened or endangered) and proposed species under the ESA as designated by the U.S. Fish and Wildlife Service (USFWS), state-listed threatened or endangered species, and migratory birds. In Maryland, state-listed threatened or endangered species are protected under the Nongame and Endangered Species Conservation Act (Code of Maryland 10-2A-01) that is administered by the Maryland Department of Natural Resources (MDNR). Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. Sections 703–712) as amended, and Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. The Bald and Golden Eagle Protection Act (16 U.S.C. Sections 668–668c) as amended, prohibits “take” of bald eagles, including their parts, nests, or eggs.

Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the ESA and sensitive ecological areas as designated by state or Federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer and winter habitats). Critical habitat is designated if the USFWS determines that it is essential to a threatened or endangered species’ conservation. In consultation for those species with critical habitat, Federal agencies are required to ensure that their activities do not adversely modify or destroy critical habitat to the point that it will no longer aid in the species’ recovery.

### 3.7.2 Existing Conditions

**Vegetation.** There are a variety of vegetative communities at NAS Patuxent River, including forests, agricultural fields, old fields, marshes, and scrub/shrub areas. These communities are dynamic, changing through inadvertent introduction of nonnative species and the natural decline of other species through succession. The project area is primarily developed land. Fringe habitat associated with upland forests and scrub/shrub areas is the most abundant community near or within the project area (see **Figure 3-2**). Upland forests are primarily along Peary Road and west and south of Saufley Road. Upland forests on the installation include trees and woody vegetation dominated by hickory (*Carya* spp.), flowering dogwood (*Cornus florida*), sweetgum (*Liquidambar styraciflua*), white oak (*Quercus alba*), chestnut oak (*Q. prinus*), and American holly (*Ilex opaca*). Devil’s walking stick (*Aralia spinosa*), grapefern (*Botrychium* spp.), trumpet creeper (*Campsis radicans*), and clubmoss (*Lycopodium* spp.) are also readily abundant in forest communities on the installation (NAS PAX 2013c).

Scrub/shrub areas are a mix of herbaceous vegetation, shrubs, and young trees. Scrub/shrub communities within the project area occur west of Saufley Road, primarily between Cedar Point Road and Ranch Road. This community will naturally progress to a young woodland system without management. Abundant species include red maple (*Acer rubrum*), broomsedge (*Andropogon virginicus*), dogbane (*Apocynum cannabinum*), trumpet creeper, Autumn Olive (*E. umbellata*), eastern red cedar (*Juniperus virginiana*), sweetgum, black cherry (*Prunus serotina*), and goldenrods (*Solidago* spp.) (NAS PAX 2013c).



Sources: NAIP 2015 Imagery and Naval Air Station Patuxent River.

Figure 3-2. Fringe Habitat within the Project Area



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The parking lot associated with the Proposed Action would be constructed primarily on DoD-owned agricultural land. These lands are intensively managed for various agricultural goods such as corn (*Zea mays*), soybeans (*Glycine max*), wheat (*Triticum* spp.), barley (*Hordeum vulgare* L.), and grain sorghum (*Sorghum bicolor*). Uncultivated agricultural lands can encourage dense herbaceous growth such as crabgrass (*Digitaria* spp.), ragweed (*Ambrosia* spp.), asters (*Aster* spp.), and yellow foxtail (*Setaria pumila*) (NAS PAX 2013c).

**Wildlife.** A wide variety of migratory and resident wildlife occurs at NAS Patuxent River because of its habitat diversity. Terrestrial habitats include mature forests, young woodlands, shrub-dominated land, old fields, marshes, and barren lands; however, the majority of the habitat within the Proposed Action is disturbed with some deciduous upland forest and successional shrub habitat as described for existing vegetation.

White-tailed deer (*Odocoileus virginianus*) and gray squirrel (*Sciurus carolinensis*) are the most common mammals observed within upland forest habitat. Smaller mammals such as gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginia*), shorttail shrew (*Blarina brevicauda*), and eastern mole (*Scalopus aquaticus*), are relatively common, as is the red bat (*Lasiurus borealis*). Bat species including little brown myotis (*Myotis lucifugus*), and tri-colored bat (*Pipistrellus subflavus*) are less common species since experiencing recent and rather dramatic population declines throughout their range. Bird species include the pine warbler (*Dendroica pinus*), summer tanager (*Piranga rubra*), and common grackle (*Quiscalus quiscula*), among others. The wood frog (*Rana sylvatica*), American toad (*Bufo americanus*), spotted salamander (*Ambystoma maculatum*), and eastern ribbon snake (*Thamnophis sauritus*) are among the amphibians and reptiles commonly found in upland forests on the installation (NAS PAX 2013c).

Shrub-dominated habitat supports native grassland species including the field sparrow (*Spizella pusilla*), eastern meadowlark (*Sturnella magna*), eastern bluebird (*Sialia sialis*), and indigo bunting (*Passerina cyanea*). Other bird species typically supported by this habitat include common yellowthroat (*Geothlypis trichas*), northern mockingbird (*Mimus polyglottos*), brown thrasher (*Toxostoma rufum*), and gray catbird (*Dumetella carolinensis*). Small mammals such as eastern cottontail (*Sylvilagus floridanus*), woodchuck (*Marmota monax*), eastern mole, and the shorttail shrew use this habitat for nesting and foraging. White-tailed deer are the predominant game species. Common reptile species include the eastern box turtle (*Terrapene carolina carolina*), black rat snake (*Elaphe obsoleta obsoleta*), eastern garter snake (*Thamnophis sirtalis sirtalis*), and northern black racer (*Coluber constrictor*), among others (NAS PAX 2013c).

**Rare, Threatened, and Endangered Species.** Five state-listed threatened and endangered plant species have been found on the installation. These species are managed by the MDNR Natural Heritage Program and include devil's grandmother (*Elephantopus tomentosus*), sandplain flax (*Linum intercursum*), Guadeloupe cucumber (*Melothria pendula*), seaside knotweed (*Polygonum glaucum*), and swamp wedgescale (*Sphenopholis pensylvanica*) (MDNR 2010, USFWS 2014). Habitat for these species is described in **Table 3-12**; however, none of these species have been documented within the project area (NAS PAX 2013c).

Federally endangered species that could potentially occur at NAS Patuxent River include the northern long-eared bat (*Myotis septentrionalis*), leatherback turtle (*Dermochelys coriacea*), Kemp's Ridley turtle (*Lepidochelys kempii*), humpback whale (*Megaptera novaeangliae*), North Atlantic right whale (*Eubalaena glacialis*), West Indian manatee (*Trichechus manatus*), shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrinchus*). Of these species, only the Atlantic sturgeon (*Acipenser oxyrinchus*) has been documented at NAS Patuxent River.

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Northern long-eared bats were federally listed as threatened because of severe population declines resulting from the spread of a fungal respiratory disease known as White Nose Syndrome (WNS). WNS is a disease named for the white fungus (*Pseudogymnoascus destructans*) that infects the skin of the muzzle, ears, and wings of hibernating bats. WNS has led to mortality of millions of bats across North America since the winter of 2007/2008 (USGS 2015). The spread of this disease poses a major threat to the continuation of the northern long-eared bat. WNS has already caused the northeastern population of the species to decline 99 percent from pre-WNS numbers at various known hibernation sites (USGS 2015). No northern long-eared bats have been observed or reported as occurring on NAS Patuxent River; however, the installation is located in Saint Mary's County, Maryland, which is located within the WNS Zone (i.e., area with known infected hibernating bats) (USFWS 2016b, USFWS 2016c).

The marine species potentially occurring at NAS Patuxent River, aside from the shortnose and Atlantic sturgeon, are primarily associated with Chesapeake Bay and to a lesser extent the Patuxent River, which is outside of the project area. Therefore, these species are not discussed further (USFWS 2014, NAS PAX 2013c).

NAS Patuxent River has documented the occurrence of three federally threatened animal species, the Atlantic loggerhead turtle (*Caretta caretta*), piping plover (*Charadrius melodus*), and the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) near the installation; however, the Atlantic loggerhead has been observed alive only once and the piping plover has only been documented once on the installation in the 1960s. Adult northeastern beach tiger beetles have been observed occasionally; however, no larval beetles have been found on the installation (NAS PAX 2013c). Additionally, northeastern beach tiger beetles are found on long beach habitat with low human and vehicular activity. No beach habitat exists within the project area (USFWS 2014).

There are 14 state-listed threatened and endangered terrestrial animal species that are known to occur on NAS Patuxent River (see **Table 3-12**) (MDNR 2010). Bald eagles (*Haliaeetus leucocephalus*) are not formally listed under the ESA but are protected on the Bald and Golden Eagle Protection Act and the MBTA. There are three documented bald eagle nests, one along Holton Pond, one along Pearson Creek, and another along Goose Creek, approximately 1.2, 1.8 and 2.3 miles (respectively) from the Proposed Action (NAS PAX 2013c). Twenty-seven additional species of migratory bird species of conservation concern, protected under the MBTA, may also occur within or near the Project Area. Most occurrences would be expected to be transient and associated with seasonal migrations (USFWS 2016a).

### 3.7.3 Environmental Consequences

Ground disturbance and noise associated with construction activities have the potential to cause direct or indirect adverse effects on biological resources. Effects from ground disturbance were evaluated by identifying the types and locations of potential ground-disturbing activities in correlation to important biological resources. Mortality of individuals, habitat removal, and damage or degradation of habitats might be effects associated with ground-disturbing activities. To evaluate the effects of noise, considerations were given to the number of individuals or critical species involved, amount of habitat affected, relationship of the Proposed Action area to total available habitat within the region, type of stressors involved, and magnitude of the effects.

**Table 3-12. Federal- and State-Threatened and Endangered Species  
Known to Occur on NAS Patuxent River**

Common Name	Scientific Name	Federal Status	State Status	Habitat
<b>Birds</b>				
Piping plover	<i>Charadrius melodus</i>	T	E	Wide, flat, open sandy beaches
Upland sandpiper <sup>1</sup>	<i>Bartramia longicauda</i>	–	E	Native prairie and other dry grasslands
Gull-billed tern	<i>Gelochelidon nilotica</i>	–	E	Gravelly or sandy beaches
Least tern	<i>Sternula antillarum</i>	–	T	Estuaries, lagoons, sandy or gravelly beaches, and banks of rivers or lakes
Royal tern	<i>Thalasseus maximus</i>	–	E	Shoreline
Black skimmer	<i>Rynchops niger</i>	–	E	Open, sandy beaches or saltmarsh
Northern goshawk <sup>2</sup>	<i>Accipiter gentilis</i>	–	E	Various forest types, particularly mature forest
Short-eared owl <sup>2</sup>	<i>Asio flammeus</i>	–	E	Open prairie, meadows, marshes, and open woodland
Olive-sided flycatcher <sup>1</sup>	<i>Contopus cooperi</i>	–	E	Coniferous forest edges and openings
Sedge wren	<i>Cistothorus platensis</i>	–	E	Dense, tall sedges and grasses in wet meadows
Loggerhead shrike <sup>1</sup>	<i>Lanius ludovicianus</i>	–	E	Open or brushy areas
Blackburnian warbler <sup>1</sup>	<i>Dendroica fusca</i>	–	T	Forest, mixed woodlands
Mourning warbler <sup>1</sup>	<i>Oporornis philadelphia</i>	–	E	Forest, second-growth woodlands
Henslow's sparrow <sup>1</sup>	<i>Ammodramus henslowii</i>	–	T	Large, flat fields with no woody plants and standing dead vegetation
Bald eagle <sup>2,3</sup>	<i>Haliaeetus leucocephalus</i>	–	–	Forested areas adjacent to large bodies of water
<b>Mammals</b>				
Northern long-eared bat	<i>Myotis septentrionalis</i>	E	-	Various forest types with minimal edge habitat for roosting and pup-rearing. Caves for overwintering.
<b>Reptiles and Amphibians</b>				
Atlantic loggerhead turtle	<i>Caretta caretta</i>	T	T	Ocean, bays, lagoons, marshes, mouths of large rivers
<b>Fish</b>				
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	E	E	Coastal rivers and estuaries
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	E <sup>4</sup>	E	Coastal rivers and estuaries

Common Name	Scientific Name	Federal Status	State Status	Habitat
<b>Invertebrates</b>				
Frosted elfin <sup>1</sup>	<i>Callophrys irus</i>	–	E	Open woods and forest edges, fields, or scrub
Northeastern beach tiger beetle	<i>Cicindela dorsalis</i>	T	E	Long, wide dynamic beaches
<b>Plants</b>				
Devil's grandmother <sup>1</sup>	<i>Elephantopus tomentosus</i>	–	E	Mowed lawn beneath trees and utility rights-of way
Sandplain flax <sup>1</sup>	<i>Linum intercursum</i>	–	T	Mowed, dry sandy and clayey powerline right-of-way
Guadeloupe cucumber <sup>1</sup>	<i>Melothria pendula</i>	–	E	Mesic shrub thickets, woodland edge
Seaside knotweed	<i>Polygonum glaucum</i>	–	E	Beach at the drift line
Swamp wedgescale <sup>1</sup>	<i>Sphenopholis pensylvanica</i>	–	T	Stream floodplain with open canopy and fresh marsh associated with pond

Sources: NAS PAX 2013c, MDNR 2010, USFWS 2014, NOAA 2014, CLO 2014

Notes:

<sup>1</sup> Potential habitat within or adjacent to the project area

<sup>2</sup> Potential transient within or adjacent to the project area.

<sup>3</sup> Protected under the Bald and Golden Eagle Protection Act.

<sup>4</sup> Chesapeake Bay distinct population segment

Key: E = Endangered; T = Threatened

### 3.7.3.1 Alternative 1

**Vegetation.** No significant impacts on vegetation would be expected from the temporary disturbances during construction and demolition activities (e.g., trampling, crushing, and removal) and from the permanent removal of vegetation from the construction of new facilities. Agricultural land would be replaced with a parking lot, but impacts on forest and shrub fringe communities would be primarily indirect because the vast majority of construction and demolition activities would occur in disturbed areas (see **Figure 3-2**).

A variety of nonnative and invasive vegetation occurs throughout NAS Patuxent River, including around the agricultural field under Alternative 1. Disturbances to the canopy or ground surface in the forested habitat could also allow opportunities for nonnative and invasive species to establish or spread within forested habitat; however, only a negligible portion of this habitat would be removed. The following BMPs would be implemented during and following construction and demolition activities to prevent the establishment or spread of nonnative species:

- Inspect and clean construction equipment to remove soil, plants, and seeds
- Stage equipment in areas free of nonnative plant species
- Use certified weed-free materials (e.g., grass seed, mulch, gravel, sand).



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Additionally, disturbed sites could be promptly revegetated with native plant species. BMPs and practices to minimize soil disturbance and control erosion and sedimentation during construction and demolition activities would also be implemented to minimize potential impacts on adjacent forested habitats and water quality. Large or historic trees (i.e., those that are preferred dominant natives, such as oaks) would be preserved to the greatest extent possible.

**Wildlife.** Temporary impacts on wildlife would be expected due to noise disturbances from construction and demolition activities, which include heavy equipment use. High noise events could cause wildlife to engage in escape or avoidance behaviors; however, these effects would be temporary. Increases in ambient noise can reduce communication, inhibit predator detection, and increase energy expenditures in wildlife species. Noise can also distort or mask bird communications signals (e.g., songs, warning calls, fledgling begging calls) and ability to find prey or detect predators (USEPA 1980). If noise persists in a particular area, animals could leave their habitat and avoid it permanently. Avoidance behavior by animals requires the expenditures of excess energy required for survival (e.g., finding new food sources, water sources, and breeding and nesting habitats) (USEPA 1980). Wildlife species occurring in the area would be expected to be habituated to high levels of noise due to their proximity to the airfield. Most wildlife species would be expected to recover quickly from noise disturbance once the management activities have ceased for the day and after the construction and demolition period is complete. Noises associated with construction and demolition activities would only be expected to affect individual animals within close proximity to the noise sources. As a result, population-level impacts would not be expected.

Vegetation removal under Alternative 1 would be primarily associated with sparsely populated trees and shrubs with more significant forest and shrub land only indirectly impacted. Therefore, no significant impacts on wildlife habitat would be expected.

Impacts on wildlife could also be expected from injury or mortality of smaller, less mobile wildlife species (e.g., reptiles, amphibians, rodents) that cannot avoid construction and demolition equipment or from wildlife species that nest or live within trees (e.g., squirrels, opossums) that are removed. As discussed in the following section, vegetation-removal activities should occur outside of the migratory bird nesting season to avoid impacts on breeding birds and nests.

**Rare, Threatened, and Endangered Species.** Temporary impacts on rare, threatened, and endangered terrestrial species could occur from noise disturbances associated with construction and demolition activities; however, rare, threatened, and endangered terrestrial species on NAS Patuxent River would likely be habituated to high noise levels associated with the airfield. The contribution of noise disturbances from construction and demolition to the ambient noise environment would be negligible and temporary. Construction and demolition would occur in a primarily disturbed environment. Habitat removal (including tree-removal) would be negligible and would not preclude the use of habitat by any rare, threatened, or endangered species. Therefore, no significant impacts on rare, threatened, and endangered species would be expected under Alternative 1. No federally threatened or endangered species occur in or adjacent to the project area; therefore; no effects on federally listed threatened or endangered species would be expected from Alternative 1.

No Federal- or state-listed threatened or endangered plant species have been documented within the proposed project area; however, several state-listed plant species exist on the installation. Although very unlikely, if a population of state-listed species were discovered within the project area, it would be protected from disturbance to the greatest extent practicable.

Implementation of the Proposed Action would not be expected to affect the northern long-eared bat because no northern long-eared bats have been observed or reported as occurring on the installation, there are no known roosting sites on the installation, and the identified project area is not located within or near any known hibernacula. The proposed activities would involve minimal tree removal from fringe forest

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areas, trees would be preserved where possible. If bats are located near the project area, temporary effects from construction and demolition noise would be possible. However, such impacts would be negligible because the bats would likely avoid the areas where such activities occur. Based upon this rationale, the Navy determined that ESA Section 7 consultation with the USFWS would not be required.

The MBTA and Executive Order 13186, require Federal agencies to minimize or avoid impacts on migratory birds listed in 50 CFR Part 10.13. Unless otherwise permitted by regulations, the MBTA makes it unlawful to (or attempt to) pursue, hunt, take, capture, or kill any migratory bird, nest, or egg. Construction and demolition activities would be conducted in a manner to avoid adverse impacts on migratory birds. It is not anticipated that Alternative 1 would have any measureable negative impacts on migratory birds (e.g., direct mortality, decrease in population size, decrease in fitness, repetitive nest failure). However, impacts on migratory birds from long-term habitat removal would be similar to those previously discussed for wildlife (e.g., fringe forest would be removed). The following BMPs are recommended for reduction or avoidance of impacts on migratory bird species within the project area, particularly since trees would be removed.

The nesting season for migratory birds which, typically occurs from mid-March through August, starts when migratory birds return to the installation and ending after all young have fledged. Construction and demolition activities should occur outside of that time period to avoid take of migratory birds. At a minimum, vegetation clearing should occur outside of the nesting season. No nesting migratory birds have been documented historically on the project site. However, food and shelter exists within the vicinity of the proposed construction and demolition activities. If nesting migratory birds are found on the project site during construction or demolition, buffer areas should be established around nests. Activities should be deferred in buffer areas until birds have left the nest.

### 3.7.3.2 Alternative 2

No significant effects on biological resources would occur from Alternative 2. Renovation activities would not be expected to result in vegetation removal or habitat degradation. Movable structures would be established on a previously paved apron and would not require any new construction on the installation. Noise events related to installing movable structures and hangar renovations would be temporary, isolated, and less intense than construction and demolition noise under Alternative 1; however, noise impacts on wildlife would still occur. Expansion of RDT&E facilities would not be expected to impact biological resources. All Federal and state regulations and BMPs described under Alternative 1 would be implemented under Alternative 2, as necessary.

### 3.7.3.3 No Action Alternative

The No Action Alternative would not change the status of biological resources on the installation. Existing RDT&E functions would continue to be performed at existing hangar facilities and development of the proposed hangar and support facilities would not occur. No construction or demolition activities associated with the proposed hangar and support facilities would occur at NAS Patuxent River, and no changes in operations on the installation would take place. Therefore, no impacts on biological resources would be expected and biological resources would remain as described in **Section 3.7.2**.

## 3.8 Water Resources

### 3.8.1 Definitions

Water resources are natural and man-made sources of water that are available for use by and for the benefit of humans and the environment. Hydrology concerns the distribution of water resources through

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the processes of evapotranspiration, atmospheric transport, precipitation, surface runoff and flow, and subsurface flow. Hydrology is affected by climatic factors such as temperature, wind direction and speed, topography, and soil and geologic properties.

**Groundwater.** Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater quality and quantity are regulated under several statutes and regulations, including the Safe Drinking Water Act.

**Surface Water.** Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Waters of the United States are defined as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries under Section 404 of the Clean Water Act (CWA), as amended, and are regulated by the USEPA and the U.S. Army Corps of Engineers (USACE). The CWA requires that Maryland establish a Section 303(d) list to identify impaired waters and establish Total Maximum Daily Loads (TMDLs) for the sources causing the impairment. A TMDL is the maximum amount of a substance that can be assimilated by a water body without causing impairment. A water body can be deemed impaired if water quality analyses conclude that exceedances of water quality standards, established by the CWA, occur.

The CWA (33 U.S.C. Section 1251 et seq., as amended) establishes Federal limits, through National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (i.e., stormwater) of water pollution. The Maryland NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more to obtain coverage under an NPDES permit for their stormwater discharges. Construction or demolition that necessitates a permit also requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan (SWPPP) that is implemented during construction.

In 2010, the USEPA issued a Final Rule for the CWA concerning technology-based Effluent Limitations Guidelines and New Source Performance Standards for the Construction and Development point source category. All NPDES stormwater permits issued by the USEPA or states must incorporate requirements established in the Final Rule. As of 1 February 2010, all new construction (or demolition) sites that disturb 1 or more acres of land are required to meet the non-numeric effluent limitations and effective erosion and sedimentation controls must be designed, installed, and maintained.

To prevent adverse impacts from stormwater runoff, the State of Maryland has developed performance standards that must be met at development sites, which apply to any construction activity disturbing 5,000 ft<sup>2</sup> (0.11 acres) or more of earth, including those on Federal properties. An approved erosion-and-sediment-control plan and stormwater management plan, per the Maryland Department of the Environment's (MDE's) erosion- and sediment-control regulations (Code of Maryland Regulations [COMAR] 26.17.01, Erosion and Sediment Control) and stormwater management regulations (COMAR 26.17.02, Stormwater Management), would be required. Maryland's Stormwater Management Act of 2007 requires establishing a comprehensive process for stormwater management approval and implementing Environmental Site Design (ESD) to the maximum extent practicable. ESD uses onsite stormwater management practices to conserve or restore natural site hydrology. In addition, Section 438 of the Energy and Independence and Security Act (42 U.S.C. Section 17094) establishes stormwater design requirements for Federal development and redevelopment projects. Under these requirements, Federal facility projects larger than 5,000 ft<sup>2</sup> (0.11 acres) must "maintain or restore, to the maximum

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extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.”

**Wetlands and Floodplains.** The USACE defines wetlands 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 swamps, marshes, bogs, and similar areas” (USACE 1987). Wetlands are currently regulated by the USACE under Section 404 of the CWA as a subset of all “waters of the United States.” The term “waters of the United States” has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats, including wetlands. Jurisdictional waters of the United States regulated under the CWA include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, and “other” waters that, if degraded or destroyed, could affect interstate commerce.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into wetlands and other waters of the United States. Any discharge into waters of the United States requires a permit from the local District of the USACE (Baltimore). In the State of Maryland, the MDE Tidal/Non-Tidal Wetlands Division maintains a cooperative permit process with the USACE for Section 404 activities. The nature of regulated activities is broadly interpreted and might include filling, grading, clearing, grubbing, excavation, and driving piles. It should be considered that any activity within a jurisdictional wetland area requires a permit from the USACE and MDE. The principle of sovereign immunity officially relieves the installation of the requirement to obtain the state permit; however, local approval should be pursued to the maximum extent practicable. In addition to the USACE, the MDE issues Water Quality Certificates under Section 401 of the CWA. Water quality certification is required for most wetland disturbances.

Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body.

Floodplains are protected under Executive Order 11988, *Floodplain Management*. If action is taken that encroaches within the floodplain and alters the flood hazards designated on a National Flood Insurance Rate Map (e.g., changes to the floodplain boundary), an analysis reflecting any changes must be submitted to the Federal Emergency Management Agency. Flood potential is evaluated by the Federal Emergency Management Agency, which defines the 100-year floodplain as the area that has a one percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk to be in either the 100- or 500-year floodplain, such as hospitals, schools, or storage buildings for irreplaceable records. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

### 3.8.2 Existing Conditions

**Groundwater.** Several aquifers supplying groundwater used for drinking water at NAS Patuxent River including the Piney Point/Nanjemoy, Aquia, and Patapsco aquifers. The Aquia aquifer provides approximately 75 percent of the water for the installation and is generally stable. The Patapsco aquifer provides approximately 25 percent of the installation’s potable water and is in danger of reaching 80 percent of management levels in 40 to 50 years. The Piney Point/Nanjemoy aquifer provides a negligible amount of water to the installation (NAVFAC Washington 2012a). Water quality within the aquifers is good, characterized by high carbonates and low sulfate-chlorides and iron (NAS PAX 2013c). The recharge zone for these aquifers is approximately 25 to 75 miles north and northeast of the installation

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(NAS PAX 2012). All groundwater wells are regularly monitored by the installation Public Works Department according to state and Federal safe drinking water sampling analysis standards and requirements (NAS PAX 2013c).

There are 24 potable water wells on NAS Patuxent River that range from 300 to 900 feet deep, none within the project area. Three wells are within 0.2 miles of the project area, one near Building 110, one near building 2276, and one at the end of James Road (NAS PAX 2013c).

**Surface Water.** NAS Patuxent River is surrounded by the Chesapeake Bay to the east and Patuxent River to the north. On-installation bodies of water include Pine Hill Run, Goose Creek, Pearson Creek, Harper's Creek, and six constructed freshwater ponds. The project area is bordered by Patuxent River to the north but is not within a half mile of any other major water body on the installation. Calvert Pond is approximately one-half mile south of the Proposed Action, but drains into Pine Hill Run, away from the project area. Gardiner's Pond, approximately 0.8 miles to the west of the Proposed Action, drains into the Patuxent River (NAS PAX 2013c).

NAS Patuxent River also has several miles of intermittent and perennial headwater streams that have been altered through land-grading, ditching, and channeling. No defined streams occur within the project area; however, streams in densely forested areas have not been definitively mapped and wetland areas are present south and east of Hangar 111 (NAVFAC Washington 2012a).

Alterations to site hydrology have occurred throughout the installation, particularly near the East and West Patuxent Basins. Gardiner's Pond was a tidal creek prior to being filled. Drainage areas on NAS Patuxent River collect runoff from the installation and eventually discharge into the Patuxent River, Chesapeake Bay, estuary areas, or freshwater creeks and ponds near wetlands, with all runoff eventually draining into the Chesapeake Bay. The Proposed Action is within the Patuxent River watershed and drainage from the site would generally flow north towards the river. Low-lying areas at the installation help collect runoff and control discharge rates and downstream flooding (NAS PAX 2013c).

The Chesapeake Bay TMDL passed by the USEPA in December 2010 establishes a portion of the nitrogen, phosphorus, and sediment load for each state along the bay to meet the goal (USEPA 2010). The MDE has required all counties to establish 2-year milestones detailing their progress with the TMDL. NAS Patuxent River details its milestones for review prior to inclusion in county plans (NAS PAX 2013c). The lower Patuxent River is on the CWA 303(d) list of impaired waters for nitrogen, phosphorus, total suspended solids, and PCBs in fish tissue; however, TMDLs for these impairments have not been established (USFWS 2014).

Stormwater management is important to maintain healthy aquatic resources and water quality. There are several stormwater management facilities within the project area associated with the storm sewer system. NAS Patuxent River updated the SWPPP in 2014 that includes BMPs to reduce and prevent pollutants in stormwater runoff from entering water bodies associated with the installation (NAVFAC Washington 2014). A combined Stormwater Management/Sediment and Erosion Plan and an NPDES permit for construction has been submitted to the MDE.

**Wetlands and Floodplains.** Broad wetland cover types have been identified at NAS Patuxent River and include forested wetlands, scrub/shrub wetlands, freshwater tidal marshes, nontidal marshes, saline marshes, and open water/emergent marshes. Wetland delineations at NAS Patuxent River to the west and south of the Hangar 111 complex were performed in 2013 as a part of an installation master planning effort; there are no wetlands in the vicinity of the proposed construction. Past data show a 3.4-acre palustrine emergent/scrub shrub wetland along Saufley Road, directly south of Hangar 111 (see **Figure 3-2** in **Section 3.7.2**) and another wetland west of Building 225 running adjacent to the apron. A Jurisdictional Determination is currently being sought from the USACE. If the potential existed for

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wetland impacts from demolition, a joint state/Federal wetlands permit application for alternation of any tidal or nontidal wetland would be prepared and submitted.

The 100-year floodplain on NAS Patuxent River is associated with the major water bodies on the installation, including the Patuxent River, Chesapeake Bay, Pine Hill Run, Harper's Creek, Pearson Creek, and Goose Creek. The northwest corner of Hangar 111 is within the 500-year floodplain and is adjacent to the 100-year floodplain associated with the Patuxent River. No other structures are within the floodplain (see **Figure 3-2** in **Section 3.7.2**). Development within the 100-year floodplain is considered high risk. Federal floodplain management regulations apply and development requires mandatory flood insurance. The 500-year floodplain could be flooded by severe, concentrated rainfall coupled with poor drainage systems but is considered a low risk area that does not require insurance (FEMA 2014).

### 3.8.3 Environmental Consequences

#### 3.8.3.1 Alternative 1

Alternative 1 would not result in significant effects on water resources. All proposed projects under Alternative 1 would avoid the water resources constraints shown in **Section 3.7, Figure 3-2** when possible.

**Groundwater.** The Proposed Action would result in a calculated net increase of 487,854 ft<sup>2</sup> in impervious surfaces. BMPs established in the installation SWPPP would be implemented to maintain 100 percent of the average annual predevelopment groundwater recharge volume for the site. This could be accomplished by infiltrating runoff from impervious surfaces back into the groundwater through the use of nonstructural (e.g., filter strips, buffers, and disconnection of rooftops) and structural (e.g., bioretention) methods, if necessary. BMPs typically used on the installation would be incorporated into the demolition and construction activities. These BMPs include stormwater management controls such as berms, curbs, and grading to prevent runoff from occurring at the sites and stormwater management features such as incorporating vegetated land, site grading, vegetated swales, and bio-swales. Additional BMPs would be incorporated as part of preventative maintenance including regular inspections and testing of building equipment and stormwater management systems. The construction contractor would develop site-specific plans and specifications to eliminate or reduce pollution sources. The plans might include erosion-and-sediment-control plans, prevention preparedness and contingency plans, and post-construction stormwater management plans. These plans would include identification of BMPs for limiting dust generation and vehicle tracking of industrial materials. Trash dumpsters would be used to collect and contain debris, reducing contamination of water from solid waste.

A spill or leak of fuel or other construction-related products could impact groundwater quality. Construction equipment would be maintained according to the manufacturer's specifications and fuels and other potentially hazardous materials would be contained and stored appropriately. Construction and demolition personnel would follow appropriate BMPs to protect against potential petroleum or hazardous material spills. Good housekeeping, maintenance of equipment, and containment of fuels and other potentially hazardous materials would be conducted to minimize the potential for a release of these fluids into groundwater. All operations would comply with the NAS Patuxent River Spill Prevention Control and Countermeasure Plan. No significant impacts on groundwater would be expected under Alternative 1.

**Surface Water.** Alternative 1 would result in a calculated net increase in impervious surface of 487,854 ft<sup>2</sup> at NAS Patuxent River, alter natural drainage flows, and remove vegetation because of the additional buildings and pavement constructed within the project area. The increase in impervious surfaces could be greatly reduced through ESD, which would be implemented to the maximum extent practicable through

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the use of BMPs. ESD would be used to maintain the predevelopment runoff characteristics after development has occurred and to reduce stream channel erosion, pollution, siltation and sedimentation, and local flooding. Per the *Maryland Stormwater Design Manual*, the post development 10-year storm event peak discharge off the project area must not exceed the predevelopment peak discharge (MDE 2009). After construction and demolition are complete, applicable Low Impact Development stormwater BMPs and practices established by the MDE regulation for stormwater management and erosion and sediment control would be implemented to reduce the volume and velocity of stormwater runoff and prevent sedimentation and the introduction of pollutants into the Patuxent River.

Under Alternative 1, BMPs that are outlined in the installation SWPPP would be used to ensure that soils disturbed during construction and demolition activities do not pollute nearby water bodies. The post-development average annual groundwater recharge volume must be equal to the predevelopment recharge volume; however, the distribution of groundwater recharge across the project area would change (e.g., recharge would be concentrated in infiltration areas). These changes in drainage would be highly localized, site-specific, and would be expected to be negligible. Alternative 1 would require the development of an erosion-and-sediment-control plan and a stormwater management plan per MDE's erosion-and sediment-control regulations (COMAR 26.17.01, *Erosion and Sediment Control*) and stormwater management regulations (COMAR 26.17.02, *Stormwater Management*). The *2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control* (MDE 2011) serves as the official guide for erosion- and sediment-control principles, methods, and practices. The erosion-and-sediment-control plan would describe the measures implemented to prevent soil erosion during construction by stormwater runoff and to prevent sedimentation of storm sewer or receiving streams. Stormwater management, including ESD, would be designed according to MDE's *Maryland Stormwater Design Manual*, as amended, and MDE's *Environmental Site Design Process and Computations* (MDE 2009, MDE 2010a).

Construction and demolition personnel would follow appropriate BMPs to protect against potential petroleum or hazardous material spills. In the event of a spill or leak of fuel or other construction-related products, there could be adverse impacts on surface water quality. Construction and demolition equipment would be maintained according to the manufacturer's specifications and fuels and other potentially hazardous materials would be contained and stored appropriately. If a spill or leak were to occur, BMPs identified in the SWPPP would be implemented to contain the spill and minimize the potential for, and extent of, associated contamination. All operations would comply with the NAS Patuxent River Spill Prevention Control and Countermeasure Plan.

**Wetlands and Floodplains.** Construction of the proposed hangar complex would occur uphill from the area surrounding Hangar 111. Hangar 111 is located within the 500-year floodplain; however, this represents a minimal flood hazard. Hangar 111 is also adjacent to a 3.4-acre palustrine emergent/scrub-shrub wetland. To minimize the potential for indirect impacts on these wetland and floodplain areas, the project would implement and ensure proper maintenance of an erosion-and-sediment-control plan and stormwater management practices, as well as ensuring strict adherence to Federal and state permit requirements. Therefore, no significant impacts on wetlands or floodplains would be expected because no structures would be built in or over adjacent wetlands.

### 3.8.3.2 Alternative 2

Under Alternative 2, renovation activities would not be expected to result in major vegetation removal or soil compaction or alter the natural drainage flow. Movable structures would be established on a previously paved apron and would not require any new construction on the installation. RDT&E functions would be expanded, but would not be expected to increase runoff or spill events significantly. The Federal and state regulations and BMPs described under Alternative 1 would be implemented under

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Alternative 2, as necessary. No significant effects on water resources would occur from implementation of Alternative 2.

### 3.8.3.3 No Action Alternative

The No Action Alternative would not result in changes in water resources if the Proposed Action were not implemented. Existing RDT&E functions would continue to be performed at existing hangar facilities and development of the proposed hangar and support facilities would not occur. No construction activities associated with the proposed hangar and support facilities would occur at NAS Patuxent River, and no changes in operations on the installation would take place. No impacts on water resources would be expected and water resources would remain as described in **Section 3.8.2**.

## 3.9 Utilities, Infrastructure, and Transportation

### 3.9.1 Definitions

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

Utilities include electrical supply, water supply, sanitary sewer and wastewater, natural gas supply, stormwater drainage, and liquid fuel supply. Transportation includes major and minor roadways that feed into the installation, security gates, roadways, and parking areas on the installation. Public transit, rail, and pedestrian networks are also elements of transportation. Solid waste management primarily relates to the availability of landfills to support a population’s residential, commercial, and industrial needs.

### 3.9.2 Existing Conditions

#### Utilities and Infrastructure

Existing utility systems (i.e., electrical, water, natural gas, sanitary sewer and wastewater, and stormwater) are in the vicinity of the proposed location for the new hangar and associated structures. The project area is adjacent to the airfield and near other facilities that tie into the existing utility systems.

**Electrical Supply.** Electrical service on NAS Patuxent River was privatized in 2009 and is now operated by Southern Maryland Electric Cooperative. The current level of service is fair to good and there is dual redundancy. There are four substations on-installation and each have excess capacity to handle future expansion. Each substation has a 69-kiloVolt transmission line and new buried service lines. The electric infrastructure network on-installation was upgraded to 13.8-kiloVolt lines in 2012 (NAVFAC Washington 2012a).

**Water Supply.** NAS Patuxent River’s water supply system is in fair to good condition. No major improvements have been completed yet because efforts are underway to privatize the system. There are 28 wells in operation and water is drawn from three aquifers. One of the aquifers was thought to be in danger of being depleted by 2035; however, a recent study indicated this is unlikely. The water mains are constructed from transite, plastic, and ductile iron. There are three water towers on the installation that store potable water and that will be renovated (NAVFAC Washington 2012a).



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**Natural Gas Supply.** Natural gas at NAS Patuxent River is provided, operated, and maintained by Washington Gas. Washington Gas provides 55 pounds of natural gas each day through a network of 6-inch distribution lines. Natural gas is used for heating in some buildings and some operations. There are no steam lines on NAS Patuxent River (NAVFAC Washington 2012a).

**Sanitary Sewer and Wastewater.** The on-installation wastewater system is operated by NAVFAC. The wastewater collection system at NAS Patuxent River consists of 37 wastewater lift stations, 25 miles of gravity sewer lines, 7 miles of force mains, 3 bioreactors, and 18 septic systems. NAS Patuxent River's wastewater is treated at a municipal plant outside of the NAS Patuxent River which is owned and operated by St. Mary's County Metropolitan Commission. The treatment plant has a total capacity of 6 million gallons per day and currently treats about 3 million gallons per day. NAS Patuxent River's wastewater composes 20 percent, or 1.2 million gallons per day, of the treatment plant's capacity (NAVFAC Washington 2012a).

**Liquid Fuel Supply.** JP-5 type fuel is delivered to NAS Patuxent River by a barge to the Fuel Supply Division pier (located along the Patuxent River shoreline, halfway between East and West Basins). A fuel line that starts at the pier is then routed underground into two pipelines and carried throughout a small portion of the airfield operations area (NAVFAC Washington 2012a). Additionally, there are two 6-inch abandoned pipelines that are buried under the Proposed Action area.

**Stormwater Drainage.** There are several small stormwater management facilities at NAS Patuxent River. However, much of the installation was built before such facilities were required or deemed necessary. There are stormwater management facilities within the area of the Proposed Action (NAVFAC Washington 2014). Outfalls 129 and 130 are located near the proposed hangar complex location and outfalls 24 and 86 are located close to Building 111. A new building (2282) was constructed in 2012 and is located close to the proposed hangar complex. The area includes stormwater inlets in the parking area that leads to that particular facility.

**Solid Waste Management.** NAS Patuxent River began a recycling program in the mid-1990s that is now outsourced to a recycling contractor, Melwood Horticultural Training Center in Upper Marlboro. There is a main recycling station, located off Millstone Road, and three additional satellite recycling stations recycling about 35 different commodities (NAVFAC Washington 2012a). NAS Patuxent River generates approximately 3,400 tons of solid waste annually. Of this total, 89 percent is incinerated and 11 percent is sent to a landfill.

**Facilities Infrastructure.** There are three runways and four aircraft hangars in the vicinity of the Proposed Action. Two of the hangars, Hangars 110 and 111, were built in 1944 and are west of the runways and are accessible via Taxiway Foxtrot. The additional two hangars, Hangars 101 and 109, were built in 1943 and are west of Runway 2-20. Hangar 109 is southeast of the proposed hangar location and Hangar 101 is slightly north of Hangar 109 with access to the same aircraft apron. Hangars 101 and 109 access the runways via Taxiway Bravo (see **Figure 3-3**).

The facilities at NAS Patuxent River were evaluated using the Facility Readiness Evaluation System to calculate an Installation Figure of Merit for each facility. This is a readiness indicator of facility resource availability. The facilities on NAS Patuxent River were evaluated in terms of condition, configuration, and capacity, and given a rating (between 0 and 100). Fifty-five percent of facilities have an adequate Installation Figure of Merit rating, 33 percent have a substandard rating, and 12 percent have an inadequate rating. The major functionality issue is antiquated hangars. These facilities were constructed during World War II, have large footprints, and are ill-configured to meet the demands of modern aviation. Additional information on the history of Hangar 111 is provided in **Section 3.9** (Cultural Resources). Hangar 111 is rated as inadequate and its associated structures proposed for demolition are substandard or adequate (NAVFAC Washington 2012a).

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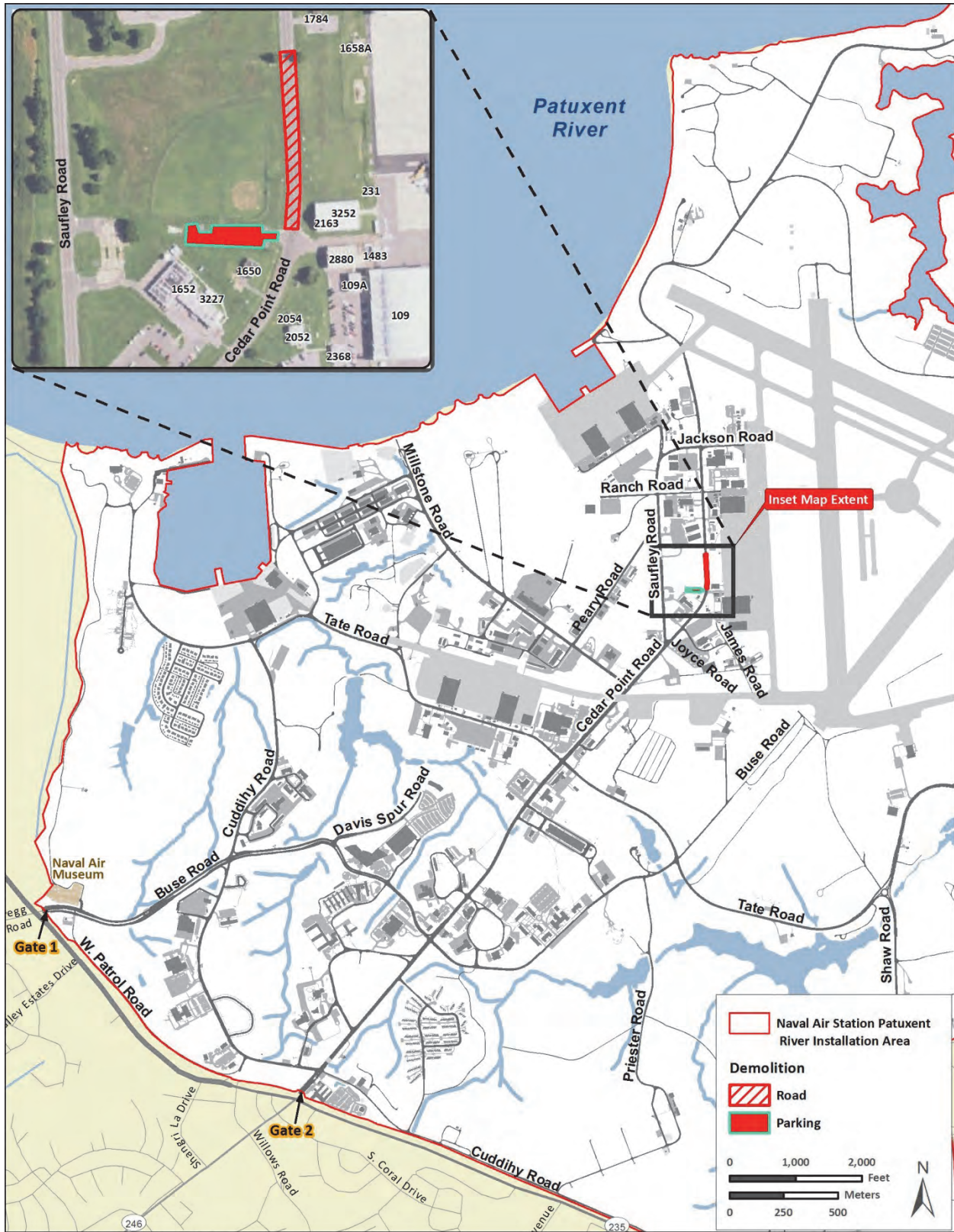
## Transportation

***On-installation Transportation.*** The primary roadways within NAS Patuxent River are Buse Road and Cedar Point Road. Buse Road is a four-lane road that enters the installation at Gate 1 and provides access to the western portion of the installation. Cedar Point Road is a two-lane road that enters the installation at Gate 2 and travels northeast to the airfield and operational areas of the installation (see **Figure 3-3**). Cedar Point Road also follows the perimeter of the installation along the northern and eastern edges of the Patuxent River and the Chesapeake Bay (NAVFAC Washington 2012a).

Two primary roads in the vicinity of the Proposed Action are Cedar Point Road and Saufley Road. Cedar Point Road connects with multiple roadways that provide access to other areas of the installation. Saufley Road branches off of Cedar Point Road immediately south of the project area. It rejoins Cedar Point Road, via Ranch Road, approximately 0.2 miles north of the project area. Cedar Point Road narrows from four lanes to two lanes at the intersection with Saufley Road. Traffic levels north of the project area are low due to the minimal number of facilities in that region. Cedar Point Road circles around the airfield and follows the Patuxent River shoreline before turning south and re-entering the developed part of the installation. The *2012 NAS Patuxent River Transportation Improvement Plan* analyzed the existing conditions of traffic levels at NAS Patuxent River. Traffic flow is measured by calculating the level of service (LOS) based on elements such as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles. The LOS scale ranges from A to F. LOS D or better represents stable traffic conditions. The rating for traffic traveling eastbound through the Cedar Point and Saufley Road intersection was rated an LOS A during AM and PM peak hours. LOS A represents a free-flow operation. The intersection was rated a LOS C and LOS D for traffic traveling southbound during AM and PM peak hours, respectively. LOS C occurs when speeds are at or near free-flow and the freedom to maneuver is noticeably restricted. LOS D occurs when speeds decline slightly with increasing flows and road density increases more quickly (NAVFAC Washington 2012d).

At NAS Patuxent River, there is a ratio of 1 parking space for every 1.3 employees (NAVFAC Washington 2012a). Parking spaces at NAS Patuxent River are on a first-come, first-served basis. Currently there are 17,199 parking spaces and 22,423 personnel on-installation. Parking shortages are evident at many facilities and surface lots and garages are full on a daily basis (NAVFAC Washington 2012a). The parking lot between Cedar Point Road and Saufley Road that is proposed for demolition has approximately 25 spaces.

***Off-installation Transportation.*** The primary roadways that provide vehicle access to NAS Patuxent River are Maryland Highway 235, also referred to as Three Notch Road, and Maryland Highway 5. Maryland Highway 235 connects with Maryland Highway 5 near Mechanicsville, Maryland, providing connections to the Capital Beltway and Washington, D.C. NAS Patuxent River's three controlled access points (Gates 1, 2, and 3) are off Maryland Highway 235, which is the main collector of secondary roads in the area. Currently, during morning peak hours, commuters in the queue at Gates 1 and 2 cause backups and delays on Maryland Highway 235 (NAVFAC Washington 2012a, NAVFAC Washington 2012d).



Sources: ESRI StreetMap USA 2010 and Naval Air Station Patuxent River.

**Figure 3-3. Transportation at NAS Patuxent River**

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Public transportation to NAS Patuxent River is limited. The St. Mary's Transit System provides bus access in proximity to the main gates to the installation, but not on-installation. There is no public rail service in proximity to NAS Patuxent River.

### 3.9.3 Environmental Consequences

#### 3.9.3.1 Alternative 1

##### Utilities and Infrastructure

**Electrical Supply.** A temporary increase in demand for electricity would be related to construction and demolition activities. The eventual use of the facility would result in a continued demand/use of electricity since the proposed hangar would replace Hangar 111 and its functions. Impacts on the electrical supply under Alternative 1 would be expected to be negligible because the new hangar operations would not increase the demand for electricity beyond current levels. New electrical utilities (i.e., lighting, transformers, and telecommunications) would be installed and tied into the existing electrical system. Under Alternative 1, the proposed hangar would contain new electrical lines, and, therefore, would be more efficient than those at the existing facility because they would be constructed in accordance with Executive Order 13693, the Energy Independence and Security Act 2007, and LEED requirements.

**Water Supply.** A temporary increase in demand for water would be related to construction and demolition activities. The eventual use of the facility would result in a continued demand/use of water since the proposed hangar would replace Hangar 111 and its functions. Impacts on the water supply would be expected to be negligible because the new hangar operations would not increase the demand for water beyond current levels. New water and plumbing lines would be installed and tied into the existing system. Under Alternative 1, the proposed hangar would contain new water and plumbing lines, and, therefore, would be more efficient than those at the existing facility because they would be constructed in accordance with Executive Order 13693, the Energy Independence and Security Act 2007, and LEED requirements.

**Natural Gas Supply.** Impacts on natural gas would be expected to be negligible and not significant because the construction and demolition at NAS Patuxent River would not increase the demand for natural gas beyond current capacities. New natural gas utility lines for the hangar and associated facilities would be connected to existing systems to support current and future mission requirements. Under Alternative 1, the proposed hangar would contain new natural gas supply lines, and, therefore, would be more efficient than those at the existing facility because they would be constructed in accordance with Executive Order 13693, the Energy Independence and Security Act 2007, and LEED requirements.

**Sanitary Sewer and Wastewater.** No additional personnel are proposed under Alternative 1; therefore, no long-term impacts on sanitary sewer and wastewater would be expected. New sanitary sewer and wastewater lines for the hangar and associated facilities would be connected to existing systems to support current and future mission requirements. Under Alternative 1, the proposed hangar would contain new sanitary sewer and wastewater lines, and, therefore, would be more efficient than those at the existing facility because they would be constructed in accordance with Executive Order 13693, the Energy Independence and Security Act 2007, and LEED requirements. Any short-term, negligible increases in sanitary sewer or wastewater from construction and demolition activities would not exceed the municipal treatment plant's capacity, which is currently operating at 50 percent.

**Liquid Fuel Supply.** No additional operations or personnel are proposed under Alternative 1; therefore, there would be no additional demand for fuels and no impacts on liquid fuel supply would be expected.



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**Stormwater Drainage.** Impacts on stormwater management would be expected to be negligible and not significant. New stormwater infrastructure for the hangar and associated facilities would be connected to the existing system to support current and future mission requirements. BMPs to control stormwater runoff and pollution typically used on the installation would be incorporated into demolition and construction. These BMPs include stormwater management controls such as berms, curbs, and grading to prevent runoff from occurring at the sites and stormwater management features such as incorporating vegetated land, site grading, vegetated swales, and bio-swales. Additional BMPs would be incorporated as part of preventative maintenance including regular inspections and testing of building equipment and stormwater management systems. The construction contractor would develop site-specific plans and specifications to eliminate and reduce pollution sources. The plans might include erosion-and-sediment-control plans, prevention preparedness and contingency plans, and post-construction stormwater management plans. These plans would include identification of BMPs for limiting dust generation and vehicle tracking of industrial materials. Trash dumpsters would be used to collect and contain debris, reducing contamination of water from solid waste.

**Solid Waste Management.** Increases in solid waste associated with the construction and demolition activities would be temporary and would be disposed of in accordance with relevant Federal, state, and local regulations. Construction and demolition materials would be recycled or reused to the maximum extent practicable. Debris that could not be recycled or reused would be taken off-installation to an approved construction and demolition landfill within the vicinity of NAS Patuxent River. In addition, no additional personnel are proposed under Alternative 1. Therefore, no significant impacts on solid waste management would be expected at NAS Patuxent River.

**Facilities Infrastructure.** Hangar 111 received an inadequate installation figure of merit rating and is not properly configured to accommodate modern aviation. Collocating and consolidating all of the functions of Hangar 111 and its associated buildings into the proposed hangar complex would result in a smaller building footprint and allow for better functionality to meet the Navy's mission.

## **Transportation**

**On-installation Transportation.** Vehicles that previously accessed Cedar Point Road in the project area would use Saufley Road and Ranch Road. The Cedar Point and Saufley Road intersection is non-signalized and has one stop sign on Saufley Road for traffic turning onto Cedar Point Road. The LOS for Cedar Point and Saufley Road intersection was rated at a LOS D or better during AM and PM peak hours for eastbound and southbound travel, which is considered stable traffic conditions. Eastbound travel during AM and PM peak hours is operating at an LOS A rating and even a slight delay would still allow for the free-flow of traffic (NAVFAC Washington 2012d). The LOS for southbound traffic through the Cedar Point and Saufley Road intersection would be expected to improve following the removal of a portion of Cedar Point Road due to the decrease in traffic traveling southbound on Cedar Point Road. This decrease in traffic would allow vehicles on Saufley Road more opportunities to turn right onto Cedar Point Road. No long-term impacts on the LOS and transportation network on installation would be expected from permanently removing a portion of Cedar Point Road and rerouting traffic onto Saufley Road proposed under Alternative 1 because the road would be designed to handle the required volume of traffic.

Under Alternative 1, a small surface parking lot (approximately 25 parking spaces) between Saufley Road and Cedar Point Road would be removed, and a larger lot would be constructed along the eastern side of Saufley Road that would accommodate 251 vehicles. Therefore, long-term, minor, beneficial impacts on parking areas in the vicinity of the new hangar would occur from the increase in parking spaces. Long-term, negligible, negative impacts on the flow of traffic from Saufley Road into the proposed parking lot would be expected during peak travel hours.

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**Off-installation Transportation.** Under the Proposed Action, no additional personnel would relocate to NAS Patuxent River. Therefore, no impacts on the off-installation transportation network would be expected. There would continue to be delays at Gates 1 and 2 during morning peak hours. The removal of the portion of Cedar Point Road is not expected to cause any additional delays at Gates 1 or 2 since it is approximately 2 miles from either gate.

### 3.9.3.2 Alternative 2

#### **Utilities and Infrastructure**

Under Alternative 2, renovations to Hangar 111 and Building 111A could raise the Installation Figure of Merit rating of these buildings. These renovations would include upgrades to utility systems to comply with requirements; electrical, water, natural gas, sanitary sewer, and wastewater lines would be upgraded to meet current standards within the historic structure. Long-term, negligible, beneficial impacts on utility systems would be expected under Alternative 2.

#### **Transportation**

No impacts on roadways or traffic LOS would be expected under Alternative 2. Only interior building renovations would occur and no roadways would be altered. Minor, adverse impacts on parking areas would continue under Alternative 2 from the lack of available parking areas near Hangar 111.

### 3.9.3.3 No Action Alternative

Under the No Action Alternative, NAS Patuxent River would continue to use Hangar 111, Building 111A, and their support structures as the center for HX-21 Command Staff for the Navy and Marine Corps aircraft. A new hangar facility would not be constructed. The inadequate structure would continue to be used and long-term, minor, adverse impacts on utilities, infrastructure, parking availability, and transportation would continue under the No Action Alternative.

## 3.10 Hazardous Materials and Waste

### 3.10.1 Definitions

**Hazardous Materials, Hazardous Wastes, and Petroleum Products.** Hazardous materials are defined by 49 CFR Part 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR Part 172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR Part 173.

Hazardous wastes are defined by RCRA at 42 U.S.C. Section 6903(5), as amended by the Hazardous and Solid Waste Amendments, as: “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR § 273.

**Asbestos-Containing Materials.** Asbestos is the generic term used to describe a group of naturally occurring silicate minerals that have the ability to separate into small, fine fibers. Asbestos has been used

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in building materials and is commonly found in older buildings (i.e., those constructed prior to 1980). Asbestos exists in a variety of forms and can be found in floor tiles, floor tile mastic, roofing materials, joint compound, wallboard, thermal system insulation, and boiler gaskets. Asbestos is regulated by the USEPA. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. ACMs at Navy facilities are managed in accordance with OPNAVINST 5100.23G, *Navy Safety and Occupational and Health Program Manual*.

**Lead-Based Paint.** Lead is a heavy, ductile metal commonly found simply as metallic lead or in association with organic compounds, oxides, and salts. The Federal government banned the use of most LBP in 1978; therefore, all buildings constructed prior to 1978 are assumed to contain LBP. The Residential LBP Hazard Reduction Act of 1992, Subtitle B, Section 308 (commonly called Title X), passed by Congress on 28 October 1992, regulates the use and disposal of LBP on Federal facilities. Federal agencies are required to comply with applicable Federal, state, and local laws relating to LBP activities and hazards.

**Polychlorinated Biphenyls.** PCBs are man-made chemicals that persist in the environment and were widely used in construction materials and electrical products prior to 1978. Congress banned the manufacture and use of PCBs in 1976, and PCBs were phased out in 1978, except in certain limited uses. PCBs could be present in light ballasts; transformers; and caulk used in windows, door frames, masonry columns, and other masonry building materials in many buildings built or renovated between 1950 and 1978. The USEPA is concerned about the potential for building occupants to become exposed to PCBs, because PCBs can migrate from the caulk into air, dust, surrounding materials, and soil (USEPA 2011).

**Radon.** Radon is a naturally occurring radioactive gas found in soils and rocks. Radon has the tendency to accumulate in enclosed spaces that are usually below ground and poorly ventilated (e.g., basements). Radon is an odorless, colorless gas that has been determined to increase the risk of developing lung cancer. In general, the risk increases as the level of radon and length of exposure increase.

**Environmental Restoration Program.** The DoD established the ERP in 1975 to address hazardous waste sites on military property. The mission of the ERP is to identify, characterize, and clean up contamination on military installations resulting from formerly accepted use and disposal practices of hazardous waste to protect human health and the environment. Depending upon the circumstances, ERP sites are identified, investigated, and cleaned up in accordance with RCRA, the Comprehensive Environmental Response, Compensation, and Liability Act, or with an integrated approach based on both laws.

### 3.10.2 Existing Conditions

**Hazardous Materials, Hazardous Wastes, and Petroleum Products.** Everyday activities at the installation require the use, handling, and storage of hazardous materials and petroleum products, including oils, lubricants, cleaners, hydraulic fluids, pesticides, and liquid fuels (i.e., gasoline, JP-8, and diesel). The primary hazardous materials storage buildings are Buildings 666, 1693, 619, 2385, 653, and 2101 (NAVFAC Washington 2012a); however, lesser, local storage areas are scattered across the installation. Industrial activities also generate various quantities of hazardous wastes, such as used oils, waste fuels, lubricants, hydraulic fluids, paint, paint thinners, cleaners, degreasers, solvents, and batteries. The installation has one central hazardous waste storage warehouse at Building 619 and 49 satellite accumulation areas (NAVFAC Washington 2012a). Hazardous wastes generated at the installation are managed in accordance with the installation's Regulated Waste Management Plan (NAS PAX 2011a).

One local hazardous materials storage area and two oil/water separators (OWSs) are within the limits of disturbance. The hazardous materials storage area is at Building 163, and it is used to store the hazardous materials used at Hangar 111. The two OWSs are at Hangar 111 and Building 2250. The OWS at Hangar 111 is connected to the building's floor drains and lacks modern coalescing plate separators.

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Therefore, discharge from this OWS does not provide sufficient protection to stormwater and local bodies of water from the possibility of oily material being washed off of the hangar floor (NAVFAC Washington 2012b). The OWS at Building 2250 supports the aircraft wash rack at Building 1658.

**Asbestos-Containing Material.** Hangar 111 was surveyed for ACMs in 2012. The results of this survey determined that asbestos was present at various locations throughout the building in pipe insulation, floor tile, and floor tile mastic (NAVFAC Washington 2012c). There is no record of ACM surveys being conducted at the 12 buildings proposed for demolition under Alternative 1. The following buildings were constructed prior to 1980 and, therefore, have the greatest potential to contain ACMs: Buildings, 129, 163, 225, 231, 641, 1481, 1582, 1658, 1658A, and 2250 (NAS PAX 2011b).

**Lead-Based Paint.** Hangar 111 was surveyed for LBP in 2012. The results of this survey determined that LBP was present throughout the building on some doors and door jams; window casings, sashes, and sills; window wells; radiators; certain types of pipes; certain sections of wall in stairwells; hangar doors and frames; and fixed ladders (NAVFAC Washington 2012c). There is no record of LBP surveys being conducted at the 12 buildings proposed for demolition under Alternative 1. The following buildings were constructed prior to the 1978 ban on LBP and, therefore, are assumed to contain LBP: Buildings 129, 163, 225, 231, 641, 1481, 1582, 1658, 1658A, and 2250 (NAS PAX 2011b).

**Polychlorinated Biphenyls.** Based on the years of construction, it is possible that PCB-containing construction materials and electrical equipment might be present in some of the facilities proposed for demolition. The following facilities were constructed prior to the 1978 phase-out of PCBs and, therefore, might contain PCBs: Buildings 129, 163, 225, 231, 641, 1481, 1582, 1658, 1658A and 2250 (NAS PAX 2011b).

**Radon.** The USEPA has established a guidance radon level of 4 picoCuries per liter (pCi/L) in indoor air for residences. Radon gas accumulations greater than 4 pCi/L are considered to represent a health risk to occupants. St. Mary's County, Maryland, is designated by the USEPA to be Radon Zone 2, which has a predicted average indoor radon screening level between 2 and 4 pCi/L (USEPA 2012).

**Environmental Restoration Program.** There are 46 open and closed ERP sites on the installation. Of these sites, only one, Site 19, is within the geographic scope of this EA (NAVFAC Washington 2012a). Site 19 is a former drainage ditch associated with an aircraft wash rack that was located along the western edge of the aircraft ramp between Hangars 101 and 109. Initial investigations of the ditch determined that environmental contamination was possible from runoff at the wash rack. Site 19 was investigated and determined not to represent an environmental concern. As such, it has been closed (Steckler 2014). There are no known military munitions response program sites within the project area.

### 3.10.3 Environmental Consequences

#### 3.10.3.1 Alternative 1

**Hazardous Materials, Hazardous Wastes, and Petroleum Products.** The proposed construction and demolition activities would require the delivery and use of minimal amounts of hazardous materials and petroleum products and would generate minimal amounts of hazardous wastes. Contractors would be responsible for the management of hazardous materials, hazardous wastes, and petroleum products during construction and demolition activities. These products would be handled in accordance with Federal, state, and local regulations and would not be expected to increase the risks of exposure to workers and the public.

Alternative 1 would not increase the use of hazardous materials and petroleum products or increase the amounts of hazardous wastes generated at the installation. The hazardous materials at Building 163 and



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the other facilities proposed for demolition would be transferred to other hazardous materials storage locations prior to commencing the demolition. Additionally, the OWS at Building 2250 would be properly deactivated and removed from the ground prior to the start of demolition activities. New OWSs and local hazardous materials storage provisions might be constructed at the proposed hangar, as appropriate. New hazardous materials storage provisions and OWSs would be constructed in compliance with the most recent guidelines for preventing a release to the environment. Alternative 1 would not affect the primary hazardous materials storage buildings at the installation; therefore, the majority of hazardous materials would continue to be stored at their current locations and only minimal storage requirements would be necessary at the proposed hangar. Hazardous wastes generated at the proposed hangar would be managed in accordance with the installation's Regulated Waste Management Plan. As such, no significant impacts from hazardous materials, hazardous wastes, and petroleum products would occur.

***Asbestos-Containing Material.*** Buildings 129, 163, 225, 231, 641, 1481, 1582, 1658, 1658A, and 2250 are assumed to contain ACMs based on their years of construction. Appropriate ACM surveys would be taken at these buildings prior to the commencement of demolition activities. In accordance with Navy policies and procedures, demolition plans would be reviewed by installation personnel to ensure that appropriate measures are taken to reduce the potential exposure to, and release of, asbestos. ACM waste would be disposed of at a USEPA-approved landfill.

It is unlikely that the construction materials used for the proposed hangar and other proposed facilities would contain ACMs. The overall replacement of older facilities that contain ACMs with newer facilities that do not contain ACMs would eliminate the day-to-day exposure to ACMs that personnel currently experience. Therefore, no significant impacts associated with ACMs would occur.

***Lead-Based Paint.*** Buildings 129, 163, 225, 231, 641, 1481, 1582, 1658, 1658A, and 2250 are assumed to contain LBP based on their years of construction. Appropriate LBP surveys would be taken at these buildings prior to the commencement of demolition activities. In accordance with Navy policies and procedures, demolition plans would be reviewed by installation personnel to ensure that appropriate measures are taken to reduce the potential exposure to LBP. All LBP-contaminated demolition debris would be disposed of at an USEPA-approved landfill.

LBP would not be used in the construction of the proposed hangar and other proposed facilities. The overall replacement of older facilities that contain LBP with newer facilities that do not contain LBP would eliminate the day-to-day exposure to LBP that personnel currently experience. Therefore, no significant impacts associated with LBP would occur.

***Polychlorinated Biphenyls.*** Buildings 129, 163, 225, 231, 641, 1481, 1582, 1658, 1658A, and 2250 might contain PCBs based on their years of construction. Appropriate PCB surveys would be taken at these buildings prior to the commencement of demolition activities, and any electrical equipment not labeled PCB-free or missing date-of-manufacture labels would be removed and handled in accordance with applicable Federal and state regulations. In accordance with Navy policies and procedures, demolition plans would be reviewed by installation personnel to ensure that appropriate measures are taken to reduce the potential exposure to PCB-containing demolition debris. All PCB-contaminated demolition debris would be disposed of at an USEPA-approved landfill.

PCBs would not be used in construction materials for the proposed hangar and other proposed facilities and would not be used in any electrical equipment within these facilities. The overall replacement of older facilities that might contain PCBs with newer facilities that would not contain PCBs would eliminate the potential day-to-day exposure to PCBs that personnel currently experience. Therefore, no significant impacts associated with PCBs would occur.

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**Radon.** St. Mary's County, Maryland, is designated by the USEPA to be Radon Zone 2, which has a predicted average indoor radon screening level between 2 and 4 pCi/L (USEPA 2012). Based on this screening level, it is unlikely that radon would be encountered inside of the buildings proposed for construction; therefore, no significant impacts would occur from radon.

**Environmental Restoration Program.** The proposed apron would overlap with a portion of ERP Site 19. Because ERP Site 19 is closed, it is unlikely that environmental contamination would be disturbed during construction. Nonetheless, if any potentially contaminated soil was discovered during construction, the contractor would immediately stop work, report the discovery to the installation, and implement appropriate safety measures. Commencement of field activities would not continue in this area until the issue was investigated and resolved. None of the installation's other ERP sites would be disturbed during construction or demolition. As such, no significant impacts from the ERP would occur.

### 3.10.3.2 Alternative 2

**Hazardous Materials, Hazardous Wastes, and Petroleum Products.** The proposed renovation activities would require the delivery and use of minimal amounts of hazardous materials and petroleum products and would generate minimal amounts of hazardous wastes. Contractors would be responsible for the management of hazardous materials, hazardous wastes, and petroleum products during renovation activities. These products would be handled in accordance with federal, state, and local regulations and would not be expected to increase the risks of exposure to workers and the public.

Alternative 2 would not increase the use of hazardous materials and petroleum products or increase the amounts of hazardous wastes generated at the installation. Hazardous materials currently stored at locations proposed for renovation would be relocated during work activities and returned once renovation is complete. No changes in the amounts of hazardous materials required or hazardous wastes generated would be expected, post renovation. Additionally, during renovation activities, the OWS at Hangar 111 would be properly deactivated and replaced with an OWS that is in compliance with the most recent guidelines for preventing a release to the environment. As such, no significant impacts from hazardous materials, hazardous wastes, and petroleum products would occur.

**Asbestos-Containing Material.** During the renovation of Hangar 111 and Building 111A, appropriate ACM surveys would be conducted prior to the commencement of renovation activities. ACMs might be removed during the renovation process, if renovation plans deemed these materials necessary for removal. ACM waste would be disposed of at a USEPA-approved landfill. Therefore, no significant impacts associated with ACMs would occur.

**Lead-Based Paint.** During the renovation of Hangar 111 and Building 111A, appropriate LBP surveys would be conducted prior to the commencement of renovation activities. LBP might be removed during the renovation process, if renovation plans deemed it necessary for removal. LBP-contaminated debris would be disposed of at a USEPA-approved landfill. Therefore, no significant impacts associated with LBP would occur.

**Polychlorinated Biphenyls.** During the renovation of Hangar 111 and Building 111A, appropriate PCB surveys would be conducted prior to the commencement of renovation activities. Renovation activities would entail the removal of electrical equipment known or suspected to contain PCBs. PCB-contaminated building materials might be removed during the renovation process, if renovation plans deemed it necessary for removal. PCB-contaminated debris would be disposed of at a USEPA-approved landfill. Therefore, no significant impacts associated with PCBs would occur.

**Radon.** The renovation of Hangar 111 and Building 111A would not change these buildings' potential to experience indoor radon; therefore, no significant impacts would occur.

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**Environmental Restoration Program.** The renovation of Hangar 111 and Building 111A would not disturb any ERP sites; therefore, no significant impacts from the ERP would occur.

### 3.10.3.3 No Action Alternative

The No Action Alternative would result in the continuation of the existing hazardous materials and wastes conditions as described in **Section 3.10.2**. The existing OWSs would remain in-service, which would not provide sufficient protection for stormwater and local bodies of water. Additionally, the ACMs, LBP, and PCBs potentially in the buildings currently used would not be removed, and personnel would continue to be exposed to an environment that contains these hazards. Without proper maintenance, these materials would continue to deteriorate presenting an ever greater hazard to personnel.

## 3.11 Cultural Resources

### 3.11.1 Definitions

Cultural resources is an umbrella term for many heritage-related resources, including prehistoric and historic sites, buildings, structures, districts, objects, or any other physical evidence of human activity considered important to a culture, a subculture or a community. Cultural resources are protected by several Federal laws and regulations, including the National Historic Preservation Act (NHPA) (1966), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990). Cultural resources are commonly subdivided into archaeological resources (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing), architectural resources (buildings or other structures or groups of structures that are of historic architectural, or other significance), and traditional cultural resources (for example, traditional gathering areas).

The NHPA defines historic properties as resources listed or eligible for listing in the NRHP. The NRHP is the official listing of properties significant in U.S. history, architecture, or prehistory, and includes both publicly and privately owned properties. The NRHP is administered by the National Park Service. Historic properties might be buildings, structures, prehistoric or historic archaeological sites, districts, or objects that are generally 50 years of age or older, are historically significant, and that retain integrity that conveys this significance. More recent resources, such as Cold War-era buildings or structures, might warrant listing if they have the potential to gain significance in the future or if they meet “exceptional” significance criteria. Buildings are defined as a structure created to shelter any form of human activity and include houses, churches, barns, and other similar construction, while a structure is a functional construction that is made for purposes other than creating human shelter, such as a pier or a bridge.

Section 106 of the NHPA requires agencies, in consultation with the appropriate SHPO (or Tribal Historic Preservation Officer), to take into account the effect of their undertakings on historic properties that are within the proposed project’s Area of Potential Effect (APE), which is defined as the geographic area(s) “within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.” Compliance with Section 106 is accomplished in accordance with 36 CFR 800, regulations of the Advisory Council on Historic Preservation. Federally recognized Native American tribes are consulted in accordance with Executive Order 13175, *Consultation and Coordination With Indian Tribal Governments* (9 November 2000) to develop ongoing relationships with the tribes on a government-to-government basis. Project-specific consultation with federally recognized Indian tribes is carried out pursuant to Section 106 of the NHPA, NEPA, and other authorities. No federally recognized tribes with historic ties have interests at NAS Patuxent River.

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The Navy's cultural resources policy guidance is found in OPNAV-M 5090.1 (DoN 2014b) and OPNAVINST 11010.20H (DoN 2014c). Specifically, OPNAV-M 5090.1 states that "it is Navy policy to incorporate cultural resources planning and management considerations in all aspects of planning, training, management, and implementation of Navy's mission. It is Navy policy to give priority to preservation in the management of historic buildings, districts, archaeological sites and collections, historic ships and aircraft, and other cultural resources, and to use professional preservation management and specific techniques to achieve cost-effective cultural resources stewardship." In terms of historic structures, "It is Navy policy to use, to the maximum extent feasible, historic properties for the purpose of carrying out its responsibilities" (DoN 2014b). OPNAVIST 11010.20H recommends that in alternative analyses, economic analyses "should include preference for meeting facilities requirements by reuse or continued use of historic properties." Furthermore, "demolition project documentation should include consideration to reuse or continuation of use of historic properties, vice demolition" (DoN 2014c).

### 3.11.2 Existing Conditions

Early evidence of the first residents of Cedar Point, as the NAS Patuxent River land was known, consists of Archaic archaeological sites (between 3,000 and 10,000 years ago) and Woodland archaeological sites (3,000 years ago to 1634). By the time English settlers arrived in Maryland in 1634, the population of native Algonquian-speaking peoples had been decimated. In 1637, Jesuits established a settlement near Cedar Point later known as "Mattapanient Hundred." Successful tobacco production encouraged further settlement, and in 1663 Henry Sewell established Mattapany-Sewell Manor on Cedar Point. After Sewell's death, Colonial Governor Charles Calvert used Mattapany-Sewell Manor as his primary residence for several years, but the Sewell family eventually reacquired the plantation. By 1824, Cedar Point had a church, a mill, a boat landing, and a road system. The region remained rural and agricultural during the early 19th century, but, after the Civil War, oystering, canneries, and market gardening replaced tobacco farming. In 1937, the Navy had five aircraft testing sites at different installations. To consolidate aircraft testing activities, the U.S. Navy Bureau of Aeronautics considered Cedar Point at the mouth of the Patuxent River for an aircraft testing site. In September 1941, a Navy board again looked at proposed sites, and in November the board recommended the selection of Cedar Point as the site of a Navy Flight Test Center. In December 1941, the Secretary of the Navy approved the site, land was purchased, and construction began in April 1942. In June 1942, the installation was named Naval Air Station Patuxent River. Commissioned in April 1943, Patuxent NAS developed into the primary center for the research, development, testing, acquisition, and evaluation of naval aircraft. NAS Patuxent River has expanded to include the main installation, three major annexes (Webster Field, Navy Recreation Center Solomons, and Bloodsworth Island Range), and several small ancillary properties (NAS PAX 2011b, Drew 1999).

**Archaeological Resources.** Since 1980, more than 50 archaeological surveys or archaeological site investigations have been conducted at NAS Patuxent River, and most of the main installation has been surveyed. A total of 129 archaeological sites have been identified, although not all archaeological resources have been evaluated for NRHP eligibility. Archaeological site 18ST390 (Mattapany-Sewall Site) is listed in the NRHP and six additional archaeological sites have been determined eligible for listing in the NRHP (NAS PAX 2011b). Although much of the main installation is highly developed, it retains great potential for and includes important archaeological resources.

**Architectural Resources.** All of the built resources constructed before 1965 on the main installation at NAS Patuxent River have been surveyed and evaluated for NRHP eligibility; some of the late Cold War-era resources also have been evaluated for NRHP eligibility. Nine resources on the main installation are individually eligible for listing in the NRHP, and include five hangars built during the 1940s, the 1943 Administration Building, St. Nicolas Church (constructed in 1915) and cemetery, Firehouse No. 2 (1944),

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and the Frank Knox School (1944). These resources are not within any historic district and are more than one-half mile from the project area.

Three historic districts at the main installation have been determined eligible for listing in the NRHP, including the Armament Test/Electronics Test/Weapons Test Historic District (originally named the Armament Test Historic District but updated in 2005), the Flight Test/Tactical Test/NAS Operations Historic District, and the Mattapany-Sewall Complex Historic District (see **Figure 3-4**) (NAS PAX 2011b).

The Mattapany-Sewall Complex Historic District, sited on the Patuxent River, roughly between the East Patuxent River Seaplane Basin and the West Patuxent River Seaplane Basin, includes a circa 1740 house and eight ancillary structures and the surrounding landscape contribute to the district (NAS PAX 2011b).

The Armament Test/Electronics Test/Weapons Test Historic District is significant “for its association with the primary mission of NAS Patuxent River during World War II and the early Cold War period” (1943–1965) and for its “resources whose design is specific to, and particularly illustrative of, the testing facilities that supported the activities of the Armament Test Division in these decades” (NAS PAX 2011b). This historic district includes a parcel on Chesapeake Bay and the installation’s runways and taxiways.

The proposed project would be within the Flight Test/Tactical Test/NAS Operations Historic District, which is a discontinuous NRHP-eligible district that contains 21 contributing buildings and structures (see **Table 3-13**). A 2009 historic landscape survey of NAS Patuxent River concluded that several landscape features contribute to the historic districts; these resources in the Flight Test/Tactical Test/NAS Operations Historic District include the seaplane basins and the runways and taxiways (see **Figure 3-4**). The district is significant for its association with the primary mission of NAS Patuxent River during World War II and the early Cold War period (1943–1965). It also has resources such as the catapult and arresting gear facilities that exemplify the kinds of specialized facilities employed by the Navy in its aircraft testing programs during and since World War II. The same runways and taxiways also contribute to the Armament Test/Electronics Test/Weapons Test Historic District. According to the NRHP evaluation, the integrity of setting of the Flight Test/Tactical Test/NAS Operations Historic District “has been diminished by construction of new buildings adjacent to and between district elements (particularly in the East Patuxent River area); and integrity of materials and workmanship remain to varying degrees, as nearly all the components of the district have experienced alterations to the present day” (NAS PAX 2011b).

Within the Flight Test/Tactical Test/NAS Operations Historic District are several clusters of resources. One cluster of resources is organized around the East Patuxent Seaplane Basin, including the basin and ramp and twin Hangars 110 and 111, completed in 1943 and 1944, respectively (see **Figure 3-5**). These double-bay hangars feature thin concrete shells supported by reinforced concrete arches which are carried on concrete bents; the arch ribs are tied together with galvanized cables underneath the hangar floor. The bents provide the structural support for the two-story, brick-walled, lean-tos that flank each bay, providing storage, workshop, and office space. Buildings 110A and 111A are adjacent small heating plants for the hangars, constructed of reinforced concrete with flat roofs. Building 111A has been altered by cladding that obscures its original exterior and original windows (NAS PAX 2011b).

In 2012, the *Project Definition Report, Hangar 111 Life Extension* report was completed, providing concept design for six phases of construction that would extend the life of Hangar 111 for 50 years (NAVFAC Washington 2012b). The recommended phasing includes (1) roof repair or replacement, (2) center lean-to renovation, (3) waterside lean-to renovation, (4) roadside lean-to renovation,

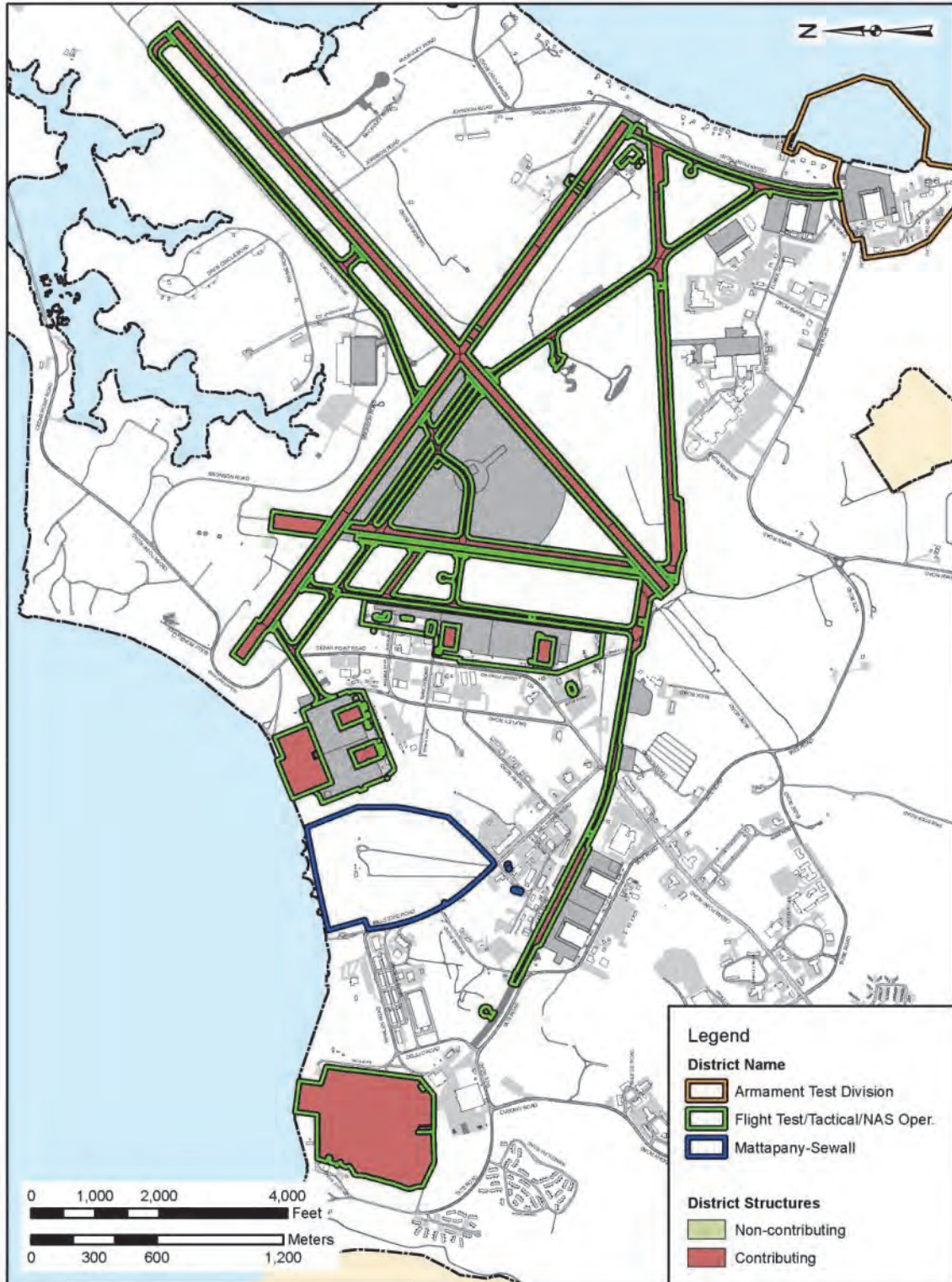
**Table 3-13. Resources Contributing to the Flight Test/Tactical Test/  
NAS Operations Historic District**

<b>Building Number</b>	<b>Facility Name</b>	<b>Year Built</b>
101	Aircraft Flight Equipment Lab	1943
103	Air Operations Fire/Rescue Station	1943
108A	Catapult Control Pit	1945
109	Hangar, Engineer Support SPECAT	1943
110	Test Pilot School	1943
110A	Heating Plant for 110	1943
111	Hangar, RDT&E	1944
111A	Heating Plant for 111	1943
160	Arresting Gear	1954
162	Catapult TC-7	1954
177	Jet Engine Repair Building	1956
195	Arresting Gear Test Facility	1961
698	Compass Rose	1944
699	Compass Rose	1944
1170	Seaplane Ramp East Patuxent	1943
1171	Seaplane/East/Ramp/West Patuxent	1943
1172	Seaplane Ramp/West Patuxent	1943
1174	Seaplane Basin/West Patuxent	1959
1176	Seaplane Basin East Patuxent	1943
2648	Compass Rose	1943
-----	Runways and Taxiways	1944

Source: NAX PAX 2011b

(5) waterside hangar renovation, and (6) roadside hangar renovation, but the exact details of each phase remain in flux. The estimate for all six phases is approximately \$25.3 million, but this is a long-term plan with no permanent funds tied to its execution. The life extension report noted that Hangar 111 is in good condition and appears to be structurally sound. All necessary structural repairs are minor. The roof on Hangar 111 has recently been replaced, completing Phase 1 of the life extension plan (NAS PAX 2013b).

The area proposed for construction is near another cluster of resources within the Flight Test/Tactical Test/NAS Operations Historic District. Sited on the concrete apron adjacent to Taxiway B on the west end of the airfield are Hangar 101, Hangar 109, and Building 103, the Air Operations Fire/Rescue Station (Operations Administration Building), all constructed in 1943. Hangar 101 is a double-bay, steel-framed landplane hangar, while Hangar 109 is identical in design to Hangars 110 and 111. The old Control Tower that was part of Building 103 has been replaced, but the Operations Administration Building remains a contributing structure (NAS PAX 2011b).



Source: NAS PAX 2011b

**Figure 3-4. Flight Test/Tactical Test/NAS Operations Historic District and the General Location of the Armament Test/Electronics Test/Weapons Test and the Mattapaney-Sewall Historic Districts at the NAS Patuxent River Main Installation**





**Figure 3-5. Detail of 1944 Photograph of Hangars 111 (left) and 110 (right) and Their Heating Plants 111A and 110A, Facing North**

Hangar 111 is visible from Solomons Island and the Governor Thomas Johnson Bridge, which is 3 miles north of NAS Patuxent River. The bridge, completed in 1977, has not been evaluated for NRHP eligibility. However, Hangar 111 is within the viewshed of the Avondale/Solomons Island Survey Historic District, which was determined eligible for listing in the NRHP in 2003 as a well-preserved example of a Chesapeake Bay maritime community (MHT 2003). The Avondale/Solomons Island Survey Historic District is more than 2 miles north of Hangar 111, across the Patuxent River (MHT 2003). Furthermore, the area of the Patuxent River between Hangars 110 and 111 and Solomons Island has served as a landing area for seaplanes since the construction of the hangars and seaplane basin during World War II.

### 3.11.3 Environmental Consequences

Impacts on cultural resources include potential effects on historic properties, cultural items as defined in the Native American Graves Protection and Repatriation Act, archaeological resources as defined by the Archaeological Resources Protection Act of 1979, and archaeological artifact collections and associated records as defined by 36 CFR §79.

Potential impacts on historic properties are categorized by criteria established by Section 106 of the NHPA and its implementing regulations (36 CFR §800). They are as follows:

- “No Historic Properties Affected” is defined as no historic properties present or historic properties are present but the undertaking would have no effect upon them as defined in 36 CFR §800.16(i).
- “No Adverse Effect” is defined as when the undertaking’s effects do not meet the Criteria of Adverse Effect or the undertaking is modified or conditions are imposed to avoid adverse effects. A proposed action results in a “No Adverse Effect” determination when the impacts on a historic property are minimal and the historic characteristics that qualify it for eligibility in the NRHP are not completely altered.



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- “Adverse Effect” is defined as when the undertaking could alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that could have been identified subsequent to the original evaluation of the property’s eligibility for the National Register.

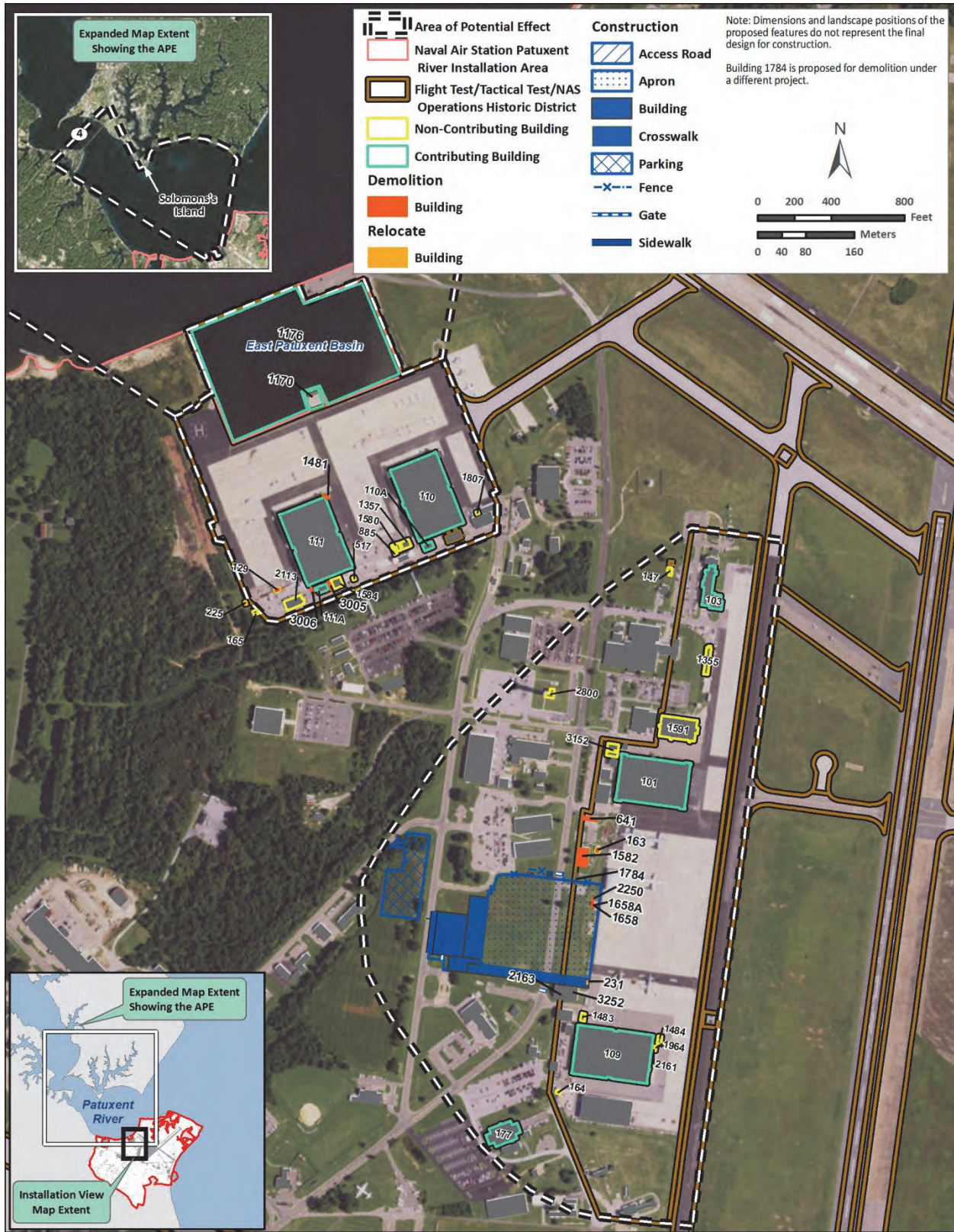
Under NEPA, impacts are categorized according to duration (short-term or long-term), severity (negligible, minor, moderate, major), and direction (positive or adverse).

### 3.11.3.1 Alternative 1

Under Alternative 1, the APE was divided into two sections, a demolition APE and a construction APE, both partially within the Flight Test/Tactical Test/NAS Operations Historic District (see **Figure 3-6**). The demolition APE includes the 12 structures proposed for demolition, which are either non-contributing resources to the NRHP-eligible district or not evaluated due to their age (**Table 3-14**). The construction APE includes the area where a proposed aircraft apron would be constructed, the section of Cedar Point Road that would be closed, and utilities realignment. These components would occur within a portion of the historic district and within the vicinity and viewshed of Hangars 101 and 109, which are both contributing resources to the historic district, and near the existing aprons, taxiways, and runways which also contribute to the historic district.

**Archaeological Resources.** Most of the NAS Patuxent River main installation has been surveyed for archaeological sites or includes areas that have been identified as having been heavily graded, precluding the presence of important archaeological resources. There are no archaeological resources within either the demolition APE or the construction APE and archaeologists consider the land too disturbed to contain intact archaeological resources. Consequently, the proposed undertakings would have no effect on any archaeological resources under NHPA; therefore, no significant effects are expected. In the event of the inadvertent discovery of cultural resources or human remains, NAS Patuxent River would follow Standard Procedure 5: Emergency Procedures for Unexpected Archaeological Discoveries as outlined in the *Integrated Cultural Resources Management Plan* (NAS PAX 2011b).

**Architectural Resources.** Alternative 1 is within and adjacent to the discontinuous Flight Test/Tactical Test/NAS Operations Historic District. Hangar 111 (see **Figure 3-7**) and Building 111A (see **Figure 3-8**) contribute to the Flight Test/Tactical Test/NAS Operations Historic District. The site for the proposed hangar is within a portion of the historic district and is in the construction APE near Taxiway B. The 12 nearby structures that would be demolished include two buildings that are not eligible for listing in the NRHP, three buildings that are non-contributing to the historic district, and seven buildings built in the 1970s that have not been evaluated for NRHP eligibility. While the proposed construction would take place in the vicinity and viewshed of Hangar 101 and Hangar 109, both contributing resources of the Flight Test/Tactical Test/NAS Operations Historic District, and within the historic district itself, the proposed construction continues the traditional use of the area with the introduction of a new hangar type.



**Figure 3-6. Alternative 1 APE Including Construction and Demolition Sections and the Flight Test/Tactical Test/NAS Operations Historic District**

**Table 3-14. Resources within the Flight Test/Tactical Test/NAS Operations Historic District Proposed to be Demolished Under Alternative 1**

<b>Building Number</b>	<b>Year Built</b>	<b>Facility Name</b>	<b>NRHP-Status</b>	<b>Area of District</b>
129	1944	Rotary Wing Storage	Non-contributing	East Patuxent Seaplane Basin
163	1953	Hazardous Storage Facility	Non-contributing	Taxiway B
225	1944	Magazine, Ready	Non-contributing	East Patuxent Seaplane Basin
231	1944	Magazine, Ready	Not Eligible	Taxiway B
641	1944	Printed Circuit Storage	Not Eligible	Taxiway B
1481	1971	Administration Building, Building	Not Evaluated	East Patuxent Seaplane Basin
1582	1975	Technical Services Lab	Not Evaluated	Taxiway B
1658	1978	AC Wash Rack	Not Evaluated	Taxiway B
1658A	1978	Sewage Lift Station	Not Evaluated	Taxiway B
2250	1970	Oil/Water Separator	Not Evaluated	Taxiway B
3005	N/A	Portable Building	Not Evaluated	East Patuxent Seaplane Basin
3006	N/A	Portable Building	Not Evaluated	East Patuxent Seaplane Basin



**Figure 3-7. Portable Buildings Behind Hangar 111, Facing West**





**Figure 3-8. Portable Building Behind Hangar 111, Facing East**

The adjacent historic hangars would continue to be used in support of aircraft operations and testing, and the traditional apron space between Hangars 101 and 109 would not be altered. Therefore, the Navy anticipates that the proposed construction would not result in adverse effects on contributing resources of the Flight Test/Tactical Test/NAS Operations Historic District or on the district itself.

Because of distance and natural vegetative screening, the proposed construction and demolition associated with Alternative 1 would have no effect on the main installation resources individually eligible for listing in the NRHP (Buildings 115, 144, 301, 305, 306, 409, 428, 443, and 2189), nor on the Armament Test/Electronics Test/Weapons Test and Mattapan-Sewall Complex Historic Districts. Consequently, no effect on these individually eligible resources or other historic districts would be expected.

The MHT SHPO was notified of the Navy's decision to comply with the NHPA through the NEPA process during the early planning stages of the project in 2013; coordination regarding this project was initiated at that time. As project plans changed, NHPA Section 106 consultation packages, which included concurrence request letters with enclosed copies of the EA were sent to the MHT and ACHP on August 7 2014 and September 11 2014 respectively. MHT and SHPO elected to participate via written responses dated November 13, 2014 and September 29, 2014, respectively. After addressing project concerns, the Navy responded to MHT and ACHP on December 23, 2015. Following no indication of withdrawal from consultation or concurrence by MHT or ACHP, the Navy provided letters for a final 30 day consultation period on March 9, 2017. ACHP concluded consultation on April 5 2017. MHT provided no response and the Navy assumed concurrence with its findings of no adverse effects on cultural, archeological, or historic resources on April 12, 2017. All NHPA Section 106 consultation and associated correspondence documents are provided in **Appendix C**.

**Summary.** Under Alternative 1, the construction of the proposed hangar and additional infrastructure would not result in adverse effects on the Flight Test/Tactical Test/NAS Operations Historic District, nor on the Armament Test/Electronics Test/Weapons Test and Mattapan-Sewall Complex Historic Districts.

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### 3.11.3.2 Alternative 2

**Archaeological Resources.** Similar to Alternative 1, Alternative 2 would have no effect on any archaeological resources.

**Architectural Resources.** Under Alternative 2, Hangar 111 and Building 111A would be renovated to comply with safety and utilities upgrade requirements, in consultation with the SHPO and following the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. In addition, five movable structures would be assembled in proximity to Hangar 111. Effects on most of the historic properties are not expected to be adverse. However, the requirement to meet AT/FP standards may result in an adverse effect on Hangar 111, particularly with regard to renovations of the roadside (south) lean-to. Consultation with the SHPO on this undertaking would continue in an effort to avoid, minimize, or mitigate any adverse effects on historic properties. Further, SHPO consultation for the renovation is ongoing regarding further phases of a 50-year Life Extension Project for Hangar 111 and Building 111A.

The placement of moveable structures would affect the visual relationship of NRHP-eligible structures at the East Patuxent Seaplane Basin within the demolition APE, including Buildings 111, 111A, 110, 110A, 1176, and 1170. However, the integrity of the setting for Hangar 111 and Building 111A has already been compromised on the south side with the placement of three portable buildings and other small structures (see **Figures 3-7** and **3-8**). Although there is a limited view of these portable buildings from Hangar 110 and Building 110A, there is no view of these structures from Buildings 1176 and 1170 or the rest of the Flight Test/Tactical Test/NAS Operations Historic District. These buildings would not be located in the Patuxent River viewshed of Hangar 111 and would not affect the Avondale/Solomons Island Survey Historic District. Because there are already portable structures adjacent to Hangar 111 and Building 111A, and because the placement of these moveable structures can be reversed, the Navy expects there would be no adverse effect on Hangar 111 and Building 111A or to the Flight Test/Tactical Test/NAS Operations Historic District or Avondale/Solomons Island Survey Historic District.

**Summary.** Under Alternative 2, the renovation of Hangar 111 and Building 111A would benefit these historic properties and would not adversely affect them; the placement of portable structures adjacent to Hangar 111 would not adversely affect historic properties. SHPO consultation would continue regarding AT/FP improvements on Hangar 111 to avoid, minimize, or mitigate any potential adverse effects.

### 3.11.3.3 No Action Alternative

**Archaeological Resources.** Under the No Action Alternative, archaeological resources would not be affected and no historic properties would be affected under NHPA. Therefore, no effects on archaeological resources would be expected.

**Architectural Resources.** No demolition, construction, or placement of structures within the NRHP-eligible Flight Test/Tactical Test/NAS Operations Historic District would occur under No Action Alternative; therefore, no historic properties would be affected. Consequently, the No Action Alternative would have no effect on architectural resources.

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## 4. Cumulative and Other Impacts

### 4.1 Cumulative Effects

Federal regulations implementing NEPA (40 CFR Parts 1500–1508) and Navy procedures for implementing NEPA (32 CFR Part 775), as described in OPNAVINST 5090.1D and its implementing manual, require that the cumulative effects of a proposed action be assessed. CEQ regulations implementing the procedural provisions of NEPA define cumulative effects as follows (40 CFR Part 1508.7):

The impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

A cumulative effect could be additive (i.e., the net adverse cumulative effects are strengthened by the sum of individual effects), countervailing (i.e., the net adverse cumulative effect is less as a result of the interaction between beneficial and adverse individual effects), or synergistic (i.e., the net adverse cumulative effect is greater than the sum of the individual effects). Cumulative effects could result from individually minor, but collectively significant actions that take place over time. Accordingly, a cumulative effects analysis identifies and defines the scope of other actions and their interrelationship with the alternatives if there is an overlap in space and time. Cumulative effects are most likely to occur when there is an overlapping geographic location and a coincidental or sequential timing of events.

For the purposes of this analysis, it is assumed that construction for either Alternative 1 or 2 would start in 2017 and would be complete in 2019. For most resources, the spatial area for consideration of cumulative effects is limited to the installation on which an activity would occur. Past actions are those actions, and their associated impacts, that occurred within the geographical extent of cumulative effects that have shaped the current environmental conditions of the project area. CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions (Connaughton 2005). The effects of past actions are now part of the existing environment and are included in the affected environment described in **Section 3**. However, recent past actions with continuing ongoing effects that are germane to cumulative impacts are discussed with present and reasonably foreseeable future actions.

#### 4.1.1 Projects Considered for Potential Cumulative Effects

**Construct Aircraft Prototype Facility – Phase 2.** This project includes the construction of the second of three phased projects to provide secure facilities to augment and improve naval aviation RDT&E capabilities. The project would provide a 74,626-ft<sup>2</sup> (6,933-m<sup>2</sup>) secure hangar space for a single large aircraft or up to four smaller aircraft and increase the overall capacity of the combined facility to support nine or more classified programs annually (NAVFAC Washington 2012a). Construction began in 2015.

**Naval Base Exchange Expansion.** This includes the construction of a 28,400-ft<sup>2</sup> (2,638-m<sup>2</sup>) addition to the existing 56,800-ft<sup>2</sup> (5,279-m<sup>2</sup>) Navy Exchange. The project scope includes renovation of the existing retail, services, and administration areas. Construction is expected to begin in 2016.

**Construct Atlantic Test Range Addition.** This project includes the construction of modern command and control facilities and mission test cells for the Atlantic Test Range at NAS Patuxent River. The new facility would be 17,062 ft<sup>2</sup> (1,585 m<sup>2</sup>) and would support integrated test operations and joint testing with linkages to other open air ranges and instrumented test facilities for new combat systems (NAVFAC Washington 2012a). The Atlantic Test Range currently supports thousands of flight tests per year, and

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collects thousands of hours of data in support of these tests. It is anticipated that this will increase at a rate of about 5 percent per year through 2014 (NAVFAC Washington 2012a). Construction is expected to begin in 2016.

***Construct Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) RDT&E Hangar.*** This project includes the construction of an 80,464-ft<sup>2</sup> (7,475-m<sup>2</sup>) hangar complex to provide a RDT&E hangar, maintenance and Integrated Test Team office, and laboratory space in support of Acquisition Category I UCLASS aircraft aviation programs, and construct an office facility to support the functions of these programs (NAVFAC Washington 2012a). If awarded, construction would begin in 2017.

***Replace Unaccompanied Housing.*** This project includes the replacement of seven unaccompanied housing buildings. This project includes the construction of a multi-story unaccompanied housing facility (108,823 ft<sup>2</sup> [10,110 m<sup>2</sup>]) to provide housing for E1-E4 permanent party personnel. The facility would provide Market Style apartment modules that will include sleeping and living areas, a kitchen, bathrooms, closets, and in-module laundry facilities. The facility would also provide administrative offices, building support areas, and common use spaces, such as a multi-purpose room and vending areas. The project also includes the construction of an Alert Facility (10,226 ft<sup>2</sup> [950 m<sup>2</sup>]) adjacent to Building 2199 to support administrative and training spaces for the VQ-4 Squadron currently located in Unaccompanied Housing Facility 468, which would be demolished. If awarded, construction would begin in 2017.

***Medical and Dental Clinics.*** This project provides a new modern medical clinic footprint to replace the existing undersized and obsolete Naval Health Clinic at NAS Patuxent River. The Medical Clinic would be 90,102 ft<sup>2</sup> (8,371 m<sup>2</sup>) and the Dental Clinic would be 8,798 ft<sup>2</sup> (817 m<sup>2</sup>). If awarded, construction would begin in 2020.

***Construct Aircraft Prototype Facility – Phase 3.*** This project is the third of three phases to construct secure rapid prototyping facilities to correct and improve Naval Aviation RDT&E survivability and vulnerabilities by providing a secure hangar, specialized laboratories, and accredited work areas for the support of classified projects and Special Access Programs delivering mission critical combat systems to the Fleet. The Aircraft Prototype Facility – Phase 3 would be 43,307 ft<sup>2</sup> (4,023 m<sup>2</sup>). If awarded, construction would begin in 2020.

***Enhanced Use Lease.*** The Navy proposes to make available for lease real property at NAS Patuxent River. The Navy would enter into a 50-year enhanced use lease agreement with a developer in exchange for in-kind services involving construction, operation, and maintenance of a work campus development that accommodates approximately 3,000 employees with new administrative office space and parking. The work campus would comprise office spaces totaling 600,000 ft<sup>2</sup> (55,742 m<sup>2</sup>), and nearby parking facilities to accommodate at minimum 70 percent of the employees that would work in the new facilities. Facilities would likely be constructed at two separate locations: 15.4-acres at the western side of Buse Road across from the NAVAIR Integrated Product Team Building (i.e., Building 2272) and 7.5 acres north of the Gate 1 entrance, and east and north, respectively, of the Naval Air Museum.

#### 4.1.2 Cumulative Effects on Resource Areas

The following analysis examines the cumulative effects on the environment that would result from the incremental impacts of the Proposed Action, in addition to other past, present, and reasonably foreseeable future actions. This analysis assesses the potential for an overlap of impacts with respect to project schedules or affected areas. This section presents a qualitative analysis of the cumulative effects.



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Under the No Action Alternative, there would be no change in the baseline conditions for any resource areas. Therefore, the No Action Alternative would not contribute to cumulative effects.

#### 4.1.2.1 Noise

No operational changes would occur under Alternatives 1 or 2 and no significant impacts on the noise environment would occur from construction activities. Construction-related activities from the additional projects at the installation could collectively increase noise levels in the area temporarily, but variations in the timing of cumulative projects, and the relatively short duration of these effects would distribute impacts over space and time. In addition, the project area is located adjacent to the flight line where aircraft maintenance activities and operations occur routinely. As a result, ambient noise levels in the project area are consistent with levels at industrial sites. Consequently, construction activities occurring at the same time and in the same vicinity could have cumulative effects; however, they would not be significant.

#### 4.1.2.2 Air Quality

The estimated yearly emissions under either Alternative 1 or 2 would be well below 1 percent of the yearly emissions inventory of the Southern Maryland Intrastate AQCR. Construction activities occurring at the same time and in the same vicinity could have cumulative effects. These activities could collectively increase emissions of criteria air pollutants in the area temporarily, but variations in the timing of cumulative projects, and the relatively short duration of project effects, would distribute impacts over space and time. Once construction or renovation activities are complete, operation of either Alternative 1 or 2 would not increase the number of personnel or number and type of aircraft used and would not contribute to an increase in regional air emissions. Therefore, no significant cumulative effects on air quality at NAS Patuxent River are expected.

#### 4.1.2.3 Human Health and Safety

Significant effects on health and safety would not occur under Alternatives 1 or 2. For any project that would occur at the installation, ACMs, 8-RCRA metals, LBP, and PCB-containing materials present in the buildings slated for demolition would be handled in accordance with applicable policies and procedures, including inspection by a state-certified inspector prior to commencement of demolition activities. Construction-related activities, including identification and removal of ACMs, LBP, and PCBs, would comply with Federal and state regulations and applicable installation management plans. The removal of ACMs, LBP, 8-RCRA metals, and PCBs would reduce the potential exposure to personnel accessing facilities that contain these materials. No significant cumulative effects on human health and safety at NAS Patuxent River are expected.

#### 4.1.2.4 Land Use

The construction of the proposed facilities would not require a change to the land use category under either Alternative 1 or 2. Under Alternative 1, a ball field and agricultural field would be removed. The removal of the agricultural field would result in a loss of crop land; however, the ball field and agricultural field are incompatible with the RDAT&E land use in which they are located. An athletic field is proposed near the intersection of Cedar Point Road and Keane Road where a recreational field currently exists. This expansion of the recreational field should minimize the impacts of the removal of the ball field under Alternative 1. No other impacts on land use are expected; therefore, no significant, cumulative effects on land use at NAS Patuxent River are expected.

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#### 4.1.2.5 Coastal Zone Management

A Coastal Consistency Determination will be developed for any of the additional projects at NAS Patuxent River that would affect the coastal uses or resources of Maryland. The Determination will be developed in accordance with 15 CFR Part 930.39 under the CZMA, and with the MOU with the State of Maryland, and will be submitted to the Maryland Department of the Environment, Wetlands and Waterways Program. The Maryland Department of the Environment, Wetlands and Waterways Program will review the U.S. Navy's Coastal Consistency Determination and the state will make a decision about whether it concurs with the Navy's determination that the activities proposed by NAS Patuxent River are consistent with the enforceable policies of the Maryland CZMP. Therefore, no significant cumulative effects on the coastal zone are expected.

#### 4.1.2.6 Geological Resources

Soils have been previously disturbed at NAS Patuxent River from past development activities. Construction activities occurring at the same time and in the same vicinity could have cumulative effects on soil resources from disturbance and a potential increase in erosion. However, these effects would be minimized by following appropriate BMPs. As a result, no significant cumulative effects on geological resources are expected.

#### 4.1.2.7 Biological Resources

No significant impacts on biological resources would occur under Alternatives 1 or 2. Construction activities occurring at the same time and in the same vicinity could have cumulative effects on vegetation and wildlife resources from habitat removal and noise disturbances. However, there is minimal habitat available due to the developed and urban environment at the installation and most species present are adapted to the noisy environment. In addition, planned construction projects would occur at varying times and locations across the installation. Therefore, no significant cumulative effects on biological resources at NAS Patuxent River are expected.

No Federal- or state-listed threatened or endangered animal or plant species have been documented within the proposed project area under Alternative 1 or 2. However, Federal- or state-listed animal and plant species exist at NAS Patuxent River. If a listed species is discovered during the design or construction phase of an additional project at the installation, it is assumed that the necessary actions would be taken according to the appropriate Federal or state regulations.

#### 4.1.2.8 Water Resources

Implementation of either Alternative 1 or 2 along with and other construction projects would result in a minor increase in impervious surfaces and stormwater runoff. Use of BMPs and implementation of an erosion-and-sediment-control plan and SWPPP during construction activities would minimize cumulative effects on water resources. Stormwater design requirements for Federal development and redevelopment projects larger than 5,000 ft<sup>2</sup> (0.11 acres) must "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow." Historical data show that wetlands occur outside the project area; a 2013 wetlands delineation confirms that there are no wetlands in the vicinity of the proposed construction area. A Jurisdictional Determination is currently being sought from the USACE. If a potential exists for impacts on wetlands to occur in conjunction with the demolition in this area, a joint state/Federal wetlands permit application for alternation of any tidal or nontidal wetland would be prepared and submitted. No significant cumulative effects on water resources at NAS Patuxent River are expected.

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#### 4.1.2.9 Utilities, Infrastructure, and Transportation

Neither Alternative 1 nor Alternative 2 would increase the demand for utilities and infrastructure beyond current levels. Cumulatively, construction-related activities could result in increased use of infrastructure or possibly brief periods when services are interrupted for utility interconnections; however, it is not expected to be significant because construction activities would occur at varying times. Under Alternatives 1 and 2, only minimal upgrades to utility systems would be completed. Therefore, long-term, negligible, beneficial impacts on utility systems would be expected.

No significant long-term, impacts on the transportation network on installation and on the traffic levels in the vicinity of the Proposed Action would be expected from the removal of a portion of Cedar Point Road proposed under Alternative 1. The additional projects that are being considered would not contribute to large increases in traffic levels.

#### 4.1.2.10 Hazardous Materials and Wastes

The use of hazardous materials and petroleum products would not increase under Alternatives 1 or 2. In addition, the amounts of hazardous wastes generated at the installation would not increase. The proposed construction and demolition activities would require the delivery and use of minimal amounts of hazardous materials and petroleum products and would generate minimal amounts of hazardous wastes. Although other projects involving construction would have similar impacts, these projects would not occur at the same time. In addition, the phasing of individual projects over several years, as is currently anticipated, would further minimize cumulative construction-related impacts. The removal of ACMs, LBP, 8-RCRA metals, and PCBs during demolition activities would cumulatively reduce potential exposure to these materials. Therefore, significant cumulative effects on hazardous materials and wastes at NAS Patuxent River are not expected.

#### 4.1.2.11 Cultural Resources

The Navy has determined that the demolition component of Alternative 1 would not have a direct, adverse effect on those historic properties and on the Flight Test/Tactical Test/NAS Operations Historic District under the NHPA.

The construction of Phases 2 and 3 of the Aircraft Prototype Facility and the UCLASS RDT&E Hangar will be in the vicinity and viewshed of the taxiways, which are contributing features to the Flight Test/Tactical Test/NAS Operations and Armament Test/Electronics Test/Weapons Test Historic Districts. The new construction of hangars continues the traditional use of the area in support of aircraft operations and testing and would result in long-term, minor effects. The expansion of the Naval Base Exchange would be approximately 2,000 ft from and within the viewshed of the Frank Knox School (Building 2189), which is individually eligible for listing in the NRHP. This expansion would not represent a significant change to that viewshed and would result in long-term, minor effects on the Frank Knox School. The construction of the Medical and Dental Clinics would be approximately 1,900 ft from the Frank Knox School; however, vegetation would likely block the view of the clinics from the school. The construction of the Medical and Dental Clinics would not result in cumulative effects.

The construction of the Atlantic Test Range Addition is not in the vicinity or viewshed of any resources determined eligible for listing in the NRHP; therefore, no cumulative impacts on cultural resources are expected. Similarly, the replacement of Q4 Bachelor Enlisted Quarters is not in the vicinity or viewshed of any resources determined eligible for listing in the NRHP; therefore, no cumulative impacts on cultural resources are expected. The proposed locations for the Enhanced Use Lease are not in the immediate vicinity or viewshed of any resources eligible for listing in the NRHP; therefore, no cumulative impacts

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are expected. Under Alternative 2, the renovation of Hangar 111 and Building 111A would result in long-term, beneficial impacts on these historic structures, by conserving them and extending their life. However, the placement of portable structures adjacent to Hangar 111 would result in short-term, minor, adverse effects. Consultation with the SHPO should be undertaken prior to the commencement of the additional projects to minimize potential visual effects within the historic districts.

## **4.2 Compatibility of Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls**

No potential conflicts are anticipated between NAS Patuxent River and any of the installation master plans, policies, or controls. Alternatives 1 or 2 would occur on Federal property. Because ownership and management of the land and structures would remain under the authority of the Federal government under either alternative, county- or city-level plans or policies are not applicable. No off-installation land uses would be affected by implementation of the Alternatives.

## **4.3 Relationship Between Short-Term Uses of Man's Environment and Maintenance and Enhancement of Long-Term Productivity**

NEPA requires consideration of the relationship between short-term use of the environment and the impacts that such use could have on the maintenance and enhancement of long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. Such impacts include the possibility that choosing one alternative could reduce future flexibility to pursue other alternatives, or that choosing a certain use could eliminate the possibility of other uses at the site. Short-term uses of the biophysical components of the human environment include direct impacts, usually related to construction activities, which occur over a period of less than 5 years. Long-term uses of the human environment include those impacts that occur over a period of more than 5 years, including permanent resource loss.

Construction activity under Alternatives 1 or 2 would be expected to result in short-term effects; however, these effects would not be considered significant. Implementation of either alternative would result in considerable long-term military productivity by allowing the Navy to continue their mission at NAS Patuxent River.

## **4.4 Irreversible and Irrecoverable Commitment of Resources**

NEPA (42 U.S.C. 4332 Section 102[2][C][v]) as implemented by CEQ regulation 40 CFR Part 1502.16 requires an analysis of significant, irreversible effects resulting from implementation of a proposed action. An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be reversed or recovered, even after an activity has ended. Resources that are irreversibly or irretrievably committed to a project are those that are typically used on a long-term or permanent basis; however, those used on a short-term basis that cannot be recovered (e.g., non-renewable resources such as metal, wood, fuel, paper, and other natural or cultural resources) also are irretrievable. Human labor is also considered an irretrievable resource. All such resources are irretrievable in that they are used for a project and, thus, become unavailable for other purposes.

An impact that falls under the category of the irreversible or irretrievable commitment of resources is the destruction of natural resources that could limit the range of potential uses of that resource. Implementation of Alternatives 1 and 2 would result in an irreversible commitment of building materials; vehicles and equipment used during construction, renovation, or demolition activities; and human labor and other resources. Energy (i.e., electricity and natural gas), water, and fuel consumption; and demand

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for services would not increase significantly as a result of the implementation of either alternative. Overall, consumption of energy resources would not place a significant demand on their availability in the region. The commitment of these resources is undertaken in a regular and authorized manner and does not represent a significant impact.

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## Appendix A. Air Quality Analysis

### Generator emissions

Generator Kilowatts
450

Diesel Industrial Engine Emission Factors from 40 CFR 89.112(a)	NOx	CO	PM-10	PM-2.5
	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr
Emission Factor	6.4	3.5	0.2	0.192

Assume max. 500 hr/yr operation and testing	NOx	CO	PM-10	PM-2.5
	(lbs/yr)	(lbs/yr)	(lbs/yr)	(lbs/yr)
	3,174.66	1,736.14	99.21	95.24

Generator Kilowatts	Generator Engine (hp)
500	671

Diesel Industrial Engine Emission Factors from AP-42, Section 3.4	VOC	SO <sub>2</sub>	CO <sub>2</sub>
	lb/hp-hr	lb/hp-hr	lb/hp-hr
Emission Factor	0.000642	0.000012	1.16

Assume max. 500 hr/yr operation and testing	VOC	SO <sub>2</sub>	CO <sub>2</sub>
	(lbs/yr)	(lbs/yr)	(lbs/yr)
	215.08	4.07	388,890.00

Emissions Per Year	NOx	CO	PM-10	PM-2.5	VOC	SO <sub>2</sub>	CO <sub>2</sub>
	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
	1.587	0.868	0.0496	0.0476	0.108	0.002	194.445

Sources: 40 CFR 89.112(a). Oxides of nitrogen, carbon monoxide, hydrocarbon, and particulate matter exhaust emission standards. Table 1. USEPA 1996. AP-42. Large Stationary Diesel And All Stationary Dual-fuel Engines. Table 3.4-1. Page 3.4-5.

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<b>Summary</b>	Summarizes total emissions for Construction Activities under Alternative 1 (Preferred Alternative) in 2017, 2018, and 2019
<b>Combustion</b>	Estimates emissions from non-road equipment exhaust.
<b>Fugitive</b>	Estimates particulate emissions from construction and demolition activities including earthmoving, vehicle traffic, and windblown dust.
<b>Grading</b>	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions.
<b>Haul Truck On-Road</b>	Estimates emissions from haul trucks hauling fill materials to the job site.
<b>Construction Commuter</b>	Estimates emissions for construction workers commuting to the site.
<b>AQCR Tier Report</b>	Summarizes total emissions for the Southern Maryland intrastate AQCR report for 2011, to be used to compare the Proposed Action to regional emissions.

*Summary*  
*Estimated Emissions for Construction Activities under Alternative 1 (Preferred Alternative)*



**Air Emissions for Construction Activities under Alternative 1 (Preferred Alternative) in 2017**

	NO <sub>x</sub> (ton)	VOC (ton)	CO (ton)	SO <sub>2</sub> (ton)	PM <sub>10</sub> (ton)	PM <sub>2.5</sub> (ton)	CO <sub>2</sub> (ton)
Combustion	0.908	0.102	0.396	0.073	0.064	0.062	104.034
Fugitive Dust	-	-	-	-	4.355	0.435	-
Haul Truck On-Road	0.046	0.012	0.033	0.000	0.002	0.001	25.941
Commuter	0.013	0.015	0.138	0.000	0.002	0.001	26.563
<b>TOTAL</b>	<b>0.987</b>	<b>0.129</b>	<b>0.567</b>	<b>0.073</b>	<b>4.424</b>	<b>0.500</b>	<b>158.538</b>

Note: Total PM<sub>10/2.5</sub> fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO<sub>2</sub> emissions converted to metric tons = **142.0 metric tons**  
 Percent of CEQ Threshold = **0.568%**

**Air Emissions for Construction Activities under Alternative 1 (Preferred Alternative) in 2018**

	NO <sub>x</sub> (ton)	VOC (ton)	CO (ton)	SO <sub>2</sub> (ton)	PM <sub>10</sub> (ton)	PM <sub>2.5</sub> (ton)	CO <sub>2</sub> (ton)
Combustion	5.528	0.619	2.412	0.442	0.389	0.378	633.660
Fugitive Dust	-	-	-	-	26.529	2.653	-
Haul Truck On-Road	0.244	0.074	0.181	0.002	0.010	0.007	157.943
Commuter	0.120	0.141	1.259	0.003	0.022	0.014	258.858
<b>TOTAL</b>	<b>5.891</b>	<b>0.834</b>	<b>3.852</b>	<b>0.448</b>	<b>28.950</b>	<b>3.052</b>	<b>1,050.471</b>

Note: Total PM<sub>10/2.5</sub> fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO<sub>2</sub> emissions converted to metric tons = **852.8 metric tons**  
 Percent of CEQ Threshold = **3.811%**

**Air Emissions for Construction Activities under Alternative 1 (Preferred Alternative) in 2019**

	NO <sub>x</sub> (ton)	VOC (ton)	CO (ton)	SO <sub>2</sub> (ton)	PM <sub>10</sub> (ton)	PM <sub>2.5</sub> (ton)	CO <sub>2</sub> (ton)
Combustion	1.815	0.203	0.792	0.145	0.128	0.124	208.068
Fugitive Dust	-	-	-	-	8.711	0.871	-
Haul Truck On-Road	0.080	0.024	0.060	0.001	0.003	0.002	51.862
Commuter	0.025	0.029	0.258	0.001	0.005	0.003	53.101
<b>TOTAL</b>	<b>1.920</b>	<b>0.257</b>	<b>1.110</b>	<b>0.148</b>	<b>8.847</b>	<b>1.000</b>	<b>313.031</b>

Note: Total PM<sub>10/2.5</sub> fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO<sub>2</sub> emissions converted to metric tons = **283.9 metric tons**  
 Percent of CEQ Threshold = **1.138%**

Summary  
 Estimated Emissions for Construction Activities under Alternative 1 (Preferred Alternative)

Since future year budgets were not readily available, actual 2011 air emissions inventories for the counties were used as an approximation of the regional inventory. Because emissions from the Proposed Action in 2017, 2018, and 2019 are several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

**Southern Maryland Intrastate AQCR**

Year	Point and Area Sources Combined					
	NO <sub>x</sub> (tpy)	VOC (tpy)	CO (tpy)	SO <sub>2</sub> (tpy)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)
2011	11,360	8,299	47,204	7,581	3,637	1,337

Source: USEPA National Emissions Inventory (NEI) (<http://helibrowser.epa.gov/eis-public-web/home.html>). Site visited on 17 March 2014

**Air Emissions from Construction Activities under Alternative 1 (Preferred Alternative) in 2017, 2018, & 2019**

	Point and Area Sources Combined					
	NO <sub>x</sub> (tpy)	VOC (tpy)	CO (tpy)	SO <sub>2</sub> (tpy)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)
Regional Emissions	11,360	8,299	47,204	7,581	3,637	1,337
2017 Emissions	0.967	0.129	0.567	0.073	4.424	0.500
% of Regional	0.009%	0.0016%	0.0012%	0.001%	0.122%	0.037%
2018 Emissions	5.891	0.834	3.852	0.446	26.950	3.052
% of Regional	0.052%	0.0100%	0.0082%	0.006%	0.741%	0.228%
2019 Emissions	1.920	0.257	1.110	0.146	8.847	1.000
% of Regional	0.017%	0.0031%	0.0024%	0.002%	0.243%	0.075%

Summary  
Estimated Emissions for Construction Activities under Alternative 1 (Preferred Alternative)

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<b>Summary</b>	Summarizes total emissions for Demolition Activities under Alternative 1 (Preferred Alternative)
<b>Combustion</b>	Estimates emissions from non-road equipment exhaust.
<b>Fugitive</b>	Estimates particulate emissions from construction and demolition activities including earthmoving, vehicle traffic, and windblown dust.
<b>Grading</b>	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions.
<b>Haul Truck On-Road</b>	Estimates emissions from haul trucks hauling fill materials to the job site.
<b>Construction Commuter</b>	Estimates emissions for construction workers commuting to the site.
<b>AQCR Tier Report</b>	Summarizes total emissions for the Southern Maryland Intrastate AQCR report for 2011, to be used to compare the Proposed Action to regional emissions.

*Summary  
Estimated Emissions for Demolition Activities under Alternative 1 (Preferred Alternative)*

**Air Emissions for Demolition Activities under Alternative 1 (Preferred Alternative)**

	NO <sub>x</sub> (ton)	VOC (ton)	CO (ton)	SO <sub>2</sub> (ton)	PM <sub>10</sub> (ton)	PM <sub>2.5</sub> (ton)	CO <sub>2</sub> (ton)
Combustion	0.228	0.014	0.090	0.019	0.014	0.013	26,541
Fugitive Dust	-	-	-	-	0.147	0.015	-
Haul Truck On-Road	0.007	0.001	0.005	0.000	0.000	0.000	3,413
Commuter	0.033	0.036	0.332	0.001	0.005	0.003	69,504
<b>TOTAL</b>	<b>0.287</b>	<b>0.050</b>	<b>0.428</b>	<b>0.019</b>	<b>0.166</b>	<b>0.031</b>	<b>89,458</b>

Note: Total PM<sub>10/2.5</sub> fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO<sub>2</sub> emissions converted to metric tons = **81.14 metric tons**  
 Percent of CEQ Threshold = **0.325%**

Since future year budgets were not readily available, actual 2011 air emissions inventories for the counties were used as an approximation of the regional inventory. Because emissions from the Proposed Action are several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

**Southern Maryland Intrastate AQCR**

Year	Point and Area Sources Combined					
	NO <sub>x</sub> (tpy)	VOC (tpy)	CO (tpy)	SO <sub>2</sub> (tpy)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)
2011	11,360	8,299	47,204	7,581	3,637	1,337

Source: USEPA National Emissions Inventory (NEI) (<http://neibrowser.epa.gov/eis-public-web/home.html>). Site visited on 17 March 2014

**Air Emissions from Demolition Activities under Alternative 1 (Preferred Alternative)**

	Point and Area Sources Combined					
	NO <sub>x</sub> (tpy)	VOC (tpy)	CO (tpy)	SO <sub>2</sub> (tpy)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)
Regional Emissions	11,360	8,299	47,204	7,581	3,637	1,337
Emissions	0.267	0.050	0.426	0.019	0.166	0.031
% of Regional	0.002%	0.001%	0.001%	0.000%	0.005%	0.002%

Summary  
 Estimated Emissions for Demolition Activities under Alternative 1 (Preferred Alternative)

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<b>Summary</b>	Summarizes total emissions for Renovation and Assembly Activities under Alternative 2 in 2018
<b>Combustion</b>	Estimates emissions from non-road equipment exhaust.
<b>Fugitive</b>	Estimates particulate emissions from construction and demolition activities including earthmoving, vehicle traffic, and windblown dust.
<b>Grading</b>	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions.
<b>Haul Truck On-Road</b>	Estimates emissions from haul trucks hauling fill materials to the job site.
<b>Construction Commuter</b>	Estimates emissions for construction workers commuting to the site.
<b>AQCR Tier Report</b>	Summarizes total emissions for the Southern Maryland Intrastate AQCR report for 2011, to be used to compare Alternative 2 to regional emissions.

Summary  
*Estimated Emissions for Renovation and Assembly Activities under Alternative 2*



**Air Emissions for Renovation and Assembly Activities under Alternative 2 in 2018**

	NO <sub>x</sub> (ton)	VOC (ton)	CO (ton)	SO <sub>2</sub> (ton)	PM <sub>10</sub> (ton)	PM <sub>2.5</sub> (ton)	CO <sub>2</sub> (ton)
Combustion	4.75	0.38	2.09	0.38	0.34	0.33	538.21
Fugitive Dust	-	-	-	-	1.69	0.17	-
Haul Truck On-Road	0.03	0.01	0.03	0.00	0.00	0.00	19.71
Commuter	0.06	0.07	0.62	0.00	0.01	0.01	119.53
<b>TOTAL</b>	<b>4.84</b>	<b>0.45</b>	<b>2.74</b>	<b>0.38</b>	<b>2.05</b>	<b>0.51</b>	<b>677.46</b>

Note: Total PM<sub>10/2.5</sub> fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO<sub>2</sub> emissions converted to metric tons = **614.45 metric tons**  
 Percent of CEQ Threshold = **2.458%**

Since future year budgets were not readily available, actual 2011 air emissions inventories for the counties were used as an approximation of the regional inventory. Because emissions from the Proposed Action in 2015 are several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

**Southern Maryland Intrastate AQCR**

Year	Point and Area Sources Combined					
	NO <sub>x</sub> (tpy)	VOC (tpy)	CO (tpy)	SO <sub>2</sub> (tpy)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)
2011	11,360	8,299	47,204	7,581	3,637	1,337

Source: USEPA National Emissions Inventory (NEI) (<http://neibrowser.epa.gov/eis-public-web/home.html>). Site visited on 17 March 2014

**Air Emissions from Renovation and Assembly Activities under Alternative 2 in 2018**

Point and Area Sources Combined						
	NO <sub>x</sub> (tpy)	VOC (tpy)	CO (tpy)	SO <sub>2</sub> (tpy)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)
Regional Emissions	11,360	8,299	47,204	7,581	3,637	1,337
Emissions	4.843	0.455	2.741	0.377	2.046	0.508
% of Regional	0.043%	0.0055%	0.0058%	0.005%	0.056%	0.038%

Regional Emissions  
Emissions  
% of Regional

Summary  
 Estimated Emissions for Renovation and Assembly Activities under Alternative 2

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## Appendix B. Coastal Consistency Determination



### DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
22268 ETCOAR POINT ROAD  
PATUXENT RIVER, MARYLAND 20670-1154

IN REPLY REFER TO:

5090

Ser N45/54

FEB 19 2016

Maryland Department of the Environment  
Attn: Mr. Elder A. Ghigiarelli, Jr.  
Wetlands and Waterways Program  
1800 Washington Boulevard, Suite 430  
Baltimore, MD 21230

Dear Mr. Ghigiarelli:

**SUBJECT: NAVAL AIR STATION (NAS) PATUXENT RIVER P-131 ROTARY WING  
TEST AND EVALUATION HANGAR REPLACEMENT**

In accordance with the Federal Coastal Zone Management Act of 1972, as amended, the Navy requests concurrence with its Negative Determination for proposed construction of a hangar complex to support rotary wing aircraft research, development, testing and evaluation (RDT&E) at Naval Air Station (NAS) Patuxent River. The proposed project has been reviewed by our local Environmental Division staff and regional legal office and was determined to be consistent to the maximum extent practicable with the Maryland Coastal Zone Management Program.

The proposed project will construct a replacement hangar facility to provide adequate and properly configured RDT&E hangar space for the development and testing of Navy and Marine Corps rotary wing/tilt-rotor aircraft and aircraft systems supporting Undersea Warfare, Surface Warfare, Combat Search and Rescue, Naval Special Warfare, Airborne Mine Countermeasures, Logistics, Maritime Supremacy and Vertical Assault. The complex includes hangar bays, maintenance shops, crew spaces, storage areas, and office and laboratory space for Integrated Test Team (ITT) personnel.

The new hangar facility will replace the aging, inadequate hangar (Hangar 111) and provide efficiencies and operational advantages that are consistent with Navy aviation goals for reducing the time required for RDT&E and effective development of mission-critical systems to the Fleet. The project relocates personnel and aircraft from an aging World War II-era hangar to a new hangar facility near existing rotary wing capabilities in Hangars 101 and 109.

Hangar 111, a World War II-era barrel-arch hangar, is improperly configured for RDT&E of modern aircraft. It also lacks sufficient office and laboratory space for co-locating ITT personnel. The ITT is too large to work in the existing constrained and poorly configured spaces in the hangar complex; therefore, ITT personnel are scattered among numerous facilities, resulting in operational inefficiencies.

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Ser N43/543  
FEB 19 2016

Without this project, HX-21 (the program currently using the hangar) will continue to experience operational inefficiencies, delays to critical timelines, increased project costs and repairs to damaged aircraft and equipment. Costly prototype aircraft will be stored and continuously repositioned in overcrowded hangars. HX-21 personnel will require space elsewhere on the installation, but would not be co-located with existing HX-21 staff or the aircraft they support, resulting in delays to test programs. Obsolete aircraft power systems will continue to fail and cause expensive downtime for RDT&E assets. Aging utilities infrastructure will remain subject to frequent failures.

The new hangar complex will be approximately 150,000 sq. ft. and will be located along Cedar Point Road near rotary-wing hangars 101 and 109. The proposed apron would cross Cedar Point Road to adjoin the existing aprons between Hangars 101 and 109. The proposed complex would be constructed in a space that is currently composed of numerous support structures, a recreational softball field, parking spaces, a portion of Cedar Point Road, and unused open space. The proposed parking lot would be constructed along Sautley Road just west and across the street from the new hangar facility. The proposed facilities would bisect Cedar Point Road. Consequently, this road would be terminated north and south of the proposed hangar and be permanently closed to north- and southbound traffic in that part of the installation. To accommodate vehicle flow, traffic would be diverted around the new facility from Cedar Point Road onto Sautley Road. A two-way access road would be constructed between the proposed hangar and Sautley Road.

The facilities and associated access road would account for approximately 13.5 acres of site disturbance. There would be a net increase of 10 acres of impervious surface. Most of the proposed site acreages are either existing impervious airfield/road surfaces or mowed grass. Approximately 1.8 acres of agricultural land would be replaced with a parking lot, but very little shrub vegetation would be impacted.

The proposed design would not significantly affect environmental resources at NAS Patuxent River and is not expected to impact State coastal resources adjacent to the installation.

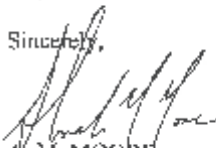
There is only a small portion of the project located within 1,000 feet (but not within 100 feet) of the Patuxent River. As a part of this project, trailers 3005 and 3006 would be demolished. The total area to be demolished within the 1,000 feet of the Patuxent River is 1,331 sq. ft. The trailers currently reside on an impervious parking lot. There is no anticipated change in cover type and very little to no soil disturbance occurring within 1,000 feet of coastal waters. There will be less than 5,000 sq. ft. of shrub/scrub vegetation impacts and no impacts to forested land within the entire project area.



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Ser N45/543  
**FEB 19 2016**

There are no wetlands or listed species within or adjacent to the project boundaries. The proposed project will occur within a historic district; however, the project will result in a no adverse effect. Any landscaping associated with construction will use regionally native species to the greatest extent possible.

For more information regarding this request, please contact Jackie Smith, Natural Resources Specialist, at (301) 757-0007, jacqueline.c.smith@navy.mil or facsimile at (301) 757-1889.

Sincerely,  
  
A. M. MOORE  
Commander, CEC, USN  
Public Works Officer  
By direction of the  
Commanding Officer

- Enclosures: 1. Project Location  
2. Site Map

Copy to: Maryland Department of Natural Resources (J. Abe)

I CONCUR WITH THE NAVY'S DETERMINATION THAT THE CONSTRUCTION ACTIVITY DETAILED ABOVE FOR P-131 ROTARY WING 1&E HANGAR REPLACEMENT IS CONSISTENT WITH THE MARYLAND'S COASTAL ZONE MANAGEMENT PROGRAM. THIS COMPLETES THE NAVY'S OBLIGATION TO CONSULT WITH THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER THE FEDERAL COASTAL ZONE MANAGEMENT ACT.

\_\_\_\_\_  
MARYLAND DEPARTMENT OF THE ENVIRONMENT \_\_\_\_\_ DATE

PLEASE NOTE EXCEPTIONS, IF ANY, TO THIS DETERMINATION  
EXCEPTIONS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



ENCLOSURE (/)





ENCLOSURE (2)

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**Appendix C.**  
**National Historic Preservation Act Section 106 Documentation**



## DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
22268 CEDAR POINT ROAD  
PATUXENT RIVER, MARYLAND 20670-1154

IN REPLY REFER TO:

5090  
Ser N45/599

**AUG - 7 2014**

State Historic Preservation Office  
Attn: J. Rodney Little  
Maryland Historical Trust  
100 Community Place  
Crownsville, Maryland 21032-2023

SUBJECT: HANGAR 111 REPLACEMENT, MILCON P-131 CONSULTATION,  
NAVAL AIR STATION PATUXENT RIVER, ST. MARY'S COUNTY,  
MARYLAND

Dear Mr. Little:

The purpose of this letter is to initiate consultation with the State Historic Preservation Office (SHPO) per Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) on proposed Navy undertakings at the main base of Naval Air Station (NAS) Patuxent River, Maryland. The undertakings involve the facilities of Rotary Wing Test and Evaluation (HX-21), currently headquartered at Hangar 111 within the Flight Test/Tactical Test/NAS Operations Historic District. The Navy seeks SHPO's input and comments at this early stage in the evaluation of the effect on historic resources. This letter also provides advance notification that it is the Navy's intention to utilize the National Environmental Policy Act (NEPA) process, through the development of an Environmental Assessment, to provide for Section 106 consultation.

In the Environmental Assessment, two Action Alternatives and a No Action Alternative are proposed to be evaluated for their potential to affect resources that have been determined eligible for listing in the National Register of Historic Places (NRHP). The alternatives described below are from the *Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Rotary Wing Testing and Evaluation Hangar Replacement at NAS Patuxent River, Maryland (MILCON P-131) (DOPAA)*.

The DOPAA description of the Proposed Action and alternatives identifies Alternative One as the Preferred Alternative

**Alternative One** involves two major components, both of which will have an effect on the NRHP-eligible Flight Test/Tactical Test/Naval Air Station Operations Historic District, MIHP No. SM-899 (Enclosure 1). This district was determined eligible by the Navy and concurred with by the SHPO on March 13, 2000. The two major components of Alternative One are 1) New construction of a hangar complex and 2) Demolition of Hangar 111, Building 111A and 14 additional non-contributing structures in the NRHP-eligible historic district (Enclosure 2).

**Alternative One, New Construction Component:** The new hangar complex will support rotary-wing aircraft research, development, testing, and evaluation. The proposed hangar will be approximately 194,741 square feet (ft<sup>2</sup>) (18,092 square meters [m<sup>2</sup>]) and will provide a new facility to support and consolidate operations currently conducted in Hangar 111 and dispersed at numerous other facilities at NAS Patuxent River. The new hangar will support both Navy and Marine Corps aircraft and will accommodate approximately 358 personnel in offices, 297 aircraft maintenance personnel, and 21 rotary-wing aircraft. The new hangar project includes new aircraft apron areas, rerouting of Cedar Point Road and utilities realignment. The new hangar is needed to meet modern aircraft and mission requirements at the Navy's premier rotary test facility.

The proposed new construction is in the vicinity and viewshed of Hangars 101 and 109, both contributing resources to the historic district. The existing aprons, taxiways and runways are also considered contributing resources to the historic district. The Navy has defined the Area of Potential Effect (APE) for the new construction as being the area between and including Hangars 101 and 109 and adjacent apron areas (Enclosure 3).

The Navy's initial finding of effect for the new construction component is that there will be No Adverse Effect on the historic district. While new construction will take place in the vicinity of and in the viewshed of historic Hangars 101 and 109, the new construction continues the traditional use of the area with the introduction of a new hangar type. Hangar



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101 was a steel hangar type developed before World War II. Hangar 109 is a double-barrel vaulted concrete hangar, a type that was first built at NAS Patuxent River during World War II. The adjacent historic hangars will continue to be used in support of aircraft operations and testing. In the past, elsewhere on NAS Patuxent River, the SHPO has concurred with a No Adverse Effect finding for construction of similar new hangars in the APE of historic hangars.

Cedar Point Road has been evaluated and is not considered an historic resource, so there is No Adverse Effect for the rerouting of this roadway. No archaeological sites exist in the area of new construction or road rerouting.

The Navy believes that the new construction components will have No Adverse Effect on cultural resources. This determination of No Adverse Effect of the new construction component of Alternative One will be further evaluated in the Environment Assessment; however, the Navy invites the SHPO's input on this preliminary determination.

**Alternative One, Demolition Component:** The second major component of Alternative One is the demolition of historic Hangar 111 and Building 111A (Heating Plant), which are contributing resources to the Flight Test/Tactical Test/Naval Air Station Operations Historic District. The demolition plan also includes non-contributing resources (Buildings 129, 165, 231, 1481, 1584, 1658, 1658A, 2113, 2163, 2225, 2250, 3005, 3006, and 3252).

The Navy has determined that the demolition of Hangar 111 and B-111A will have an Adverse Effect on the contributing resources and the historic district. The demolition of H-111 will diminish the historic relationship and setting of the twin hangars, originally built for seaplanes, and the associated contributing seaplane basin. The Navy has defined the APE for the demolition component of Alternative One as including the area immediately around the hangar and the viewshed encompassing the lower Patuxent River (Enclosure 3). The Navy anticipates continued consultation with the SHPO and others on this component of the undertakings.



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**Alternative Two Renovations:** Alternative Two is defined as the renovation of Hangar 111 and Building 111A to comply with mission, safety and utilities upgrade requirements. Alternative Two does not meet all of the requirements of the HX-21 mission because of space limitations and hangar configuration issues and is not considered the preferred alternative. This alternative includes construction of additional facilities in the vicinity of Hangar 111.

As is aware, renovation of Hangar 111 and B-111A, following a phased approach, has begun under a 50-year Life Extension Project. Alternative Two would be the continuation of the Life Extension Project. Consultation with SHPO occurred in 2012 and 2014 on the first two phases of the Life Extension Project. The first phase, replacement of the roof has been completed (SHPO Concurrence July 5, 2012, SHPO# 201202994). Consultation on the second phase of the Life Extension project, which is the renovation of the center lean-to section of the hangar, has been completed (SHPO Letter dated April 25, 2014). The scope and funding for each subsequent renovation phase cannot be determined at this time, but is currently planned to include separate projects for the renovation of the water-side lean-to, the roadside lean-to and each of the high aircraft bays.

The APE for Alternative Two would be the area immediately around Hangar 111. The complete renovation of the hangar could have an adverse effect on the hangar because of Anti-Terrorism Force Protection standards, which could require complete replacement of the roadside lean-to windows and infill of brick walls. Additionally, the introduction of numerous new buildings in the area would have an effect the historic district.

**Alternative Three & Other Alternatives:** Alternative Three is the No Action Alternative, which is required by law, although it does not fulfill criteria established for the HX-21 program in the DOPAA. There were other alternatives considered in the DOPAA, but dismissed for a variety of reasons. These alternatives included: 1) Construction of the Proposed Hangar Off-Installation, 2) Relocation of the Proposed Hangar with Existing Facilities, 3) Construction of the Proposed New Facility and Mothballing of Hangar 111 and Building 111A, and 4) Renovation and Expansion of Hangar 111 and Building 111A.

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**Archaeology:** The area has been surveyed for archaeological sites or includes areas that have been identified as having been heavily graded, precluding the presence of significant archaeological resources. The Navy believes that all of the proposed undertakings and alternatives will have no effect on any archaeological resources.

**Public Participation:** The Navy seeks to take into account the historic preservation concerns for the proposed undertakings through coordination among agency officials and others potentially interested in the effects of the undertaking on historic properties. The public component required under NEPA will be conducted in conjunction with the requirements under NHPA. A preliminary list of potential consulting parties has been identified and includes: St. Mary's County Historic Preservation Commission, St. Mary's County Historical Society, Historic St. Mary's City Commission, St. Clements Island Potomac River Museum, Calvert County Department of Planning and Zoning, Calvert County Historic District Commission, Calvert Marine Museum, Calvert County Historical Society, Jefferson Patterson Park and Museum, Tri-County Council for Southern Maryland, Southern Maryland Heritage Area Consortium, and Patuxent Air Test Museum. Additional consulting parties might be identified through the scoping process. The Navy invites SHPO to provide suggestions for others that should be included as potential consulting parties.

The input and comments of the SHPO at this early stage are greatly appreciated. If you have any questions please contact Michael A. Smolek, Cultural Resources Manager, by email at [michael.a.smolek@navy.mil](mailto:michael.a.smolek@navy.mil) or by telephone at 301-757-4774.

Sincerely,



A. M. MOORE  
Commander, CEC, USN  
Public Works Officer  
By direction of the  
Commanding Officer

Enclosures: (1) Location -Historic District  
(2) Photos of H-111 and B-111A  
(3) Map of Area of Potential Effect



## DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
22268 CEDAR POINT ROAD  
PATUXENT RIVER, MARYLAND 20670-1154

IN REPLY REFER TO:

5090  
Ser N45/612

**SEP 11 2014**

Advisory Council on Historic Preservation  
Attn: Ms. Katharine R. Kerr  
401 F Street NW, Suite 308  
Washington, DC 20001-2637

SUBJECT: NOTICE OF ADVERSE EFFECT, HANGAR 111 REPLACEMENT,  
MILCON P-131 CONSULTATION, NAS PATUXENT RIVER,  
ST. MARY'S COUNTY, MARYLAND

Dear Ms. Kerr:

The purpose of this letter is to notify the Advisory Council on Historic Preservation of an anticipated adverse effect on a historic resource and to initiate consultation per Section 106 of the National Historic Preservation Act of 1966 (as amended) on proposed Navy undertakings at the main base of Naval Air Station Patuxent River, Maryland. The undertakings involve a military construction project (MILCON P-131) for Rotary Wing Testing and Evaluation HX-21, a program that is currently headquartered at Hangar 111 within the Flight Test/Tactical Test/NAS Operations Historic District at Naval Air Station Patuxent River (Enclosure 1).

This letter also provides advance notification that it is the Navy's intention to utilize the National Environmental Policy Act process, through the development of an Environmental Assessment, to provide for Section 106 consultation. The Navy has initiated consultation with the Maryland State Historic Preservation Office to seek input and comments at this early stage in the evaluation of the effect on historic resources.

In the Environmental Assessment, two Action Alternatives and a No Action Alternative are proposed to be evaluated for their potential to affect resources that have been determined eligible for listing in the National Register of Historic Places. The



alternatives described below are from the *Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Rotary Wing Testing and Evaluation Hangar Replacement at Naval Air Station Patuxent River, Maryland (MILCON P-131)*. The Description of the Proposed Action and Alternatives identifies Alternative One as the Preferred Alternative.

a. **Alternative One** involves two major components, both of which will have an effect on the National Register of Historical Places-eligible Flight Test/Tactical Test/Naval Air Station Operations Historic District, MIHP No. SM-899 (Enclosure 2). This district was determined eligible by the Navy and concurred with by Maryland State Historic Preservation Office on March 13, 2000. The two major components of Alternative One are: 1) New construction of a hangar complex and 2) Demolition of Hangar 111, Building 111A and 14 additional non-contributing structures in the National Register of Historical Places-eligible historic district (Enclosure 3).

b. **Alternative One, New Construction Component:** The new hangar complex will support rotary-wing aircraft research, development, testing, and evaluation. The proposed hangar will be approximately 194,741 square feet (ft<sup>2</sup>) (18,092 square meters [m<sup>2</sup>]) and will provide a new facility to support and consolidate operations currently conducted in Hangar 111 and dispersed at numerous other facilities at NAS Patuxent River. The new hangar will support both Navy and Marine Corps aircraft and will accommodate approximately 358 personnel in offices, 297 aircraft maintenance personnel, and 21 rotary-wing aircraft. The new hangar project includes new aircraft apron areas, rerouting of Cedar Point Road and utilities realignment. The new hangar is needed to meet modern aircraft and mission requirements at this, the Navy's premier rotary test facility.

c. The proposed new construction is in the vicinity and viewshed of Hangars 101 and 109, both contributing resources to the historic district. The existing aprons, taxiways and runways are also considered contributing resources to the historic district. The Navy has defined the Area of Potential Effect for the new construction as being the area between and including Hangars 101 and 109 and adjacent apron areas.

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d. The Navy's initial finding of effect for the new construction component is that there will be No Adverse Effect on the historic district. While new construction will take place in the vicinity of and in the viewshed of historic Hangars 101 and 109, the new construction continues the traditional use of the area with the introduction of a new hangar type. Hangar 101 was a steel hangar type developed before World War II. Hangar 109 is a double-barrel vaulted concrete hangar, a type that was first built at Naval Air Station Patuxent River during World War II. The adjacent historic hangars will continue to be used in support of aircraft operations and testing. In the past, elsewhere on Naval Air Station Patuxent River, the Maryland State Historic Preservation Office has concurred with a No Adverse Effect finding for construction of similar new hangars where the Area of Potential Effect included historic hangars.

e. Cedar Point Road has been evaluated and is not considered an historic resource, so there is No Adverse Effect for the rerouting of this roadway. No archaeological sites exist in the area of new construction or road rerouting.

f. The Navy believes that the new construction components will have No Adverse Effect on cultural resources. This determination of No Adverse Effect of the new construction component of Alternative One will be further evaluated in the Environmental Assessment; however, the Navy invites input on this preliminary determination.

g. **Alternative One, Demolition Component:** The second major component of Alternative One is the demolition of historic Hangar 111 and Building 111A (Heating Plant), which are contributing resources to the Flight Test/Tactical Test/Naval Air Station Operations Historic District (Enclosure 4). The demolition plan also includes non-contributing resources (Buildings 129, 165, 231, 1481, 1584, 1658, 1658A, 2113, 2163, 2225, 2250, 3005, 3006, and 3252).

h. The Navy has determined that the demolition of Hangar 111 and B-111A will have an Adverse Effect on the contributing resources and the historic district. The demolition of H-111 will diminish the historic relationship and setting of the twin hangars, originally built for seaplanes, and the associated contributing seaplane basin. The Navy has defined

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the Area of Potential Effect for the demolition component of Alternative One as including the area immediately around the hangar and the viewshed encompassing the lower Patuxent River (Enclosure 3). The Navy anticipates continued consultation with the Maryland State Historic Preservation Office and others on this component of the undertakings.

i. **Alternative Two Renovations:** Alternative Two is defined as the renovation of Hangar 111 and Building 111A to comply with mission, safety and utilities upgrade requirements. Alternative Two does not meet all of the requirements of the HX-21 mission because of space limitations and hangar configuration issues and is not considered the preferred alternative. This alternative includes construction of additional facilities in the vicinity of Hangar 111.

j. As the Maryland State Historic Preservation Office is aware, renovation of Hangar 111 and B-111A, following a phased approach, has begun under a 50-year Life Extension Project. Alternative Two would be the continuation of the Life Extension Project. Consultation with the Maryland State Historic Preservation Office occurred in 2012 and 2014 on the first two phases of the Life Extension Project. The first phase, replacement of the roof has been completed (Maryland State Historic Preservation Office Concurrence July 5, 2012, SHPO# 201202994). Consultation on the second phase of the Life Extension project, which is the renovation of the center lean-to section of the hangar, has been completed (Maryland State Historic Preservation Office Letter dated April 25, 2014). The scope and funding for each subsequent renovation phase cannot be determined at this time, but is currently planned to include separate projects for the renovation of the water-side lean-to, the roadside lean-to and each of the high aircraft bays.

k. The Area of Potential Effect for Alternative Two would be the area immediately around Hangar 111. The complete renovation of the hangar could have an adverse effect on the hangar because of Anti-Terrorism Force Protection standards, which could require complete replacement of the roadside lean-to windows and infill of brick walls. Additionally, the



introduction of numerous new buildings in the area would have an effect on the historic district.

1. **Alternative Three & Other Alternatives:** Alternative Three is the No Action Alternative, which is required by law, although it does not fulfill criteria established for the HX-21 program in the Description of the Proposed Action and Alternatives. There were other alternatives considered in the Description of the Proposed Action and Alternatives, but dismissed for a variety of reasons. These alternatives included: 1) Construction of the Proposed Hangar Off-Installation, 2) Relocation of the Proposed Hangar with Existing Facilities, 3) Construction of the Proposed New Facility and Mothballing of Hangar 111 and Building 111A, and 4) Renovation and Expansion of Hangar 111 and Building 111A.

m. **Archaeology:** The area has been surveyed for archaeological sites or includes areas that have been identified as having been heavily graded, precluding the presence of significant archaeological resources. The Navy believes that all of the proposed undertakings and alternatives will have no effect on any archaeological resources.

n. **Public Participation:** The Navy seeks to take into account the historic preservation concerns for the proposed undertakings through coordination among agency officials and others potentially interested in the effects of the undertaking on historic properties. The public component required under National Environmental Policy Act will be conducted in conjunction with the requirements under National Historic Preservation Act. A preliminary list of potential consulting parties has been identified and includes: St. Mary's County Historic Preservation Commission, St. Mary's County Historical Society, Historic St. Mary's City Commission, St. Clements Island Potomac River Museum, Calvert County Department of Planning and Zoning, Calvert County Historic District Commission, Calvert Marine Museum, Calvert County Historical Society, Jefferson Patterson Park and Museum, Tri-County Council for Southern Maryland, Southern Maryland Heritage Area Consortium, and Patuxent Air Test Museum. Additional consulting parties might be identified through the scoping process. The Navy invites the

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Ser N45/612

SEP 11 2014

Advisory Council on Historic Preservation to provide suggestions for others that should be included as potential consulting parties.

If you have any questions or would like to visit the site, please contact Michael A. Smolek, Cultural Resources Program Manager, by email at [michael.a.smolek@navy.mil](mailto:michael.a.smolek@navy.mil) or by telephone at 301-757-4774.

Sincerely,



A. M. MOORE  
Commander, CEC, USN  
Public Works Officer  
By direction of the  
Commanding Officer

Enclosures: (1) Location Map of Naval Air Station Patuxent River  
(2) Location Map of Historic District  
(3) Map of Area of Potential Effect  
(4) Photos of H-111 and B-111A





Sustainable — Attainable

Maryland Department of Planning  
Maryland Historical Trust

November 13, 2014

A.M. Moore  
Commander, CEC, USN  
Public Works Officer  
Naval Air Station  
22268 Cedar Point Road  
Patuxent River, MD 20670-1154

Re: Hangar 111 Replacement, MLCON P-131, Naval Air Station Patuxent River  
St. Mary's County, Maryland

Dear Commander Moore:

Thank you for initiating consultation with the Maryland Historical Trust (Trust) regarding the above-referenced undertaking. The Trust, Maryland's State Historic Preservation Office, is reviewing the project for its effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act of 1966. We offer the following preliminary comments and strongly urge the Navy to thoroughly consider all prudent and feasible alternatives that would avoid adverse effects to the eminent Hangar 111 and its associated historic district.

**Project Description:** According to the submittal, the undertaking entails construction of new facilities for the Rotary Wing Test and Evaluation unit, currently headquartered at Hangar 111. The new construction is proposed in the vicinity of Hangars 101 and 109 and well removed from the Hangar 111 locale. The undertaking also includes the demolition of the historic Hangar 111 and Building 111A (Heating Plant), as well as other non-historic resources.

**Identification of Historic Properties:** The undertaking's area of potential effects includes several portions of the Flight Test/Tactical Test/ NAS Operations Historic District (SM-899) and contains contributing resources Hangar 111 and Building 111A. The district is eligible for the National Register under Criteria A and C, for its direct association with the key aspects of the installation's mission as a center for testing and evaluation of naval aircraft and associated systems during World War II and the early years of the Cold War. The district's surviving resources also reflect the technologies and construction methods of its specialized facilities related to the mission. The district and its contributing elements still retain strong integrity of location, design, and association – notwithstanding the changes and alterations that have occurred through time. Hangar 111 is a prominent historic property and an integral component of the district and the installation as a whole. Built in 1943, this highly significant resource has continuously played a pivotal role in the direct mission of the installation from its initial construction. Hangar 111 is also widely recognized as focal point on the landscape, from within as well as outside the installation.

**Assessment of Effects:** The proposed demolition of Hangar 111, as well as Building 111A, would constitute an adverse effect on these historic properties as well as on the historic district as a whole. Further consultation among the Navy, the Advisory Council on Historic Preservation (ACHP), the Trust, and other consulting parties is warranted in order to fully explore alternatives that would avoid and minimize the adverse effects. Based on the information submitted thus far, there is insufficient justification to support the demolition of this pivotal resource. As project planning and Section 106 consultation proceed, we ask the Navy to develop and provide the following materials:

- A defensible reason for the proposed demolition of Hangar 111 and Building 111A is needed, particularly since the new construction is proposed for another location within the historic district.

Martin O'Malley, Governor  
Anthony G. Brown, Lt. Governor

Richard Eberhart Hall, AICP Secretary  
Amanda Stakem Conn, Esq., Deputy Secretary

Maryland Historical Trust - 100 Community Place - Crownsville - Maryland - 21032  
Tel: 410.514.7600 - Toll Free: 1.800.756.0119 - TTY users: Maryland Relay - MHT.Maryland.gov

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A.M. Moore  
Hangar 111 Replacement, MLCON P-131  
Naval Air Station Patuxent River  
November 13, 2014  
Page 2 of 2

- A thorough exploration of alternatives to demolition and continued reuse of Hangar 111 is warranted. The Navy, in consultation with the Trust, has been implementing a Life Extension project for Hangar 111 over the last few years to maintain and rehabilitate the hangar for continuous use. It is incomprehensible why the Navy is now proposing demolition of the hangar given the efforts and resources it has devoted to appropriately sustain the life of this significant historic structure. With the constant demand for hangar and related mission space, it seems likely that there would be other viable uses for the structure by other tenants. The Navy should exhaust its efforts to find alternative uses for Hangar 111 that would provide for the structure's continuous use and long term preservation.
- Given the significance and prominence of Hangar 111 expansive efforts to involve consulting parties are justified. We understand that the ACHP has decided to participate in the consultation for this undertaking, and we welcome their involvement. Your submittal identifies a number of other parties the Navy intends to invite and we agree with that list. In addition, the Navy should also notify Preservation Maryland and seek other entities and organizations' representing the installation's varied internal interests and communities to involve.

The Navy and the Trust have successfully consulted on numerous undertakings at Naval Air Station Patuxent River over the last few decades. We value our good working relationship and the Navy's ongoing commitment to fulfilling its historic preservation responsibilities. We understand the Navy's need to alter existing facilities and construct new ones to meet its important mission and ever changing technologies. The construction of new facilities within the historic district can certainly be accomplished without causing an adverse effect, through careful consultation and sensitive design. Nevertheless, the demolition of a pivotal historic resource that has continuously served the Navy's mission since the initial development of the installation is an irreversible and final action. We urge the Navy to complete a comprehensive consideration of alternatives in order to develop an option that will not only meet the essential mission requirements, but will also ensure the long term preservation and appropriate stewardship of Hangar 111.

We look forward to further consultation with all involved parties to effectively complete the Section 106 consultation for this undertaking. If you have questions or need further assistance, please contact Amanda Apple at 410-514-7630 / [amanda.apple@maryland.gov](mailto:amanda.apple@maryland.gov) or Beth Cole at 410-514-7631 / [beth.cole@maryland.gov](mailto:beth.cole@maryland.gov). Thank you for providing us this opportunity to comment.

Sincerely,



J. Rodney Little  
Director / State Historic Preservation Officer  
Maryland Historical Trust

JRL/EJC/ARA/201404073

cc: Michael Smolek (NAS PAX)  
Julie Darsie (NAV FAC)  
Katherine Kerr (ACHP)  
Nicholas Redding (Preservation Maryland)  
Grace Brady (St. Mary's County)  
Kirsti Uunila (Calvert County)



## DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
22268 CEDAR POINT ROAD  
PATUXENT RIVER, MARYLAND 20670-1154

IN REPLY REFER TO:

8090  
Ser N45/670

DEC 23 2015

Maryland Historical Trust  
Attn: Ms. Elizabeth Hughes  
State Historic Preservation Officer  
100 Community Place  
Crownsville, MD 21032-2023

Dear Ms. Hughes:

SUBJECT: CONTINUED CONSULTATION MILCON P-131, NAS PATUXENT RIVER,  
ST. MARY'S COUNTY, MARYLAND

The purpose of this letter is to continue consultation with the State Historic Preservation Office (SHPO) per Section 106 of the National Historic Preservation Act of 1966 on a proposed Navy undertaking at the main base of Naval Air Station (NAS) Patuxent River, Maryland. The planned undertaking is a military construction project (MILCON P-131) for Rotary Wing Testing and Evaluation HX-21, a program that is currently headquartered at Hangar 111 within the NAS Patuxent River Flight Test/Tactical Test/NAS Operations Historic District (MIHP #SM-899). Consultation with SHPO was initiated in a letter dated August 14, 2014 and a meeting was held on site on February 6, 2015 with representatives of SHPO, Advisory Council on Historic Preservation and the Navy.

This letter provides an update on the status of and changes to the proposed MILCON P-131 project. The most important changes to the project are a reduction in the size, scope and cost, including the elimination of the demolition of Hangar 111. The Navy intends to continue to utilize the NEPA process, through the development of an Environmental Assessment (EA), to provide for Section 106 consultation.

In the revised EA, two Action Alternatives and a No Action Alternative are proposed to be evaluated for their potential to affect resources that have been determined eligible for listing on the National Register of Historic Places (NRHP).

**Alternative One**, the Preferred Alternative, is new construction of a hangar complex and demolition of 13 non-contributing buildings in the historic district. The new hangar complex will support rotary-wing aircraft research, development, testing, and evaluation (RDT&E). The proposed hangar will be approximately 128,521 square feet, reduced from 194,741 square feet, and will provide a new facility to support and consolidate operations currently conducted in Hangar 111 and dispersed at numerous other facilities at NAS Patuxent River. The new hangar



DEC 23 2015

will support both Navy and Marine Corps aircraft and will accommodate approximately 241 personnel in offices, 246 aircraft maintenance personnel, and 15 rotary-wing aircraft. The new hangar project includes new aircraft apron areas, rerouting of Cedar Point Road and utilities realignment.

The Navy has redefined the Area of Potential Effect (APE) for the new construction as being the area between and including Hangars 101 and 109 and adjacent apron areas (Enclosure). Since the demolition of Hangar 111 is no longer planned, the revised APE does not include the area around Hangar 111 and the viewshed over the Patuxent River. Once vacated by HX-22, Hangar 111 will be occupied by another aircraft program and will continue to be used for aircraft storage and maintenance, as well as, administrative purposes. The new hangar will have an effect on the historic district because the proposed new construction is in the vicinity and viewshed of Hangars 101 and 109, both contributing resources. The existing aprons, taxiways and runways are also considered contributing resources to the historic district.

The Navy's revised finding of effect for Alternative One is that there will be No Adverse Effect on the historic district. Although new construction will take place in the vicinity of and in the viewshed of historic Hangars 101 and 109, the new construction continues the traditional use of the area with the introduction of a new hangar type. The adjacent historic hangars will continue to be used in support of aircraft operations and testing. In the past, elsewhere on NAS Patuxent River, SHPO has concurred with a No Adverse Effect finding for construction of similar new hangars where the APE included historic hangars.

Cedar Point Road has been evaluated and is not considered an historic resource, so there will be No Adverse Effect for the rerouting of this roadway. No archaeological sites will be affected by this alternative.

In the previous consultation, Hangar 111 was to be demolished. Now that this is no longer being planned, the Navy believes that Alternative one, the Preferred Alternative, will not have an adverse effect on any cultural resources.

**Alternative Two Renovations:** Alternative Two is defined as the renovation of Hangar 111 and B-111A (Heating Plant) to comply with mission, utilities and Anti-Terrorism Force Protection (ATFP) requirements. Alternative Two also includes construction of a number of new buildings around the hangar to consolidate staff and operations in the immediate vicinity of Hangar 111. Alternative Two does not meet all of the requirements of the HX-21 mission because of space limitations and hangar configuration issues and is not considered the preferred alternative. The APE for Alternative Two is defined as the ramp, East Seaplane basin and Hangar 110. The Navy believes that the complete renovation of the hangar will likely have an adverse effect on the hangar mainly due to Anti-Terrorism Force Protection (ATFP) requirements.

It is important to clarify that the phased renovation of Hangar 111 has begun and will now continue under a different project known as the 50-Year Life Extension Project. Phase One

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DEC 23 2015

(Roof) has been completed and Phase 2 (Center Lean-to Renovation) is currently under construction. SHPO has concurred with the Navy's No Adverse Effect determination for the first two phases of the Life Extension project. The Navy will consult with SHPO and ACHP on the upcoming phases of the 50-year Life Extension project in a separate consultation and EA. As noted previously, the Navy believes that the complete renovation of the hangar is likely to have an adverse effect whether the renovation is undertaken as part of the 50-Year Life Extension Project or the MILCON P-131 project.

The Navy does not now plan to demolish the building and will strive to minimize the adverse effect to the hangar as the renovation moves forward, however the aircraft, mission and security requirements are vastly different from what they were over seventy years ago when the building was designed and built. The Navy will request in the forthcoming consultation on the Life Extension project that SHPO take these issues into account when considering the changes that will be necessary to retain the building and keep it functional in a modern military environment.

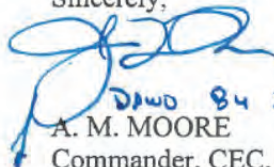
**Alternative Three and Other Alternatives:** Alternative Three is the No Action Alternative, which is required by law, although it does not fulfill criteria for the HX-21 program. This alternative would have no effect on historic resources.

**Archaeology:** The area has been surveyed for archaeological sites or includes areas that have been identified as having been heavily graded, precluding the presence of significant archaeological resources. The Navy believes that all of the proposed undertakings and alternatives will have no effect on any archaeological resources.

The Navy requests concurrence from SHPO that the undertaking as now defined in Alternative One, the Preferred Alternative will have No Adverse Effect on historic resources.

If you have any questions or would like to visit the site, please contact Michael A. Smolek, Cultural Resources Program Manager, by email at michael.a.smolek@navy.mil or by telephone at 301-757-4774.

Sincerely,



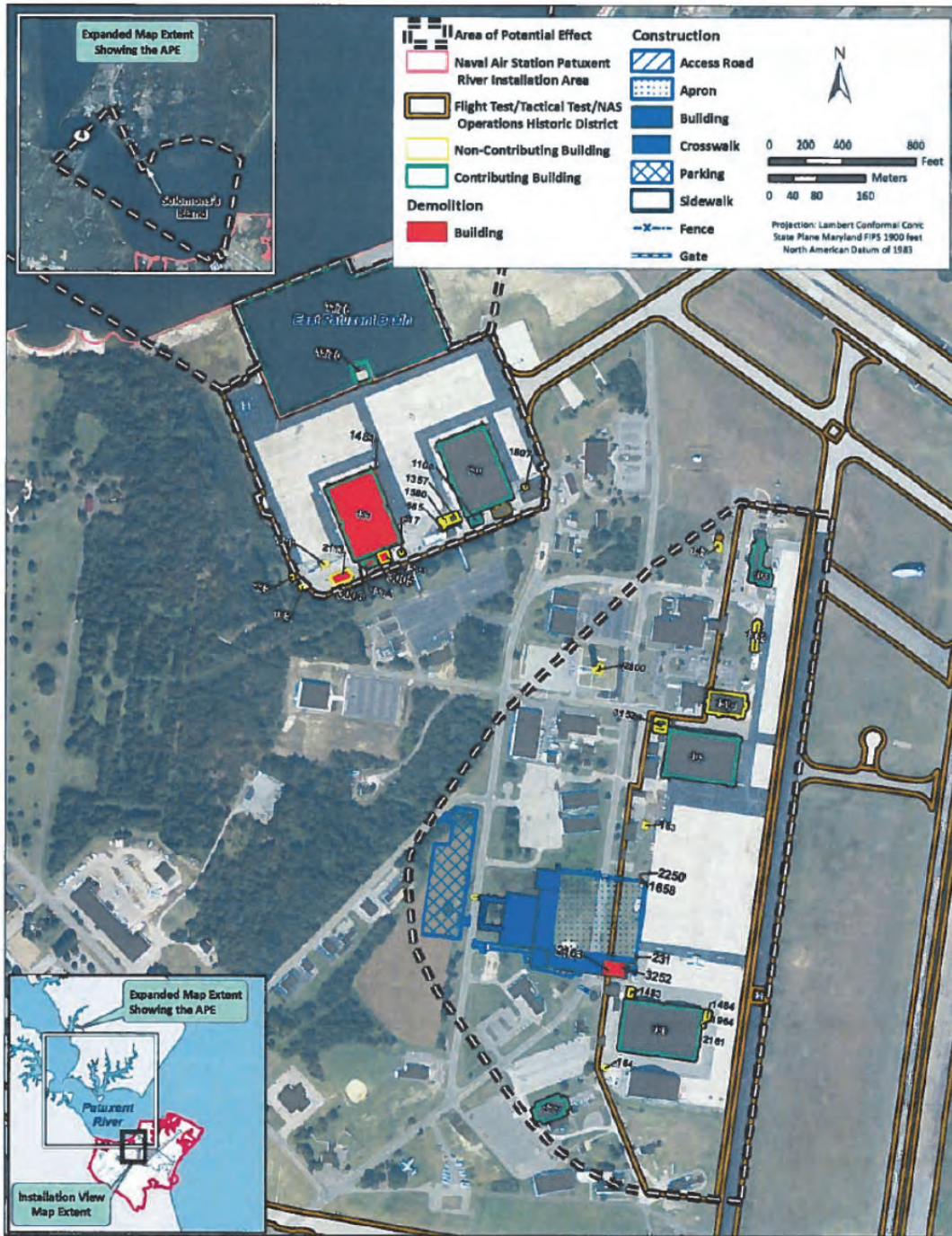
*DAWD BY DIRECTION*

A. M. MOORE  
Commander, CEC, USN  
Public Works Officer  
By direction of the  
Commanding Officer

Enclosure: Map of APE for Alternative One

Copy to: Katharine Kerr, ACHP





Sources: ESRI StreetMap USA 2010 and Naval Air Station Patuxent River.

The revised Area of Potential Effect includes only the area around H-101 and H-109 and does not include the area around H-111, H-110, Seaplane basin and Patuxent River viewsapes. The footprint of the new hangar will be reduced

Enclosure





## DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
22268 CEDAR POINT ROAD  
PATUXENT RIVER, MARYLAND 20670-1154

IN REPLY REFER TO:

8090  
Ser N45/669

DEC 23 2015

Advisory Council on Historic Preservation  
Attn: Katharine R. Kerr, Program Analyst  
401 F Street NW, Suite 308  
Washington, DC 20001-2637

Dear Ms. Kerr:

SUBJECT: CONTINUED CONSULTATION MILCON P-131, NAS PATUXENT RIVER,  
ST. MARY'S COUNTY, MARYLAND

The purpose of this letter is to continue consultation with the Advisory Council on Historic Preservation (ACHP) per Section 106 of the National Historic Preservation Act of 1966 on a proposed Navy undertaking at the main base of Naval Air Station (NAS) Patuxent River, Maryland. The planned undertaking is a military construction project (MILCON P-131) for Rotary Wing Testing and Evaluation HX-21, a program that is currently headquartered at Hangar 111 within the Flight Test/Tactical Test/NAS Operations Historic District. Consultation with ACHP was initiated in a letter dated September 11, 2014 and a meeting was held on site on February 6, 2015 with representatives of the ACHP, State Historic Preservation Office (SHPO) and the Navy.

This letter provides an update on the status of and changes to the proposed MILCON P-131 project. The most important changes to the project are a reduction in the size, scope and cost, including the elimination of the demolition of Hangar 111. The Navy intends to continue to utilize the NEPA process, through the development of an Environmental Assessment (EA), to provide for Section 106 consultation.

In the revised EA, two Action Alternatives and a No Action Alternative are proposed to be evaluated for their potential to affect resources that have been determined eligible for listing on the National Register of Historic Places (NRHP).

**Alternative One**, the Preferred Alternative, is new construction of a hangar complex and demolition of 13 non-contributing buildings in the historic district. The new hangar complex will support rotary-wing aircraft research, development, testing, and evaluation (RDT&E). The proposed hangar will be approximately 128,521 square feet, reduced from 194,741 square feet, and will provide a new facility to support and consolidate operations currently conducted in Hangar 111 and dispersed at numerous other facilities at NAS Patuxent River. The new hangar will support both Navy and Marine Corps aircraft and will accommodate approximately 241

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personnel in offices, 246 aircraft maintenance personnel, and 15 rotary-wing aircraft. The new hangar project includes new aircraft apron areas, rerouting of Cedar Point Road and utilities realignment.

The Navy has redefined the Area of Potential Effect (APE) for the new construction as being the area between and including Hangars 101 and 109 and adjacent apron areas (Enclosure). Since the demolition of Hangar 111 is no longer planned, the revised APE no longer includes the area around Hangar 111 and the viewshed over the Patuxent River. Once vacated by HX-22, Hangar 111 will be occupied by another aircraft program and will continue to be used for aircraft storage and maintenance, as well as, administrative purposes. The new hangar will have an effect on the historic district because the proposed new construction is in the vicinity and viewshed of Hangars 101 and 109, both contributing resources. The existing aprons, taxiways and runways are also considered contributing resources to the historic district.

The Navy's revised finding of effect for Alternative One is that there will be No Adverse Effect on the historic district. Although new construction will take place in the vicinity of and in the viewshed of historic Hangars 101 and 109, the new construction continues the traditional use of the area with the introduction of a new hangar type. The adjacent historic hangars will continue to be used in support of aircraft operations and testing. In the past, elsewhere on NAS Patuxent River, SHPO has concurred with a No Adverse Effect finding for construction of similar new hangars where the APE included historic hangars.

Cedar Point Road has been evaluated and is not considered an historic resource, so there will be No Adverse Effect for the rerouting of this roadway. No archaeological sites will be affected by this alternative.

In the previous consultation, Hangar 111 was to be demolished. Now that this is no longer being planned, the Navy believes that Alternative one, the Preferred Alternative, will not have an adverse effect on any cultural resources.

**Alternative Two Renovations:** Alternative Two is defined as the renovation of Hangar 111 and B-111A (Heating Plant) to comply with mission, utilities and Anti-Terrorism Force Protection (ATFP) requirements. Alternative Two also includes construction of a number of new buildings around the hangar to consolidate staff and operations in the immediate vicinity of Hangar 111. Alternative Two does not meet all of the requirements of the HX-21 mission because of space limitations and hangar configuration issues and is not considered the preferred alternative. The APE for Alternative Two is defined as the ramp, East Seaplane basin and Hangar 110. The Navy believes that the complete renovation of the hangar will likely have an adverse effect on the hangar mainly due to Anti-Terrorism Force Protection (ATFP) requirements.

It is important to clarify that the phased renovation of Hangar 111 has begun and will continue under a different project known as the 50-Year Life Extension Project. Phase One (Roof) has been completed and Phase 2 (Center Lean-to Renovation) is currently under construction. SHPO



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Ser N45/669

DEC 23 2015

has concurred with the Navy's No Adverse Effect determination for the first two phases of the Life Extension project. The Navy will consult with ACHP and SHPO on the upcoming phases of the 50-year Life Extension project in a separate consultation and EA. As noted previously, the complete renovation of the hangar is likely to have an adverse effect whether the renovation is undertaken as part of the 50-Year Life Extension Project or the MILCON P-131 project.

The Navy does not now plan to demolish the building and will strive to minimize the adverse effect to the hangar as the renovation moves forward, however the aircraft, mission and security requirements are vastly different from what they were over seventy years ago when the building was designed and built. The Navy will request in the forthcoming consultation on the Life Extension project that SHPO take these issues into account when considering the changes that will be necessary to retain the building and keep it functional in a modern military environment.

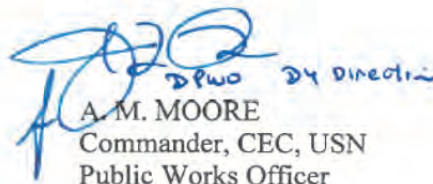
**Alternative Three and Other Alternatives:** Alternative Three is the No Action Alternative, which is required by law, although it does not fulfill criteria for the HX-21 program. This alternative would have no effect on historic resources.

**Archaeology:** The area has been surveyed for archaeological sites or includes areas that have been identified as having been heavily graded, precluding the presence of significant archaeological resources. The Navy believes that all of the proposed undertakings and alternatives will have no effect on any archaeological resources.

The Navy requests concurrence from the Advisory Council on Historic Preservation that the undertaking as now defined in Alternative One, the Preferred Alternative will have No Adverse Effect on historic resources.

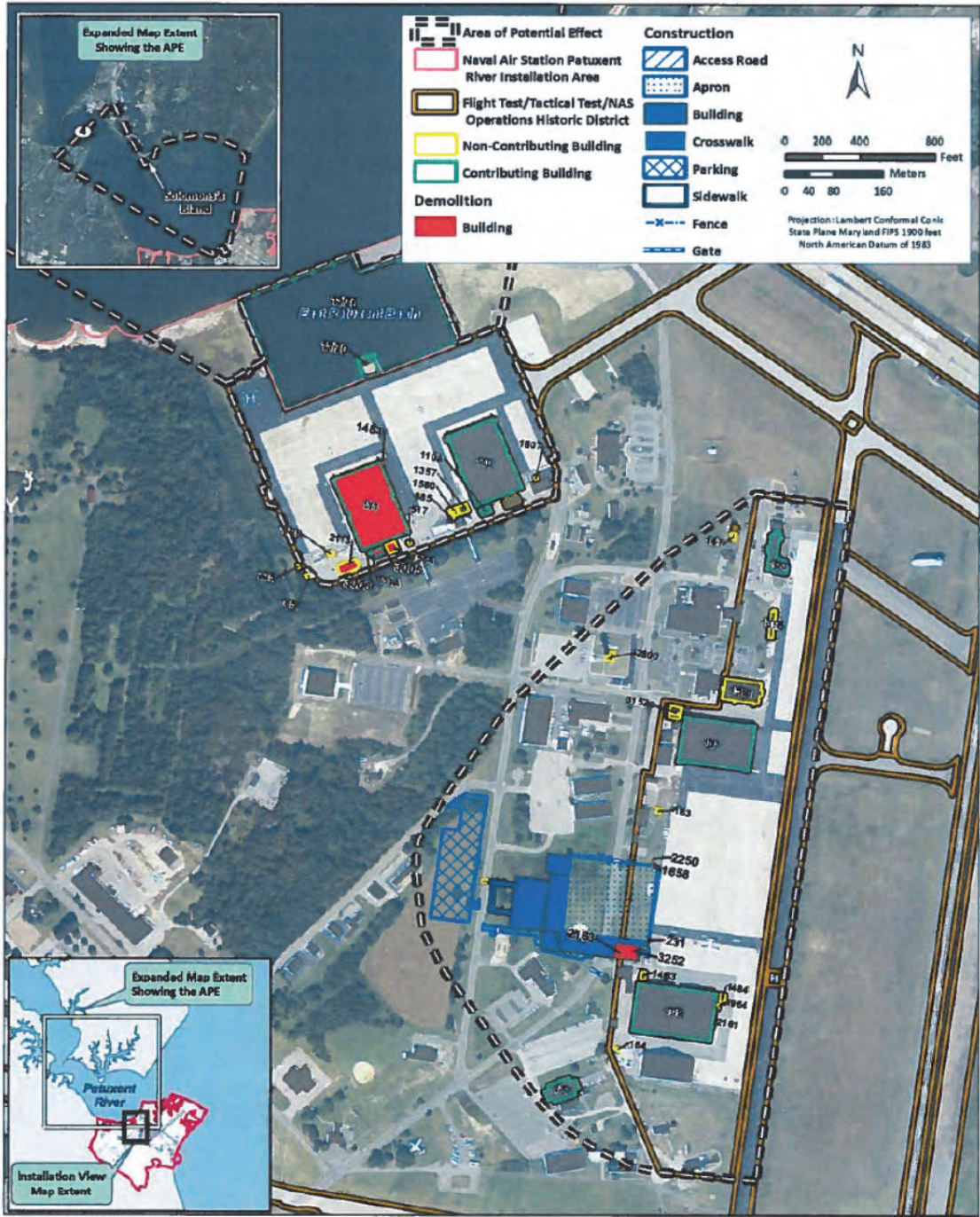
If you have any questions or would like to visit the site, please contact Michael A. Smolek, Cultural Resources Program Manager, by email at michael.a.smolek@navy.mil or by telephone at 301-757-4774.

Sincerely,

  
A. M. MOORE  
Commander, CEC, USN  
Public Works Officer  
By direction of the  
Commanding Officer

Enclosure: Map of APE for Alternative One

Copy to: Elizabeth Hughes, SHPO



Sources: ESRI StreetMap USA 2010 and Naval Air Station Patuxent River.

The revised Area of Potential Effect includes only the area around H-101 and H-109 and does not include the area around H-111, H-110, Seaplane basin and Patuxent River viewscape. The footprint of the new hangar will be reduced.

Enclosure





## DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
22268 CEDAR POINT ROAD  
PATUXENT RIVER, MARYLAND 20670-1154

8090  
Ser N45/173  
**MAR 09 2017**

State Historic Preservation Office  
Attn: Ms. Elizabeth Hughes  
Maryland Historical Trust  
100 Community Place  
Crownsville, MD 21032-2023

Dear Ms. Apple:

**SUBJECT: COMPLETING CONSULTATION FOR P-131 (ROTARY WING TESTING AND EVALUATION FACILITY), NAVAL AIR STATION PATUXENT RIVER, MARYLAND**

In a letter dated August 7, 2014, Naval Air Station (NAS) Patuxent River opened Section 106 consultation with the Maryland Historical Trust regarding MILCON P-131 (Rotary Wing Testing and Evaluation Hangar Facility). At that time, the undertaking included construction of a new Rotary Wing Testing and Evaluation Facility and subsequent demolition of Hangar 111. Built in 1943, Hangar 111 is a reinforced-concrete arch hangar that contributes to the National Register-eligible Flight Test/Tactical Test/NAS Operations Historic District. The undertaking would have had an adverse effect on historic properties due to the demolition. The Maryland Historical Trust concurred with the finding of adverse effect in a letter dated November 14, 2014 and urged the Navy to consider alternatives to the demolition.

In July 2015, Naval Facilities (NAVFAC) Washington was notified that due to cost restrictions, the demolition of Hangar 111 was removed from P-131. The undertaking without the demolition would have no adverse effect on historic properties. In a letter dated December 23, 2015, NAS Patuxent River notified the Maryland Historical Trust of the change in scope and requested that the Trust provide concurrence that the revised undertaking would have no adverse effect on historic properties.

At this time, NAVFAC Washington wishes to complete the Environmental Assessment for P-131 and sign a Finding of No Significant Impact. In order to do so, Section 106 for the undertaking must be complete. NAVFAC Washington hereby requests that the Maryland

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Ser N45/173

**MAR 09 2017**

Historical Trust provide concurrence that P-131, without the demolition of Hangar 111, would have no adverse effect on historic properties. If the Maryland Historical Trust does not provide concurrence within (30) days of the date stamped on this letter, NAVFAC Washington will assume concurrence.

Thank you for your extensive efforts in the consultation for this undertaking. If you have any questions or require additional information, the point of contact at NAS Patuxent River is Michael Smolek who can be reached at 301-757-4774 or michael.a.smolek@navy.mil. The point of contact at NAVFAC Washington is Julie Darsie who can be reached at 202-685-1754 or julie.darsie@navy.mil.

Sincerely,



A. M. MOORE  
Commander, CEC, USN  
Public Works Officer  
By direction of the  
Commanding Officer



## DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
22268 CEDAR POINT ROAD  
PATUXENT RIVER, MARYLAND 20670-1154

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Ser N45/174

**MAR 09 2017**

Advisory Council on Historic Preservation  
Attn: Ms. Katharine R. Kerr  
Office of Federal Agency Programs  
401 F Street NW, Suite 308  
Washington, DC 20001-2637

Dear Ms. Kerr:

**SUBJECT: COMPLETING CONSULTATION FOR P-131 (ROTARY WING TESTING AND EVALUATION FACILITY), NAVAL AIR STATION PATUXENT RIVER, MARYLAND**

In a letter dated September 11, 2014, Naval Air Station (NAS) Patuxent River notified the Advisory Council on Historic Preservation of an anticipated adverse effect resulting from MILCON P-131 (Rotary Wing Testing and Evaluation Hangar Facility). At that time, the undertaking included construction of a new Rotary Wing Testing and Evaluation Facility and subsequent demolition of Hangar 111. Built in 1943, Hangar 111 is a reinforced-concrete arch hangar that contributes to the National Register-eligible Flight Test/Tactical Test/NAS Operations Historic District. The undertaking would have had an adverse effect on historic properties due to the demolition. In a letter dated September 29, 2014, the Advisory Council on Historic Preservation notified the Navy that it would participate in Section 106 consultation for the undertaking.

In July 2015, Naval Facilities (NAVFAC) Washington was notified that due to cost restrictions, the demolition of Hangar 111 was removed from P-131. The undertaking without the demolition would have no adverse effect on historic properties. In a letter dated December 23, 2015, NAS Patuxent River notified the Advisory Council on Historic Preservation of the change in scope and requested that the Council provide notice of withdrawal from consultation.

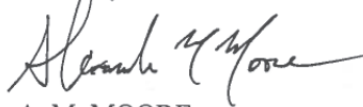
At this time, NAVFAC Washington wishes to complete the Environmental Assessment for P-131 and sign a Finding of No Significant Impact. In order to do so, Section 106 for the undertaking must be complete. NAVFAC Washington hereby requests that the Advisory Council on Historic Preservation provide notice that it has withdrawn from consultation and/or concurrence that P-131, without the demolition of Hangar 111, would have no adverse effect on historic properties. If the Council does not provide concurrence within (30) days of the date stamped on this letter, NAVFAC Washington will assume concurrence.

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**MAR 09 2017**

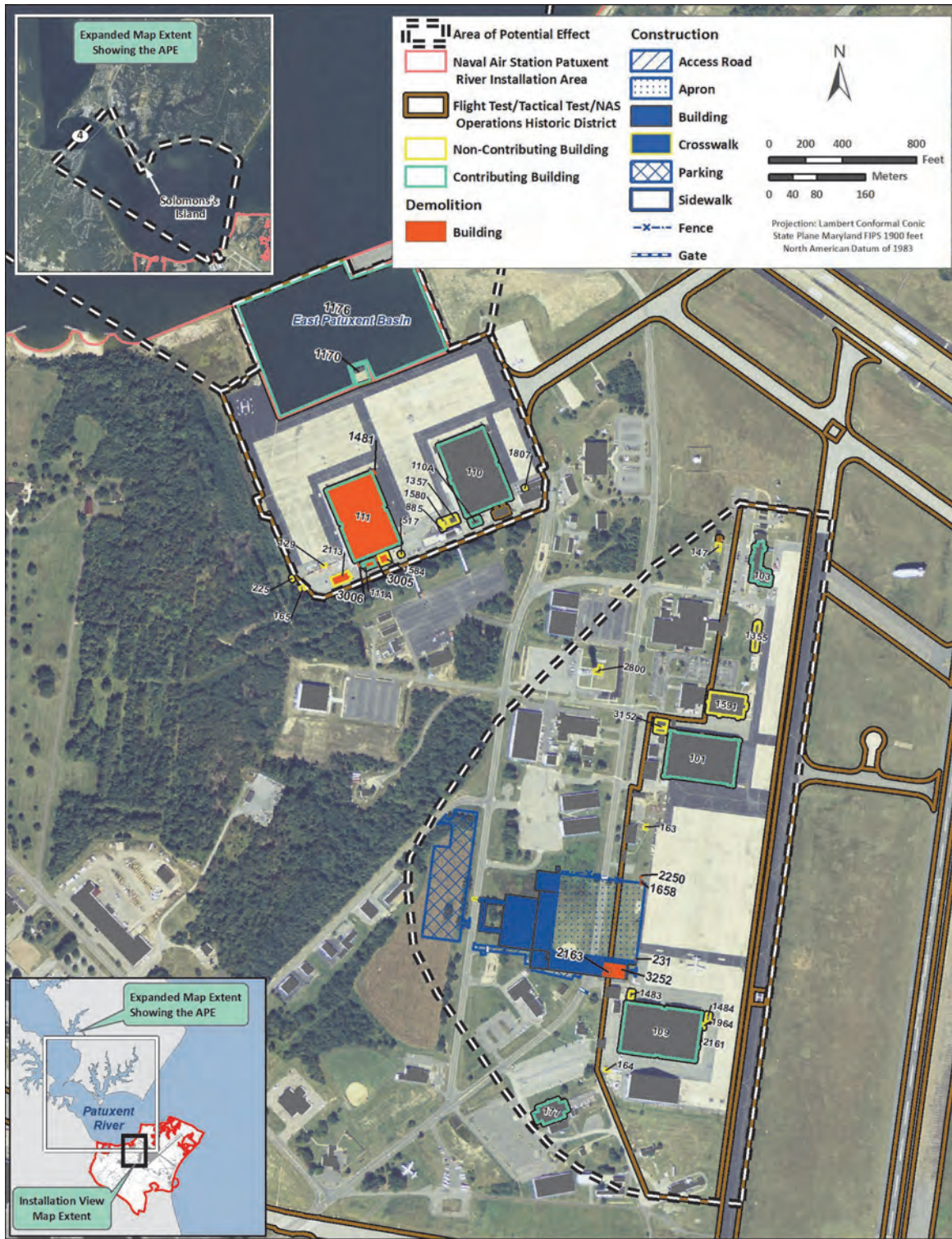
Thank you for your extensive efforts in the consultation for this undertaking. If you have any questions or require additional information, the point of contact at NAS Patuxent River is Michael Smolek who can be reached at 301-757-4774 or michael.a.smolek@navy.mil. The point of contact at NAVFAC Washington is Julie Darsie who can be reached at 202-685-1754 or julie.darsie@navy.mil.

Sincerely,



A. M. MOORE  
Commander, CEC, USN  
Public Works Officer  
By direction of the  
Commanding Officer





Sources: ESRI StreetMap USA 2010 and Naval Air Station Patuxent River.

The revised Area of Potential Effect includes only the area around H-101 and H-109 and does not include the area around H-111, H-110, Seaplane basin and Patuxent River viewsapes. The footprint of the new hangar will be reduced.

Enclosure 1



Preserving America's Heritage

April 5, 2017

Commander Alexander M. Moore  
Public Works Officer  
Department of the Navy  
Naval Air Station Patuxent River  
22268 Cedar Point Road  
Patuxent River, MD 20670-1154

Ref: *Rotary Wing Testing and Evaluation Hangar Replacement (MILCON P-131)*  
*Naval Air Station Patuxent River*  
*St. Mary's County, Maryland*  
*ACHPConnect Log Number: 008086*

Dear CDR Moore:

The Advisory Council on Historic Preservation (ACHP) has been consulting with Naval Air Station Patuxent River since 2014 regarding the referenced project. The ACHP acknowledges that due to cost restrictions, the demolition of Hangar 111 has been removed from the project. As this project will proceed with a no adverse effect to the historic property, the ACHP is concluding its participation in this consultation. The ACHP only needs to be notified if there is a change to the scope of the undertaking resulting in an adverse effect, or if an unanticipated adverse effect is encountered while implementing the rehabilitation project.

If the ACHP can be of further service to you during this rehabilitation please contact Ms. Katharine R. Kerr who can be reached at (202) 517-0216 or via e-mail at [kkerr@achp.gov](mailto:kkerr@achp.gov) and reference the ACHPConnect Log Number.

Sincerely,

Tom McCulloch, Ph.D., R.P.A.  
Assistant Director  
Office of Federal Agency Programs  
Federal Property Management Section

ADVISORY COUNCIL ON HISTORIC PRESERVATION  
401 F Street NW, Suite 308 • Washington, DC 20001-2637  
Phone: 202-517-0200 • Fax: 202-517-6381 • [achp@achp.gov](mailto:achp@achp.gov) • [www.achp.gov](http://www.achp.gov)

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