

**DRAFT FINAL  
ENVIRONMENTAL ASSESSMENT  
FOR  
IMPROVEMENTS TO TARGETS AT THE  
NAVY DARE COUNTY BOMBING RANGE,  
NORTH CAROLINA**



**May 2014**



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## COVER SHEET

# ENVIRONMENTAL ASSESSMENT FOR IMPROVEMENTS TO TARGETS AT THE NAVY DARE COUNTY BOMBING RANGE, NORTH CAROLINA

May 2014

**Lead Agency:** United States Department of the Navy  
**Cooperating Agency:** None  
**Title of the Proposed Action:** Environmental Assessment Addressing the Dare County Bombing Range of U.S. Fleet Forces Command  
**Designation:** Draft Environmental Assessment

### Abstract

An Environmental Assessment (EA) is being prepared to analyze the United States Department of the Navy's (Navy) proposal to improve target areas of the Navy Dare County Bombing Range. Under the Proposed Action, the Navy would establish a City Target with hardened roadways, a maintenance road and three target areas for the existing Runway Target, turnarounds at the end of 3500 Foot Road and utilization of the Moving Land Target (MLT).

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 United States Code (U.S.C.) §§ 4321-4370h), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (Title 40 Code of Federal Regulations §§ 1500-1508), and Navy Regulations for Implementing NEPA (32 Code of Federal Regulations Part 775). This EA evaluates the potential direct, indirect and cumulative impacts of implementing the Proposed Action on air quality, water resources and biological resources. This EA concludes that impacts from the Proposed Action would not be significant.

**Prepared By:** United States Fleet Forces, United States Department of the Navy  
**Point of Contact:** Naval Facilities Engineering Command, Atlantic  
Attn: Code EV22 (Dare County Bombing Range EA Project Manager)  
6506 Hampton Blvd  
Norfolk, VA 23508-1278

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## **EXECUTIVE SUMMARY**

### **Introduction**

Pursuant to Section 102(2) of the National Environmental Policy Act (NEPA) of 1969, as amended; Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] §§ 1500-1508) implementing NEPA; U.S. Department of the Navy (Navy) Regulations (32 CFR Part 775); and Chief of Naval Operations OPNAV M-5090.1D; the Navy has prepared this Environmental Assessment (EA) to analyze the Navy's proposal to improve target areas of the Navy Dare County Bombing Range (Navy Range) and operate Moving Land Targets (MLTs).

### **Background**

The Dare County Bombing Range (Range) is a United States Air Force (Air Force)-operated weapons range located on the Dare County peninsula in the coastal plain of northeastern North Carolina. The Range is used jointly by the Air Force and the Navy and encompasses 46,619 acres with the Navy utilizing the northern half of the Range and the Air Force utilizing the southern half. Within the Navy Range is an impact area in which all of the Navy bombing targets are contained. The Navy impact area comprises 2,109 acres of emergent, grassy wetlands and the Air Force impact area consists of emergent, grassy wetlands totaling 2,279 acres. The remaining acreage is forested wetlands that serve as a safety buffer for military operations.

### **Purpose and Need**

The purpose of this Proposed Action is to enhance the long-term sustainability of the Navy Dare County Bombing Range and to improve the quality of training that can be provided there. The Proposed Action would allow for more realistic training scenarios, allow for maintenance operations to be completed, enhance range personnel safety and increase Operational Range Clearance (ORC) capabilities. The need for this action is to support and provide range capabilities for training forces ready to deploy worldwide.

### **Proposed Action**

Under the Proposed Action, the Navy would establish a City Target with hardened roadways, establish a maintenance road and three target areas for the existing Runway Target, establish turnarounds at the end of 3500 Foot Road and utilize the MLT on the Range. Specific details of the Proposed Action are provided in the following paragraphs.

*City Target:* Under the Proposed Action, this target area would be constructed to include a network or grid of hardened roadways that would allow for more flexibility in target configurations, enhancing training scenarios. The placement of targets adjacent to and on the roadways around the City Target would simulate city buildings and other structures providing multiple targets for pilots. These targets would be customizable depending on the training scenario and could also be utilized for ground troops and the MLT.

*Runway Target:* The Navy would construct a maintenance road next to the Runway Target running the entire length of the target, approximately 25-feet wide, with several target pads extending beyond the maintenance road to create additional training opportunities for pilots.

*MLTs:* MLTs are unmanned half-ton pick-up trucks that operate remotely using Global Positioning System (GPS) mobile position technology to traverse a predetermined route. During training exercises, the MLTs would traverse hardened roadways and target areas within the Navy impact area. These trucks may be used to tow a target or may be the targets themselves. The types of aircraft, flight paths and munitions utilized in these training exercises would be the same as those currently used in air-to-ground training exercises conducted at the Navy Range.

*Turnarounds:* The Navy would construct new cul-de-sac-type turnarounds at each end of 3500 Foot Road to enhance the operation of the MLT. The cul-de-sacs would allow the MLT to turn around on 3500 Foot Road for uninterrupted transit. The turnarounds would also enhance range capability by providing an alternate helicopter landing zone.

*Maintenance:* The target areas on the Navy Range require annual maintenance to ensure sustainability of the range. Prior to conducting maintenance requirements, the Navy completes a range clearance effort to remove spent munitions and target debris. Once the range clearance effort is completed, range personnel perform an evaluation of the targets, target areas and roadways to determine if maintenance needs to be performed to repair infrastructure or replace damaged targets. Not all targets, target areas and roadways are repaired each year. The duration of typical maintenance activities is less than 1 week annually. Maintenance activities at the Range include: grading roadways and fixing potholes created by munitions, repairing routine wear and tear and replacing destroyed targets annually or as needed. While the Proposed Action will increase the amount of hard surface and correspondingly increase the potential for maintenance activities, the type of maintenance activities would not change and maintenance activities would continue to have a negligible effect on the environment given their short duration. Thus, these activities will not be discussed in subsequent chapters.

The Proposed Action would require filling 4.29 acres of wetlands to create the new hardened target areas. Additionally, the City Target would also secondarily impact 0.15 acres of wetlands due to fragmentation, resulting in a total of 4.44 acres of total wetlands impacted. Construction associated with the Proposed Action would not affect operations at the Navy Range and would take approximately 100 working days to complete.

## **No Action Alternative**

Under the No-Action Alternative, training and maintenance would continue to be conducted as it is now. Efforts to improve/harden target areas would not be completed under this alternative. Under the No Action Alternative, targets and target areas would be maintained in a manner consistent with current practice, a City Target would not be constructed, a maintenance road and target areas for the Runway Target would not be constructed, turnarounds at the end of 3500 Foot Road would not be constructed and munition training with MLTs would not be conducted.

The No-Action Alternative would not meet the purpose of and need for the Proposed Action but represents the baseline condition against which potential impacts of the Proposed Action can be compared.

### **Alternatives Considered But Eliminated**

The Navy considered seven additional alternatives to the Proposed Action. Each of these alternatives was eliminated because it did not meet the purpose of and need for the action or was not feasible. The alternatives eliminated from further analysis are briefly discussed below.

- **Using Alternate Locations Inside the Navy Range.** The Navy considered placing the improved/hardened target areas in other locations on the Navy Range. Placement of the improved/hardened targets anywhere on the Navy Range would result in the same impacts as those associated with the Proposed Action because the habitat and natural resources are consistent throughout the Navy Range.
- **Relocating Targets near Hardened Surfaces.** The Navy considered utilizing the existing road closest to the Runway Complex as a maintenance road and repositioning the Runway Complex parallel to that existing road. Repositioning the Runway Complex would conflict with other training targets and relocation of the Runway Complex too far north or south would impact the current Surface Danger Zones.
- **Using Alternate Locations Outside of the Navy Dare County Bombing Range Property.** The Navy considered utilizing other locations outside of the Navy Range. The closest Navy property available is located in Hampton Roads, Virginia. Though the Navy utilizes several locations in the Hampton Roads area for training, none of the locations could be used as a bombing range. These locations are utilized for take-off and landing training operations and other flight operations but do not allow for munitions to be dropped.
- **The Use of Air Force Targets at the Dare County Bombing Range.** The Navy considered utilizing the targets located on the Air Force-operated side of the range. The Air Force Range is heavily utilized and though the Navy does schedule training on that Range occasionally, the Air Force has primary use of the range and the Navy is only able to utilize the Air Force assets when the Range is not being utilized by the Air Force. As a result, the Navy is not able to schedule the Air Force range often enough to meet its training requirements.
- **The Use of Prefabricated Interlocking Metal Sections (Corrugated Galvanized Roofing Panels).** This alternative would use prefabricated interlocking metal sections (corrugated galvanized roofing panels) to cover the soft marshy vegetation as an alternative to hardening target areas. The Navy has determined the interlocking metal sections are not feasible to use on target areas where bombs or other munitions may be utilized because the prefabricated interlocking metal sections become degraded when munitions strike them making them harder for pilots to see and making it difficult for personnel to perform maintenance. Additionally, the interlocking metal sections are

functional for static displays but are not customizable and the City Target will require customization due to the MLT training operations, the need for the targets around the roadways to be relocated to accommodate different training scenarios for pilots and the potential use of the City Target by ground forces.

- **Construct a Bridge or Elevated/Pile-Supported Structure Over the Wetlands Instead of a Hardened Surface.** This alternative would create a bridge or elevated/pile-supported structure over the wetlands instead of filling the wetlands to create a hardened surface. The structure would be damaged from dropped munitions and would become impassable and unsafe for range maintenance.
- **Utilizing the Long Shoal Naval Ordnance Area Instead of Creating Target Areas at the Navy Range.** The Long Shoal Naval Ordnance Area is an overflow target utilized by Navy and Marine Corps aircraft when the nearby Navy Range is experiencing heavy use and is used to conduct seamless littoral-to-land battle scenarios. The target located at the Long Shoal Naval Ordnance Area is located entirely in the waters of the Pamlico Sound. It does not offer flexible target configurations or training scenarios that replicate an urban environment and the MLT would be unable to drive on the Long Shoal Naval Ordnance Area.

## **Environmental Consequences**

Direct, indirect, and cumulative environmental impacts that could occur with implementation of the Proposed Action would result in no significant impact on the natural or man-made environment. Environmental resources, including geology and soils, recreation, socioeconomics, transportation, land use and cultural resources have been omitted from further detailed analysis in this EA because there would be no impacts on these resources from implementing the Proposed Action. The potential environmental impacts from the Proposed Action on air quality, water resources and biological resources are summarized in the following paragraphs.

*Air Quality:* Air emissions, including greenhouse gas emissions, associated with construction would be anticipated to be minor and temporary. Air emissions associated with the MLTs would be minor and are expected for the reasonably foreseeable future since this would be an ongoing activity. Dare County and its two surrounding counties (Tyrrell and Hyde) are in attainment for all criteria pollutants. It is anticipated that any dust emissions associated with construction would be temporary and settle within the perimeter of the Navy impact area. Since Dare County is located in an attainment area the General Conformity Rule (this rule only applies for federal actions in nonattainment or maintenance areas) does not apply. Therefore, implementation of the Proposed Action would not have any significant impacts on air quality.

*Water Resources:* The Proposed Action would require filling 4.29 acres of wetlands with 0.15 acres of wetlands secondarily impacted due to habitat fragmentation. This proposed fill equates to approximately 0.009 percent of the wetlands in the entire Range and approximately 0.21 percent of wetlands in the Navy impact area. The impact to wetlands would not be anticipated to cause impacts outside of the Range. The Proposed Action would permanently fill floodplains

within the Navy impact area; however, impacts to floodplains outside of the Range are not anticipated to occur. Turbidity would be temporary and minor, only occurring at the time of construction. Various management and administrative actions will be utilized to minimize the potential for a fluid release from the MLTs during training exercises. In the event a release occurs as a result of an MLT being impacted by a munition, site-specific spill response plans are in place and would be implemented to minimize potential environmental consequences. No significant or long-term impacts to water quality or water resources are expected.

Impacts to wetlands and floodplains would be mitigated as required by the United States Army Corps of Engineers in the Section 404 wetlands permit by purchasing wetland bank credits at an offsite wetland mitigation bank and obtaining a 401 Water Quality Certification from the North Carolina Department of Environment and Natural Resources. Offsite mitigation would occur within the same watershed as the proposed impacts. Additionally, a Sediment and Erosion Control Plan and a Stormwater permit will be obtained prior to the initiation of construction activities.

*Biological Resources:* Minor impacts to vegetation would be expected as a result of the permanent fill of 4.29 acres of wetlands. As discussed above, all impacts to wetlands will be mitigated. Various management and administrative actions will be utilized to minimize the potential for a fluid release from the MLTs during training exercises, and in the event of a release, the fluids would be contained per the spill response plans in place to minimize potential environmental consequences. Therefore, the implementation of the Proposed Action would not have a significant impact on vegetation. The minimal fill of wetlands associated with the Proposed Action and the potential for a release of fluids from MLTs would not have a long-term or significant effect on the ability of wildlife species to perform normal biological functions. The Proposed Action would not have a significant impact on wildlife, including the red wolf, the American alligator and North Carolina state-listed species, based on the mostly short-term and localized nature of the proposed activities.

Several federally protected species occur on the Navy Range. These species include the red-cockaded woodpecker and the bald eagle. The Proposed Action would have no effect on the Red-cockaded woodpecker and would not have a significant adverse effect on bald eagle populations as defined by the Migratory Bird Treaty Act. No permit is required under the Bald and Golden Eagle Act. The Proposed Action would not have a significant impact on federally protected species.

### **Cumulative Impacts**

A search was conducted to identify any past, present and future actions having the potential for cumulative impacts. Several projects were identified as having potential cumulative impacts when combined with the Proposed Action. These projects include: the Alligator River National Wildlife Refuge fire management plan, the Bonner Bridge replacement, improvements to the target pads and support areas of the Navy Dare County Bombing Range, replacement of the Navy Shell Road Bridge at the Dare County Bombing Range and improvements to U.S. 64 for

Tyrell and Dare Counties. A cumulative impact analysis was performed for three resource areas: air quality, water resources and biological resources. Cumulative impacts on all these resources were determined not to be significant. (See Chapter 6 for more details on the cumulative impact analysis process and findings.)

### **Summary of Findings**

The Navy's proposal to improve target areas of the Navy Range by establishing a City Target with hardened roadways, a maintenance road and three target areas for the existing Runway Target, turnarounds at the end of 3500 Foot Road and utilization of the Moving Land Target, would not result in significant direct, indirect or cumulative impacts on the natural or man-made environment.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

Air Force	United States Air Force
CAA	Clean Air Act
CATEX	Categorical Exclusion
CCND	Coastal Consistency Negative Determination
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
CONEX	Container Express (intermodal container)
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GHG	greenhouse gas
GPS	Global Positioning System
INRMP	Integrated Natural Resources Management Plan
ISSA	Inter Service Support Agreement
MBTA	Migratory Bird Treaty Act
MLT	Moving Land Target
MOUT	Military Operations on Urban Terrain
NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
Navy	United States Department of the Navy
NCDENR	North Carolina Department of Environment and Natural Resources
NCDFR	North Carolina Division of Forest Resources

NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NS	Naval Station
O <sub>3</sub>	ozone
OPNAVINST	Chief of Naval Operations instruction
Pb	lead
PM <sub>2.5</sub>	fine particulate matter less than or equal to 2.5 microns in diameter
PM <sub>10</sub>	dioxide suspended particulate matter less than or equal to 10 microns in diameter
ppb	parts per billion
ppm	parts per million
SHPO	State Historic Preservation Officer
SO <sub>2</sub>	sulfur dioxide
U.S.	United States
U.S.C.	United States Code
VACAPES	Virginia Capes
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
µg/m <sup>3</sup>	micrograms per cubic meter

## **CHAPTER 1: PURPOSE AND NEED FOR THE PROPOSED ACTION**

### **1.1 INTRODUCTION**

Pursuant to Section 102(2) of the National Environmental Policy Act (NEPA) of 1969, as amended; Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] §§ 1500–1508) implementing NEPA; and United States (U.S.) Department of the Navy (Navy) Regulations (32 CFR § 775), the Navy has prepared this Environmental Assessment (EA) to analyze the proposal to improve target areas of the Navy Dare County Bombing Range (Navy Range). The Proposed Action would encompass the establishment of a City Target with hardened roadways, a maintenance road and target areas for the existing Runway Target, turnarounds at the end of 3500 Foot Road and utilization of the Moving Land Target (MLT) to support training. The Navy Range is a range utilized by Navy aircraft stationed at Naval Air Station (NAS) Oceana and Naval Station (NS) Norfolk. This EA will only address environmental effects associated with proposed construction activities and the utilization of the MLT. The number, type, and intensity of training flights and the munitions utilized on the range during air-to-ground training operations are not changing from what was previously analyzed in the *Final Navy Dare County Bombing Range Environmental Assessment* completed in 2008. That analysis remains valid, and therefore, these training aspects will not be analyzed in detail in this EA.

### **1.2 RANGE DESCRIPTION**

The Dare County Bombing Range (Range) is a United States Air Force (Air Force)-operated weapons range located on the Dare County peninsula in the coastal plain of northeastern North Carolina (Figures 1-1 and 1-2). It is used jointly by the Air Force and the Navy. The Range has been operational since 1965 and has been operated by the Air Force since 1978. An Inter-Service Support Agreement (ISSA 2013) has been established to delineate range management responsibilities for each of the Services (Appendix A). The Navy Range is considered part of the Navy’s Virginia Capes (VACAPES) Range Complex.

The Range encompasses 46,619 acres. The Navy utilizes the northern half of the Range and the Air Force utilizes the southern half of the Range. Within the Navy Range is an impact area referred to as the “keyhole” due to its shape. All of the Navy bombing targets are contained in the impact area which comprises 2,109 acres of emergent, grassy wetlands. The Air Force impact area also consists of emergent, grassy wetlands totaling 2,279 acres. The remaining acreage is forested wetlands that serve as a safety buffer for military operations. The Air Force conducts all land management activities, to include wildlife, forestry and wetlands, in these forested buffer lands. Within the 2,109 acre Navy impact area, approximately 88 acres are currently utilized or will be utilized for target pads, roads and storage. The remaining area is utilized as a buffer for Navy operations. As described in FACSFCVACAPESINST 3710.1A dated December 17, 2010, the Navy impact area currently consists of 15 active bombing targets, several inactive targets and three helicopter landing zones.



**Figure 1-1 Location of the Dare County Bombing Range in North Carolina**

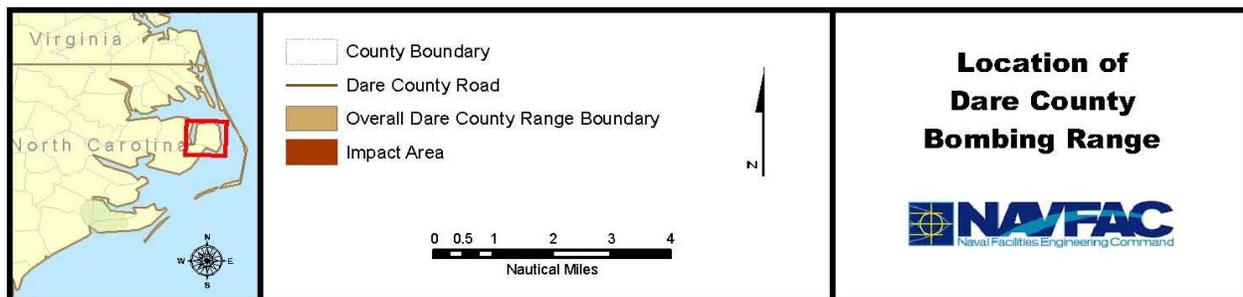
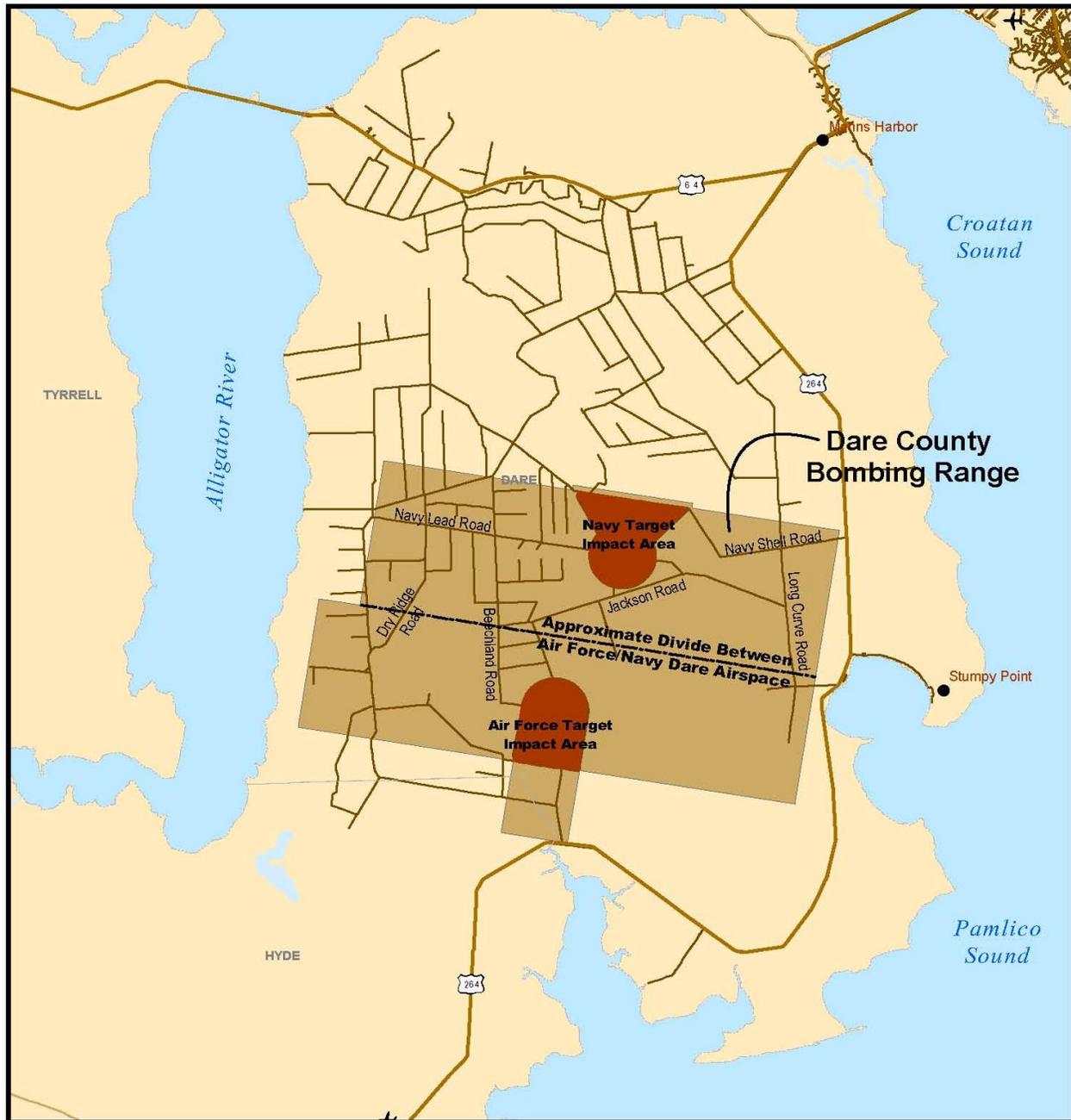


Figure 1-2 Location of Dare County Bombing Range

The Alligator River National Wildlife Refuge (Refuge), a 152,000-acre preservation area for native wildlife and comprised of forested wetlands, borders and almost completely surrounds the Range. The two largest surface water bodies proximate to the Range are the Alligator River and Pamlico Sound, which are west and east of the Range, respectively. The Dare County peninsula, together with the neighboring counties of Tyrrell and Hyde, are sparsely populated rural areas.

Navy Range operations are described in FACSFACVACAPESINST 3710.1A. Authorized ordnance used within the impact area consists of only inert ordnance (i.e. nonexplosive ordnance), including ordnance that uses marking charges and lasers. A marking charge is a munition that releases a puff of smoke on impact to support scoring of the training exercise. High explosive ordnance is not authorized for use within the Navy Range.

The Navy Range consists of 15 active targets (Figure 1-3). These targets sit on top of gravel pads (which were created by filling the surrounding wetlands) or are placed directly on top of the native vegetation. The existing pads are a combination of layered fill material, geotextile material and gravel. Geotextiles are permeable fabrics which, when used in association with soil, have the ability to separate, filter, reinforce, protect or drain (CA DOT 2009). The targets (empty Container Express (CONEX) boxes, etc.) can sit on top of the dense mat created by the native vegetation. Many targets are constructed to be light enough and to have a large enough footprint that they may be temporarily placed directly on the floating vegetation.

The study area for this EA includes the Navy impact area. As stated above, the Navy has an agreement with the Air Force which allows the Navy to utilize the 2,109 acre impact. Contained within the Navy impact area are all of the targets utilized by the Navy, gravel roads, the existing maintenance area and the control tower. Although the Air Force controls the property, daily training activities on the Navy impact area are managed by the Navy. The North Carolina Forest Service has an agreement with both the Air Force and the Navy to maintain and manage the natural resources on both the Air Force and Navy portions of the Range, including prescribed burns and other activities to suppress wildfires, the management of threatened and endangered species and other activities.

### **1.3 PURPOSE AND NEED FOR ACTION**

The purpose of this Proposed Action is to enhance the long-term sustainability of the Navy Range and to improve the quality of training that can be provided there. Specifically, the Proposed Action would allow for more realistic training scenarios, allow for maintenance operations to be completed more effectively, enhance range personnel safety and increase Operational Range Clearance capabilities. The need for this action is to support and provide range capabilities for training forces ready to deploy worldwide. The Navy is charged by Congress with training and equipping forces for prompt and sustained combat operations (10 U.S.C. 5062). The Chief of Naval Operations meets that direction, in part, by ensuring naval forces have access to ranges and airspace where they can develop and maintain skills for wartime missions. This Range is used year-round to train pilots and maintain high levels of military readiness.

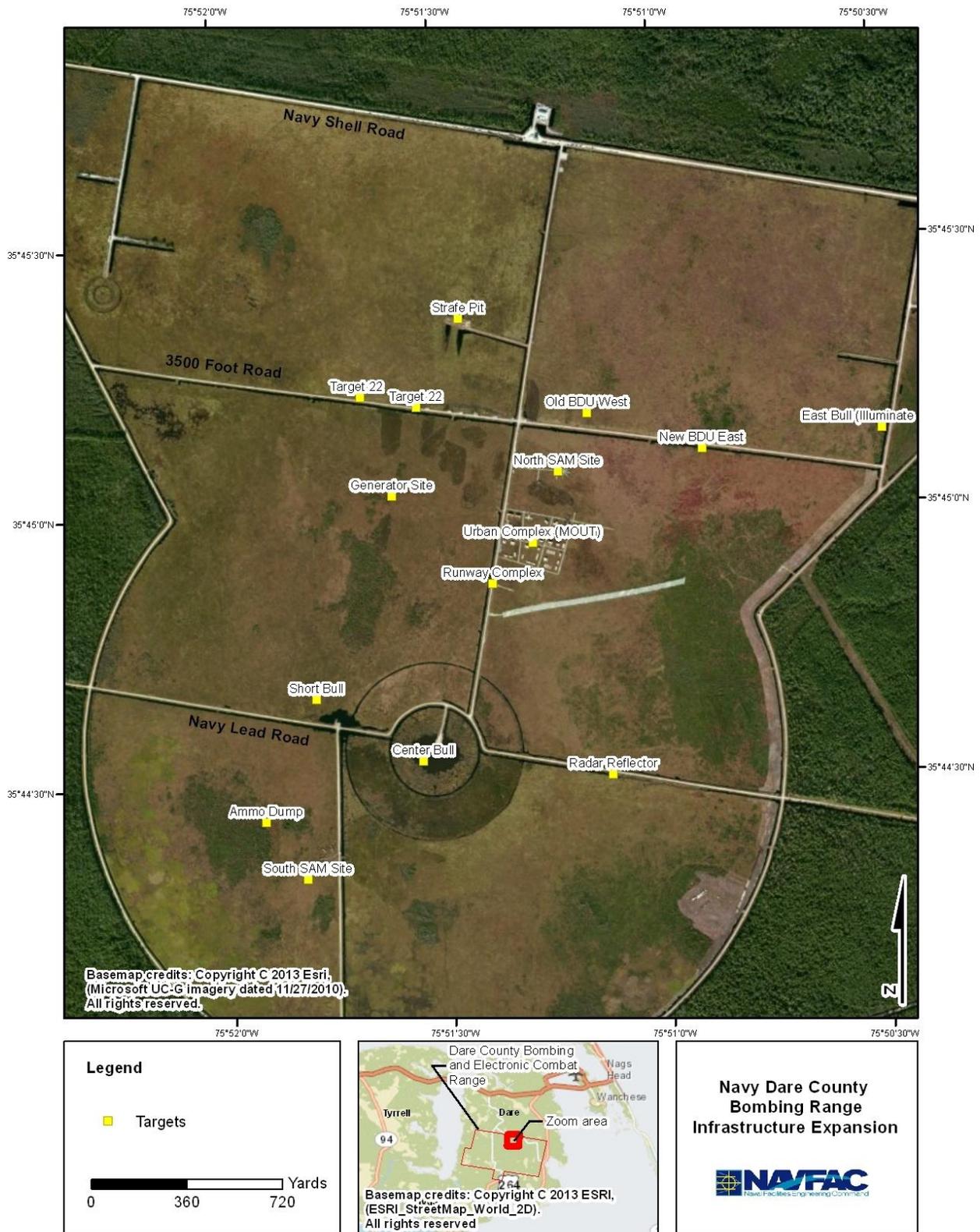


Figure 1-3 Impact Area (“Keyhole”) at Navy Dare County Bombing Range

Wetlands cover nearly all of the Navy Range, making it difficult for machinery to access targets except via constructed access roads and target pads; thus, range maintenance is challenging and time consuming. Some targets are located directly on top of native vegetation and, as a result, special equipment must be used for the placement and removal of these targets. Improving/hardening target areas would increase worker safety and efficiency during routine range maintenance activities and during the removal of used targets by reducing the roll-over potential of heavy machinery operating adjacent to canals and wetlands. This effort will improve the Navy's ability to recover munitions, supporting range clearance efforts. Increasing the number of munitions recovered around the targets will assist the Navy in maintaining its environmental stewardship goals, increasing target precision, enhancing safety and ensuring long-term sustainability of the training mission.

The construction of a City Target is proposed to enhance the effectiveness of training scenarios. This target will provide a useable grid of roadways which will allow for MLTs to traverse the target area (simulating a moving vehicle driving through a congested urban setting); allow for flexibility in target placement and configuration; and potentially provide a better training scenario for ground forces. The Navy Range currently operates, and will continue to operate a Military Operations on Urban Terrain (MOUT) target. Though this target is similar to the City Target from the air, the MOUT is made of metal matting that floats on the wetlands vegetation. The MOUT does not allow for MLTs to traverse the metal matting, the targets are static so their positions are not capable of being changed and ground forces cannot train on this target. The MOUT's metal matting cannot function as a roadway or support vehicles for training or range maintenance.

#### **1.4 ENVIRONMENTAL REVIEW PROCESS**

The National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321–4370h) of 1969 requires federal agencies to identify and analyze potential environmental impacts associated with proposed major federal actions before those actions are taken. NEPA established the CEQ, which is charged with the development of implementing regulations and informing federal agencies of what they must do to comply with the procedures and achieve the goals of NEPA. 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), enabling the decisionmaker to have a comprehensive view of key environmental issues and requirements associated with a Proposed Action.

An EA is a concise public 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 may significantly affect the quality of the natural or human environment. Thus, if the Navy were to determine that the Proposed Action

would have a significant impact on the quality of the natural or human environment, an EIS would be prepared. An EA is prepared when an agency is not sure when its proposed action would significantly affect the human environment. At the completion of the EA the agency should then either prepare an EIS or FONSI as appropriate. The EA should include: brief discussions of the purpose and need for the proposal, the alternatives, the affected environment, the environmental impacts of the Proposed Action and alternatives, a listing of agencies and persons consulted and a discussion of the cumulative impacts associated with the alternatives.

This EA will be reviewed by the lead agency (Navy) who will make a determination regarding the Proposed Action and whether a FONSI or an EIS is appropriate. Should the Navy conclude that a FONSI is appropriate; a FONSI summarizing the issues presented in this EA would be prepared. The FONSI would be signed by United States Fleet Forces Command and a notice of availability would be published in local newspapers in eastern North Carolina.

The Navy has prepared this EA in accordance with NEPA (42 U.S.C. 4321 *et seq.*), CEQ regulations (40 CFR § 1500 to 1508), Navy Regulations for Implementing NEPA (32 CFR § 775) and Chief of Naval Operations Instruction (OPNAVINST) 5090.1D.

### **1.5 RELATED ENVIRONMENTAL DOCUMENTS AND PLANNING DOCUMENTS**

The documents listed below pertain to actions that occur at the Dare County Bombing Range. These documents are listed to provide additional information about the Range.

#### **Proposed Construction of a Simulated Gravel Runway Complex, Expended Ordnance Storage Area and Target Pad Expansions at the US Air Force Dare County Bombing Range North Carolina**

In 2004 the U.S. Air Force completed an EA involving the construction of a mock runway complex, expended ordnance storage area and expansions of target pads using geotextile and gravel. The Proposed Action impacted 10.87 acres of wetlands which necessitated wetland mitigation. The U.S. Air Force restored two upland roads to 10.62 acres of swamp forest. The area was then planted with 6,000 native tree seedlings (pond pine, swamp black gum, bald cypress). The project occurred in 2004/2005 and monitoring of the sites continued for at least five years.

#### **Navy Dare County Bombing Range Final Environmental Assessment**

In 2008 the Navy prepared an EA and signed a FONSI that analyzed the potential effects associated with current operations and the construction of the MOUT and mock runway complex using M-19 landing mats and CONEX boxes which are similar to intermodal shipping containers. Under the Preferred Alternative no increase to fixed-wing operations were proposed, H-60 operations were included and the MOUT and the runway complex were constructed out of M-19 landing mats which did not constitute a permanent fill of wetlands.

**Environmental Assessment for Improvements to the Target Pads and Support Areas of the Navy Dare County Bombing Range, North Carolina**

In 2011 the Navy prepared an EA that analyzed the potential effects associated with improving and restoring the surface area of the Navy Range by increasing the hardened surfaces (target pads, roads and storage areas). A FONSI was signed in May 2011 for Alternative 1, the Preferred Alternative, to impact up to 8.5 acres of wetlands. The impacts included the restoration of existing target pads and the establishment of new target pads and storage areas for a total of 12 locations on the Navy Range. In 2011, prior to the start of construction, the Navy purchased 7.434 credits in a mitigation bank. Once final designs were completed for the Preferred Alternative, the size of some of the target/storage areas were reduced resulting an estimated 2.1 acres of unused credits.

**1.6 AGENCY COORDINATION AND PERMIT REQUIREMENTS**

In addition to NEPA, other laws, regulations, permits, and licenses may be applicable to the Proposed Action. Specifically, providing improved target areas at the Navy Range will require the following:

1. Coastal Consistency Negative Determination (CCND) to the North Carolina Department of Environment and Natural Resources, Division of Coastal Management in accordance with the Coastal Zone Management Act (CZMA).
2. Concurrence from the North Carolina State Historic Preservation Officer (SHPO) regarding effects on cultural resource.
3. A permit from the United States Army Corps of Engineers (USACE), Wilmington District in accordance with Section 404 of the Clean Water Act.
4. A 401 Water Quality Certification from the North Carolina Department of Environment and Natural Resources (NCDENR).

## **CHAPTER 2: DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

NEPA's implementing regulations (*i.e.*, 40 CFR § 1502.14) provide guidance on the consideration of alternatives to a federal Proposed Action and require rigorous exploration and objective evaluation of reasonable alternatives. This chapter provides a description of the alternatives analyzed in this EA.

### **2.1 PROPOSED ACTION**

The Proposed Action seeks to improve target areas at the Navy Range. The improvements would encompass the establishment of a City Target with hardened roadways, a maintenance road and three target areas for the existing Runway Target, turnarounds at the end of 3500 Foot Road and utilization of the MLT. The number of flight operations, types of aircraft, flight paths, and munitions utilized in these range areas are not changing from current practices.

The City Target would include a network or grid of hardened roadways that would allow for more flexibility in target configurations, enhancing training scenarios. The placement of targets adjacent to and on the roadways around the City Target would simulate city buildings and other structures, thereby providing multiple targets for pilots. These targets would be customizable depending on the training scenario and could also be utilized for ground troops and the MLT.

The Runway Target is a series of interlocking mats that float on top of the native vegetation. A maintenance road is proposed to be constructed next to the Runway Target running the entire length of the target, approximately 25-feet wide, with several target pads extending beyond the maintenance road. The existing matting cannot support the vehicles or range equipment needed for maintenance purposes. Additionally, munition impacts have degraded the existing matting leading to the degradation of visual effectiveness from above aircraft performing training missions. The proposed improvements would allow the Navy Range personnel to easily maintain and repair the Runway Target and provide more realistic training scenarios for pilots.

The Navy operates MLTs for laser training on the Navy Range. This EA evaluated MLT training exercises with inert munitions. MLTs are unmanned half-ton pick-up trucks that operate remotely using Global Positioning System (GPS) mobile position technology to traverse a predetermined route. During training exercises, the MLTs traverse hardened roadways and target areas within the Navy impact area. These trucks may be used to tow a target or may be the targets themselves. The types of aircraft, flight paths and munitions utilized in these training exercises would be the same as those currently used in air-to-ground training exercises conducted at the Navy Range. Use of the MLTs would not be expected to increase the overall number of training operations conducted at the Navy Range. Current aircraft training operations are covered in the 2008 *Navy Dare County Bombing Range Final EA*; the current document will only study the impacts associated with the utilization of the MLT as an active target on the Navy Range.

The construction of a new cul-de-sac-type turnaround is proposed at each end of 3500 Foot Road to enhance the operation of the MLT. The MLTs' GPS system allows the trucks to follow a preprogrammed route. When the MLTs are required to turn around and head in the opposite direction the GPS system has difficulty transiting backwards and forwards over the same area during a 3-point turn scenario. The cul-de-sacs would allow for the MLT to turn around on 3500 Foot Road for uninterrupted transit. They would also enhance range capability by providing alternate helicopter landing zones.

New targets and the maintenance road would be installed by layering fill material (such as dirt and sand that is clean and free of contaminants and debris from a commercial borrow site), geotextile material and gravel. The upgrades proposed under the Proposed Action are shown in Figures 2-1, 2-2, 2-3, and 2-4 as well as Table 2-1.

**Table 2-1 Summary of Upgrades Required for the Proposed Action**

<b>Target</b>	<b>Proposed Acreage</b>
City Target	.98 acres
City Target Habitat Fragmentation	0.15
Runway Target Access Road	1.29 acres
Runway Target Aircraft Parking Target	.55 acres
Runway Target Hangar Target	.30 acres
Runway Target Aviation Fuel Storage Target	.17 acres
MLT East Turnaround	0.5 acres
MLT West Turn Around	0.5 acres
<b>TOTAL ACREAGE OF FILL</b>	<b>4.29 acres</b>
<b>TOTAL ACREAGE OF FRAGMENTED WETLANDS</b>	<b>0.15 acres</b>
<b>TOTAL ACREAGE IMPACTED</b>	<b>4.44 acres</b>

The target areas on the Navy Range require annual maintenance to ensure sustainability of the range. Prior to conducting maintenance requirements, the Navy completes a range clearance effort to remove spent munitions and target debris. Once the range clearance effort is completed, range personnel perform an evaluation of the targets, target areas and roadways to determine if maintenance needs to be performed to repair infrastructure or replace damaged targets. Not all targets, target areas and roadways are repaired each year. The duration of typical maintenance activities is less than 1 week annually. Maintenance activities at the Range include: grading roadways and fixing potholes created by munitions, repairing routine wear and tear and replacing destroyed targets annually or as needed. While the Proposed Action will increase the amount of hard surface and correspondingly increase the potential for maintenance activities, the type of maintenance activities would not change and would continue to have a negligible effect on the environment given the short duration of the proposed maintenance activities. Thus, these activities will not be discussed in subsequent chapters.

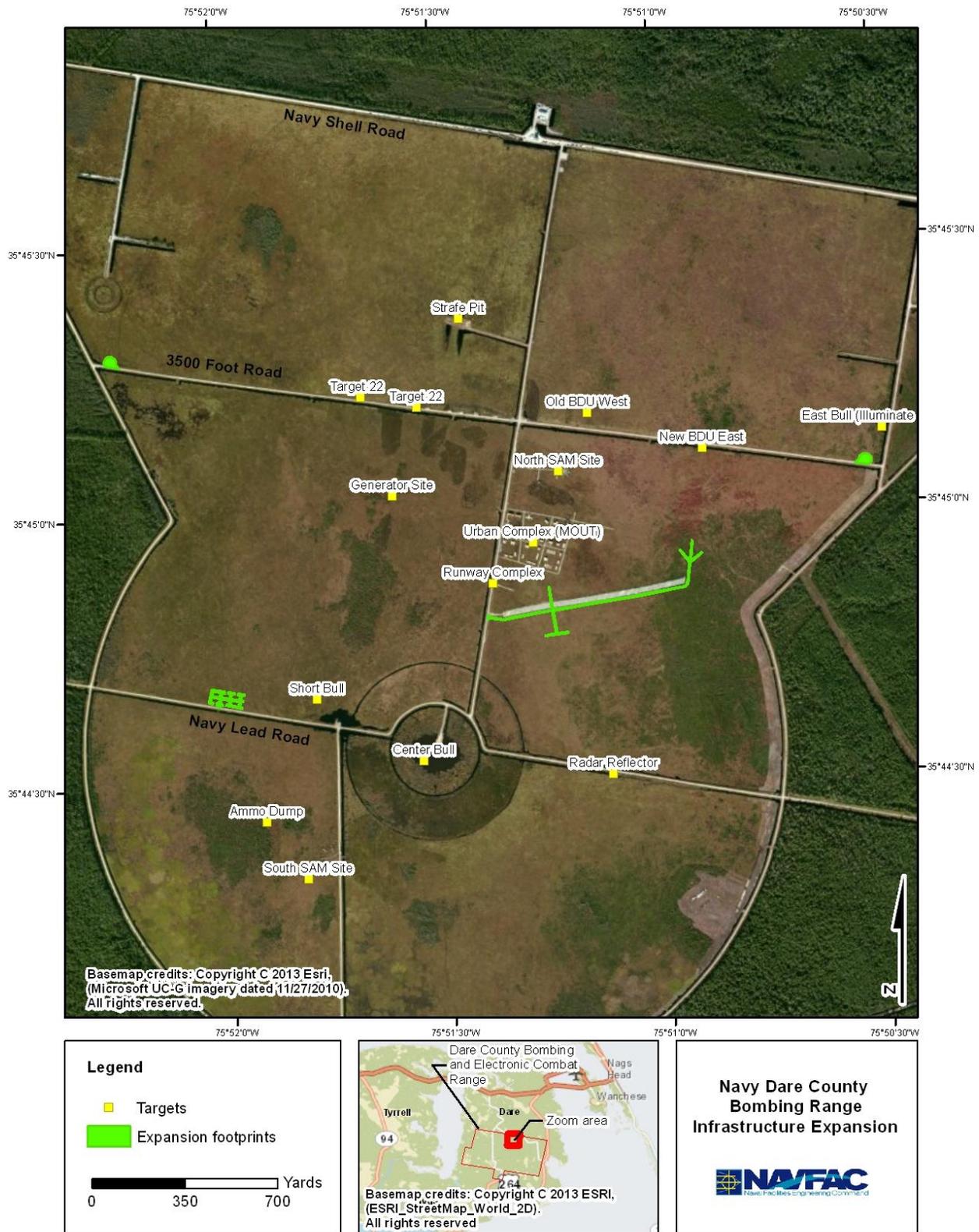


Figure 2-1 Proposed Locations of Target Area Upgrades

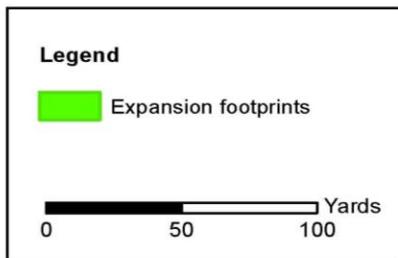
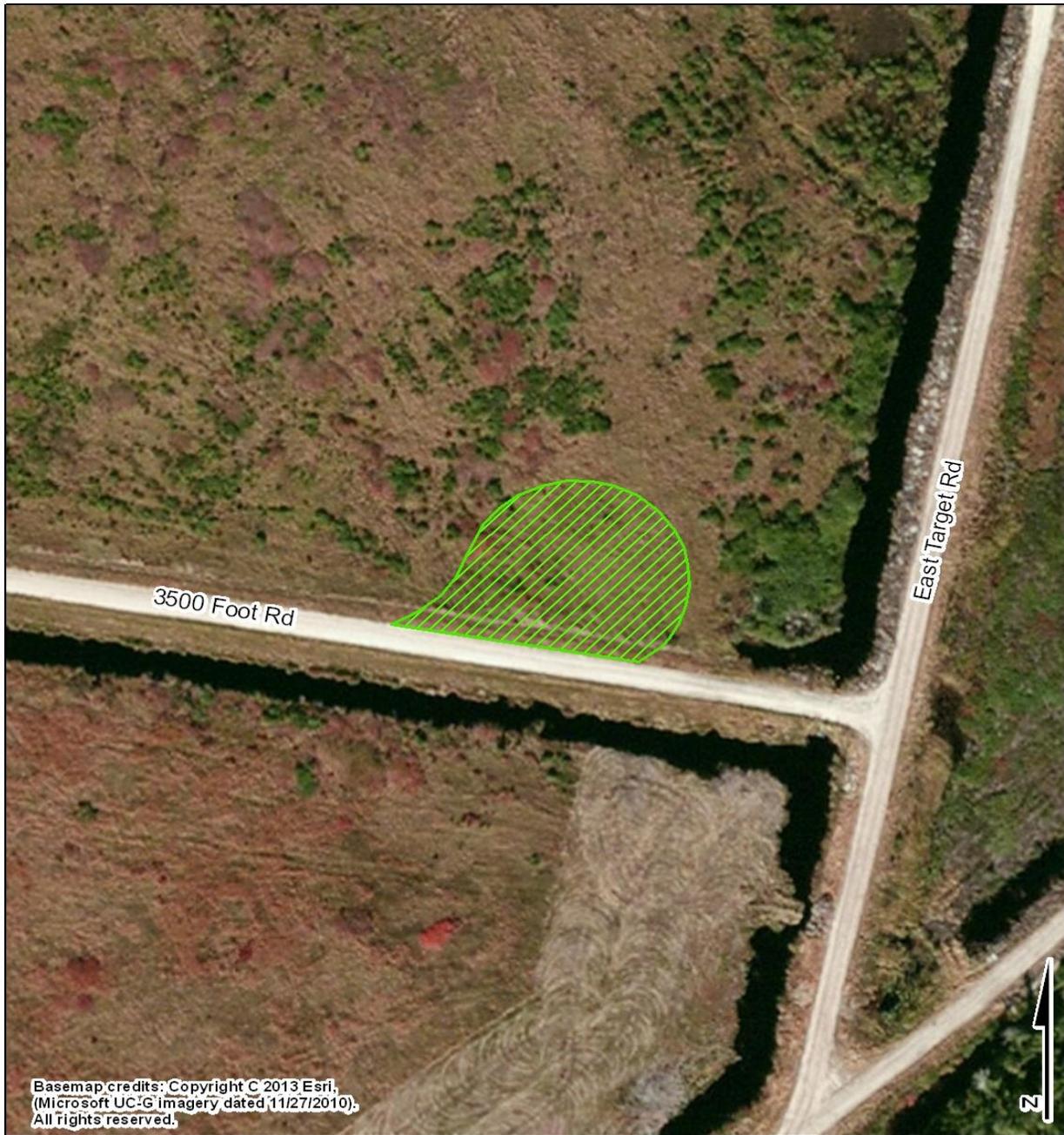


Figure 2-2 Proposed City Target



**Legend**

 Expansion footprints

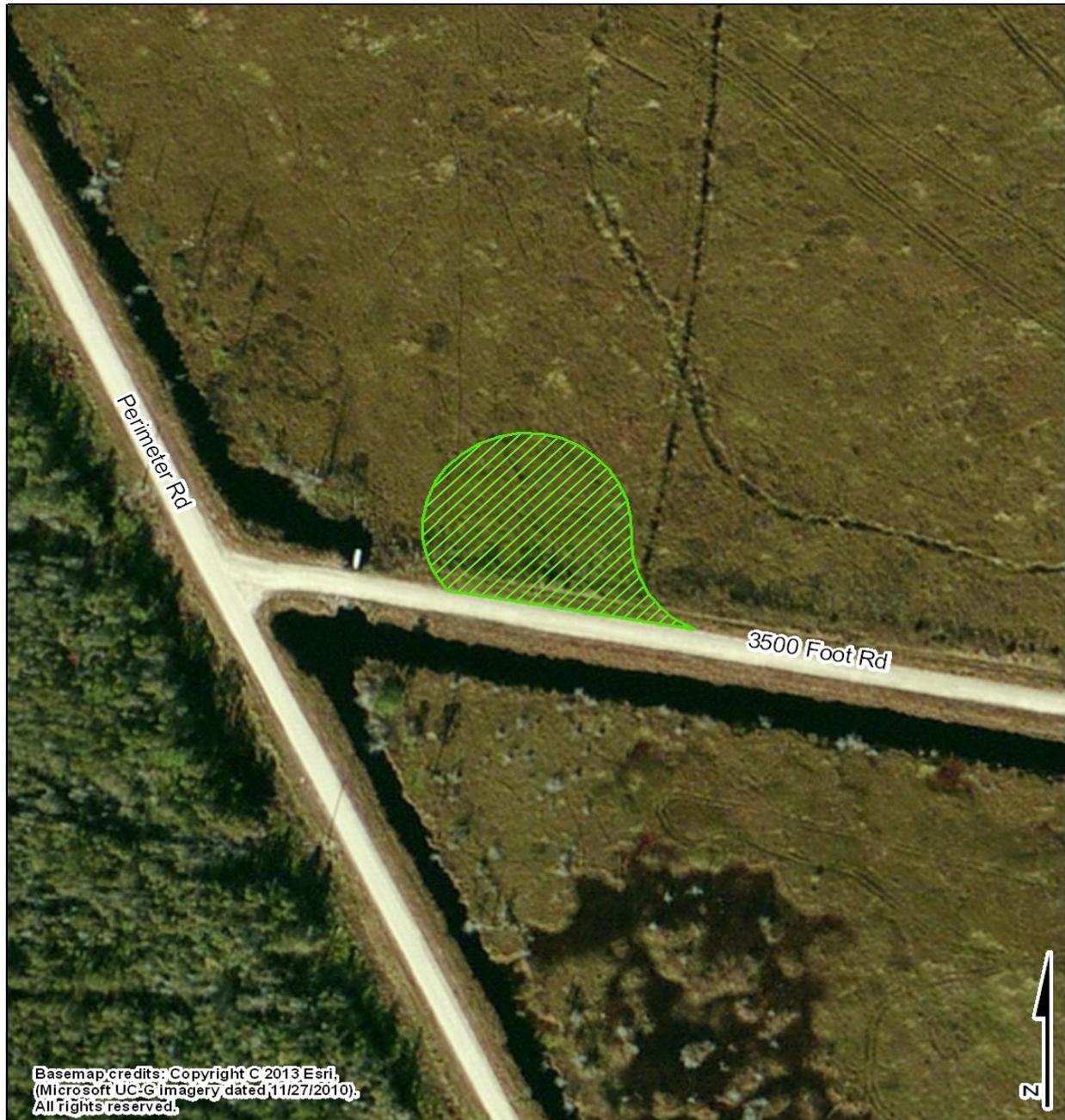
 Yards  
0 30 60



Navy Dare County  
Bombing Range  
Infrastructure Expansion  
[Turnaround]

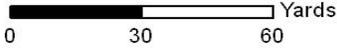
  
NAVFAC  
Naval Facilities Engineering Command

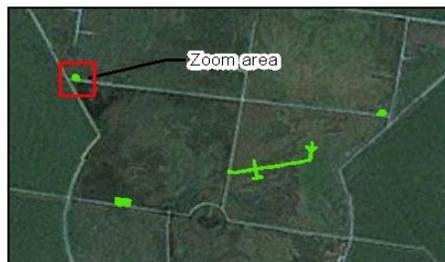
Figure 2-3 Proposed 3500 Foot Road East Expansion



**Legend**

 Expansion footprints

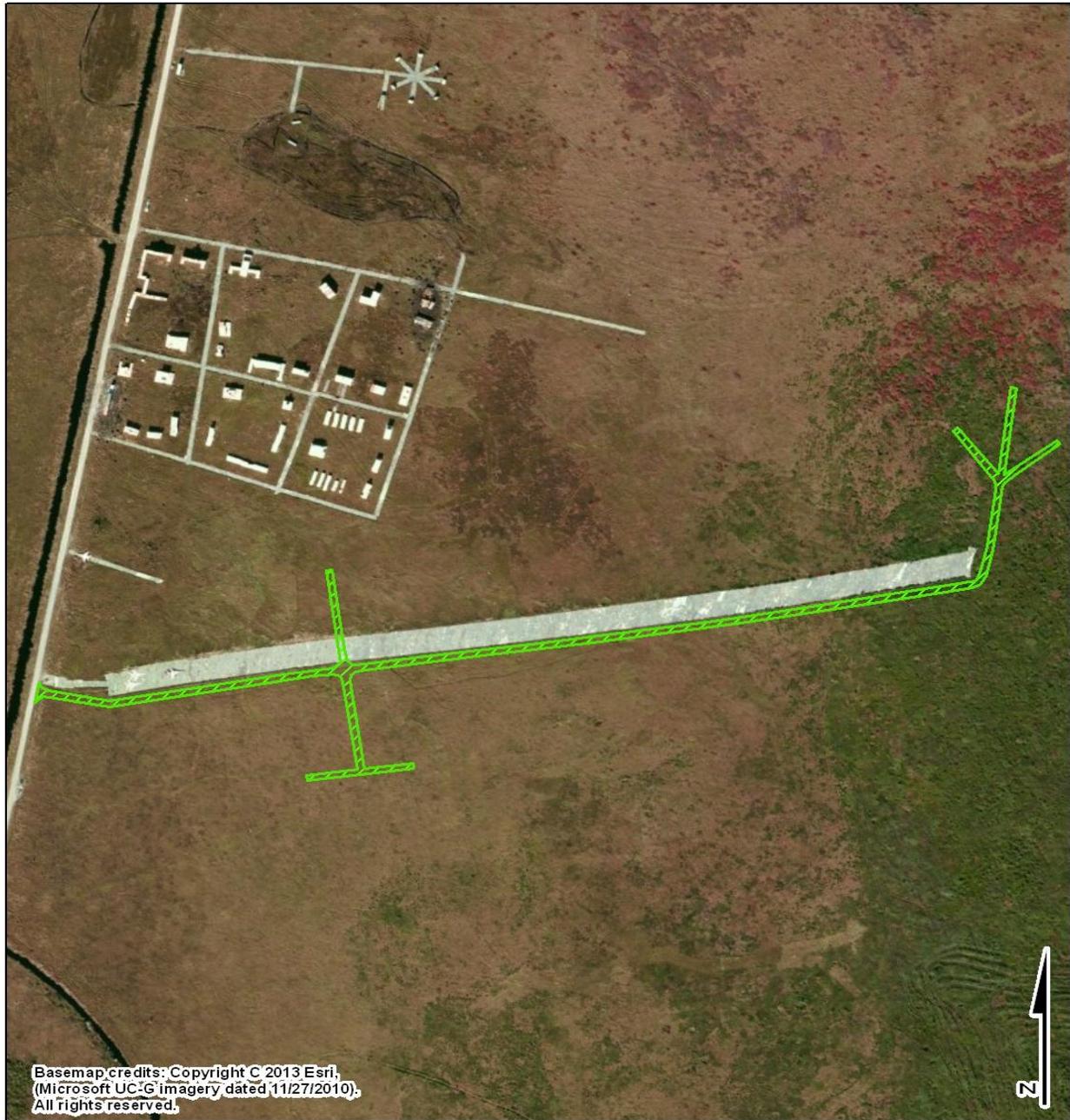
 Yards  
0 30 60



**Navy Dare County  
Bombing Range  
Infrastructure Expansion  
[Turnaround]**

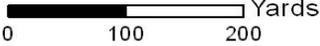
  
Naval Facilities Engineering Command

Figure 2-4 Proposed 3500 Foot Road West Expansion



**Legend**

 Expansion footprints

 Yards  
0 100 200



Navy Dare County  
Bombing Range  
Infrastructure Expansion  
[Runway Roads]



Naval Facilities Engineering Command

Figure 2-5 Proposed Runway Complex Maintenance Road and Targets

Table 2-1 specifies the requirements for each training area. Based on the estimates provided above, the Proposed Action would require 4.29 acres of wetland fill which would create the new hardened target areas. Additionally, the City Target would also secondarily impact 0.15 acres of wetlands due to fragmentation (see figure 2-2), resulting in a total of 4.44 acres of total wetlands impacted. Construction under this alternative would not affect operations at the Navy Range. Construction would be scheduled during weekends and other times when the Navy Range is not in use. The proposed construction activities would take approximately 100 working days to complete. This work would not be completed all at once, but over a period of time that is conducive to the operational requirements of the Navy Range.

## **2.2. NO-ACTION ALTERNATIVE**

Under the No-Action Alternative, training and maintenance would continue to be conducted as it is now. Efforts to improve/harden target areas would not be completed under this alternative. Under this alternative, targets and target areas would be maintained in a manner consistent with current practice, a City Target would not be constructed, a maintenance road and target areas for the Runway Target would not be constructed and turnarounds at the end of 3500 Foot Road would not be constructed. The operation of the MLTs would continue as is; however, munition training with MLTs would not be conducted. The No-Action Alternative would not meet the purpose of and need for the Proposed Action but represents the baseline condition against which potential impacts of the Proposed Action can be compared.

## **2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED**

Multiple alternatives were considered, but eliminated from further consideration. A summary of each alternative eliminated from further consideration is discussed below.

### **2.3.1 Using Alternate Locations Inside the Navy Range**

The Navy considered placing the improved/hardened target areas in other locations on the Navy Range; however, the environment on the Navy Range is uniform. Placement of the improved/hardened targets anywhere on the Navy Range would result in the same impacts as discussed in Chapter 4 under the Proposed Action because the habitat and natural resources are consistent throughout the Navy Range.

### **2.3.2 Relocating Targets near Hardened Surfaces**

The Navy also considered utilizing the existing road closest to the Runway Complex as a maintenance road and repositioning the Runway Complex parallel to that existing road. This would eliminate the need to construct an additional hardened surface for maintaining the Runway Complex. Aligning the Runway Complex next to the primary Navy Range access roads (i.e., Navy Lead Road or 3500 Foot Road) would reduce the effectiveness of current training exercises as the runway target (in its current configuration) is aligned with and parallel to the primary run-in lines. Inert bombs hitting the roadways could prevent access to portions of the Navy Range, making maintenance of the Navy Range difficult. Repositioning the Runway Complex would conflict with other training targets and relocation of the Runway Complex too far north or south would impact the current Surface Danger Zones. This course of action would

degrade rather than enhance the Navy's ability to train at the Navy Range and therefore it does not represent a reasonable alternative that will accomplish the purpose and need.

### **2.3.3 Using Alternate Locations Outside of the Navy Dare County Bombing Range Property**

The Navy considered other locations outside of the Navy Range. This option was considered to avoid the effects that construction would have on existing wetlands. The closest Navy property available is located in Hampton Roads, Virginia. Though the Navy utilizes several locations in the Hampton Roads area for training, none of the locations could be used as a bombing range. These locations are utilized for take-off and landing training operations and other flight operations but do not allow for munitions to be dropped. The Navy does not own or operate a location in close proximity to the Navy range that could accommodate new targets. Therefore, it was concluded that this was not a feasible alternative and would not be carried through for analysis.

### **2.3.4 The Use of Air Force Targets at the Dare County Bombing Range**

The Navy considered utilizing the targets located on the Air Force-operated side of the range. This option would avoid any additional impacts on existing wetlands. The 4th Fighter Wing located at Seymour Johnson Air Force Base in Goldsboro, North Carolina (Wayne County) operates and manages this range. The Air Force Range is heavily utilized and though the Navy does schedule training on that Range occasionally, the Air Force has primary use of the range and the Navy is only able to utilize the Air Force assets when the Range is not being utilized by the Air Force. As a result, the Navy is not able to schedule the Air Force range often enough to meet its training requirements. The Range does not have any additional upland areas available for the Navy to construct new targets; therefore, any construction of new targets anywhere on the Range would result in similar wetland impacts as discussed in Chapter 4 and will not be carried through for further analysis.

### **2.3.5 The Use of Prefabricated Interlocking Metal Sections (Corrugated Galvanized Roofing Panels)**

This alternative would use prefabricated interlocking metal sections (corrugated galvanized roofing panels) to cover the soft marshy vegetation as an alternative to hardening target areas. The use of prefabricated interlocking metal sections is currently in use at the Navy Range at several target locations. The intent for these interlocking metal sections was to provide a visual target for aircraft. During training as pilots trained by aiming at the targets alongside of the interlocking metal sections, bombs have hit the interlocking metal sections degrading them making them harder for pilots to see. As a result, the interlocking metal sections must be maintained. However, the interlocking metal sections are now impassable for vehicle traffic because they cannot withstand heavy vehicle traffic, such as the machinery necessary for maintaining the target, making maintenance difficult. The Navy has now determined the interlocking metal sections are not feasible to use on target areas where bombs or other munitions may be utilized. The interlocking metal sections are still adequate for use at target areas where a visual target is appropriate at no-drop target locations. Additionally, the

interlocking metal sections are functional for static displays but are not customizable. The current MOUT is a static target which is appropriate for the current training at that target and will continue to operate with the prefabricated interlocking metal sections; however, the City Target will require customization due to the MLT training operations, the need for the targets around the roadways to be relocated to accommodate different training scenarios for pilots and the potential use of the City Target by ground forces. Thus, using prefabricated interlocking metal sections would not be considered a reasonable alternative to hardened surfaces.

### **2.3.6 Construct a Bridge or Elevated/Pile-Supported Structure Over the Wetlands Instead of a Hardened Surface**

This alternative would create a bridge or elevated/pile-supported structure over the wetlands instead of filling the wetlands to create a hardened surface. The structure would be rendered impassable and unusable from the inert bombs dropped at each target. The targets and roads must be able to withstand impact from dropped munitions. The structure would be damaged from dropped munitions and would become impassable and unsafe for range maintenance. Thus, this option would not be considered a reasonable alternative to hardened surfaces.

### **2.3.7 Utilizing the Long Shoal Naval Ordnance Area Instead of Creating Target Areas at the Navy Range**

The Long Shoal Naval Ordnance Area is an overflow target utilized by Navy and Marine Corps aircraft when the nearby Navy Range is experiencing heavy use. This target can be scheduled concurrently with the Navy Range in order to conduct seamless littoral-to-land battle scenarios enhancing training realism. The Long Shoal Naval Ordnance Area is an important training asset for the Navy and the Marine Corps. It is not, however, an adequate substitute for the Navy Range. The target located at the Long Shoal Naval Ordnance Area is located entirely in the waters of the Pamlico Sound. It does not offer flexible target configurations or training scenarios that replicate an urban environment like the City Target would provide. Additionally, the MLT would be unable to drive on the Long Shoal Naval Ordnance Area so that entire training set could not be performed. As a result, the Long Shoal Naval Ordnance Area would not be considered a reasonable alternative to hardening the surfaces on the Navy Range as it would not meet the Navy's purpose and need.

## **CHAPTER 3: AFFECTED ENVIRONMENT**

This chapter describes the existing environmental conditions for resources which could potentially be affected by the Proposed Action described in Chapter 2. Resources to be addressed include physical resources such as; water and air, as well as biological resources (vegetation, wildlife, threatened and endangered species, as well as species of concern).

Several resources areas have been eliminated from further discussion as it was concluded that these resources areas would not be impacted by the construction activities described under the proposed Action. The resources excluded from the analysis and the reasons for excluding these resources are discussed below.

- **Geology and Soils** – Geology would remain unchanged as a result of the implementation of the Proposed Action. Soils would remain relatively unchanged, with approximately 0.009 percent of soils for the entire Range and approximately 0.21 percent of soils within the Navy Range altered. Thus, soil properties would be expected to remain unchanged. Various management and administrative actions will be utilized to minimize the potential for a fluid release from the MLTs during training exercises. Furthermore in the event a MLT were hit by a munition and a release of vehicular fluids would occur, a site specific spill response plan is in place and would be implemented to minimize potential impacts to the environment. As a result, uncontrolled or unpermitted releases of hazardous substances would not be expected and there would be no further mitigations required by permit or regulatory consultations applicable to the Proposed Action. Therefore the activities described under the Proposed Action would not have an impact on geology and soils.
- **Recreation** - No formal recreational facilities or activities occur within the Navy impact area; therefore the activities described under the Proposed Action would not have an impact on recreation.
- **Socioeconomics** - The Range does not support a population of residents, recreational or commercial fishing, local business or other factors that impact the population or economic activity. Therefore, socioeconomic resources would not be impacted by the Proposed Action.
- **Transportation** - The Range does not support a population of residents. Therefore, transportation would not be impacted by the Proposed Action.
- **Land Use** - Land use would remain the same if the Proposed Action were implemented. Therefore, land use is not discussed any further in this EA.
- **Cultural Resources** - A cultural resources survey was conducted on the Range by Pan American Consultants, Inc. (Grover 1996). The survey, which included field investigations, did not identify any significant archaeological resources within the Range. The level of disturbance documented on the property led the researchers to conclude that it is highly unlikely that any intact archaeological sites are present. No historic structures are known to be located anywhere on the Range, including the Navy impact area. The

North Carolina SHPO concurred with the Pan American Consultants recommendation that no further cultural resource investigations were required in a letter dated 6 August 1996 (Appendix E). These findings were presented in the Cultural Resource Management Plan for Seymour Johnson AFB, Dare County Bombing Range, Fort Fisher Air Force Recreation Area (1998). In April 2008 the Cultural Resources Management Plan for Seymour Johnson AFB, Dare County Bombing Range, and Fort Fisher Air Force Recreation Area was extended. The Management Plan also states there are no Traditional Cultural Resources or related Native American issues known for the Range. On October 10, 2010 the Navy provided written correspondence to the North Carolina SHPO concerning improvements to the Navy Dare County Bombing Range as part of an EA that was completed in April 2011 (DoN 2011). The Proposed Action of the Navy’s April 2011 EA was similar to this Proposed Action. The North Carolina SHPO responded on November 9, 2010 concurring with the Navy’s finding that the Proposed Action would not adversely affect any historic resources on the Navy Range. In a letter dated April 1, 2014, the Navy provided written correspondence to the North Carolina SHPO for the Proposed Action, as required by Section 106 of the National Historic Preservation Act. On May 13, 2014 the North Carolina SHPO concurred with the Navy’s determination that no historic properties will be affected by the Proposed Action.

**Table 3-1 Resource Chapter Locations**

<b>Resource</b>	<b>Section</b>
Air Quality	3.1
Water Resources	3.2
Biological Resources	3.3

### **3.1 AIR QUALITY**

Air quality is defined as ambient air concentrations of specific pollutants determined by the U.S. Environmental Protection Agency (USEPA) to be of concern because of their impacts on the health and welfare of the general public and the environment. These pollutants are widespread across the United States. The primary pollutants of concern, called “criteria pollutants,” include carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), suspended particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>), fine particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>) and lead (Pb). Under the Clean Air Act (CAA), the USEPA has established National Ambient Air Quality Standards (NAAQS) (40 CFR § 50) for these pollutants. Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that do not meet a federal air quality standard are designated as nonattainment areas for that pollutant. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment. The NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect public health and welfare. Short-term standards (i.e., 1-, 3-, 8-, and 24-hour periods) are established for pollutants contributing to chronic health effects.

In addition to the NAAQS for criteria pollutants, national standards exist for hazardous air pollutants, which are regulated under Section 112(b) of the 1990 CAA Amendments. The National Emission Standards for Hazardous Air Pollutants regulate hazardous air pollutants emissions from stationary sources (40 CFR § 61).

Hazardous air pollutants emitted from mobile sources are called Mobile Source Air Toxics. Mobile Source Air Toxics are compounds emitted from highway vehicles and non-road equipment, which are known or suspected to cause cancer or other serious health and environmental effects. In 2001, the USEPA issued its first Mobile Source Air Toxic Rule, which identified 21 compounds as being hazardous air pollutants that required regulation. A subset of six of these Mobile Source Air Toxic compounds were identified as having the greatest influence on health: benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde and diesel particulate matter. In February 2007, the USEPA issued a second Mobile Source Air Toxic Rule, which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health. The second rule also identified several engine emissions certification standards that must be implemented (40 CFR §§ 59, 80, 85 and 86; *Federal Register* 72 No. 37, pp. 8427–8570, 2007).

Unlike the criteria pollutants, there are no NAAQS for benzene and other hazardous air pollutants. The primary control methodologies for these pollutants for mobile sources involves reducing their content in fuel and altering the engine operating characteristics to reduce the volume of pollutant generated during combustion.

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO<sub>2</sub>, Pb and some particulates are emitted directly into the atmosphere from emissions sources. Secondary pollutants, such as O<sub>3</sub>, NO<sub>2</sub> and some particulates are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes.

The Navy Range is located in Dare County, which is an attainment area for the criteria pollutants, and is identified as part of the Northern Coastal Plain Intrastate Air Quality Control Region (defined in 40 CFR Part 81.149 and the classification can be found in 40 CFR Part 81.334). Since Dare County is located in an attainment area the General Conformity Rule (this rule only applies for federal actions in nonattainment or maintenance areas) does not apply; however, per NEPA and OPNAVINST 5090 the Navy analyzes all impacts associated with the Proposed Action including emissions from criteria pollutants. The State of North Carolina has been delegated authority to administer the provisions of Title V of the CAA. The primary and

secondary standards for North Carolina are provided in Table 3-2. The North Carolina Department of Environment and Natural Resources (NCDENR) has additional state standards for total suspended particulates, which are also included in Table 3-2 (NCDENR 2013c).

**Table 3-2 National and North Carolina Ambient Air Quality Standards**

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Ozone (O <sub>3</sub> )	Primary and Secondary	8-hours	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Carbon Monoxide (CO)	Primary	8-hours	9.0 ppm	Not to be exceeded more than once per year
	Primary	1-hour	35 ppm	
Nitrogen Dioxide (NO <sub>2</sub> )	Primary and Secondary	Annual	53 ppb	Annual Mean
	Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
Sulfur Dioxide (SO <sub>2</sub> )	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hours	0.5 ppm	Not to be exceeded more than once per year
PM <sub>10</sub>	Same as Primary	24-hours	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years
PM <sub>2.5</sub>	Primary	Annual	12 µg/m <sup>3</sup>	annual mean, averaged over 3 years
	Secondary	Annual	15 µg/m <sup>3</sup>	annual mean, averaged over 3 years
	Primary and Secondary	24-hours	35 µg/m <sup>3</sup>	98th percentile, averaged over 3 years
Lead (Pb)	Primary and Secondary	Rolling 3 month average	1.5 µg/m <sup>3</sup>	Not to be exceeded
North Carolina Total Suspended Particulates Standard	State Standard	24-hours	75 µg/m <sup>3</sup>	Annual Mean
	State Standard	24-hours	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years

Source: USEPA 2011; NCDENR 2013c

Notes: ppm = parts per million by volume, ppb = parts per billion by volume, µg/m<sup>3</sup> = micrograms per cubic meter.

## **Greenhouse Gases**

Greenhouse gases (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. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe.

The USEPA issued the *Final Mandatory Reporting of Greenhouse Gases Rule* on September 22, 2009. GHGs covered under the *Final Mandatory Reporting of Greenhouse Gases Rule* are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrogen oxide (NO<sub>x</sub>), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers. Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO<sub>2</sub>, which has a value of one. The equivalent CO<sub>2</sub> rate is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emissions rate representing all GHGs. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of mobile sources and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions as CO<sub>2</sub> equivalent (CO<sub>2</sub>e) are required to submit annual reports to the USEPA.

On a national scale, federal agencies are addressing emissions of GHGs by reductions mandated in federal laws and EOs. Most recently, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, were enacted to address GHGs, including GHG emissions inventory, reduction, and reporting.

In an effort to reduce energy consumption, reduce GHGs, reduce dependence on petroleum, and increase the use of renewable energy resources in accordance with the goals set by EO 13123 (subsequently replaced by EO 13423) and the Energy Policy Act of 2005, the Navy has implemented a number of renewable energy projects.

### **3.2 WATER RESOURCES**

Water resources are natural and man-made sources of water that are available for use by and for the benefit of humans in the environment. Hydrology concerns the distribution of water resources through the process of evaporation, atmospheric transport, precipitation, surface runoff and flow and subsurface flow. Hydrology is affected by climatic factors such as temperature, wind direction, wind speed, topography and soil and geologic properties.

Water quality describes the chemical and physical composition of water as affected by natural conditions and human activities. The Yorktown Aquifer underlies portions of Dare County and is a source of drinking water for the county (Dare County 1992). It ranges from approximately 330 to 660 feet below the ground (Dare County 1992), and proposed construction activities

would not be expected to affect groundwater as construction activities and proposed fill will remain much closer to the surface than known groundwater resources. Therefore, groundwater resources are not addressed. In addition, no natural streams or surface waters (other than wetlands which are discussed below) exist within the Navy impact area. Therefore, for the purposes of this EA, the only water resources analyzed are wetlands and floodplains.

The waters within the proposed project area consist of nontidal freshwater wetlands (i.e. class WL waters). Class WL waters are defined as freshwater wetlands<sup>1</sup> which support vegetation that is adapted to life in saturated soil conditions (NCDENR 2013b). Class WL waters are generally protected for storm and flood water storage, aquatic life, wildlife, hydrologic functions, filtration and shoreline protection (NCDENR 2013b).

Section 404 of the Clean Water Act requires approval prior to discharging dredged or fill material into the waters of the United States or adjacent wetlands. The Regulatory Division of U.S. Army Corps of Engineers (USACE) is the federal regulatory and permitting agency for most matters concerning dredge and fill activities in wetlands. The mission of the USACE is to protect wetlands and their functions and to ensure "no net loss" of wetlands. The proposed construction requires compliance with Sections 404 and 401 of the Clean Water Act. Proponents of all projects which require a 404 permit due to proposed impacts to wetlands or waters must also obtain a 401 Water Quality Certification from the State. When the State issues a 401 certification, it certifies that a given project will not degrade waters of the state or otherwise violate water quality standards. Coordination with the USACE, NCDENR, and following all relevant guidance, policy and procedures for wetlands protection and mitigation are important steps in the permit application process.

The Clean Water Act also regulates the discharge of pollutants from point sources into waters of the United States. The Clean Water Act prohibits spills, leaks or other discharges of oil or hazardous substances into the waters of the United States without a permit. The Clean Water Act limits any discharge of pollutants to a level sufficient to ensure compliance with state water quality standards. Direct discharge of effluents are regulated under numerical limitations contained in the National Pollutant Discharge Elimination System (NPDES) permit issued by the USEPA or under the state NPDES program approved by the USEPA.

### **3.2.1 Wetlands**

Executive Order 11990, *Protection of Wetlands*, directs federal agencies to take action to minimize the destruction, loss or degradation of wetlands through federally-funded activities on their property and mandates review of proposed actions on wetlands through NEPA process. It requires that federal agencies establish and implement procedures to minimize development in wetlands. In support of the federal goal of "no net loss of wetlands," all Navy construction and operational actions must avoid adverse impacts to, or destruction of, wetlands. If this is impossible, then actions shall be taken to minimize wetland degradation and replace impacted wetlands in another location.

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<sup>1</sup> Freshwater wetlands are found in freshwater environments.

The Navy Range is situated within the coastal plain province of North Carolina. The coastal plain extends from the Atlantic shoreline to the Fall Zone which generally runs along a north-south axis and is located near the middle of the state. The fall zone is the boundary between tidal rivers and nontidal rivers. Above the Fall Zone, rivers, creeks and streams flow in only one direction, generally towards the ocean. Below the Fall Zone and in the coastal plain, rivers, creeks and streams may flow in more than one direction depending on the tides. Interstate 95 roughly parallels the Fall Zone.

The coastal plain contains many of the state's wetlands. Wetlands are defined as those areas which receive enough surface water or groundwater to support vegetation typically adapted for life in wet soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas (USACE 1987).

The land surface of the Navy impact area is low and relatively flat, with elevations generally less than 5 feet above Mean Sea Level (NRCS and USDA 2012). Peatland soils, which are acidic, saturated near the ground surface and contain few nutrients and have a very high organic content characterize the soil on the Navy impact area. The Navy impact area is comprised of Belhaven Muck which is the dominant soil series at the Navy impact area; followed by Pungo Muck and Ponzer Muck (Figure 3-2) (NRCS and USDA 2012). Figure 3-2 depicts the soils types known to exist within the Navy impact area. No prime farmland soils, statewide important soils or unique soils are known to be present within the Navy impact area (NRCS and USDA 2012).

Wetlands are highly productive ecosystems that provide habitat for a diverse range of plants and animals. Additionally, many of the various functions wetlands serve are beneficial to the human and natural environment. For example, wetlands act like a sponge, absorbing water during rainfalls and releasing it slowly afterwards, reducing the likelihood and severity of floods. Wetlands also retain sediments which can prevent nitrate build-up of pollutants from nearby water bodies; and they help with groundwater recharge and discharge (Finlayson and Moser 1991).

The *Dare County Bombing Range Integrated Natural Resources Management Plan* (INRMP) for the entire Range (USAF 2000; USAF 2008) states that approximately 99 percent of the Navy impact area is classified as nontidal wetlands. The Navy impact area is comprised of jurisdictional wetlands except for existing roads, structures, target pads and parking areas (USAF 2000 and USAF 2008). A jurisdictional wetland is a wetland which satisfies the characteristics of hydric soils, hydrophytic vegetation and hydrology per the USACE 1987 Wetland Delineation Manual and applicable Regional Supplements to the manual (USACE 1987). The Navy impact area consists of nontidal freshwater wetlands which are maintained through periodic mowing and prescribed fire to improve safety and visibility. The wetland vegetation is dominated by reed grasses, sedges, rushes, sphagnum mosses, cattail and giant cane. Figure 3-3 illustrates the wetland types within the impact area. In Figure 3-3, "Freshwater Wetlands" refers to nonforested wetlands, "Depressional Swamp Forest" refers to forested wetlands, "Pocosin" refers to wetlands characterized by poorly drained soils which are high in organic material and "Pine Flat" refers to nonwetland flat areas which contain many pine trees.



Figure 3-1 Water Resources in Dare County, North Carolina

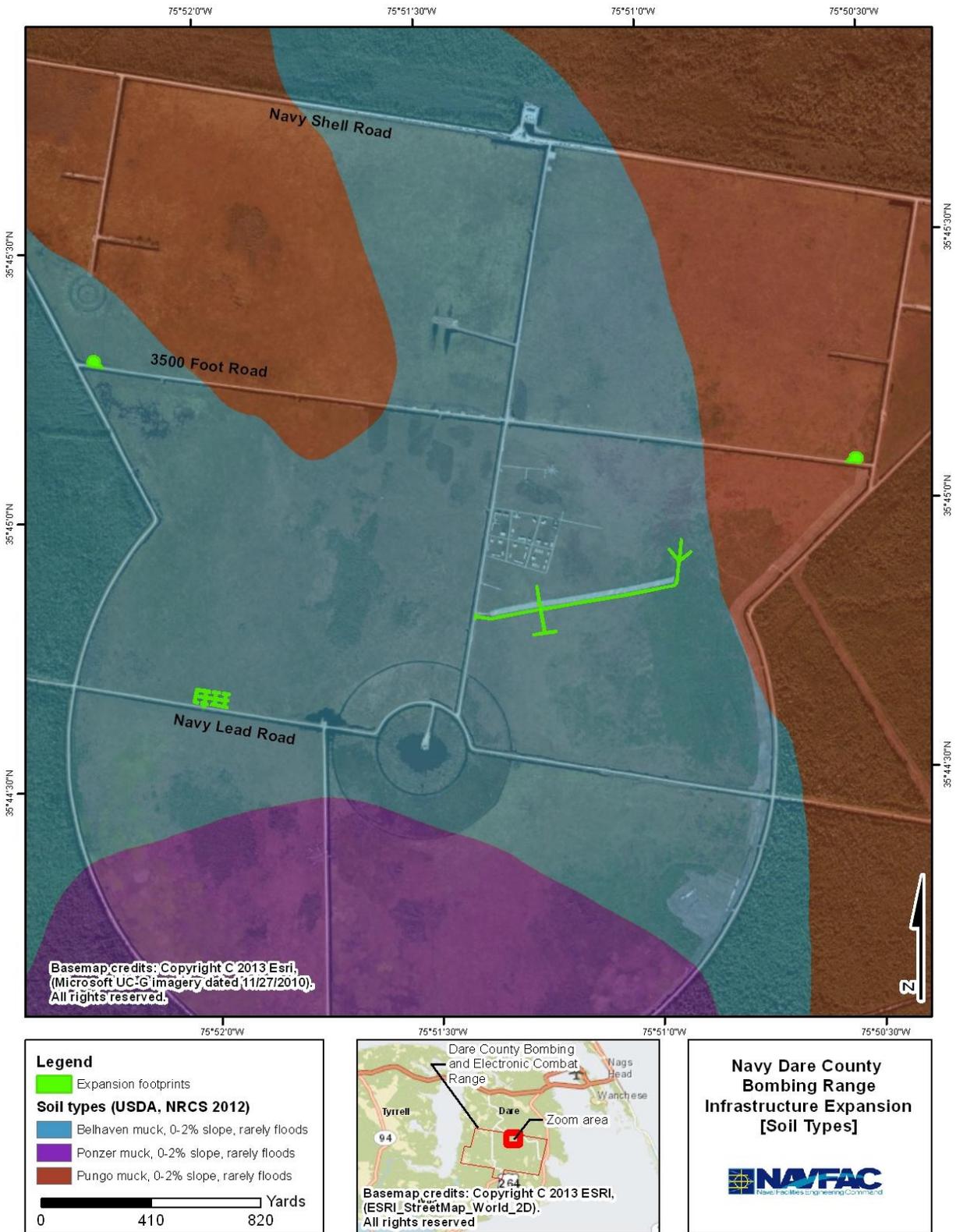


Figure 3-2 Navy Dare County Bombing Range Underlying Soil Type

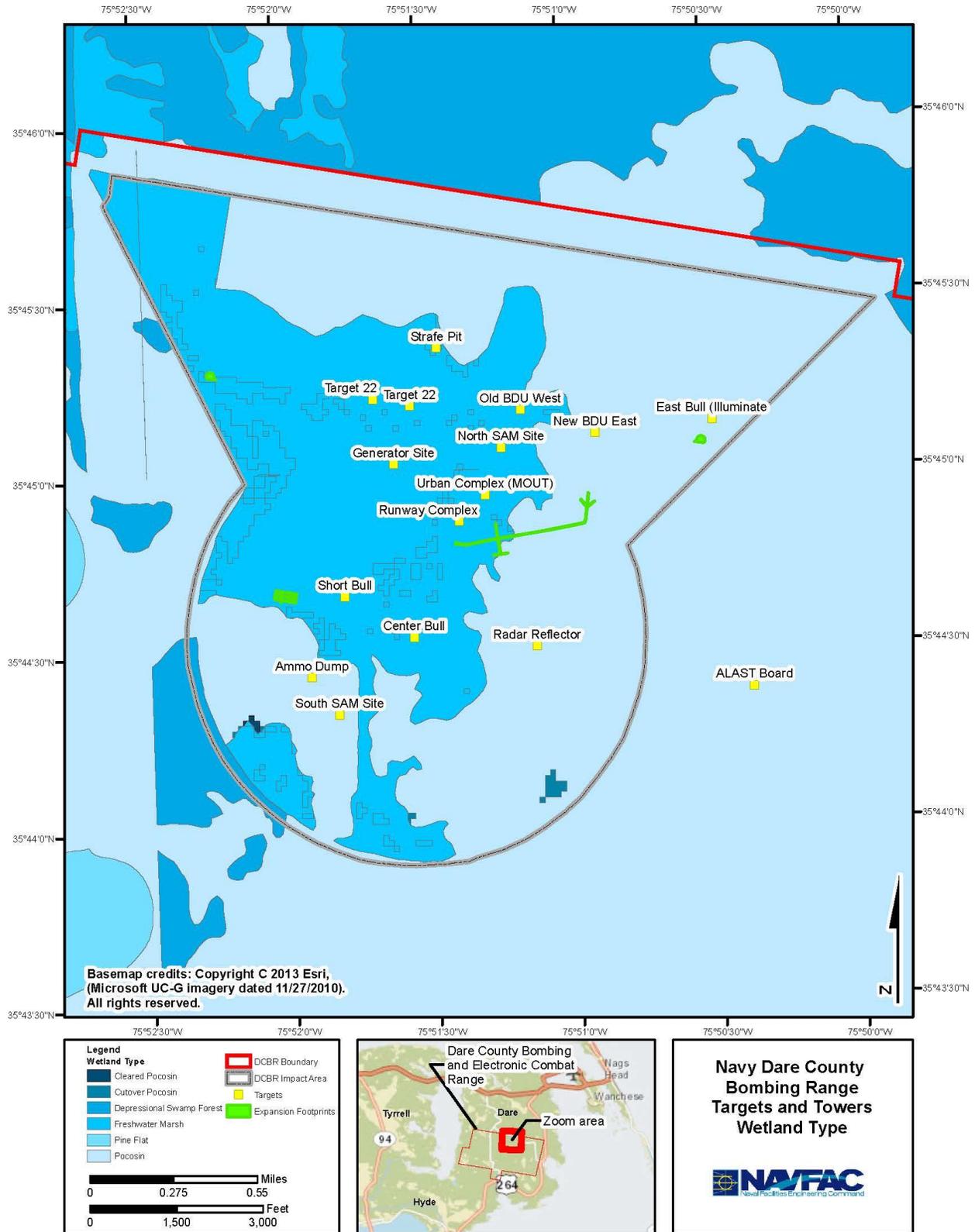


Figure 3-3 Wetlands Classification at Navy Dare County Bombing Range

### **3.2.2 Floodplains**

Executive Order 11988, *Floodplain Management*, sets forth the responsibilities of federal agencies for reducing the risk of flood loss or damage to personal property, minimizing the impacts of flood loss and restoring the natural and beneficial functions of floodplains. This order was issued in furtherance of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

As illustrated in Figure 3-4, over half of the Navy impact area is located within Federal Emergency Management Agency (FEMA) zone “AE.” FEMA zone “AE” is defined as areas subject to inundation by the 1-percent-annual-chance (or 100-year) flood event. The rest of the Navy impact area is located within FEMA zone “B” and “X”. FEMA zone “B” and “X” is defined as a moderate risk areas within the 0.2-percent-annual-chance (or 500-year) floodplain (FEMA 2013; NCFMP 2009; NCDEM 2009).

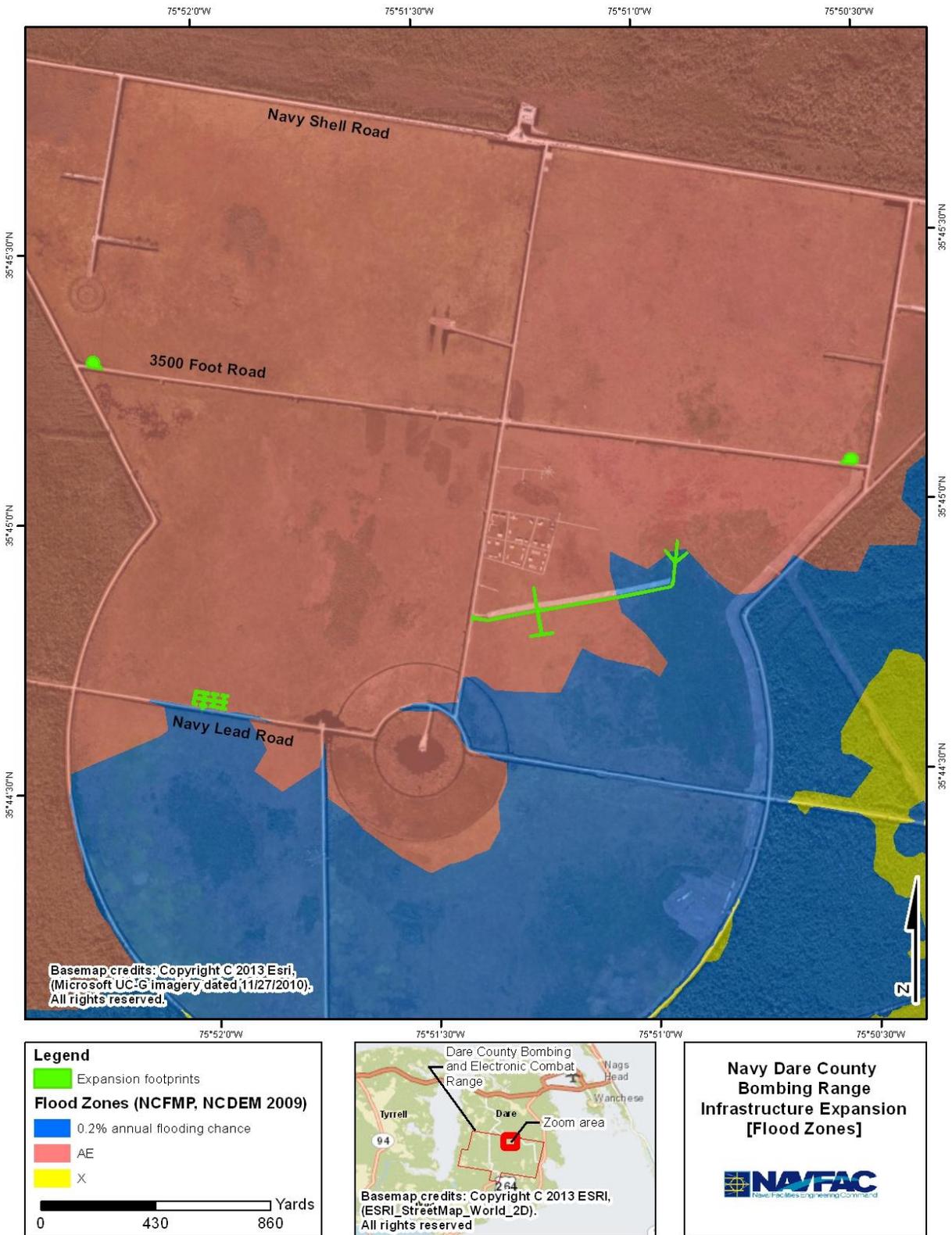


Figure 3-4 Floodplain Classification at Navy Dare County Bombing Range

### **3.3 BIOLOGICAL RESOURCES**

Biological resources addressed in this EA include native and nonnative plant and animals and the habitats in which they exist. The *Dare County Bombing Range maintains an Integrated Natural Resources Management Plan* (INRMP) that was developed in 2008. The INRMP guides the natural resources management program and allows the Range to achieve its goal of supporting the military mission, ensuring the sustainability of desired ecological conditions on the Range and maintaining the viability of the ecosystem. The resources discussed in this section are divided into three categories: vegetation, wildlife and special-status species. Each will be discussed below.

#### **3.3.1 Vegetation**

Four coastal plain terrestrial ecosystems were identified as being found on the Range: pocosin, floodplain forest, nonalluvial mineral wetland and tidal swamp forest and wetlands. The Navy impact area primarily contains “pocosin” wetlands which are derived from a Native American word meaning “swamp-on-a-hill.” They are associated with a diversity of habitat types including high and low pocosin, bogs, fresh and brackish water marshes, hardwood swamps and Atlantic white cedar swamps. Plant species present include pitcher plants (*Sarracenia flava* and *Sarracenia purpurea*) and sundews (*Drosera intermedia*), low bush cranberries (*Viburnum edule*), two species of bays (*Persea borboni* and *Gordonia lasianthus*), Atlantic white cedar (*Chamaecyparis thyoides*), pond pine (*Pinus serotina*), two species of gums (*Nyssa sylvatica biflora* and *Liquidambar styraciflua*), red maple (*Acer rubrum*) and a wide variety of herbaceous and shrub species common to the East Coast (USFWS 2007).

#### **3.3.2 Wildlife**

Wildlife found on the Dare County Bombing Range includes fish, amphibians, invertebrates, reptiles, birds and mammals. The Range is bordered by the Alligator River National Wildlife Refuge and shares most of the same species. Several species present on the Range are classified as protected species and will be discussed in sections 3.3.3 and 3.3.4.

There are numerous fish species occurring on and around the Refuge and the Range. These fisheries are considered to be diverse, containing resident species and migratory species, which use the Refuge and the Range as spawning grounds and the surrounding waters as a nursery area; anadromous species which spawn in the Refuge's and the Range's freshwater streams and estuaries, inhabit these areas as juveniles, mature offshore, and return to these streams to spawn as adults; and one catadromous species (i.e. a species that spends most of its life in fresh water and migrates to the ocean to breed) (USFWS 2008). Resident species include gar (*Lepisosteus osseus*), pickerel (*Esox niger* and *Esox americanus*), white perch (*Morone americana*), yellow perch (*Perca flavescens*), sunfish (*Enneacanthus obesus*, *Enneacanthus gloriosus* and *Acantharchus pomotis*) and catfish (*Ictalurus punctatus*, *Ameiurus catus*). Migratory species that use the Refuge and the Range include Atlantic croaker (*Micropogonias undulatus*), spot (*Leiostomus xanthurus*), Atlantic menhaden (*Brevoortia tyrannus*), southern flounder (*Paralichthys lethostigma*) and summer flounder (*Paralichthys dentatus*). Anadromous species

include striped bass (*Morone saxatilis*), alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*). No rare or listed fish species were found at the Range.

Sixty-one species of reptiles and amphibians have been reported at the Refuge (USFWS 2008). Species which are known to inhabit the area include: brown water snake (*Nerodia taxispilota*), southern water snake (*Nerodia fasciata*), redbellied water snake (*Nerodia erythrogaster erythrogaster*), common snapping turtle (*Chelydra serpentina*), northern red-bellied turtle (*Pseudemys rubriventris*), eastern painted turtle (*Chrysemys picta picta*), the southern leopard frog (*Lithobates sphenoccephala*), and a wide variety of other reptiles. Three species of venomous snakes have been documented on the Range, the cottonmouth (*Agkistrodon piscivorus*), timber rattlesnake (*Crotalus horridus*) and the copperhead (*Agkistrodon contortrix*) (USFWS 2008). A three-year study on the Range's amphibian population demonstrated that the pocosin habitat characteristics of the Range support a rich diversity of amphibians. No rare or listed amphibian species were found. A total of 14 species of frogs and toads and three species of salamanders have been observed within the Range (DoD 2006).

Over 400 species of birds have been recorded in North Carolina including over 300 species of migratory birds (Manning 2004; USFWS 2008). Dare County is the approximate midpoint of the Atlantic Flyway (USFWS 2002). The Atlantic Flyway extends from the offshore waters of the Atlantic Coast west to the Allegheny Mountains where, curving northwestward across northern West Virginia and northeastern Ohio, it continues in that direction across the prairie provinces of Canada and the Northwest Territories to the Arctic Coast of Alaska (Birdnature.com 2010). It is regarded as a valuable foraging and resting area for many bird species. Due to a variety of habitats in Dare County, marsh-dwelling species, forest-dwelling species, shore birds and pelagic birds can be found there. Over 250 species of birds visit the Refuge and the Range regularly. Since the Range is surrounded by the Refuge and many of the same habitats comprise both locations (USFWS 2008 and USFWS 2013d). Sparrows, warblers, wading birds, woodpeckers, bald eagles, doves, crows, hawks and many other bird species can be found.

The lower coastal plain of North Carolina is home to 47 species of commonly occurring mammals, with 42 of those species occurring within the Refuge (USFWS 2008). Since the Range is surrounded by the Refuge many of the species associated with the Refuge are also associated with the Range. Black bear (*Ursus americanus*), the Virginia opossum (*Didelphis virginiana*) and rodents constitute the most common mammals at the Refuge. The Refuge also provides habitat for white-tailed deer (*Odocoileus virginianus*), bobcat (*Lynx rufus*), mink (*Mustela vison*), gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), the eastern gray squirrel (*Sciurus carolinensis*), the eastern cottontail rabbit (*Sylvilagus floridanus*), muskrat (*Ondatra zibethicus*), nutria (*Myocastor coypus*) and river otters (*Lontra canadensis*). Sightings of the eastern cougar (*Felis concolor cougar*) have been reported but this species has never been confirmed (USFWS 2008).

### 3.3.3 Federally Protected Species

#### 3.3.3.1 Threatened and Endangered Species

Federally threatened and endangered species are those listed for protection under the federal Endangered Species Act (ESA) (16 U.S.C. § 1536), administered by the U.S. Fish and Wildlife Service (USFWS). The USFWS website (<http://www.fws.gov/raleigh/species/cntylist/dare.html>) lists the federally endangered species, threatened species and federal species of concern with known occurrences in Dare County (USFWS 2012). The USFWS website ([http://ecos.fws.gov/tess\\_public/pub/candidateSpecies.jsp](http://ecos.fws.gov/tess_public/pub/candidateSpecies.jsp)) lists candidate species, none of which occur in Dare County, North Carolina.

Under NEPA the impacts of a Proposed Action to threatened and endangered species must be considered. The ESA of 1973 established protection over and conservation of threatened and endangered species and the ecosystems upon which they depend. An “endangered” species is a species that is in danger of extinction throughout all or a significant portion of its range, while a “threatened” species is one that is likely to become endangered within the foreseeable future throughout all or in a significant portion of its range.

The USFWS and National Marine Fisheries Service (NMFS) jointly administer the ESA and are also responsible for the listing of species (i.e., the labeling of a species as either threatened or endangered). The USFWS has primary management responsibility for management of terrestrial and freshwater species, while the NMFS has primary responsibility for marine species and anadromous fish species (species that migrate from saltwater to freshwater to spawn). The ESA allows the designation of geographic areas as critical habitat for threatened or endangered species. Table 3-3 provides a list of the federally protected species occurring at the Range. The Navy submitted a letter to USFWS on December 3, 2013 requesting concurrence with the species listed below. On January 8, 2014 USFWS concurred that the species listed below were present or had the potential to be present at the Dare County Bombing Range. Descriptions of the federally listed species are provided in the following paragraphs.

**Table 3-3 Federally Threatened and Endangered Species and Protected Species Occurring or Potentially Occurring at the Dare County Bombing Range**

Common Name	Scientific Name	Status
Red-cockaded woodpecker	<i>Picoides borealis</i>	Endangered
Bald eagle	<i>Haliaeetus leucocephalus</i>	Bald and Golden Eagle Protection Act

Source: USFWS 2012

**Red-cockaded woodpecker (*Picoides borealis*)**

**Status and Management** – Red-cockaded woodpeckers were listed as endangered in 1970 and given federal protection under the passage of the ESA (USFWS 2003) and in 1972 they became protected under the Migratory Bird Treaty Act (MBTA).

**Distribution and Habitat** – The red-cockaded woodpecker lives in a cooperative social family structure called a “group”. Each group has up to ten birds, but contains no more than one breeding pair. Each bird creates its own roosting area called a “cavity” and a collection of “cavity” trees is known as a “cluster”. The endangered red-cockaded woodpecker is a species that is being managed intensively on the Range. Within the Range, the red-cockaded woodpeckers nest in mature pond pine trees located in mature stands of pond pine woodland, where past fire history has created the open conditions necessary for habitat (USAF 2008). Two active clusters of red-cockaded woodpeckers are currently located on the Range (personal communication with Robert Montgomery). The Air Force is managing a total of 12 remaining clusters with a goal of managing 18 clusters. The Air Force is currently working with USFWS on the management strategy for the Red-cockaded woodpecker (communication with Seymour Johnson Air Force Base Environmental Program Manager-Robert Montgomery). The red-cockaded woodpecker population within the Range is considered a highly significant remnant population, and is designated an essential support population in the *USFWS Recovery Plan for the Red-cockaded Woodpecker* (2003). Their presence is a reflection of the quality of the habitat historically found on the Dare County mainland (USAF 2008). Figure 3-5 shows the location of the Red-cockaded Woodpecker nests in association with the Range impact areas. This species has the potential to be found on the Range and impacts to this species are discussed in Section 4.3.2.3.1.

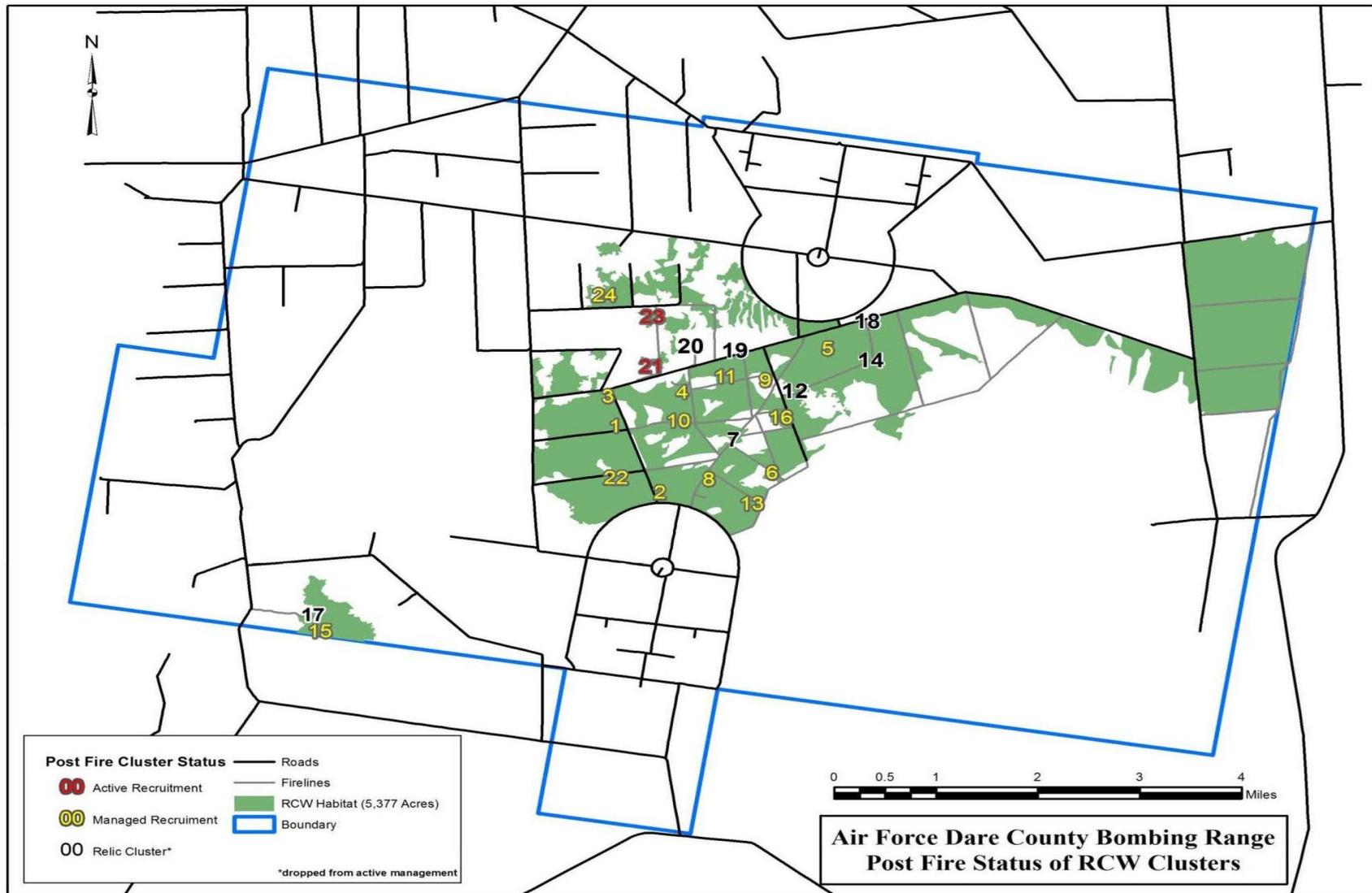


Figure 3-5 Red-cockaded Woodpecker Clusters at Dare County Bombing Range (Air Force 2008)

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### 3.3.3.2 Federal Species of Concern

In addition to federally threatened and endangered species, The USFWS also lists federal species of concern. Federal species of concern is an informal term that indicates a species might be in need of conservation actions. Federal species of concern do not receive legal protection and this term does not imply the species will eventually be proposed for listing (USFWS, 2013b). Table 3-4 provides a list of the federally species of concern occurring at the Range. The analysis for the species listed below will be discussed in Section 4.3.2.2 Wildlife.

**Table 3-4 Federal Species of Concern Occurring or Potentially Occurring at the Dare County Bombing Range**

Common Name	Scientific Name	Status
American alligator	<i>Alligator mississippiensis</i>	Threatened due to similarity of appearance
Northern diamondback terrapin	<i>Malaclemys terrapin terrapin</i>	Federal Species of Concern
Black rail	<i>Laterallus jamaicensis</i>	Federal Species of Concern
Wayne's black-throated green warbler	<i>Dendroica virens waynei</i>	Federal Species of Concern
Red wolf	<i>Canis rufus</i>	**Endangered (Nonessential Experimental Population in Dare County)
Buxton Woods white-footed mouse	<i>Peromyscus leucopus buxtoni</i>	Federal Species of Concern
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	Federal Species of Concern
Source: USFWS 2012 Note: Although the red wolf is listed as an endangered species the population in Dare County is a nonessential experimental population. The Endangered Species Act treats these animals as if they are proposed for listing and the requirements for endangered species under the Endangered Species Act do not apply.		

#### American alligator (*Alligator mississippiensis*)

**Status and Management** – In 1977, the USFWS downlisted the alligator from endangered to threatened in part of its range, including Florida and certain coastal areas of Georgia, South Carolina, Louisiana and Texas (42 FR 2071). In 1987, the USFWS downlisted the American alligator throughout the remainder of its range to "threatened due to similarity of appearance" (52 FR 21059). This classification reflects a complete recovery of the alligator, but is intended to facilitate necessary protections for the American crocodile (*Crocodylus acutus*) in the United States and foreign countries, and other endangered crocodylians in foreign countries, whose products are difficult to distinguish from those of the American alligator. Any proposed harvests under this classification must comply with the USFWS's special rule on American alligators (50 CFR § 17.42(a)) and existing state statutes and regulations. The status of "threatened due to

similarity of appearance" (52 FR 21059) is a formal recognition that the American alligator is biologically secure throughout its range. As a result, federal agencies are not required to consult on impacts to alligators under Section 7 of the ESA.

***Distribution and Habitat*** - The American alligator is a large distinctive freshwater reptile species that occurs from the Gulf coast states north along the Mississippi river to Arkansas and north along the Atlantic coast to the Albemarle Sound in North Carolina (USAF 2008). The American alligator occurs in refuge marshes, slow-moving streams and manmade canals. They prefer areas where the water turbidity is low and the water quality is high, with the presence of an adequate food source (USFWS 2008). According to the July 2008 Air Force Dare County Bombing Range INRMP, the areas on the Range that have been surveyed (Ecosystem Survey Dare County Bombing Range conducted by TNC 1994) are: part of Whipping Creek and Whipping Creek Lake, the canals around the Air Force impact areas and the canals around the Navy impact area. The survey results indicate that Whipping Creek Lake has the highest density of alligators. The results also showed that alligators generally occur in very low densities on the Range and Refuge. In 1993 population estimates on the Range were 25 to 35 alligators and in 1994 were 46 to 60 animals. Due to the limited scope and variance in types of surveys performed in different years, data gaps exist. According to the Ecosystem Survey for the Dare County Bombing Range there is little interaction between alligators and humans on the Range, resulting in few threats to the American alligator (USAF 2008). This species has the potential to be found on the Navy impact area and impacts to this species are discussed in Section 4.3.2.2 Wildlife.

**Northern diamondback terrapin (*Malaclemys terrapin terrapin*)**

***Status and Management*** – This species is listed as a federal species of concern in North Carolina.

***Distribution and Habitat*** – These turtles inhabit salt marshes or brackish-water habitats including: coastal marshes, tidal flats, coves, estuaries, inner edges of barrier beaches and any other type of sheltered, unpolluted body of salt or brackish water (Conant and Collins 1991). In 1995, the northern diamondback terrapin was found on the Refuge in the Long Shoal River marshes, south of U.S. 264, and this species could be considered an occasional visitor to this location (USAF 1995; USAF 2008). Their habitat, the Saltmeadow Cordgrass - (Saltgrass) Tidal Herbaceous Alliance, extends north of U.S. 264 onto 109 acres south of the Air Force impact area and therefore it is possible this species could be on the Range. It was noted however, that wildland fire suppression and no prescribed burning of this area has likely rendered the area unsuitable as habitat for this species (USAF 2008). As a result, an analysis of this species is not carried forward in this EA.

**Black rail (*Laterallus jamaicensis*)**

**Status and Management** – The black rail is listed as a species of concern under the ESA and has been designated as “significantly rare” in North Carolina by NCDENR. The population of black rails in the United States is estimated to be between 5,000 and 50,000 individuals (SCDNR 2005). In 1972 the black rail became protected under the MBTA.

**Distribution and Habitat** – The black rail is a secretive sparrow-sized bird that inhabits salt and freshwater marshes dominated by grasses and sedges. It lays its eggs in a loose cup of grass concealed under a clump of vegetation. This species breeds along the Pacific coast in San Francisco Bay, the Atlantic coasts from New Jersey to southern Florida and the Gulf coast from Florida to Texas. Black rails forage on small insects, spiders, small crustaceans, seeds and aquatic vegetation (Audubon 2013a).

In 1995, the black rail was found on the Refuge in the Long Shoal River marshes, south of U.S. 264 (USAF 2008). Their habitat, the Saltmeadow Cordgrass - (Saltgrass) Tidal Herbaceous Alliance, extends north of U.S. 264 onto 109 acres south of the Air Force impact area; therefore, it is possible that this species could be on the Range. However, the Air Force noted in the 2008 INRMP that wildland fire suppression and no prescribed burning of this area has likely rendered the area unsuitable as habitat for this species (USAF 2008). As a result, an analysis of this species is not carried forward in this EA.

**Wayne’s black-throated green warbler (*Dendroica virens waynei*)**

**Status and Management** – Wayne’s black-throated green warbler is listed as a species of concern under the ESA, and has been designated as “significantly rare” in North Carolina by NCDENR. In 1972 Wayne’s black-throated green warbler became protected under the MBTA.

**Distribution and habitat** – These birds inhabit various habitats including open stands of hemlock or pine. Their habitat is locally distributed within a narrow belt of forested wetlands of the outer coastal plain from southern Virginia to the Edisto River in South Carolina (Watts and Paxton 2002). In Virginia and North Carolina, black-throated green warblers are most commonly associated with Atlantic white cedar (Watts and Paxton 2002). In areas where Atlantic white cedar is scarce or absent, these birds are found in non-alluvial forested wetlands or between the transition zones between uplands and wetlands (Watts and Paxton 2002). Survey plots containing loblolly pine, Atlantic white cedar and bald cypress found higher than expected black-throated green warbler utilization than plots with pond pine and hardwoods (Watts and Paxton 2002). On the Refuge, Wayne’s black-throated green warblers utilize the transition areas between Atlantic white cedar and pond pine stands (USFWS 2008). Since this species primarily utilizes forested habitat and is unlikely to be found on the Navy impact area, an analysis of this species is not carried forward in this EA.

### **Red wolf (*Canis rufus*)**

**Status and Management** – The red wolf was listed as an endangered species in March 1967 under the Endangered Species Protection Act, the law that preceded the ESA, and protection was continued under the ESA. The red wolf was historically found throughout the southeastern states and its preferred habitat was the vast bottomland forests (USAF 2008).

The red wolves in Dare County and adjacent Tyrrell, Hyde, and Washington Counties are considered to be a nonessential experimental population in accordance with Section 10(j) of the ESA, even though this species is listed as endangered in the rest of North Carolina. A revision published November 4, 1991, added Beaufort County to the list of counties where the experimental population designation would apply (56 FR 56325). An experimental population is an introduced or designated population of endangered or threatened species that is geographically separated from nonexperimental populations of the same species. An experimental population is deemed to be “nonessential” when the loss of that experimental population would not be likely to appreciably reduce the likelihood of the survival of the species in the wild (50 CFR § 17.80). Nonessential experimental populations receive the protection of threatened and endangered species only within national parks and national wildlife refuges. The Range is not located in a national park or a national wildlife refuge so for the purposes of the Proposed Action no additional protection under the ESA applies.

In 1987 a captive breeding and reintroduction program established a population of red wolves in Dare County and the nearby Pocosin Lakes National Wildlife Refuge. This population is closely monitored by the USFWS using tracking collars and aerial surveillance (USAF 2008). The captive bred red wolves released on the Refuge have since expanded onto neighboring wildlife refuges, private land and the Range. Depending upon circumstances within and between packs, there can be from two to five packs of wolves on the Pocosin Lakes National Wildlife Refuge at any given time. The red wolf population is estimated between 90 and 110 wolves in the Red Wolf Recovery Area which consists of four national wildlife refuges, the Range, state-owned lands and private lands, encompassing about 1.7 million acres (USFWS 2013a). Red wolves have been observed or tracked in nearly every habitat type on the Range (USAF 2008; USFWS 2008). The Air Force has provided assistance by participating in field surveys, monitoring activities of the wolves, and periodically closing roads to protect active den sites (Boice 1996).

**Distribution and Habitat** - The red wolf inhabits prairies, brush, forested areas, coastal plains, swamps and bayous. They have been observed in all forest habitat types found on the Range (USAF 2008). Social units usually consist of a mated pair, sometimes with an additional male, but these animals are extremely social and will sometimes join other units to form a temporary pack. Most active at dusk and dawn, red wolves are elusive and generally avoid humans and human activity (USFWS 2013c). At the Refuge, deer, raccoons and marsh rabbits are the red wolf’s most frequently eaten prey, followed by several species of mice (USFWS 2008). This species has the potential to be found on the Navy impact area and impacts to this species are discussed in Section 4.3.2.2 Wildlife.

### **Buxton Woods white-footed mouse (*Peromyscus leucopus buxtoni*)**

**Status and Management** – This species is listed as obscure meaning the date and/or location of the observation is uncertain.

**Distribution and Habitat** – The Buxton Woods white-footed mouse is found in hardwood forests, field margins, myrtle thickets, marshes, canebrakes and brushy fencerows (NCDOT 2005). This species is not discussed in the Alligator River National Wildlife Refuge Comprehensive Conservation Plan (2008) nor is it discussed in the U.S. Air Force (2008) INRMP. This species is not expected to be found on the Navy impact area, thus it will not be discussed any further in this EA.

### **Rafinesque’s big-eared bat (*Corynorhinus rafinesquii*)**

**Status and Management** – This species is listed as a federal species of concern for Dare County.

**Distribution and Habitat** – Rafinesque's Big-eared bat inhabits forests and streamside areas throughout the southeastern U.S. (Smithsonian National Museum of Natural History 2009). This species is not discussed in the Alligator River National Wildlife Refuge Comprehensive Conservation Plan (2008). This species is not expected to be found on the Navy impact area, thus it will not be discussed any further in this EA.

## **3.3.3.2 Other Federally Protected Species**

### **3.3.3.2.1 Bald Eagle (*Haliaeetus leucocephalus*)**

**Status and Management** – In 1940 bald eagles gained protection under the Bald and Golden Eagle Protection Act (16 U.S.C. § 668–668c), as amended, and in 1972 they became protected under the MBTA. Bald Eagles were listed as an endangered species under the Endangered Species Preservation Act of 1966 on March 11, 1967. On February 14, 1978 the Bald Eagle was listed as an endangered species in 43 of the contiguous states under the Endangered Species Act (ESA) and listed as threatened in 5 states (Michigan, Minnesota, Wisconsin, Oregon and Washington) (43 FR 6230, February 14, 1978). Effective August 8, 2007, the USFWS delisted the Bald Eagle under the authority of the ESA (see 72 FR 37345, July 9, 2007), removing it from the ESA’s List of Endangered and Threatened Wildlife throughout most of its range.

The Bald and Golden Eagle Protection Act prohibits the take, possession, or transport of bald eagles (*Haliaeetus leucocephalus*); golden eagles (*Aquila chrysaetos*); and the parts (e.g., feathers, body parts), nests, or eggs of bald and golden eagles without authorization from the USFWS. This includes inactive and active nests. “Take” means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Activities that directly or indirectly lead to a “take” are prohibited without a permit from the USFWS.

**Distribution and Habitat** – Bald eagles inhabit lakes, rivers, marshes, seacoasts, forests and other nearshore habitats where there is an abundance of fish. Studies have shown that bald eagles prefer bodies of water with a circumference greater than 11 km (6.8 miles) and lakes with

an area greater than 10 square kilometers (3.9 square miles) for breeding. They typically build nests in a tall tree but may also build them on a cliff. Bald eagles feed opportunistically on fish, birds, waterfowl, mammals, reptiles, invertebrates and carrion (USDA 2007).

The bald eagle requires old-growth and mature stands of coniferous or hardwood trees for perching, roosting and nesting. Selected trees must have good visibility, an open structure and proximity to prey, but the height or species of tree is not as important as an abundance of comparatively large trees surrounding the body of water. Forests used for nesting should have a canopy cover of no more than 60 percent, and no less than 20 percent, and be in close proximity to water (USDA 2007).

Bald eagles nest along the Alligator River west of the Range and use the Refuge for foraging. Currently, two bald eagle nests are located within the Refuge boundary (documented near the North Twiford Farm Unit and near Swan Creek Lake on the south end of the refuge; approximately seven miles from the Navy impact area); however, nesting does not occur in every nest every year. Immature bald eagles and adults are occasionally seen within the Range (USAF 2007; USFWS 2008). This species has the potential to be found on the Navy impact area and impacts to this species are discussed in Section 4.3.2.3.1.

#### **3.3.3.2.2 Migratory Bird Treaty Act**

Migratory birds are any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. Migratory birds are protected under the MBTA of 1918 (16 U.S.C. § 703-712) and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. The MBTA prohibits the taking, killing or possessing of migratory birds unless permitted. Take is defined as: to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (50 CFR § 10.12). The list of bird species protected by the MBTA appears in 50 CFR § 10.13. The Authorization act (50 CFR § 21.3) defines what is and is not considered a military readiness activities for purposes of the Migratory Bird Treaty Act.

The utilization of the MLTs as a target is a military readiness activity. Military readiness activities, as defined in the Authorization Act (50 CFR § 21.3), include all training and operations of the Armed Forces that relate to combat, and the adequate realistic testing of military equipment, vehicles, weapons and sensors for proper operation and suitability for combat use. 50 CFR § 21.15 authorizes takes, with limitations, that result from military readiness activities of the Armed Forces. If an ongoing or proposed military readiness activity may result in a significant adverse effect on a population of a migratory bird species, then the proponent Armed Service must confer and cooperate with the U.S. Fish and Wildlife Service to develop appropriate and reasonable conservation measures to minimize or mitigate identified significant adverse effects.

Construction associated with the Proposed Action is not considered a military readiness activity. Non-military readiness activities, as defined in the Authorization Act (50 CFR § 21.3), include routine operation of installation support functions (e.g., administrative offices, military

exchanges, commissaries, water treatment facilities, storage facilities, recreational activities), routine operations of industrial activities, and the construction or demolition of installation support functions. As a result, the provisions in 50 CFR § 21.11 apply to the construction activities and a permit would be required to “take” a migratory bird incidental to these activities.

**3.3.4 North Carolina Protected Species**

The species listed in this document have been granted protection by the North Carolina Wildlife Resources Commission, a division of North Carolina Department of Environment and Natural Resources (NCDENR) under the State Endangered Species Act (G.S. 113-331 to 113-337). The species below are rare animal species, exemplary natural communities and/or special animal habitats potentially found at the Range. Impacts to these species will be discussed in Section 4.3.2.2 Wildlife.

**Table 3-5 State Protected and Rare Species Occurring or Potentially Occurring on the Navy Dare County Bombing Range**

<b>Common Name</b>	<b>Scientific Name</b>	<b>State Status</b>
American alligator	<i>Alligator mississippiensis</i>	Threatened
Carolina watersnake	<i>Nerodia sipedon williamengelsi</i>	Species of Special concern
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Black rail	<i>Laterallus jamaicensis</i>	Species of Special Concern
Gull-billed tern	<i>Gelochelidon nilotica</i>	Threatened
Little blue heron	<i>Egretta caerulea</i>	Species of Special Concern
Red-cockaded woodpecker	<i>Picoides borealis</i>	Endangered
Snowy egret	<i>Egretta thula</i>	Species of Special Concern
Star-nosed mole – Coastal Plain Population	<i>Condylura cristata pop. 1</i>	Species of Special Concern
Cranberry	<i>Vaccinium macrocarpon</i>	Threatened

Source: NCDENR 2013a

**American alligator (*Alligator Misissippiensis*)**

This species is described in section 3.3.3.1.

**Carolina watersnake (*Nerodia sipedon williamengelsi*)**

This species is listed as a “special concern” species in North Carolina. This species is not thought to inhabit the Navy Range but has the potential to occur near or within the Air Force Range. This snake is heavy-bodied with dark markings on its belly. The front section of the body is usually crossbanded, but on the middle and posterior portions of the body, the crossbands break up into three alternating rows of blotches. This species is active both day and night and eats a variety of fish and amphibians. They inhabit a variety of aquatic environments throughout the northern Coastal Plain, Piedmont and mountains of North Carolina (Dorcas, 2004).

**Bald eagle (*Haliaeetus leucocephalus*)**

This species is described in section 3.3.3.2.1.

**Black rail (*Laterallus jamaicensis*)**

This species is described in section 3.3.3.1.

**Gull-billed tern (*Gelochelidon nilotica*)**

This species is listed as threatened in North Carolina. The Gull-billed tern breeds along the Atlantic coast from New Jersey to Florida, along the Gulf Coast and in Southern California. This species breeds and nests along sandy or gravelly beaches and islands and typically spends its winter in salt marshes, estuaries, lagoons and plowed fields and less frequently spends its winters along fresh water areas. These birds eat a broad diet of insects, lizards, small crabs, fish and other prey taken from the ground, air or vegetation (Audubon 2013c).

**Little blue heron (*Egretta caerulea*)**

This species is listed as a special concern species in North Carolina. Little blue herons breed along the Atlantic coast from Maine to Florida, around the Gulf Coast and up the Mississippi River Valley. They nest in small trees, shrubs and mangrove stands over water and use salt and freshwater marshes and river bottoms for breeding. This species of heron forages in marshes, lagoons, canals and ditches, impoundments, ponds, streams and flooded fields, where vegetation is emerging or mature (Audubon 2013b).

**Red-cockaded woodpecker (*Picoides borealis*)**

This species is described in section 3.3.3.1.

**Snowy egret (*Egretta thula*)**

This species is listed as a special concern species in North Carolina. The Snowy egret breeds along the Atlantic coast from Maine southward, the Gulf Coast, the west coast from Oregon southward, in the Caribbean and South and Central America. This species forages in both freshwater and marine habitats. These areas generally include salt marsh pools, tidal channels, shallow bays and mangroves. Snowy egrets feed on fish, crustaceans, snails, snakes, lizards, worms and insects (Audubon 2013d).

**Star-nosed mole – Coastal Plain Population (*Condylura cristata pop. 1*)**

The Star-nosed mole is listed as a species of concern in North Carolina. This species is found in the bottomlands, moist meadows and swamps of North Carolina. The Star-nosed mole has a global rank of secure and its status is considered secure in North Carolina and Virginia (Laerrm et al. 2005).

**Cranberry (*Vaccinium macrocarpon*)**

This species is listed as significantly rare in North Carolina and is located at the periphery of its range in the state of North Carolina. Cranberry is a northern evergreen shrub bog plant that is largely restricted to Dare County on the Coastal Plain in North Carolina. The Range population is likely the largest occurrence of this species this far southeast. Plants have been found at three locations:

1. Several sites within the Air Force impact area;
2. In pond pine woodland adjacent to Jackson Road and west of Long Curve Road; and
3. Throughout the low pocosin between the Air Force impact area and U.S. 264.

The Air Force has determined the best management practice for this species is to manage the low pocosin population including the evaluation of prescribed fire use in the absence of natural wildland fire events (USAF 2008).

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## CHAPTER 4 : ENVIRONMENTAL CONSEQUENCES

Chapter 4 presents an analysis of the potential impacts upon various components of the environment that could result from the Proposed Action. This chapter is arranged in the same manner as Chapter 3.

**Table 4-1 Resource Chapter Locations**

<b>Resource</b>	<b>Section</b>
Air Quality	4.1
Water Resources	4.2
Biological Resources	4.3

Under NEPA, impacts on resources are analyzed in terms of significance. CEQ regulation 40 CFR § 1508.27, explains that assessing whether something “significantly” impacts the environment (for purposes of 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 (human, national), the affected region, the affected interests, and the locality. Both short-term and long-term effects must be considered. Intensity refers to the severity of the impact. Intensity factors include, but are not limited to, the degree to which the Proposed Action affects public health or safety; unique characteristics of the geographic area such as proximity to cultural resources, park lands, wetlands or ecologically critical areas; the degree to which the action may adversely affect cultural resources and endangered or threatened species or habitat that has been determined to be critical under the ESA; and whether the action threatens a violation of federal, state or local law or requirements imposed for the protection of the environment.

### **4.1 AIR QUALITY**

#### **4.1.1 No Action Alternative**

Under the No Action Alternative, efforts to improve/harden target areas would not be completed. The operation of the MLTs would continue as is; however, munition training with MLTs would not be conducted. Existing conditions and baseline air quality would remain unchanged. Therefore, implementation of the No Action Alternative would not have any significant impacts on air quality.

#### **4.1.2 Proposed Action**

The Proposed Action would involve the utilization of MLTs for munitions training and a construction phase. Each MLT would be expected to drive up to 320 miles per day on the range approximately five days per week. Up to three MLTs could be utilized per day. Construction materials such as gravel and dirt would be transported to the Navy impact area using a tarpaulin covered tractor trailer to prevent the diffusion of dust and loss of gravel and dirt during transport. The material would then be utilized upon delivery. The access route from U.S. 264 to the Navy impact area is paved for approximately 75 percent of the distance and the remaining distance is

unpaved. Dust emissions would be expected during transport of gravel and materials as vehicles traverse the unpaved (gravel) portion of the road throughout the duration of the construction. No dust emissions would occur from transit along paved roads. Within the Navy impact area the gravel would be transported across semi-improved gravel roads. Particulate matter air emissions would be created during this phase of transport and during the unloading and spreading of gravel. It is anticipated that any dust emissions would be temporary and settle within the perimeter of the Navy impact area and not reach the nearest human settlements (Stumpy Point, approximately seven miles east and Engelhard, approximately 15 miles south). Table 4-2 depicts the total emissions that would be anticipated as a result of proposed activities (use of the MLTs and the construction period). The emissions associated with construction would only occur during the construction period. The emissions associated with the utilization of the MLTs are expected for the reasonably foreseeable future since this would be an ongoing activity. Emissions calculations for these and other anticipated pollutants are included in Appendix F of this EA.

**Table 4-2 Estimated Emissions Over the Life of Construction and Ongoing MLT Use Under the Proposed Action**

<b>Pollutant</b>	<b>Construction Emissions (tons/year)</b>	<b>MLT Emissions (tons/year)</b>	<b>Total Emissions (tons/year)</b>
NO <sub>x</sub>	6.13	1.81	7.94
CO	1.54	1.59	3.13
VOC	0.39	0.00	0.39
PM	3.16	0.00	3.16
SO <sub>2</sub>	0.60	0.00	0.60

Air emissions, including greenhouse gas emissions, would be anticipated to be minor and temporary. Dare County, where the Navy impact area is located, and its two surrounding counties (Tyrrell and Hyde) are in attainment for all criteria pollutants. Since Dare County is located in an attainment area the General Conformity Rule (this rule only applies for federal actions in nonattainment or maintenance areas) does not apply. Therefore, implementation of the Proposed Action would not have any significant impacts on air quality.

Greenhouse gases would be expected to be emitted during construction activities. Greenhouse emissions from construction activities would occur as a result of the burning of fossil fuels to power construction equipment. Greenhouse gas emissions would be minimal (630.70 metric tons/year for both construction and the utilization of the MLTs and 375.29 metric tons for only the utilization of the MLTs after construction is complete) in comparison to the greenhouse gas emission for the State of North Carolina (142.9 million metric tons [USEIA 2010]), temporary in nature and the amounts of greenhouse gases emitted would not have a significant impact on global climate change.

## **4.2 WATER RESOURCES**

For the purpose of this analysis, water quality was evaluated with respect to impacts associated with improving/hardening target areas and utilizing the MLTs as a target. To address potential impacts, the analysis first identified the proposed activities that could affect the water environment (notably wetlands and floodplains) at the Navy impact area. Relevant state and federal regulations were also reviewed.

### **4.2.1 No Action Alternative**

Under the No Action Alternative, the target area would not be improved/hardened. The operation of the MLTs would continue as is; however, munition training with MLTs would not be conducted. Existing conditions and baseline water resources would remain unchanged. Therefore, implementation of the No Action Alternative would not have any significant impacts on water resources.

### **4.2.2 Proposed Action**

The Proposed Action would require filling 4.29 acres of wetlands, which is the minimum amount of fill needed to meet the purpose and need, and secondarily fragmenting 0.15 acres of wetlands. As discussed in Chapter 2, fill material (such as sand and dirt clean and free of contaminants and debris from a commercial borrow site), geotextile material and gravel would be layered to construct the target pads, roads and maintenance/storage areas. This proposed fill equates to approximately 0.009 percent of the wetlands in the entire Range and approximately 0.21 percent of wetlands in the Navy impact area.

#### **4.2.2.1 Wetlands**

As discussed in Chapter 3, Section 404 of the Clean Water Act requires approval prior to discharging dredged or fill material into the navigable waters of the United States. Prior to the commencement of any construction, the Navy will obtain a Section 404 permit from the USACE and a 401 Water Quality Certification from the State of North Carolina.

In order to meet regulatory requirements and to minimize impacts to wetlands, no construction equipment would travel off of existing roads before, during or after construction. Personnel would also adhere to all applicable laws and regulations for erosion and sediment control. In addition, personnel would adhere to all applicable Navy policies for handling materials to help prevent spills during construction. These policies are discussed in the Department of the Navy 2013 *Hazardous Materials Reutilization, Hazardous Waste Minimization and Disposal Guide*. All applicable standard operating procedures protective of the environment would be followed. The Navy would implement measures to reduce the chance of a release of vehicular fluids in the instance an MLT was struck by munitions during a training scenario. Based on the training scenario being conducted these measures could include but are not limited to: utilizing specific types of inert munitions, modifying attack profiles to reduce the potential for vehicular damage, conducting training exercises in specific areas, utilizing towed trailers as targets instead of the MLTs themselves, and utilizing minimal amounts of fuel and fluids to complete training events.

In the event a MLT were hit by a munition, and a release of fluids would occur, a site specific spill response plan is in place and would be implemented to minimize potential impacts to the environment. As a result, uncontrolled releases of hazardous substances would not be expected. As a result of these measures to limit the potential impacts of MLT use, the mitigation measures listed in Chapter 5, and the relatively small amount of wetlands to be filled as part of the construction, the Proposed Action would not significantly impact wetlands.

As discussed in this section and in Chapter 2, several small areas in various parts of the Navy impact area would be filled; equaling 4.29 acres of total fill. The proposed fill would be spread throughout the Navy impact area and would not be concentrated in any one place. Additionally, the design of the City Target would include two rectangular sections approximately 0.075 acres each (total of approximately 0.15) that would potentially fragment the wetland habitat. These two sections within the City Target would completely enclose 0.15 acres of wetlands and leave it hydrologically excluded from the rest of the system and fragment the habitat. Wetland impacts would be minimized due to the fill being spread among several areas which would result in minimal, if any impacts to existing hydrology, soils, and vegetation. The impact to wetlands as a result of the Proposed Action would not be anticipated to cause impacts outside of the Range. Turbidity would be temporary and minor, only occurring at the time of construction. No long term or significant impacts to water quality would occur. As a result, implementation of the Proposed Action would not have any significant impacts on wetlands.

Impacts to wetlands would be mitigated as required by the USACE in the wetlands permit by purchasing wetland bank credits at an offsite wetland mitigation bank. Offsite mitigation would occur within the same watershed as the proposed impacts so the net effect on wetlands in the watershed will remain unchanged. See Chapter 5 for a discussion on the proposed mitigations associated with the Proposed Action. Additionally, a Sediment and Erosion Control Plan and a Stormwater permit will be obtained prior to the initiation of construction activities.

#### **4.2.2.2 Floodplains**

As discussed in Chapter 3, over half of the Navy impact area is located within FEMA zone “AE” and the rest is located within FEMA zone “B.” FEMA floodplain “AE” is defined as an area inundated by 100-year flooding, for which base flood elevations have been determined (FEMA 2013 and NC Floodplain Map Program 2009).

The Proposed Action would permanently fill floodplains within the Navy impact area; however, impacts to floodplains outside of the Range are not anticipated to occur. Impacts to floodplains would be mitigated as required by the USACE in the wetlands permit, by purchasing wetland bank credits at an offsite wetland mitigation bank. The mitigation set forth by the USACE will assist in creating floodplains within the watershed. See Chapter 5 for a discussion on the proposed mitigations associated with the Proposed Action. As a result, implementation of the Proposed Action would not have any significant impacts on floodplains.

### **4.3 BIOLOGICAL RESOURCES**

The study area for biological resources consists of the property boundaries of the Range. The existence and preservation of biological resources is not only intrinsically valuable, biological resources also provide esthetic, economic, recreational and socioeconomic values to society. This analysis focuses on species that are important to the function of the ecosystem, of special societal importance or are protected under federal or state law.

#### **4.3.1 No Action Alternative**

Under the No Action Alternative, existing conditions and baseline biological resources would remain unchanged. Targets and target areas would be maintained in a manner consistent with current practice, a City Target would not be constructed, a maintenance road and target areas for the Runway Target would not be constructed, and turnarounds at the end of 3500 Foot Road would not be constructed. The operation of the MLTs would continue as is; however, munition training with MLTs would not be conducted. Vegetation, wildlife and protected species in the target areas would not be affected.

The No Action Alternative would not have a significant adverse effect on migratory bird populations as defined by MBTA regulations applicable to non-military readiness activities. The No Action Alternative would have no impact on ESA listed species. In accordance with the Bald and Golden Eagle Protection Act, the No Action Alternative would have no impact on bald eagles. In accordance with NEPA, the No Action Alternative would not have any significant impact on biological resources.

#### **4.3.2 Proposed Action**

##### **4.3.2.1 Vegetation**

Vegetation predominantly associated with wetlands inhabits the Navy impact area. This vegetation is mostly comprised of various plant species that intermingle to create a dense layer of vegetation that covers the water surfaces around the Navy impact area. The Proposed Action would increase the hardened surface of the Navy impact area with little impact on the total existing wetlands (the fill equates to approximately 0.009 percent loss of wetlands for the entire Range and 0.21 percent loss in the Navy impact area). As such, the diversity of the existing vegetation will not be impacted by the implementation of the Proposed Action. The implementation of the Proposed Action would not affect any of the forested habitats located on the Range.

MLT training events are not expected to have a significant or long-term effect on range vegetation. Various management and administrative actions will be utilized to minimize the potential for a fluid release from MLTs during training exercises. Furthermore, in the event a MLT were hit by a munition, and a release of vehicular fluids would occur, a site specific spill response plan is in place and would be implemented to minimize potential impacts to the environment and the surrounding vegetation. As a result, uncontrolled releases of hazardous

substances would not be expected. Section 4.2.2.1 discusses the impacts of the Proposed Action on wetlands.

Minor impacts to vegetation would be expected as a result of the implementation of the Proposed Action. As a result of these measures to limit the potential impacts, the mitigation measures listed in Chapter 5, and the relatively small amount of wetlands to be filled, implementation of the Proposed Action would not have a long-term or significant impact on vegetation.

#### **4.3.2.2 Wildlife**

Numerous species of mammals, birds, reptiles and fish inhabit the Range including several state-listed species. The Navy impact area is utilized by a variety of species for foraging, breeding, roosting as well as transiting from one part of the Range to another. The Proposed Action would fill 4.29 acres of the existing wetlands and secondarily impact 0.15 acres of wetlands by fragmentation. Temporary displacement of wildlife during construction from suitable habitat in the immediate vicinity of the project area is possible. Smaller, less mobile species could inadvertently be killed during construction activities; however, long-term impacts to wildlife populations would not be anticipated. The minimal fill associated with the Proposed Action would not significantly impact the ability of species to perform normal biological functions. The Proposed Action would not have a significant impact on wildlife based on the short-term and localized nature of the proposed construction activities.

MLT training events are not expected to have a significant or long-term effect on range wildlife. Various management and administrative actions will be utilized to minimize the potential for a fluid release from MLTs during training exercises. Furthermore, in the event a MLT were hit by a munition, and a release of vehicular fluids would occur, a site specific spill response plan is in place and would be implemented to minimize potential impacts to the environment or any species that could be in the vicinity. As a result, uncontrolled releases of hazardous substances would not be.

As discussed in Section 3.3.3.1 the red wolf is considered under the ESA to be a nonessential experimental population. As a result, the species does not receive the protection of threatened and endangered status unless they are found within national parks and national wildlife refuges. Since the Range is not located in a national park or a national wildlife refuge, no additional protection under the ESA applies. Red wolves have been observed using habitat found on the Range. The utilization of the MLT for munitions training and construction activities proposed for the Navy impact area are not likely to affect prey species, habitat use, breeding or the ability of wolves to communicate. The red wolf population located on the Range and the nearby Refuge are actively breeding and increasing in population, which suggests the wolves have habituated to the constant levels of noise associated with training and maintenance activities involving heavy machinery. This suggests the wolves would not be impacted by noise associated with the use of the MLTs or construction activities proposed under the Proposed Action (USAF 2008). The Proposed Action would not have a significant impact on red wolves based on the short-term and

localized nature of the construction activities and the lack of suitable habitat on the Navy impact area for the wolves to use for breeding, foraging and other biological functions.

As discussed in Section 3.3.3.1 federal agencies do not have to consult under Section 7 of the ESA when a proposed action may impact the American alligator. American alligators have been observed on both the Air Force Range and the Navy Range. In spite of operational training and routine maintenance involving heavy machinery occurring on the Range, alligators actively breed and perform other biological functions on the Range (USAF 2008). American alligators have been observed within the Navy impact area primarily in canals but could be found anywhere within the Navy impact area. The noise associated with the construction activities would be isolated to a small part of the Navy Range and would occur in short intervals since the construction activities would occur when the Navy Range is not in use for training purposes. The MLTs would produce no more noise than what already occurs on the Range when trucks traverse the Range during routine activities. The Proposed Action would alter the habitat of the American alligator by filling 4.29 acres of wetlands resulting in less water habitat and creating more terrestrial areas that could be used by alligators for activities such as sun bathing. However, this is a negligible habitat alteration since the fill equates to a 0.009 percent loss of wetland habitat over the entire Range. There is the potential that the alligator could be utilizing the habitat around the proposed construction areas but it is likely any alligators would move to another part of the Range once construction begins. The potential relocation of any alligators from the construction areas would not impact the ability of those individuals to find other suitable habitat, find food or find suitable breeding locations. Additionally, various management and administrative actions will be utilized to minimize the potential for a fluid release from MLTs during training exercises and a site specific spill response plan is in place and would be implemented to minimize potential impacts in the event a release of vehicular fluids occurs. In accordance with NEPA, the Proposed Action would not have a significant impact on the American alligator based on the short-term and localized nature of the construction activities.

North Carolina state-listed species have the potential to utilize wetlands on the Range. Some of these species may occur infrequently on the Navy impact area but these species would not be expected to breed, nest or occupy the area for long periods of time. The minimal fill associated with the Proposed Action would not significantly impact the ability of species to perform normal biological functions. Various management and administrative actions will be utilized to minimize the potential for a fluid release from MLTs during training exercises and a site specific spill response plan is in place and would be implemented to minimize potential impacts to the environment in the event a release of fluids from the MLTs occurs. The Proposed Action would not have a significant impact on North Carolina state-listed species based on the short-term and localized nature of the proposed construction activities.

### **4.3.2.3 Federally Protected Species**

#### **4.3.2.3.1 Threatened and Endangered Species**

##### **Red-cockaded woodpecker (*Picoides borealis*)**

The endangered red-cockaded woodpecker is a species that is being managed intensively within the Range. There are 22 red-cockaded woodpecker clusters on the Range outside of the two military impact areas. The red-cockaded woodpecker only inhabits forested areas, also known as the safety buffer, like those surrounding the impact areas but they are not found in the Navy impact area itself.

Construction activities and the utilization of the MLTs for munitions training would not be visible to the red-cockaded woodpeckers from their cavity trees since the closest active and managed recruitment nesting locations are over a mile from the nearest proposed construction area. The USFWS *Red-cockaded Woodpecker Recovery Plan* identifies habitat destruction and fragmentation as major threats to the woodpecker (USFWS 2003). The use of the MLTs and construction activities associated with the Proposed Action would not affect the forest habitat of the red-cockaded woodpecker. Construction would only impact the non-forested, emergent and scrub-shrub wetlands within the Navy impact area. MLTs would only be traversing existing, hardened runways far from habitat. The Navy impact area is not used by the red-cockaded woodpecker for nesting, breeding, roosting or foraging; although, the woodpeckers could use the Navy impact area during transit.

Personnel performing habitat management for the red-cockaded woodpecker have not noticed or recorded any behavior changes in this species as a result of noise from chainsaws, heavy machinery or vehicular traffic (USAF 2004). These birds disperse from their cavity tree sites at dawn, forage and collect food in the surrounding forest and return to their cavity trees at dusk. Trucks would not traverse areas where the red-cockaded woodpecker clusters are known to exist.

The effects of military noise on the endangered red-cockaded woodpecker have been studied by the USACE Construction Engineering Research Lab in a study titled: *Assessment of Training Noise Impacts on the Red-cockaded Woodpecker: 1998-2000* (Delaney et al. 2002). This study included not only artillery, grenades, missiles and small arms noise, but also noise from military/civilian vehicles. Out of 81 military/civilian vehicle passes recorded during the two-year study, the red-cockaded woodpecker flushed from its nest tree only on two occasions once in response to a Bradley Fighting Vehicle convoy which passed within 30 meters (approximately 100 feet) of the nest tree and the second time in response to a civilian vehicle which passed within 15 meters (approximately 50 feet) of the nest tree. One factor discussed in this study is the visibility of the noise source. When the source of the noise is visible to the red-cockaded woodpecker from its cavity, a response may be more likely to occur regardless of noise level. The Recovery Plan for the red-cockaded woodpecker indicated that human-caused disturbance during the nesting season can result in decreased feeding and brooding rates and nest abandonment (USFWS 2003).

The red-cockaded woodpecker's nest trees are all situated in dense forest. Neither the construction sites nor the vehicle traffic would be visible to red-cockaded woodpeckers from their cavity trees. The USACE report concludes the research team does not believe that military maneuver training (which includes vehicle noise) is a limiting factor in the recovery of the red-cockaded woodpecker on military installations (Delaney et al. 2002).

The Proposed Action would not have a significant adverse effect on red-cockaded woodpecker population as defined by MBTA regulations applicable to non-military readiness activities. Under ESA, the Proposed Action would have no effect on the red-cockaded woodpecker. The Proposed Action would not have any effect on the critical habitat of this species because none has been designated. In accordance with NEPA, the Proposed Action would not have a significant impact on the red-cockaded woodpecker based on the short-term and localized nature of the construction activities and the lack of breeding, nesting, roosting or foraging habitat available within the Navy impact area. Though no impacts to the red-cockaded woodpecker would be anticipated, a site specific spill response plan is in place and would be implemented to minimize potential impacts to the environment in the event a release of vehicular fluids from the MLTs occurs.

#### **4.3.2.3.2 Other Federally Protected Species**

##### **Bald eagle (*Haliaeetus leucocephalus*)**

Bald eagles do not nest within the Range but have been observed within it. Breeding activities have been observed on the Refuge in spite of Air Force and Navy training operations (approximately seven miles from the Navy impact area). The Proposed Action would require filling wetlands and the use of heavy machinery. Since the impact area of the Navy Range consists primarily of emergent and scrub-shrub wetlands and does not contain trees, the nesting, roosting and perching capabilities of bald eagles would not be affected. Although it is possible that bald eagles could forage on the Navy impact area, most of the wetland is covered with dense vegetation, making it difficult to catch fish or other aquatic prey species. It is not likely that bald eagles would spend much time foraging within the Navy impact area.

Bald eagles have been found to habituate to noise on military facilities (Brown et al. 1999). In one study, noise associated with military facilities did not affect the eagle's ability to reproduce (Brown et al. 1999). It was also determined that even nonresident bald eagles could habituate to a stimulus in a short amount of time. This indicates that the bald eagles associated with the Range could become habituated to disturbances such as construction activities and training in a short amount of time.

In accordance with the Bald and Golden Eagle Protection Act, the Proposed Action would have no impact on bald eagles. Due to the short-term and localized nature of the construction activities the Proposed Action would not have a significant adverse effect on bald eagle populations as defined by MBTA regulations applicable to non-military readiness activities. In accordance with NEPA, the Proposed Action would not have a significant impact on bald eagles

based on the short-term and localized nature of the construction activities and the lack of breeding, nesting, roosting or foraging habitat available within the Navy impact area. As a result, no permit is required under the Bald and Golden Eagle Act. Though no impacts to bald eagles would be anticipated, various management and administrative actions will be utilized to minimize the potential for a fluid release from MLTs during training exercises and a site specific spill response plan is in place and would be implemented to minimize potential impacts to the environment in the event a release of vehicular fluids from the MLTs occurs.

### **Migratory Bird Treaty Act**

Most of the bird species found in Dare County fall under the jurisdiction of the MBTA (USFWS 2013e). Military readiness activities associated with the Proposed Action includes the utilization of the MLTs as targets. The construction activities associated with the Proposed Action are not considered military readiness activities. The Proposed Action would not diminish the capacity of a population of any migratory bird species occurring on the Range to maintain genetic diversity, to reproduce and to function effectively in its native ecosystem. The potential fill of 4.29 acres of wetlands would not significantly impact the available foraging and breeding habitat on the Range. The area of the Navy impact area where the Proposed Action would occur is heavily utilized for training operations and though birds can be found within those areas they are not anticipated to spend long periods of time there. Various management and administrative actions will be utilized to minimize the potential for a vehicular fluid release from MLTs during training exercises and a site specific spill response plan is in place and would be implemented to minimize potential impacts to the environment in the event a release of vehicular fluids from the MLTs occurs. The Proposed Action would not have a significant adverse effect on migratory bird populations as defined by the MBTA. As a result, and in accordance with 50 CFR § 21.15, the Navy is not required to confer with USFWS on the development and implementation of conservation measures to minimize or mitigate adverse effects to migratory birds.

## **CHAPTER 5 : MITIGATION MEASURES**

### **5.1 INTRODUCTION**

This chapter describes the Navy's overall mitigation approach as well as specific mitigation measures that would be implemented to minimize impacts to wetlands and other resources during construction activities. Proposed mitigation activities for wetlands would also be anticipated to mitigate impacts to floodplains.

### **5.2 AVOIDANCE AND MINIMIZATION OF WETLAND IMPACTS**

The Navy investigated options to implement the Proposed Action in a way that would avoid impacts to wetlands on the Range. Wetlands comprise much of the Range and the Navy impact area is almost entirely comprised of wetlands. Section 2.3 discussed alternatives the Navy considered to avoid wetland impacts. None of these options were feasible and, as a result, were eliminated from further analysis.

The Navy then explored options to minimize the impacts to wetlands. The Navy's proposal would provide the necessary training opportunities while allowing the range personnel to complete maintenance in a safe and effective manner. The target design minimizes the amount of fill required by using the smallest area necessary to fulfill the purpose and need. The City Target is small enough to minimize the impacts to wetlands, while still allowing for flexible placement of targets, thereby fulfilling operational needs. The turnarounds on each end of 3500 Foot Road are no larger than necessary to allow the MLTs to complete a circular, 180 degree turn without impacts to training or performance. The Runway Complex maintenance road and targets are designed to be no larger than required to maneuver maintenance equipment and place targets.

Personnel at the Navy Range will adhere to all applicable Navy policies for handling hazardous materials to help prevent spills. These policies are described in the Department of the Navy's 2013 *Hazardous Materials Reutilization, Hazardous Waste Minimization and Disposal Guide*.

The Navy will implement various management and administrative measures to reduce the potential of a release of vehicular fluids during utilization of MLTs. Based on the training scenario being conducted these measures could include but are not limited: utilizing specific types of inert munitions, modifying attack profiles to reduce the potential for vehicular damage, utilizing towed trailers as targets instead of the MLTs themselves, conducting training exercises in specific areas, and utilizing minimal amounts of fuel and fluids to complete training events. In the event a MLT were hit by a munition, and a release of fluids would occur, a site specific spill response plan is in place and would be implemented to minimize impacts to the environment. As a result of these efforts, an uncontrolled release of vehicular fluids is not expected.

### **5.3 COMPENSATORY MITIGATION OPTIONS AND MITIGATION STRATEGY**

As discussed in Section 5.2 the Navy implemented avoidance and minimization strategies to offset impacts to wetlands. However, compensatory mitigations would still be required to comply with Section 404 of the Clean Water Act (33 U.S.C. 1344) and to obtain a 401 Water Quality Certification from the State of North Carolina. According to the USEPA (40 CFR § 230.93), compensatory mitigation is typically accomplished via one of the following three mechanisms below, in order of preference:

1. **Mitigation Banks:** A permit applicant may obtain credits from a mitigation bank. A mitigation bank is a wetland, stream or other aquatic resource area that has been restored, established, enhanced or preserved. This resource area is then set aside to compensate for future impacts to aquatic resources resulting from permitted activities. The value of a bank is determined by quantifying the aquatic resource functions restored, established, enhanced and/or preserved in terms of “credits”. Permittees, upon approval from regulatory agencies, may obtain these credits to meet their requirements for compensatory mitigation.
2. **In-Lieu Fee Mitigation:** A permit applicant may make a payment to an in-lieu fee program that will conduct wetland, stream or other aquatic resource restoration, creation, enhancement or preservation activities. In-lieu fee programs are generally administered by government agencies or non-profit organizations that have established an agreement with the regulatory agencies to use in-lieu fee payments collected from permit applicants. In the case of the currently Proposed Action, because a mitigation bank is available, in-lieu fee mitigation is not considered. If, however, no mitigation banks were available, in-lieu fee mitigation would be the preferred mitigation option and the option which the Navy would pursue.
3. **Permittee-Responsible Mitigation:** A permittee may be required to provide compensatory mitigation through an aquatic resource restoration, establishment, enhancement and/or preservation activity. This compensatory mitigation may be provided at or adjacent to the impact site (i.e., on-site mitigation) or at another location, usually within the same watershed as the permitted impact (i.e., off-site mitigation). The permittee retains responsibility for the implementation and success of the mitigation project. Because the Air Force owns the Range and the Navy leases their space, on-site mitigation is not practicable.

The Range is located within the Pamlico Sound Watershed (03020105). In 2011, the Navy proposed efforts to enhance various target and storage areas on the Navy impact area. The Navy submitted a permit application to the USACE and NCDENR for the fill of wetlands which resulted in the Navy purchasing 7.434 credits in the Great Dismal Swamp Restoration Bank LLC. Due to a range management decision, the Navy later decided not to construct the storage area on West Target Road, resulting in an estimated 2.1 unused credits. All other aspects of the Navy’s proposed construction activities from the 2011 permit will be constructed as described. For the Proposed Action, the Navy will use the remaining 2.1 credits towards mitigation. The Navy will submit a permit application to the USACE and NCDENR to mitigate the remaining

impacts. Since the Navy received compensatory mitigation at a 1:1 ratio via purchase of wetlands credits through the Great Dismal Swamp Restoration Bank LLC for non-riparian wetlands in 2011, the Navy anticipates the same ratio for the Proposed Action. However, the final determination of mitigation ratios will be determined by the USACE.

The Great Dismal Swamp Restoration Bank LLC (or another mitigation bank approved by the USACE) will create new wetlands within the same watershed thus restoring the amount of wetlands lost and retaining the integrity of the watershed. The approved mitigation bank will be responsible for monitoring the wetlands created and ensure their long-term productivity.

An erosion and sediment control plan would be submitted to the appropriate regulatory agencies for approval prior to beginning construction. No construction would occur until the erosion and sediment control plan has been approved. All required erosion and sediment control measures would be implemented for the duration of the construction activities. Upon completion of all construction activities, all temporary erosion and sediment control measures would be removed and disposed of in accordance with applicable laws and regulations.

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## **CHAPTER 6 : CUMULATIVE IMPACTS**

### **6.1 APPROACH**

CEQ regulations stipulate that the cumulative impacts analysis within an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR § 1508.7). CEQ guidance (*Considering Cumulative Effects Under the National Environmental Policy Act*) in considering cumulative impacts involves defining the scope of the other actions and their interrelationship with a proposed action. The scope must consider overlaps in the location and timing of a proposed action and other actions. It must also evaluate the nature of interactions among these actions.

Cumulative impacts are most likely to arise when a relationship or synergy exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with, or in proximity to, a proposed action would be expected to have more potential for cumulative impacts than those more geographically separated.

As discussed in the CEQ’s *Considering Cumulative Effects Under the National Environmental Policy Act*, to identify cumulative impacts the following fundamental questions need to be addressed:

- Does a relationship exist such that affected resource areas of a proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable future actions?
- If one or more of the affected resource areas of a proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when a proposed action is considered alone?

The scope of the cumulative impacts analysis involves both the geographic extent of the impacts and the timeframe in which the impacts could be expected to occur. It is possible that analysis of cumulative impacts might go beyond the scope of the project-specific direct and indirect impacts to include expanded geographic and time boundaries and a focus on broad resource sustainability. This approach is becoming increasingly important as growing evidence suggests that the most significant impacts result from the combination of individual, often minor, impacts of multiple actions over time. The underlying issue is whether or not a resource can adequately recover from the impact of an action before the environment is exposed to other action(s).

### **6.2 PAST, PRESENT AND REASONABLY FORESEEABLE ACTIONS**

Various types of past and present actions have the potential to affect the resources identified in Chapter 3. An overview of present and future actions is provided in the following sections with a description of the activities that are relevant to the impact analysis in Chapter 4. Geographic

distribution, intensity, duration and the historical effects of activities are considered when determining whether a particular activity may contribute cumulatively and significantly to the impacts on resource areas identified in Chapter 4.

For this EA, a search was conducted to identify any past, present and future actions having the potential for additive and/or interactive effects including any actions undertaken by the Navy and Air Force, the Alligator River National Wildlife Refuge, USFWS, USACE Wilmington District, Department of Energy, U.S. Department of Agriculture (USDA), N.C. Natural Heritage Program, N.C. Ecosystem Enhancement Program, N.C. Wildlife Resources Commission, N.C. Division of Forest Resources (NCDFR), NCDENR and the North Carolina Department of Transportation. Additionally, no private development/activities were identified. Those past, present and future actions that have a potential for additive or interactive effects are summarized below. The cumulative impacts of the past, present and future actions, in combination with the impacts assessed for the proposed alternatives (Chapter 4) were then assessed.

- Air Operations at the Dare County Bombing Range (January 2008): In 2008, the Navy completed an EA that analyzed the annual training activities at the Navy Range. On average between 6,000 and 7,000 training activities occur on the Navy Range per year between all of the military services. Training activities on the Navy Range include both fixed-wing and rotary-wing operations. The Air Force also conducts training activities using fixed-wing and rotary-wing aircraft on the Air Force Range. Based on current and foreseeable training requirements, future range utilization is expected to similar to current activities.
- Alligator River National Wildlife Refuge Fire Management Plan (March 2009): An EA was completed in 2008 to undergo prescribed burns at the Alligator River National Wildlife Refuge and determined that prescribed burns would have no significant impact to the human or natural environment. The Alligator River National Wildlife Refuge consists of eight fire management units that encompass 148,694 burnable acres. These fire management units undergo prescribed burns during a cycle of 3-5 years to reduce wildfire fuels, to maintain firebreaks and to support wildlife habitat. Prescribed burns have occurred in the past and are expected to continue to occur on a 3-5 year cycle at the Alligator River National Wildlife Refuge.
- Bonner Bridge Replacement (December 2010): The Bonner Bridge Replacement Project will replace the existing bridge over Oregon Inlet and provide for the long-term retention of N.C. 12 between Oregon Inlet and Rodanthe. In December of 2010 a Record of Decision was signed by the Federal Highway Administration and the North Carolina Department of Transportation to replace the Bonner Bridge with a parallel bridge. Phase I of the Bonner Bridge replacement is anticipated to be completed in 2016; however, North Carolina Department of Transportation is unsure when construction will begin. Additional phases of the project could occur up through 2060.

- Improvements to the Target Pads and Support Areas of the Navy Dare County Bombing Range (April 2011): An EA was completed in April 2011 to enlarge and harden existing range storage areas and target pads to ensure better long-term sustainability for parts of the Navy Range. The Navy received a Section 404 permit from the USACE for the permanent fill of 7.434 acres of wetlands and a 401 Water Quality Certification from NCDENR; however, the Navy will only permanently fill 5.252 acres due to a reduction in the original design. The Navy started construction in 2013 and will complete construction in 2014.
- Navy Shell Road Bridge at the Dare County Bombing Range (October 2013): In October 2013 a Categorical Exclusion (CATEX) was completed to improve the existing bridge on Navy Shell Road by replacing it with a prefabricated concrete bridge. The current bridge has deteriorated reducing its load capacity. The new bridge will be constructed in the exact location of the existing bridge. The existing bridge will be demolished in sections and new sections will be constructed within the same footprint. Contractors will use the existing road leading to and from the bridge as well as the reconstructed bridge sections for placement of any equipment required to repair the bridge. There would be no significant impacts from the bridge improvement and no additional footprint will occur within the canal. Construction started in May 2014 and will be completed in August 2014.
- U.S. 64 Improvements Project for Tyrell and Dare Counties: In January 2012 a Draft EIS was completed to widen a 27.3-mile section of US 64 in Tyrell and Dare counties. The Proposed Action is to widen the current two-lane road to a four-lane highway and replace the Lindsay C. Warren Bridge across the Alligator River. The EIS analyzes 15 study corridors, three bridge replacement alternatives and a No-Build Alternative. Portions of this project are funded for construction in 2014; however, the entire project is not currently funded.

### **6.3 DISCUSSION OF CUMULATIVE IMPACTS RELATIVE TO THE PROPOSED ACTION**

#### **6.3.1 Air Quality**

Present and foreseeable future activities would continue to generate emissions of criteria pollutants and greenhouse gases, contributing to regional air pollution. The emissions associated with the Proposed Action are extremely small in comparison to the total emissions produced in North Carolina. Emissions are primarily from the movement of construction vehicles to and from the Navy impact area to deliver materials, the movement of construction equipment to improve the target areas and the use of the MLTs. The movements of these vehicles on public roads would combine with other vehicular traffic but due to the small level of emissions produced from the Proposed Action there would not be a significant cumulative impact to air quality. The prescribed burns that occur every three to five years in the Refuge have been occurring for years are a continuing action and impacts to air quality from these burns are not significant. The construction activities associated with the Proposed Action, the improvements to the target pads and support areas and the Navy Shell Road bridge improvement project would occur intermittently over a short period of time. The construction associated with the North

Carolina Department of Transportation bridge projects would occur over a longer duration but the impacts to air quality would not be significant. Emissions associated with training activities on the Navy Range are within the historical levels and do not significantly impact air quality. Training operations at on the Air Force Range contribute similar amounts of emissions as the Navy Range based on the scope of the mission. The Navy would operate three MLTs at a time and the use of the MLTs would not significantly impact air quality. As a result, training operations on the Air Force Range also do not have a significant impact to air quality. Taken together, the combined emissions are not expected to create significant cumulative air quality impacts because of the small amount of the emissions in relation to the total emissions produced in North Carolina, as well as the short term and intermittent nature of the emissions when associated with construction. These projects when considered together would not be anticipated to affect the attainment status of Dare County under the Clean Air Act or prevent the county from remaining in attainment. Thus, no cumulative impacts on air quality are anticipated.

Greenhouse gases would be expected to be emitted during the Proposed Action. Greenhouse emissions from construction activities and operation of the MLTs would occur as a result of the burning of fossil fuels to power the vehicles and construction equipment. Greenhouse gas emissions would be minimal (630.70 metric tons/year) in comparison to the greenhouse gas emission for the State of North Carolina (142.9 million metric tons [USEIA 2010]), and construction emissions would be temporary in nature. Other present and future construction projects would emit greenhouse gases along with vehicular traffic associated with daily commuting. Greenhouse gas emissions are by nature global and cumulative. Given the negligible and temporary nature of the combined impacts, there would be no significant cumulative impact.

### **6.3.2 Water Resources**

Present and foreseeable future activities in the waters surrounding the Range and the Refuge would contribute to additional loss of wetlands. The Proposed Action would impact 4.29 acres of wetlands through fill and secondarily impact 0.15 acres of wetlands due to habitat fragmentation. The improvements to the target pads and support areas project will impact a total of 5.252 acres of wetlands. These projects when combined only represent 0.02 percent of the total acreage of the Range. The Navy Shell Road bridge improvement project would occur within the footprint of the existing bridge and would not result in a cumulative impact. The Bonner Bridge replacement is anticipated to impact 0.09 acres of coastal wetlands during the first phase of the project which is anticipated to be completed in 2016. The remaining phases of the project could impact as much as 50 acres of wetlands up to the year 2060 and must be approved by the USACE. The USACE would work with the North Carolina Department of Transportation to minimize/mitigate any impacts to wetlands prior to the remaining phase of construction. The remaining phases of the project would require either a future EA or EIS which would analyze the cumulative impacts to wetlands. The U.S. 64 improvements are proposing to impact wetlands around the Refuge. Since that EIS is still a draft document and a Record of Decision has not been signed the impacts of the project on wetlands are still under analysis; however the current analysis suggests a potential impact of 10.26 acres of wetland in Dare

County. The North Carolina Department of Transportation will work with the USACE to obtain a permit for the fill of wetlands associated with this project. These projects when considered together would not be anticipated to affect the functionality of the watershed because any impacts to wetlands within that watershed would require mitigation. Generally mitigation occurs within the same watershed as the impacts so the overall functionality of the watershed is not impacted. Thus, no cumulative impacts on water quality are anticipated.

### **6.3.3 Biological Resources**

All present and future activities have the potential to generate localized impacts on wildlife. The Proposed Action and the Navy Shell Road bridge improvement project would have minimal and temporary impacts to native wildlife and vegetation. The Proposed Action in combination with the improvements to the target pads and support areas project would only impact 0.02 percent of the habitat on the Range and would likely occur in succession. The bridge improvement project would occur within the existing footprint and would therefore not impact any additional habitat. The prescribed burns within the Refuge can occur during any year and would impact wildlife and their habitat; however, the intent of the prescribed burns is to improve overall habitat quality and to prevent wildfires. The overall impact to native wildlife and vegetation would not be significant. The North Carolina Department of Transportation bridge projects would occur over several years (possibly starting in the 2014 timeframe) but they were both determined not to have a significant impact on native wildlife or vegetation. The projects were designed to minimize impacts. When combined, the impacts of all of these activities together would still only result in localized impacts, thus there would be no significant cumulative impacts on wildlife or vegetation.

The agencies responsible for conducting all present and future activities would be required to coordinate with USFWS on impacts to threatened and endangered species. The Proposed Action would have no effect on the red-cockaded woodpecker. The Navy Shell Road bridge improvement project would have no effect on the red-cockaded woodpecker. The Refuge has completed all necessary consultations associated with prescribed burns for impacts to federally-listed species. The North Carolina Department of Transportation would consult with USFWS on the impacts to federally-listed species for the U.S. 64 project. The project was designed to minimize impacts to red-cockaded woodpecker habitat and studies are underway to identify designs that would provide the safe crossing of U.S. 64 for the red wolf. The Bonner Bridge replacement project would not impact these particular species because the impacts would be to more coastal and marine species. When combined, the impacts of all of these activities together would only result in localized impacts, minimization of impacts has been included in project designs and consultation with USFWS would occur. Thus, it is anticipated that there would be no significant cumulative impacts to federally-listed threatened and endangered species.

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## CHAPTER 7 : OTHER CONSIDERATIONS REQUIRED BY NEPA

Activities associated with the Proposed Action at the Range would comply with applicable federal, state and local requirements with respect to the human environment. Section 7.1 discusses the consistency of the Proposed Action with other federal, state and local land use plans, policies and objectives. Section 7.2 discusses the irreversible and irretrievable commitments of resources. Section 7.3 discusses the relationship between short-term use of the environment and long-term productivity.

### 7.1 CONSISTENCY WITH OTHER FEDERAL, STATE AND LOCAL LAND USE PLANS, POLICIES AND CONTROLS

The Navy adheres to all relevant laws and requirements applicable to its operations, maintenance, and new construction activities. Table 7-1 provides a comprehensive list, organized by environmental resource, of federal and state environmental statutes, regulations and EOs relevant to environmental analysis of the Proposed Action and, to a lesser extent, to the supplemental analysis of environmental impacts. The table is followed by a more detailed description of the applicable laws and regulations.

**Table 7-1 Summary of Applicable Statutes and Regulations**

<b>Regulation</b>	<b>Source</b>
<b>Air Quality</b>	
Clean Air Act of 1970 and Amendments of 1977 and 1990, including the General Conformity Rule and the Greenhouse Gas Rule	42 U.S.C. § 7401 et seq., as amended
Federal Leadership in Environmental, Energy, and Economic Performance	EO 13514
<b>Water Resources</b>	
Clean Water Act of 1972	33 U.S.C § 1251 et seq., as amended
Safe Drinking Water Act of 1974	42 U.S.C. § 300
Protection of Wetlands	EO 11990
Floodplain Management	EO 11988
National Flood Insurance Act of 1968	42 U.S.C. § 4001-4129 et seq., as amended
Flood Disaster Protection Act of 1973	42 U.S.C. § 4001-4129 et seq., as amended
Section 438 of the Energy Independence and Security Act	42 U.S.C. § 17094
<b>Biological Resources</b>	
Endangered Species Act of 1973	16 U.S.C. § 1531-1543
Migratory Bird Treaty Act	16 U.S.C. § 703-712
Responsibilities of Federal Agencies to Protect Migratory Birds	EO 13186

Regulation	Source
<b>Biological Resources (continued)</b>	
Sikes Act Improvement Act of 1977	16 U.S.C. § 670aa-670o, 74 Statute 1052
Invasive Species	EO13112
Protection and Enhancement of Environmental Quality	EO 11514
Conservation of Migratory Birds	Fish and Game Code § 2050, et seq.
<b>Coastal Zone Management</b>	
The Coastal Zone Management act of 1972	16 U.S.C. § 1451 et seq., as amended and 15 CFR § 921-930
<b>Cultural Resources</b>	
National Historic Preservation Act of 1966	16 U.S.C. § 470 et seq., as amended
Archaeological Resources Protection Act of 1979	16 U.S.C. § 470a-11 et seq., as amended

### 7.1.1 Federal Actions, Executive Orders, Policies and Plans

#### 7.1.1.1 National Environmental Policy Act

The Navy has prepared this EA to assess the environmental effects associated with the proposal to improve/harden target areas and utilize MLTs as targets on the Navy Range. This EA was prepared in accordance with NEPA, 42 USC §§ 4321-4370d, as implemented by the CEQ regulations, 40 CFR §§ 1500-1508, and DoN regulations described in Office of the Chief of Naval Operations Instruction M-5090.1D.

#### 7.1.1.2 Clean Air Act

The CAA of 1970 and subsequent amendments specify requirements for control of the nation’s air quality. Federal and state ambient air standards have been established for each criteria pollutant. The 1990 amendments to the CAA require federal facility compliance with all requirements for air pollution control to a similar extent as nongovernmental entities must comply. Dare County is in attainment and as a result, General Conformity does not apply.

#### 7.1.1.3 Coastal Zone Management

The Coastal Zone Management Act (CZMA) (16 U.S.C. § 1451 et seq., as amended, 15 CFR § 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 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. § 1456[c][1][A]). Because North Carolina has a federally approved Coastal Management Program, the Navy is required to

maintain compliance, to the maximum extent practicable, with Section 307 of the CZMA if the federal action has the potential to affect coastal resources or uses on non-federal lands.

Pursuant to the CZMA (16 U.S.C. § 1451 et seq., as amended, 15 CFR § 921-930), the term “coastal zone” does not include “lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government” (16 U.S.C. § 1453[1]). Although the Range is within North Carolina’s designated coastal zone the Range is owned by the Air Force. Federal land is excluded from the definition of coastal zone and thus exempt from North Carolina’s Coastal Management Program provided that impacts from the actions on the federal installation do not leave the installation and affects any North Carolina coastal use or resource.

Pursuant to 15 CFR § 930.35, the Navy developed a Coastal Consistency Negative Determination (CCND) under the CZMA (16 U.S.C. § 1451 et seq., as amended, 15 CFR § 921-930) (see Appendix C). The Range and the surrounding Alligator River National Wildlife Refuge are federal property. The impacts associated with the Proposed Action are expected to stay within the Range boundary and would not impact coastal resources or uses outside of the Range. The wildlife on the Range could migrate to the Alligator River National Wildlife Refuge but since this is also federal property the potential impacts to wildlife would not affect coastal resources and uses. As a result of the determination that the Proposed Action would not affect any coastal resources or uses, the Navy submitted a CCND to the State of North Carolina on March 11, 2014.

#### **7.1.1.4 Endangered Species Act**

The ESA of 1973, as amended, requires that any action authorized by a federal agency shall not jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. Section 7 of the ESA requires that the responsible federal agency consult with USFWS concerning endangered and threatened species under their jurisdiction that may be affected by a proposed action.

Federally listed threatened and endangered species previously documented as occurring within the Navy Range boundaries or in the immediate vicinity of the Range include the red-cockaded woodpecker (*Picoiced borealis*). The Navy concluded that there would be no effect to the red-cockaded woodpecker.

#### **7.1.1.5 Migratory Bird Treaty Act**

All birds, with the exception of non-native species, that occur at the Navy Range are protected under the MBTA and EO 13186, which directs federal agencies to avoid or minimize negative effects on migratory birds, to protect their habitats, and to consider effects on migratory birds in NEPA documents. The Navy concluded that there would be no adverse effects on migratory birds as a result of the Proposed Action.

#### **7.1.1.6 Bald and Golden Eagle protection Act**

The Bald and Golden Eagle Protection Act (16 USC §§ 668-668d) prohibits anyone without a permit, from "taking" bald eagles. "Taking" includes possessing or disturbing their body parts, nests, or eggs; or disturbance that "substantially interferes with breeding, feeding, or sheltering behavior or results in injury." The Act provides criminal penalties for persons who "take" an eagle, its nest, or eggs. In accordance with the Bald and Golden Eagle Protection Act, the Proposed Action would have no impact on bald eagles. The Navy concluded that no permit is required under the Bald and Golden Eagle Protection Act.

#### **7.1.1.7 National Historic Preservation Act**

The NHPA was passed in 1966 to provide for the protection, enhancement, and preservation of those properties that possess significant architectural, archaeological, historical, or cultural characteristics. Section 106 of the NHPA requires the head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally financed undertaking, prior to the expenditure of any federal funds on the undertaking, to take into account the effect of the undertaking on any historic property. There are no known archaeological sites or structures located on the Range, including the Navy impact area. The Navy provided written correspondence to the North Carolina SHPO on April 1, 2014 to reconfirm the SHPO's conclusion stated in the August 6, 1996 letter stating no archaeological resources are located on the Range. On May 13, 2014 the North Carolina SHPO concurred with the Navy's determination that no historic properties will be affected by the Proposed Action.

### **7.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

NEPA (42 USC § 4332 Section 102(2)(C)(v) as implemented by CEQ regulation 40 CFR 1502.16) requires an analysis of significant, irreversible effects resulting from implementation of a Proposed Action. 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 the Proposed Action would result in a less than significant irreversible commitment of building materials; vehicles and equipment used during the potential target improvements. Energy (electricity and natural gas) and fuel consumption, as well as demand for services, would not increase significantly as a result of the implementation of the Proposed Action. The commitment of these resources would be undertaken in a regular and authorized manner and does not present significant impacts within this EA.

### **7.3 RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND 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.

Implementation of the Proposed Action would not result in any environmental impacts that would narrow the range of beneficial uses of the project site or vicinity. The Proposed Action would not represent a new short-term use and would not impact the productivity of the natural environment. In addition, biological productivity would not be affected as implementation of the Proposed Action would not result in significant direct, indirect, or cumulative impacts to any biological resources.

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## **CHAPTER 8 : LIST OF PREPARERS**

In accordance with OPNAVINST 5090.1B, this section lists the names and qualifications (expertise/experience, professional disciplines) of the persons who were primarily responsible for preparing the EA. Where possible, the persons who are responsible for a particular analysis, including analyses in background papers and basic components of the EA, are identified. This EA was prepared by:

**Kelly Proctor** (Naval Facilities Engineering Command Atlantic)

M.S., Biology

B.S., Biology

Project Manager, Chapters 1, 2, 3, 4, 5, 6, and 7

**Taylor Priest** (Naval Facilities Engineering Command)

B.S., Engineering

Air Quality calculations

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