



Gateway National Recreation Area Sandy Hook Unit

Multi-Use Path, Phase 3 Environmental Assessment

JUNE 2014



**United States Department of the Interior
National Park Service
Gateway National Recreation Area, Sandy Hook Unit**

**Sandy Hook Multi-Use Path, Phase 3
Environmental Assessment**

June 2014

The National Park Service (NPS) proposes to extend the existing Multi-Use Path (MUP) in the Sandy Hook Unit (Sandy Hook or the unit) of Gateway National Recreation Area (Gateway NRA or the park) to continue to provide safe and enjoyable nonmotorized use by pedestrians and bicyclists that was begun with the first two phases of the MUP project. In the 1990s and early 2000s, the park, including Sandy Hook, experienced an increasing demand for nonmotorized access to its resources and for nonmotorized recreation. As a result, and to create a safer environment for visitors, the NPS began developing the initial segments of the 12-foot wide Sandy Hook Multi-Use Path. Action is needed at this time to reduce the potential for accidents between visitors in motorized vehicles and nonmotorized¹ visitors, particularly within the southern portion of Fort Hancock and near the Nine Gun Battery; to provide visitors with additional recreational opportunities; and to enhance visitor access to park resources.

In total, approximately 8.6 miles of MUP have already been constructed at Sandy Hook. Although the existing MUP has improved safety within Sandy Hook for nonmotorized visitors, areas remain where pedestrians and bicyclists must share the roads with motorized vehicles, creating potentially unsafe conditions.

The NPS prepared an Environmental Assessment (EA) to evaluate alternatives for phase 3 of the Sandy Hook Multi-Use Path, describe the environment that would be affected by the alternatives, and assess the environmental consequences of implementing the alternatives. This EA examines three alternatives: a no-action alternative (alternative A) and proposed improvements (alternatives B and C). Alternative B was identified as the NPS preferred alternative because it best meets the project's purpose of and need for action while protecting natural and cultural resources to the greatest extent practical. Implementation of the NPS preferred alternative could result in impacts on vegetation, wetlands, wildlife and wildlife habitat, state-listed species, cultural landscape, and visitor use and experience.

This document has been prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500-1508); and NPS Director's Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-Making* (DO-12, 2011) and accompanying DO-12 Handbook (2001).

¹ "Nonmotorized" visitors include walkers, joggers, skaters, and bicyclists.

For Further Information Contact: Pete McCarthy, Unit Coordinator
Sandy Hook Unit, Gateway National Recreation Area
(732) 872-5913

Note to Reviewers and Respondents:

If you wish to comment on this Environmental Assessment, you may mail comments within 30 days to the name and address below or you may post them electronically at <<http://parkplanning.nps.gov/gate>>. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we would be able to do so.

CONTENTS

Figures.....	vi
Tables	vi
Acronyms and Abbreviations.....	vii
Purpose and Need.....	1
Purpose of and Need for Action.....	2
Study Area Description	2
History and Significance of Sandy Hook.....	5
Relationship of the Proposal to Other Planning Efforts.....	7
Scoping and Consultation.....	7
Planning Issues and Impact Topics	8
Issues Selected for Detailed Analysis	8
Impact Topics	9
Alternatives	17
Alternative A (No-Action)	17
Nine Gun Battery Area	17
Magruder/Gunnison Area	18
Elements Common to All Action Alternatives.....	18
Nine Gun Battery Area	21
Magruder/Gunnison Area	21
Alternative B (NPS Preferred Alternative).....	21
Nine Gun Battery Area	22
Magruder/Gunnison Area	22
Alternative C	25
Nine Gun Battery.....	25
Magruder/Gunnison Area	28
Mitigation Measures.....	28
General Measures.....	28
Natural Resources.....	29
Cultural Resources.....	29
Alternatives/Elements Considered but Dismissed from Further Analysis	30
Alignment Along the Southern Side of Atlantic Drive	30
Access from Gunnison Road.....	30
Summary Comparison of the Alternatives and Their Environmental Consequences	31
Environmentally Preferable Alternative.....	36
NPS Preferred Alternative	37
AFFECTED ENVIRONMENT.....	39
Vegetation.....	39
Wetlands	40
Wildlife and Wildlife Habitat	45
State-Listed Species.....	47

Cultural Landscape	48
Visitor Use and Experience	55
ENVIRONMENTAL CONSEQUENCES	57
General Methodology For Analyzing Impacts	57
Geographic Area Evaluated for Impacts	57
Type of Impact.....	57
Cumulative Impact Analysis Methodology.....	58
Assessing Impacts Using CEQ Criteria.....	59
Vegetation.....	60
Methodology.....	60
Impacts of Alternative A (No-action).....	61
Impacts of Alternative B (NPS Preferred Alternative).....	62
Impacts of Alternative C	63
Wetlands.....	65
Methodology.....	65
Impacts of Alternative A (No-action).....	65
Impacts of Alternative B (NPS Preferred Alternative).....	66
Impacts of Alternative C	67
Wildlife and Wildlife Habitat	69
Methodology.....	69
Impacts of Alternative A (No-action).....	69
Impacts of Alternative B (NPS Preferred Alternative).....	70
Impacts of Alternative C	71
State-Listed Species.....	73
Methodology.....	73
Impacts of Alternative A (No-action).....	74
Impacts of Alternative B (NPS Preferred Alternative).....	75
Impacts of Alternative C	76
Cultural Landscape.....	78
Methodology.....	78
Impacts of Alternative A (No-action).....	79
Impacts of Alternative B (NPS Preferred Alternative).....	80
Impacts of Alternative C	82
Visitor Use and Experience	84
Methodology.....	84
Impacts of Alternative A (No-action).....	84
Impacts of Alternative B (NPS Preferred Alternative).....	86
Impacts of Alternative C	87
CONSULTATION AND COORDINATION	91
Brief History of Planning and Public Involvement	91
Internal Scoping	91
Public Scoping.....	92
Agency Consultation.....	92
Section 7 of the Endangered Species Act.....	92
Section 106 of the National Historic Preservation Act.....	93
Section 404 of the Clean Water Act and Rivers and Harbors Act....	93
NPS Procedural Manuals 77-1 and 77-2.....	93
Coastal Zone Management Act.....	94
List of Preparers and Contributors.....	94

Public Review	95
REFERENCES	R-1
Appendix A: Relevant Correspondence	A-1
Appendix B: Federal Consistency Determination Letter	B-1

FIGURES

1	Regional Overview	3
2	Project Vicinity Map	4
3	Existing Multi-Use Path	6
4a	Alternative A: No-Action – Nine Gun Battery Area	19
4b	Alternative A: No-Action – Magruder/Gunnison Area	20
5a	Alternative B – Nine Gun Battery Area	23
5b	Alternative B – Magruder/Gunnison Area	24
6a	Alternative C – Nine Gun Battery Area	26
6b	Alternative C – Magruder/Gunnison Area	27
7	Existing Wetland Areas	42
8	Existing Wetlands – Nine Gun Battery Area	43
9	Existing Wetlands – Magruder/Gunnison Area	44
10	Area of Potential Effect – Nine Gun Battery Area	49
11	Area of Potential Effect – Magruder/Gunnison Area	50
12	Nine Gun Battery Cultural Landscape, The Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District	51
13	Magruder/Gunnison Area Cultural Landscape, The Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District	52

TABLES

1	Summary of Alternatives	31
2	Summary of Environmental Consequences	32
3	List of Preparers and Contributors	94

ACRONYMS AND ABBREVIATIONS

ACHP – Advisory Council on Historic Preservation
ADA – Americans with Disabilities Act of 1990
BMP – Best Management Practice
CAFRA – Coastal Area Facility Review Act
CEQ – Council on Environmental Quality
CWA – Clean Water Act
CZM – coastal zone management
CZMP – coastal zone management program
DO – Director’s Order
EA – Environmental Assessment
EPA – Environmental Protection Agency
Gateway NRA – Gateway National Recreation Area
HS – Historic Structure
IPCC – Intergovernmental Panel on Climate Change
JMA – John Milner Associates
MAST – Marine Academy of Science and Technology
MUP – Sandy Hook Multi-Use Path
NAGPRA – North American Graves Protection and Repatriation Act of 1990
National Register – National Register of Historic Places
NEPA – National Environmental Policy Act
NHPA – National Historic Preservation Act
NJDEP – New Jersey Department of Environmental Protection
NJDFW – NJDEP Division of Fish and Wildlife
NJDOT – New Jersey Department of Transportation
NMFS – NOAA National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration
NPS – National Park Service
the park – Gateway National Recreation Area
PEPC – Planning, Environment and Public Comment
Sandy Hook – Sandy Hook Unit of Gateway National Recreation Area
SHPO – State Historic Preservation Officer
SOF – statement of findings
the unit – Sandy Hook Unit of Gateway National Recreation Area
USACE – U.S. Army Corps of Engineers
USFWS – U.S. Fish and Wildlife Service

VHB – Vanasse Hangen Brustlin, Inc.

VIMS – William & Mary Virginia Institute of Marine Science

1

PURPOSE AND NEED

The National Park Service (NPS) proposes to extend the existing Multi-Use Path (MUP) in the Sandy Hook Unit (Sandy Hook or the unit) of Gateway National Recreation Area (Gateway NRA or the park) in order to continue to provide safe and enjoyable nonmotorized use by pedestrians and bicyclists that was begun with the first two phases of the MUP project. In the 1990s and early 2000s, the park experienced an increasing demand for nonmotorized access to its resources and for nonmotorized recreation. In particular, more visitors were seeking opportunities for healthy, outdoor recreation at the park such as bicycling, jogging, and walking. As a result of increased pedestrian and bicycle use, the park also experienced an increase in conflicts and accidents between motorized and nonmotorized visitors. To promote nonmotorized use of the park and create a safer environment for visitors, the NPS began developing the initial segments of the 12-foot wide Sandy Hook Multi-Use Path. The first phase of the MUP, completed in 2004, was approximately 5.5 miles in length and provided nonmotorized access from Sandy Hook's entrance to the Fort Hancock ferry landing. The second phase, which was completed in 2008 and 2009, added approximately 3.1 miles to the MUP and created a loop between the North Beach Plaza, the Gunnison Beach Plaza, and the Mortar Battery at Fort Hancock. The existing MUP offers visitors views of the ocean and provides access to the natural and cultural resources within Sandy Hook, including dunes, salt marshes, beaches, maritime forests, and historic features associated with the unit's military past. Although the existing MUP has improved safety within Sandy Hook for nonmotorized visitors, areas remain where pedestrians and bicyclists must share the roads with motorized vehicles, creating potentially unsafe conditions.

This Environmental Assessment (EA) evaluates three alternatives; a no-action alternative and two action alternatives (alternatives B and C). The EA further analyzes the potential impacts these alternatives would have on the natural, cultural, and human environment.

PURPOSE OF AND NEED FOR ACTION

The purpose of the proposed action is to enhance the existing MUP system within the Sandy Hook Unit.

The proposed action is needed for three primary reasons:

- to reduce the potential for accidents between visitors in motorized vehicles and nonmotorized² visitors, particularly within the southern portion of Fort Hancock and near the Nine Gun Battery
- to provide visitors with additional recreational opportunities
- to enhance visitor access to park resources

The existing MUP has improved pedestrian safety within Sandy Hook; however, this final phase is necessary to close the loop on the existing trail and enhance pedestrian safety throughout the unit. The current MUP is not a closed loop; therefore, users are required to travel along the roadways in some areas, increasing the potential for vehicular/pedestrian conflicts. Completing the path loop would allow nonmotorized visitors to safely enjoy the park resources without having to compete with motorists.

The completion of the MUP would also enhance recreational opportunities at the park by providing a closed loop trail where visitors may enjoy nonmotorized touring. The existing MUP provides visitors with nearly 9 miles of paved recreational trails that can be used for a variety of outdoor activities. However, in some areas of Fort Hancock, visitors must retrace their steps to continue using the trail. Some park resources/points of interest, such as the Nine Gun Battery, are not currently accessible along the MUP. In these areas, nonmotorized visitors have no choice but to use existing roads. In addition, the existing MUP does not provide directional or interpretive signage. Therefore, visitors who are not familiar with the unit often exit the MUP and use existing roads, which provide directional signage, to access points of interest.

STUDY AREA DESCRIPTION

Established in 1972 as part of Gateway NRA, Sandy Hook occupies a peninsula, approximately 1,700 acres in size, which extends north from coastal New Jersey into the confluence of Raritan Bay, Lower New York Bay, and the Atlantic Ocean. Gateway NRA consists of three administrative units: Staten Island, Jamaica Bay, and Sandy Hook. Sandy Hook, located in Monmouth County, New Jersey is situated on the western side of the outer harbor (figure 1).

Within Sandy Hook, the NPS preserves one of the few relatively undisturbed barrier island ecosystems in New Jersey and supports multiple historic sites and natural habitats. The unit includes approximately 12 miles of ocean and bay shoreline inside the NPS boundaries (figure 2). The entire Sandy Hook Unit is within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, protecting Fort Hancock at the end of the peninsula. Over 200 historic structures remain standing in the unit, with approximately 130 of these located within the Fort Hancock area. Natural resources within Sandy Hook include several special-status species and a variety of upland, dune, and coastal habitats.

² “Nonmotorized” visitors include walkers, joggers, skaters, and bicyclists.



Source: ESRI Streetmap USA Digital Data V. 10



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

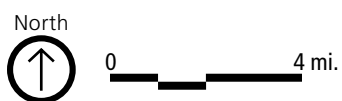


Figure 1
Regional Overview



Source: Gateway National Recreation Area Park Map



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment



Figure 2
Project Vicinity Map

The unit also provides a variety of recreational opportunities, including swimming, sun-bathing, picnicking, bird-watching, surfing, hiking, and fishing. More than two million people visit Sandy Hook every year.

The study area for the proposed action includes portions of Fort Hancock and the Nine Gun Battery (figure 2). At the Nine Gun Battery, the study area forms a loop around North Bragg Road and encompasses a parking lot and grassed fields (figure 3). The remainder of the study area includes a portion of Magruder Road between Guardian Park and the existing MUP trailhead plaza; a corridor from Guardian Park east, through a wooded area, to the Gunnison Beach parking lot and beach plaza beyond; and the segment of Gunnison Road between Magruder Road and Gunnison Beach (figure 3).

HISTORY AND SIGNIFICANCE OF SANDY HOOK

Sparked by environmental and recreational movements of the 1960s, national recreation areas were designed and developed to provide space for a variety of recreational activities, while protecting natural and cultural resources. As specified in the park's enabling legislation from 1972, Gateway NRA was established to "preserve and protect for the use and enjoyment of present and future generations an area possessing outstanding natural and recreational features" (NPS 1972). Gateway NRA was one of the first urban national recreation areas established by the NPS (along with Golden Gate National Recreation Area). Consisting of approximately 26,000 acres, Gateway NRA includes a mix of developed and undeveloped land and provides a variety of recreational and educational experiences to visitors. Gateway NRA offers urban dwellers opportunities for environmental, historical, educational, and recreational experiences that are not available in the city.

Sandy Hook is significant in American history as the site of the federal reservation that has played dual roles in U.S. military history. For over 200 years Sandy Hook played an important role in the defense of approaches to the New York Harbor (NPS 1982). The peninsula was first fortified during the American Revolution and later developed into Fort Hancock (1859), with the addition of the Sandy Hook Proving Ground (1874-1919). The Fort Hancock and the Sandy Hook Proving Ground is a National Historic Landmark Historic District significant in the areas of military and social history, significant events, and engineering. It is the site of both the Army Ordnance Board's Proving Ground and Fort Hancock, the chief unit in the defense of New York Harbor from the Spanish-American War through the Cold War. Between these two events, Fort Hancock remained a focal point for the coordination of seacoast artillery, anti-aircraft artillery, and submarine mine defenses for New York Harbor. Between 1874 and 1919, the Sandy Hook Proving Ground played a key role in the development of the weapons employed by the U.S. Coast Artillery and the U.S. Field Artillery as the U.S. became a world power (NPS 1982). During this period, Sandy Hook was selected to host Monmouth County's first concrete gun batteries. Subsequently, seven larger batteries, including Battery Potter, Battery Granger, and the Nine Gun Battery were constructed along with a series of smaller batteries (NPS 2013a). These batteries were constructed using the most modern technology of the time (NPS 2013a). Prior to World War II, experiments conducted at the Sandy Hook Proving Ground led to the successful development of radar (NPS 1982).



Source: 2007 New Jersey State Orthophotography

Phase 1 - Existing Multi-Use Path
Phase 2 - Existing Multi-Use Path



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 3
Existing Multi-Use Path

The historic structures in Sandy Hook are maintained as a valued park resource. Historic structures in the project area are depicted in figures 12 and 13 and include the Nine Gun Battery, Battery Peck, Battery Potter, the Sandy Hook Proving Ground, and a series of small historic structures in the Nine Gun Battery area. Many of the unit's historic structures are accessible along existing portions of the MUP. Those resources that are not accessible along the existing MUP include the Nine Gun Battery and Battery Peck.

Along with the military presence on the peninsula, the U.S. Life-Saving Service and Sandy Hook Lighthouse are also significant to the unit's history. The Sandy Hook Lighthouse, built in 1764, is itself a National Historic Landmark (NPS 1982). The U.S. Life-Saving Service (predecessor to the U. S. Coast Guard) began operating at Sandy Hook in the late 19th century (Merwin 2005). The U.S. Life-Saving Service was one of the earliest federally sponsored efforts to save life and property from coastal shipwrecks (NPS 1982). The station at Sandy Hook was operated by the U.S. Life-Saving Service Center from 1894-1915 and by the U.S. Coast Guard from 1915-1949. The U.S. Life-Saving Service and Sandy Hook Lighthouse are accessible via the existing MUP, and the lighthouse would be within the viewshed of the proposed MUP extension.

RELATIONSHIP OF THE PROPOSAL TO OTHER PLANNING EFFORTS

The plans and studies that have informed and led to the development of alternatives for phase 3 of the Sandy Hook MUP include the Environmental Assessment for phase 1 and 2 of the MUP project (NPS 2002) and the Cultural Landscape Report for Fort Hancock (NPS 2006a).

The *Multiuse Pathway Environmental Assessment* (NPS 2002) provides background information about the existing MUP, including the purpose of and need for the trail system. The EA also evaluated impacts associated with the first two phases of trail development including those related to sand dunes, plant communities, species of concern, National Register properties, archeological resources, historic buildings and structures, cultural landscape, visitor experience, and visitor safety. The data analyzed within the 2002 EA have been considered and incorporated into this EA, as appropriate.

The *Cultural Landscape Report for Fort Hancock* (NPS 2006a) provides rehabilitation treatment recommendations for the physical landscape components within the fort proper for proposed future uses of the site. The report presents a comprehensive overview of the fort's existing conditions and its significance, including trees and other vegetation, parking lots, open areas, lighting, street furniture, and viewsapes. The report's recommendations for these cultural landscape features were incorporated into the descriptions and analyses in this document.

SCOPING AND CONSULTATION

Scoping is an early and open process to determine the breadth of environmental issues and alternatives to be addressed in a National Environmental Policy Act (NEPA) document. Scoping is used to identify which issues need to be analyzed in detail and which can be eliminated from in-depth analysis. It also allocates assignments among the NPS' interdisciplinary team members and/or other participating

agencies; identifies related projects and associated documents; identifies permits, surveys, consultation needs, and other requirements; and creates a schedule that allows adequate time to prepare and distribute the environmental assessment for public review and comment before a final decision is made. Typically, both internal and public scoping are held to address these elements. Public scoping includes any interested agency or agency with jurisdiction by law or expertise to obtain early input.

To begin the planning process for the proposed action, staff from Gateway NRA and resource professionals from the NPS conducted internal scoping. Specifically, an internal scoping meeting/site visit was held on November 30, 2011, where NPS staff and their consultants met and discussed existing issues and concerns to be addressed in the EA. This meeting also defined the purpose and need, determined the likely issues and impact topics, and identified the relationship of the proposed action to other planning efforts at Sandy Hook.

Agency consultation for the proposed action began in June 2012. Scoping letters were sent out to various regulatory agencies and interested parties to inform them of the proposed action and/or initiate consultation. Copies of these letters and responses from the agencies, if applicable, can be found in “Appendix A: Relevant Correspondence.” These agencies included U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), Advisory Council on Historic Preservation (ACHP), New Jersey State Historic Preservation Officer (SHPO), New Jersey Department of Environmental Protection (NJDEP), National Oceanic and Atmospheric Administration (NOAA), and the National Marine Fisheries Service (NMFS). A summary of agency consultation is provided in “Chapter 5: Consultation and Coordination” and incorporated into relevant sections of this EA.

On July 5, 2012 the proposed alternatives for phase 3 of the MUP were posted on the NPS Planning, Environment and Public Comment (PEPC) website where they were available for public review and comment. The public comment period on the alternatives extended from July 5, 2012 until August 10, 2012. One correspondence was entered into PEPC during this scoping period.

The interested public and agencies will have an opportunity to further review and comment on this EA during a 30-day review period. For further scoping and public participation information, see “Chapter 5: Consultation and Coordination” and “Appendix A: Relevant Correspondence.”

PLANNING ISSUES AND IMPACT TOPICS

ISSUES SELECTED FOR DETAILED ANALYSIS

During the development of initial phases of the MUP, specific considerations and concerns were identified as critical to the proposed action’s development. These issues continue to be important to the planning process and include improving visitor safety by reducing conflicts and accidents between bicyclists, pedestrians, and automobiles; minimizing adverse impacts to natural resources and cultural resource elements that contribute to the national historic landmark; creating a new, high quality recreational amenity in the park that provides visitors with a healthy, enjoyable, outdoor recreational experience; and providing nonmotorized public access to points of interest within the park. Along with

the purpose and need for the proposed action, these topics guided the development of alternatives and contributed to the selection of impact topics, as identified in the next section.

Improving visitor safety by reducing conflicts and accidents between bicyclists, pedestrians, and automobiles. Although the existing MUP has improved nonmotorized visitor safety at Sandy Hook, there are still areas where pedestrians and bicyclists must share the roads with motorized vehicles. In these areas, visitor safety continues to be compromised by incompatible use of the roadways in the park. Any proposals made in this document should enhance safety for nonmotorized park visitors.

Minimizing adverse impacts to natural resources and cultural resource elements that contribute to the national historic landmark. The NPS seeks to protect and preserve the natural environment at all units of the national park system. In addition, the entire Fort Hancock area is within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Any changes to the character of the district could affect its listing in the National Register of Historic Places (National Register). Any proposals made in this document should avoid impacts to sensitive resources and should encourage the use of materials that would not adversely impact the surrounding environment. Any proposals made in this document also should seek to respect the character of the historic district and not detract from its significance.

Creating a high quality recreational amenity in the park that provides visitors with a healthy, enjoyable, outdoor recreational experience. The MUP was initially developed, in part, to provide a healthy, enjoyable, outdoor recreational opportunity to visitors. Through the use of the existing MUP, pedestrians, bicyclists, and wheelchair users are able to enjoy the natural and cultural resources of Sandy Hook without a car. However, the existing path is not a closed loop system and requires the use of roads in some areas, reducing the overall experience for nonmotorized visitors. Any proposals made in this document should strive to maximize opportunities for outdoor recreation at Sandy Hook and minimize conflicts between motorized and nonmotorized visitors.

Providing nonmotorized public access to points of interest within the park. Prior to the MUP, alternative transportation access was lacking within the park and was primarily achieved by motorized vehicles. By creating a safe access route for nonmotorized visitors, the MUP improved this situation. However, because the MUP is not a closed loop and signage is lacking in some areas, access routes are not always clear. Since the MUP is not a closed loop it does not provide the most direct route to some of the more frequented points of interest within the park, such as Gunnison and North Beaches. For the most direct access to these beaches, visitors must exit the MUP and travel along Magruder Road, Gunnison Road, and Atlantic Drive. This requires nonmotorized visitors to share the roads with cars and other motorized vehicles. In addition, signage indicating the location of many points of interest is only posted along the roads, not the MUP. Therefore, a nonmotorized visitor may exit the MUP to follow signage along the road to his/her destination. Any proposals made in this document should improve nonmotorized public access to points of interest within Sandy Hook.

IMPACT TOPICS

Impact topics are resources of concern that could be affected, either beneficially or adversely, by the range of alternatives presented in this EA. They were identified based on the issues raised during scoping,

site conditions, federal laws, regulations, executive orders, NPS *Management Policies 2006* (NPS 2006b), director's orders (DOs), and staff knowledge of the park's resources.

Impact Topics Retained for Analysis

Impact topics identified and analyzed in this EA are listed below along with reasons for their selection. Each impact topic is further discussed in detail in "Chapter 3: Affected Environment" of this document. Potential impacts to resources from the proposed alternatives are discussed in "Chapter 4: Environmental Consequences."

Vegetation. NPS policy is to protect the natural abundance and diversity of all naturally occurring communities. NPS *Management Policies 2006* (NPS 2006b) and other NPS and park policies provide general direction for the protection of vegetation. Vegetation within the project area with the potential to be impacted by the proposed action consists primarily of various woodlands, grasslands, and maintained landscaping. Because the proposed action could include the removal of vegetation within natural communities, the impact topic of vegetation was retained for further analysis.

Wetlands. Executive Order 11990, "Protection of Wetlands" and NPS Director's Order 77-1: Wetland Protection requires an examination of impacts on wetlands. Wetland habitat exists within the study area at Sandy Hook, and alternative C has the potential to alter some of these wetlands. Specifically, alternative C would include the removal of approximately 0.3 acre of natural forested vegetation along the edge of a forested wetland system and has the potential to fill a small amount of forested wetland. Therefore, the impact topic of wetlands was retained for further analysis in the EA.

Wildlife and Wildlife Habitat. NPS policy is to protect the natural abundance and diversity of all naturally occurring communities. NPS *Management Policies 2006* (NPS 2006b) and other NPS policies provide general direction for the protection of wildlife and wildlife habitat. The study area represents one of the few undeveloped areas in the rapidly growing region. While many of the wildlife species found in the region have adapted to the developed environment, areas like Sandy Hook still represent an important aspect of their feeding, nesting, breeding, and migration patterns. Proposed construction activities could result in temporary and permanent impacts to species that use the project area and their habitat. Therefore, the impact topic of wildlife and wildlife habitat was retained for further analysis.

State-Listed Species. Based on information previously provided by the NJDEP and that contained in the 2011 BioBlitz conducted for the unit (NPS 2011b), a variety of state-listed threatened and endangered species have been observed at Sandy Hook. Data collected during the 2011 BioBlitz indicates observations of the state-listed threatened boblink (*Dolichonyx oryzivorus*) and savannah sparrow (*Passerculus sandwichensis*) in the grassland habitat adjacent to the Nine Gun Battery, as well as several species with state special concern status such as the brown thrasher (*Toxostoma rufum*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*A. striatus*), and the northern parula (*Parula Americana*). Further, NJDEP correspondence indicates that the state-listed threatened osprey (*Pandion haliaetus*), state-listed endangered least tern (*Sterna antillarum*), and the state-listed rare beach wormwood (*Artemisia campestris caudata*) may occur within the project area, and an active osprey nest was observed within the alternative C project area during a site visit in November 2011. Although appropriate best management practices (BMPs) and mitigation measures would be implemented, construction activities associated with

this alternative could result in adverse impacts to state-listed species, such as osprey and beach wormwood. Because of the potentially close proximity of these state-listed species to the study area, the impact topic of state-listed species was retained for further analysis.

Cultural Landscape. The NPS defines a cultural landscape as a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person exhibiting other cultural or aesthetic values. The extensive military association and maritime use at Sandy Hook has created a cultural landscape that encompasses most of the peninsula. The cultural landscape within the project area includes the core of Fort Hancock, within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, which displays a campus-like appearance with uniform setbacks and architectural styles of the housing and ancillary buildings; small-scale circulation system and well-defined open spaces; and simplicity of landscaping and ornamentation, complemented by the expansive views west towards Sandy Hook Bay. An area to the east contains a series of WWII one-story structures that have been converted for educational use, but retain the appearance of the original cantonment built by the Works Progress Administration. A portion of the proposed action also would occur adjacent to the historic Nine Gun Battery, which is part of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Construction and operation of the proposed trail may alter the historic character of the existing cultural landscape through the addition of signage, pavement improvements, and the presence of a trail plaza near the Nine Gun Battery. Therefore, the impact topic of cultural landscape was retained for further analysis.

Visitor Use and Experience. Enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks (NPS 2006b). The NPS strives to provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the natural and cultural resources found in parks. The visitor experience encompasses interpretation, viewsheds, understanding, enjoyment, safety, circulation, and accessibility of the study area. The proposed action would not noticeably affect interpretation or understanding of park resources but would affect the other elements of the visitor experience. Specifically, visitor safety would be enhanced and additional recreational opportunities would be provided for nonmotorized visitors. The proposed action also would improve upon the existing pedestrian access routes to Sandy Hook's natural and cultural resources, potentially enhancing not only circulation but also visitor enjoyment of the resources. Lastly, the trail extension would minimally alter viewsheds in the project area by constructing a trail in areas that were previously occupied by roads, vegetation, and/or parking lots. Therefore, the impact topic of visitor use and experience was retained for further analysis.

Impact Topics Dismissed from Further Analysis

During scoping, a number of potential impact topics were initially considered but ultimately dismissed from further analysis in this EA. A brief rationale for the dismissal of each impact topic is provided below.

Soils and Topography. NPS policy is to protect the natural abundance and diversity of all naturally occurring communities. NPS *Management Policies 2006* (NPS 2006b) and other NPS policies provide general direction for the protection of soils. The proposed action would require only minimal disturbance

of soils and very little grading, would not increase erosion potential, and would not noticeably alter topography. Therefore, the impact topic of soils and topography was dismissed from further analysis.

Prime and Unique Farmland. Prime farmland is one of several designations made by the U.S. Department of Agriculture to identify important farmlands in the United States. It is important because it contributes to the nation's short- and long-range needs for food and fiber. In general, prime farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, an acceptable level of acidity or alkalinity, an acceptable content of salt or sodium, few to no rocks, and permeable soils (designated as prime farmland soils). There are no prime farmland soils within the study area, and the area is not designated as prime or unique farmland (NRCS 2012). Therefore, the impact topic of prime and unique farmland was dismissed from further analysis.

Floodplains. Executive Order 11988, "Floodplain Management" and NPS Procedural Manual 77-2: Floodplain Management (NPS 2004) provide policy to protect and preserve the natural resources and functions of floodplains. They require an examination of impacts on floodplains and potential risk involved in placing facilities within floodplains. The examination considers those impacts to water resources (flood storage, flood protection, and water quality), biological resources (wildlife habitat, biodiversity, rare and endangered species), and societal resources (aesthetics, recreation, food and fiber production, cultural/historical importance). Although, the proposed action would be constructed within the 100-year coastal floodplain and other areas of special consideration, the trail extension would largely be placed on areas currently disturbed by active roadways and existing infrastructure that currently provides little in the way of water and biological floodplain values, and would avoid other areas of the unit where floodplain values are readily apparent. A maximum of 2.2 acres of paved surface would be installed in the park to construct the new MUP segments. However, at least 55 percent of the proposed trail would be situated on existing asphalt. Thus, the trail extension would not impact existing water and biological floodplain values. The most important floodplain value offered by the project area is related to those societal values such as aesthetics, cultural, and historical. With the important military history of the park, the proposed trail extension is intended to enhance the ability for the public to enjoy these important park resources with better mobility without compromising other floodplain functions such as reducing flood peaks and affecting flood capacity. Because the proposed action would have no noticeable impact on floodplain values, would require little physical development, and would not involve overnight occupation, the impact topic of floodplains was dismissed from further analysis.

Water Resources. NPS *Management Policies 2006* (NPS 2006b) states that the NPS will "take all necessary actions to maintain or restore the quality of surface waters and ground waters within the parks consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations." Sandy Hook is located at the confluence of the Raritan Bay, Lower New York Bay, and the Atlantic Ocean. However, this proposed action would not involve activities with the potential to impact these waters or water quality over the long term. Additionally, during construction, BMPs would be implemented to ensure water resources at Sandy Hook are not impacted. Therefore, the impact topic of water resources was dismissed from further analysis.

Federally Listed Species. Based on a review of the USFWS Information, Planning, and Conservation System (IPAC) website and consultation with USFWS, four federally listed threatened or endangered species were identified as potentially occurring within the project area: piping plover (*Charadrius*

melodus), northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) seabeach amaranth (*Amaranthus pumilus*), and roseate tern (*Sterna dougallii dougallii*). In addition, the red knot (*Calidris canutus*) was identified as a federal candidate/state endangered species. The red knot was identified during a review of the IPaC website, but the USFWS response letter to NPS did not identify this species as potentially occurring within the project area. As detailed in “Chapter 3: Affected Environment,” the project area is dominated by various forms of terrestrial vegetation, primarily coastal grassland, lawns, shrubs, and maritime forests intermixed with park infrastructure such as roads, buildings, and parking areas. Habitat requirements for the five listed species include attributes specific to intertidal beach and shoreline ecosystems which are absent within the project area. The piping plover is a federal and state-threatened shorebird that establishes breeding territories along the mid-Atlantic coast northward to Canada (USFWS 1996). Nesting areas generally consist of coastal beaches above the high tide line, sandflats, washouts, gently sloping foredunes, and windblown depressions behind primary dunes. Nest sites tend to be on grounds free of vegetation and comprised of fine sand or sand mixed with pebbles, shell, or cobble. Plovers feed on marine worms, insects, crustaceans, and mollusks found in intertidal areas, mudflats, and shorelines of ponds, lagoons, or salt marshes. Northeastern tiger beetle populations historically ranged from the Chesapeake Bay north to Massachusetts, occupying wide and relatively undisturbed sandy beaches (Hill and Knisley 1994). However, by 2008 this species was no longer found at Sandy Hook (USFWS 2009). The seabeach amaranth is a federal and state threatened plant native to Atlantic coast beaches and barrier islands (Weakley et al. 1996). It typically grows on a pure sand substrate. Intolerant of flooding during the growing season, the seabeach amaranth is found in specific habitats that include sandy overwash areas, non-eroding beaches landward of the high tide line, foredunes, and interdunal areas (USFWS 2012). The red knot, a federal candidate and state endangered species, is a shorebird that maintains one of the longest migratory routes of any species in the world. Breeding in southern Chile, birds arrive in North America during the spring at consistent stopover areas along the Atlantic Coast (USFWS 2005). The primary North American habitats for the red knot are the shores of the Delaware Bay and the Cape May Peninsula.

The study area comprises approximately 100-foot wide corridors (50 feet on each side of the proposed MUP alignments) dominated by various forms of terrestrial vegetation, primarily coastal grassland, lawns, shrubs, and maritime forests intermixed with park infrastructure such as roads, buildings, and parking areas. The proposed action would occur landward of the coastal beach and dune system. Therefore, the state- (and federally) listed piping plover (*Charadrius melodus*), northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), seabeach amaranth (*Amaranthus pumilus*), and the red knot (*Calidris canutus*), which are found in sandy beach or shoreline habitat, are not likely to occur within the study area.

Based on the information above, and consultation with USFWS (see chapter 5), it is unlikely that the proposed action would adversely affect federally listed or candidate species. Therefore, the impact topic of federally listed species was dismissed from further analysis.

Archeological Resources

Archeological resources are the remains of past human activity and records documenting the scientific analysis of the remains (NPS 1998). The study area includes lands that have been occupied by humans for many centuries. Of particular significance are the centuries of military activity that occurred in and around Fort Hancock. As part of the planning efforts for this project, the NPS conducted an archeological

survey in the study area. The survey concluded that in both the Nine Gun Battery and Magruder/Gunnison project areas, “no additional archeological work is necessary” due to the lack of intact features and/or significant archeological deposits (JMA 2013). In addition, the soils within the project area were observed to be highly disturbed from “several episodes of fortification construction and demolition from the mid-nineteenth to the mid-twentieth century” (JMA 2013). Therefore, the impact topic of archeological resources was dismissed from further analysis. Should construction unearth previously unknown archeological resources, work would be immediately stopped in the area of discovery. The park's cultural resources program manager would be contacted to determine the nature and significance of the resource and consult with the SHPO and the ACHP, as necessary, according to 36 CFR 800. 13, Post Review Discoveries. All work will be in accordance with the Secretary of the Interior's Standards for Rehabilitation.

Historic Structures

A historic structure is defined by the NPS as “a constructed work, usually immovable by nature or design, consciously created to serve some human act” (NPS 1998). Sandy Hook contains a number of historic buildings and individual structures that are listed in the National Register, including some within the study area. The proposed action would have no impact on historic buildings because the new MUP alignments would run adjacent to the buildings but construction would not affect them. Direct impacts to existing historic structures would be limited to formalization of existing roads that are contributing resources within the Sandy Hook and the Fort Hancock Proving Ground National Historic Landmark Historic District. Formalization could include new pavement and signage, but the width of the roads would not be changed. The number of signs to be installed along the new MUP segments would be determined by the park during final design, but it is anticipated that any wayfinding or interpretive signage would conform to the style of existing signage. Because the width of the road would not be expanded and signage would likely be limited and would conform to existing signage, it is anticipated that the impact of the proposed MUP segments on historic structures would be less than minor. Potential impacts to viewsheds associated with the historic structures are described in the analysis of cultural landscapes. Therefore, the impact topic of historic structures was dismissed from further analysis.

Ethnographic Resources and Sacred Sites

An ethnographic resource is defined as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (NPS 1998). There are no known ethnographic resources or sacred sites within the study area. Therefore, the impact topic of ethnographic resources and sacred sites was considered but dismissed from further analysis. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during the implementation of phase 3 of the MUP, provisions outlined in the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA; 25 USC 3001) would be followed.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian Trust resources from a proposed project or action by U.S. Department of the Interior agencies be explicitly addressed in environmental documents. The federal Indian Trust responsibility is a legally enforceable obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal laws with respect to Native American tribes. There are no known Indian Trust

resources in the study area, and the lands comprising the park are not held in trust by the secretary of the interior for the benefit of Indians due to their status as Indians. Therefore, the impact topic of Indian Trust resources was dismissed from further analysis.

Museum Collections

The NPS defines a museum object as “a material thing possessing functional, aesthetic, cultural, symbolic, and/or scientific value, usually movable by nature or design. Museum objects include pre-contact Native American historic and historic objects, artifacts, works of art, archival material, and natural history specimens that are part of a museum collection” (NPS 1998). Neither the study area nor the proposed action includes any museum collections. Therefore, the impact topic of museum collections was considered but dismissed from further analysis.

Energy, Conservation Potential, and Sustainability

The Council on Environmental Quality (CEQ) guidelines (40 CFR 1500-1508) for implementing NEPA require an examination of energy requirements and conservation potential as a possible impact topic in environmental documents. Gateway NRA strives to incorporate the principles of sustainable design and development into all facilities and park operations. The objectives of sustainability are to design structures to minimize adverse impacts on natural and cultural values; to reflect their environmental setting; to maintain and encourage biodiversity; to construct and retrofit facilities using energy efficient materials and building techniques; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use. Essentially, sustainability is living within the environment with the least impact on the environment. The action alternatives presented in this document subscribe to and support the practice of sustainable planning and design by promoting the use of nonmotorized vehicles to access the various parts of Sandy Hook. The park also would encourage suppliers and contractors to follow sustainable practices during the construction process. Consequently, there would be beneficial impacts relating to energy use and conservation. However, any impacts to energy use and conservation would occur during construction, and would be temporary. In addition, because portions of the MUP are already in use at Sandy Hook, the overall impact on of the proposed action on sustainability would be minimal. Therefore, the impact topic of energy, conservation potential, and sustainability was dismissed from further analysis.

Environmental Justice

Executive Order 12898, “General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental impacts of their programs and policies on minorities and low income populations and communities. According to the Environmental Protection Agency (EPA), environmental justice is the

“...fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.”

The goal of “fair treatment” is not to shift risks among populations, but to identify potentially disproportionately high and adverse impacts and identify alternatives that may mitigate these impacts. Environmental justice was considered but dismissed from further analysis for the following reasons:

- The park staff and planning team solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors.
- Implementation of the proposed action would not result in any identifiable adverse human health impacts. Therefore, there would be no direct or indirect adverse impacts on any minority or low-income population.
- The impacts associated with implementation of the proposed action would not disproportionately affect any minority or low-income population or community.
- Implementation of the proposed action would not result in any identified impacts that would be specific to any minority or low-income community.

Public Health and Safety

Providing a safe and healthy park experience is always at the forefront of NPS plans. This is especially true when new developments are planned. The proposed action would improve safety conditions at Sandy Hook for the public, NPS staff, and its cooperators by providing enhanced nonmotorized access to park resources while minimizing interactions with motorized vehicles. These issues are addressed in the visitor use and experience sections of this document; therefore, the impact topic of public safety was dismissed from further analysis.

2

ALTERNATIVES

The park focused on alternatives that could be constructed in primarily developed areas, resulting in the least disturbance to natural and cultural resources. This EA evaluates three alternatives: the no-action (alternative A) and two action alternatives (alternatives B and C). The elements of these alternatives are described in the following sections. There are a variety of components that would be implemented under both action alternatives, including the installation of the interpretive signage and wayfinding along the MUP and the construction of a trail plaza near the Nine Gun Battery. These elements are described in the “Elements Common to All Action Alternatives” section below. In addition, this chapter describes the alternatives that were considered but dismissed from detailed analysis, identifies the NPS preferred and environmentally preferable alternatives, and provides a summary of the alternatives and their environmental consequences. Impacts associated with the alternatives are further described in “Chapter 4: Environmental Consequences.”

ALTERNATIVE A (NO-ACTION)

Under alternative A, no changes would be made to the existing 8.6-mile, 12-foot-wide, asphalt-paved MUP (see figures 3, 4a, and 4b). The MUP would continue to provide nonmotorized visitors such as pedestrians, bicyclists, in-line skaters, and wheelchair users, with a designated access route from the unit entrance to the ferry dock at Fort Hancock. The MUP loop between the North Beach Plaza, the Gunnison Beach Plaza, and the Mortar Battery at Fort Hancock also would remain. Visitor amenities associated with the MUP would be limited. The trail plaza near the Mortar Battery would continue to offer interpretive signage, bike racks, and a bench, though no additional signage/wayfinding would be present along the path. The MUP would continue to provide access to several resources within the unit. However, many nonmotorized visitors would still opt to share the roads with motorized vehicles in locations where the roads provide a more direct access route to points of interest, such as to Gunnison Beach from the unit entrance. In addition, there would be no wayfinding along the MUP to direct visitors to the beaches, historic sites, and other points of interest.

NINE GUN BATTERY AREA

Under alternative A, the MUP would not extend to the Nine Gun Battery. To access the Nine Gun Battery, nonmotorized users would exit the MUP near the southwest corner of Lot J, onto Atlantic Drive

and then follow Atlantic Drive for approximately 300 feet to North Bragg Road. There is no sidewalk or shoulder along Atlantic Drive in this area. Circulation at the Nine Gun Battery would be consistent with current conditions; both motorized and nonmotorized users would share North Bragg Road and Lots K and M would continue to be used as parking lots.

MAGRUDER/GUNNISON AREA

Under alternative A, no changes would be made to the Magruder/Gunnison Road area. The forested area, fields, and associated wetlands to the east of Magruder Road, east of the NOAA James J. Howard Marine Sciences Laboratory, would be undisturbed. Circulation within Lot G would be unchanged. At Guardian Park, MUP users heading north from the unit entrance would have the option to either continue to follow the path along Hartshorne Drive or to exit the MUP onto Magruder Road. For the most direct access to Gunnison Beach from the Sandy Hook entrance, nonmotorized visitors would exit the MUP onto Magruder Road, heading north, and turn right on Gunnison Road toward the beach. Neither of these roads would provide a shoulder, sidewalk, or designated lane for nonmotorized use. Magruder Road also is the most direct route from the unit entrance to the Sandy Hook Lighthouse and Keepers Quarters, Mortar Battery, and the Marine Academy of Sciences and Technology (MAST) campus. The MUP would continue to be accessible near the intersection of Magruder and Hudson Roads to provide access to/from the lighthouse, Mortar Battery, and more northern points of interest.

ELEMENTS COMMON TO ALL ACTION ALTERNATIVES

The elements common to the action alternatives are depicted on the action alternatives' figures (see figures 5a, 5b, 6a, and 6b). Under both action alternatives (alternatives B and C), the NPS would modify the existing 12-foot-wide MUP to provide a closed loop trail system for visitors. Both action alternatives would add approximately 1.5 miles to the existing system and would include three new segments: one near the Nine Gun Battery and two further south between Magruder Road and Gunnison Beach. These new segments would be 12 feet wide, two-way corridors, and asphalt-paved and lined to be consistent with the design of the existing MUP. Where feasible, the new alignments would be constructed within existing road easements over currently paved surfaces. Each new segment would be equipped with appropriate wayfinding, signage, and amenities such as bike racks and benches. During construction, equipment and materials would be staged in Lots J and K, and part of Lot G.

Once constructed, the proposed sections of the MUP would require regular maintenance and upkeep including mowing and trimming grass, pruning shrubs, sweeping/blowing sand and plant debris from the surface, litter pick-up, graffiti removal, striping, and sign maintenance. These activities are consistent with activities currently conducted by the park to maintain existing segments of the MUP.



Source: 2007 New Jersey State Orthophotography

Existing Multi-Use Path



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 4a

Alternative A: No-Action - Nine Gun
Battery Area



Source: 2007 New Jersey State Orthophotography

Existing Multi-Use Path

Osprey Pole



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 4b

Alternative A: No-Action -
Magruder/Gunnison Area

NINE GUN BATTERY AREA

The new MUP segment near the Nine Gun Battery would initiate at the existing MUP, near the southwestern corner of Lot J along, adjacent to Atlantic Drive. The path would then be routed through Lot J for approximately 300 feet, connecting with North Bragg Road near the southwest corner of Lot K. The new segment of the MUP would not require the narrowing of existing vehicle travel lanes. The length and routing of the path through the Nine Gun Battery area would vary by alternative and is described relative to alternative B and alternative C in the respective sections below. However, under both action alternatives, a new trail plaza, approximately 30 feet long by 30 feet wide, would be constructed in the northwest corner of Lot M. The plaza design would be similar to that of the existing plaza in Fort Hancock (near the Sandy Hook Lighthouse and the Mortar Battery) and could include interpretive signage, concrete pavers, benches, and bike racks.

MAGRUDER/GUNNISON AREA

Both action alternatives would include two distinct segments in the Magruder/Gunnison area. One segment, which would be the same under both action alternatives, would be approximately 0.5 miles and would be constructed along the eastern side of Magruder Road between Guardian Park and Hudson Road (near the Mortar Battery). Approximately 12 feet of the existing 32-foot-wide roadway (currently 16 feet for each direction) would be designated for nonmotorized use, so that the new alignment would be constructed within the footprint of the existing paved road. This new segment would connect two existing portions of the MUP. Signage would be installed along the new path segments to clearly identify the route and provide direction to key points of interest. The number of signs to be installed along the new MUP segments would be determined by the park during final design, but it is anticipated that any wayfinding or interpretive signage would conform to the style of existing signage. The second MUP alignment in the Magruder/Gunnison area would provide a connection between the existing MUP (from Guardian Park) and Gunnison Beach. The specific route, however, would vary by alternative, as described in the following sections.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Alternative B would include the following elements, which are described above in the “Elements Common to the Action Alternatives” section:

- A total of three new MUP segments would be constructed
- One approximately 0.5-mile segment would be constructed along the east side of Magruder Road between the existing MUP near Guardian Park and the trail plaza at the Mortar Battery
- One additional segment would be constructed in the Magruder/Gunnison area between Guardian Park and Gunnison Beach, and one would be constructed in the Nine Gun Battery area

- A new approximately 30-foot by 30-foot trail plaza would be constructed in the northwest corner of Lot M in the Nine Gun Battery area
- New segments of the MUP would be 12 feet in width and would be lined to be consistent with the existing MUP
- New wayfinding and interpretive signage would be installed along new segments of the MUP
- Lots J, K, and G would be used for construction staging

Additional developments proposed to each of these segments under alternative B are described below (figures 5a and 5b). In total, alternative B would extend the MUP by approximately 1.4 miles and a maximum of 2.0 acres of paved surface would be installed. However, it is anticipated that much of this pavement would be installed over existing paved surfaces. Newly paved areas (those areas that are currently unpaved) would be limited to the new trail plaza in the Nine Gun Battery, totaling approximately 0.02 acre in size.

NINE GUN BATTERY AREA

As described in the “Elements Common to the Action Alternatives” section, the alignment in the Nine Gun Battery area would begin at the existing MUP, near the southwest corner of Lot J and would be routed through Lot J, near Atlantic Drive, to North Bragg Road (figure 5a). Under alternative B, the MUP would then create an approximately 0.5-mile loop around Lots K and M and an existing field. This segment of the MUP would be constructed within the existing footprint of North Bragg Road, which currently provides vehicular access through the Nine Gun Battery area and is paved but in poor condition. On the eastern half of North Bragg Road, the MUP would be centered on the existing road; however, the path would be constructed along the eastern edge of North Bragg Road on the western half of the loop, to accommodate continued vehicular access to Lots K and M.

MAGRUDER/GUNNISON AREA

In the Magruder/Gunnison area, alternative B would include the new 0.5-mile segment along Magruder Road described in the “Elements Common to the Action Alternatives” section. In addition, this alternative would include construction of approximately 0.3 mile along the southern side of Gunnison Road, between Magruder Road and Atlantic Drive (figure 5b). This alignment would be developed within the existing paved road easement, but would not require narrowing of the existing vehicular travel lanes. At Atlantic Drive, the MUP would follow an existing crosswalk to the northern side of the road (at this point, Gunnison Road turns into Atlantic Drive), and would then be routed along the existing paved sidewalk for approximately 0.1 mile to the Gunnison Beach Plaza. This new segment would connect to the existing MUP at the Gunnison Beach Plaza.



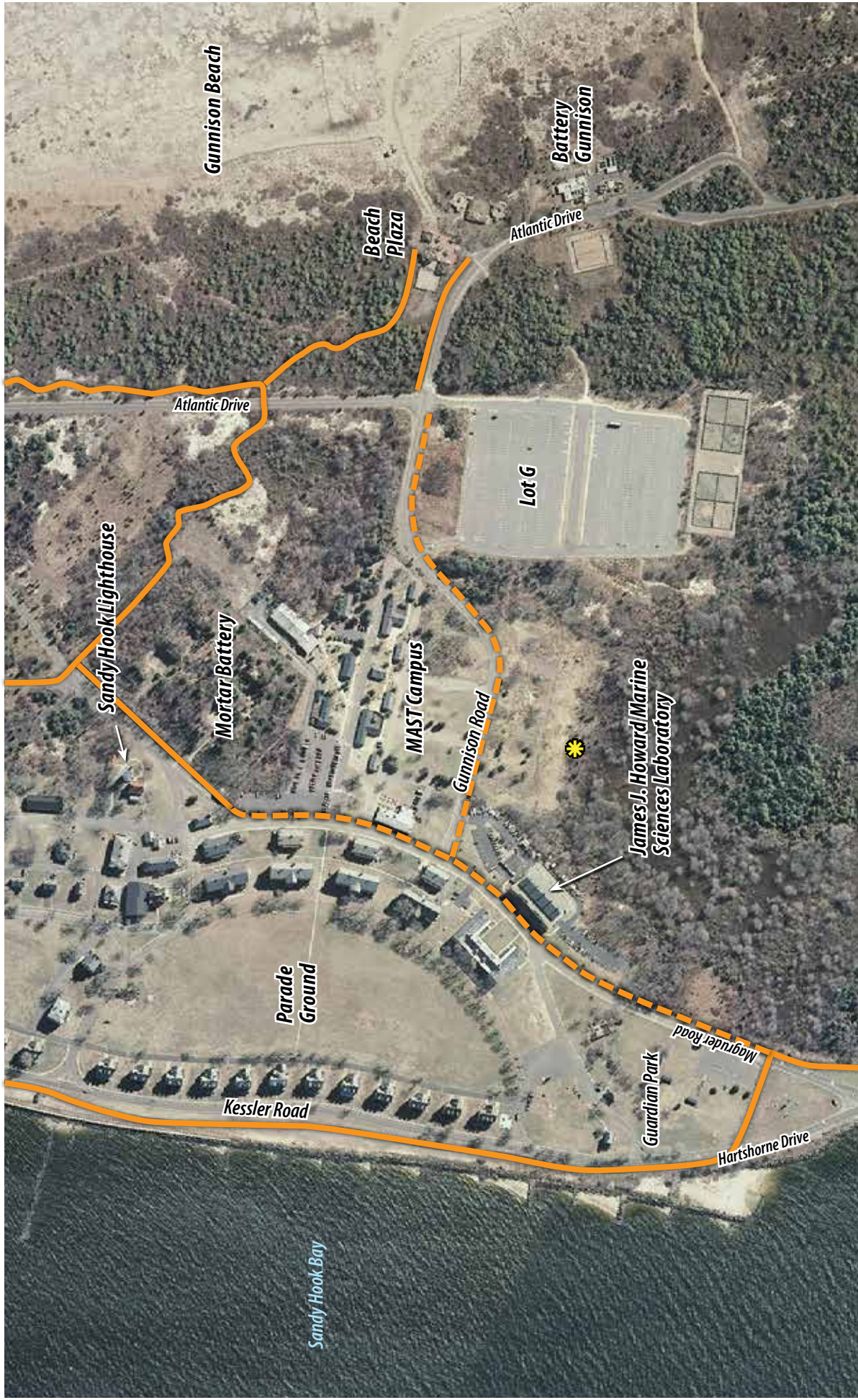
Source: 2007 New Jersey State Orthophotography

- Existing Multi-Use Path
- - - Proposed Multi-Use Path



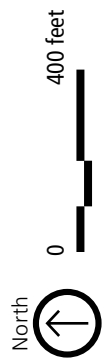
Gateway National Recreation Area
 Sandy Hook Multi-Use Path Phase 3
 Environmental Assessment

Figure 5a
 Alternative B: Nine Gun Battery Area



Source: 2007 New Jersey State Orthophotography

- Existing Multi-Use Path
- Proposed Multi-Use Path
- Osprey Pole



Gateway National Recreation Area
 Sandy Hook Multi-Use Path Phase 3
 Environmental Assessment

Figure 5b
Alternative B: Magruder/Gunnison Area

ALTERNATIVE C

Alternative C would include the following elements, which are described above in the “Elements Common to the Action Alternatives” section:

- A total of three new MUP segments would be constructed
- One approximately 0.5-mile segment would be constructed along the east side of Magruder Road between the existing MUP near Guardian Park and the trail plaza at the Mortar Battery
- One additional segment would be constructed in the Magruder/Gunnison area between Guardian Park and Gunnison Beach, and one would be constructed in the Nine Gun Battery area
- A new approximately 30-foot by 30-foot trail plaza would be constructed in the northwest corner of Lot M in the Nine Gun Battery area
- New segments of the MUP would be 12 feet in width and would be lined to be consistent with the existing MUP
- New wayfinding and interpretive signage would be installed along new segments of the MUP
- Lots J, K, and G would be used for construction staging

Additional developments proposed to each of these segments under alternative C are described below (figures 6a and 6b). In total, alternative C would extend the MUP by approximately 1.5 miles and a maximum of 2.2 acres of paved surface would be installed, including portions of the trail that would occur over existing paved areas (in these cases, the existing pavement could be replaced to accommodate the trail extension). It is anticipated that the proposed MUP segments would be constructed primarily over existing paved surfaces; therefore, the net acreage of new paved surfaces would likely be less than 1 acre.

NINE GUN BATTERY

Under alternative C, the Nine Gun Battery segment of the MUP would be approximately 0.3 miles in length (figure 6a). Similar to alternative B, as described in the “Elements Common to the Action Alternatives” section, this alignment would begin at the existing MUP in the southwest corner of Lot J and would be routed through Lot J to North Bragg Road. However, the alternative C alignment would not create a complete loop around Lots K and M and the field. Instead, the MUP would follow, and be centered on, the eastern half of North Bragg Road to Lot M and would terminate at the new trail plaza. Nonmotorized visitors would follow the same path to enter and exit the Nine Gun Battery and connect back to the rest of the MUP. To accommodate the new segment, current circulation patterns could be modified slightly so that motorized vehicles would only use the western side of the North Bragg Road loop to access Lots K and M so as not to interfere with the MUP.



Source: 2007 New Jersey State Orthophotography

- Existing Multi-Use Path
- - - Proposed Multi-Use Path



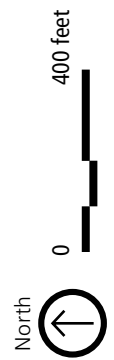
Gateway National Recreation Area
 Sandy Hook Multi-Use Path Phase 3
 Environmental Assessment

Figure 6a
 Alternative C: Nine Gun Battery Area



Source: 2007 New Jersey State Orthophotography

- Existing Multi-Use Path
- - - Proposed Multi-Use Path
- ★ Osprey Pole



Gateway National Recreation Area
Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 6b
Alternative C: Magruder/Gunnison Area

MAGRUDER/GUNNISON AREA

In addition to the new 0.5-mile segment along the eastern side of Magruder Road, an approximately 0.7-mile trail would be constructed from Magruder Road to Gunnison Beach through a combination of developed areas, wooded land, unpaved trails, a parking lot, and an existing boardwalk (figure 6b). Similar to the segment along Magruder Road, the route toward Gunnison Beach would commence at the existing MUP across from Guardian Park. From there, the trail would extend in a generally northern direction through an undeveloped wooded area for approximately 0.2 mile before turning east toward Lot G. In this area, the MUP could intersect two small (0.16 acre each) forested non-tidal emergent wetlands. A portion of each wetland could be filled to the new MUP alignment; however, the MUP would be routed to avoid these wetlands to the greatest extent practicable and it is anticipated that less than half of the total wetland area would be filled. Approximately 0.3 acre of forest vegetation would have to be removed to accommodate this portion of the MUP. After turning east, the trail would extend approximately 0.1 mile through a combination of wooded land and fields before connecting with an existing unpaved trail to Lot G. The existing unpaved trail would be paved and lined to be consistent with the new MUP segments. The MUP would be routed through the center of Lot G, over existing pavement, and would connect to an existing boardwalk on the east side of the parking lot. The MUP would be clearly defined through the parking lot. The boardwalk, which connects Lot G to Atlantic Drive, could require some improvements to accommodate increased use, but its footprint and general design would be unchanged. At the end of the boardwalk, the MUP would be routed across Atlantic Drive to the Gunnison Beach Plaza. Similar to alternative B, this segment of the MUP would terminate at the Gunnison Beach Plaza and connect to the existing MUP in that location.

MITIGATION MEASURES

To prevent and minimize potential adverse impacts associated with the action alternatives, BMPs and mitigation measures would be implemented during the construction and post construction phases of the project. General and resource specific BMPs and mitigation measures are listed below by impact topic. This list provides a framework for mitigation measures that would be included in the contractor's specifications; future mitigation measures could be added to this list at the discretion of the NPS. Furthermore, the state and federal permits that would be required before this project proceeds with construction would likely include a variety of conditions specifically related to the protection of water quality and natural resources from additional construction-related impacts (see "Chapter 5: Consultation and Coordination").

GENERAL MEASURES

- A contractor kickoff meeting would be held to ensure that all workers are apprised of proper protocol to follow in the event of an emergency, including contact information for first responders.
- The contractor would not leave vehicles idling for more than five minutes when parked or not in use.

- Stockpile materials would be placed in the construction staging areas within Lots J, K, and G to avoid impacting natural features unnecessarily.
- Construction equipment would be restricted to paved surfaces where practicable to avoid impacts on natural resources, including wetland areas. If construction equipment must be used or staged off paved surfaces, best management practices, such as those described in the natural resources section below, would be implemented to minimize potential for adverse impacts.
- Temporary advanced warning signs would be installed to warn of closures during construction.

NATURAL RESOURCES

- Disturbed areas would be kept as small as possible to minimize exposed soil and the potential for erosion.
- Where wetlands occur near the new MUP alignments, the project limits would be clearly demarcated, such as with fencing, to minimize the potential for wetland fill outside of the intended project area.
- Measures would be employed to prevent or control spills of fuels, lubricants, or other contaminants.
- Any exposed soil or fill material would be permanently stabilized at the earliest practicable date.
- Any vegetation lost during the construction process would be mitigated with the planting of native species. Exotic species lost would be replaced with native species as mediation for loss of mature growth.
- Measures would be implemented to prevent the spread or introduction of invasive plants, such as ensuring that construction-related equipment arrives at the site free of mud or seed-bearing materials and certifying that any seeds or straw material are weed free. Tools and machinery would be thoroughly cleaned when moving from an area heavily covered with invasive plants, to an area without invasive vegetation.
- Mitigation for beach wormwood would consist of a combination of avoidance, seed collection, and transplanting existing plants out of the construction area.
- No construction would occur between April 1 and October 31 to protect nesting and migrating grassland birds.

CULTURAL RESOURCES

- Proposed changes to the cultural landscape would adhere to the Secretary of the Interior's Standards for the Treatment of Historic Properties.
- The limits of the area surveyed for archeological resources will be identified at the construction contract start-up meeting and clearly flagged in the field. In the event that the MUP extension is constructed outside of the surveyed area, additional archeological survey would be required.

- The NPS would comply with NAGPRA should any cultural items or graves protected by NAGPRA be encountered on federal land. All work would stop and the contractor would notify the park's cultural resource staff who would notify the park's archeology advisor.
- If during construction previously undiscovered archeological resources were uncovered, all work in the immediate vicinity of the discovery would be halted. Construction may proceed only after NPS has determined that implementation of the actions undertaken to address the discovery are complete.
- The NPS would ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites, historic properties, or elements of the cultural landscape. Contractors and subcontractors also would be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction, as described above.

ALTERNATIVES/ELEMENTS CONSIDERED BUT DISMISSED FROM FURTHER ANALYSIS

During the alternatives development process, and in consideration of the project purpose and need, several alternative components were considered but dismissed from further analysis in this EA. These elements are described below.

ALIGNMENT ALONG THE SOUTHERN SIDE OF ATLANTIC DRIVE

During the alternatives development process, NPS considered aligning the new MUP with the southern side of Atlantic Drive between Gunnison Beach and the intersection of Atlantic Drive/Gunnison Road. This would be consistent with the Gunnison Road alignment proposed under alternative B. However, an existing sidewalk on the northern side of Atlantic Drive currently provides pedestrian access from Lot G to Gunnison Beach in this area. To avoid potential impacts to natural resources, such as vegetation and wetlands adjacent to Atlantic Drive in this area, NPS determined it would be more desirable to develop the MUP extension along the existing sidewalk. Therefore, the southern alignment of the MUP along Atlantic Drive was considered but dismissed from further analysis.

ACCESS FROM GUNNISON ROAD

As part of alternative C, NPS considered providing access to the MUP from Gunnison Road. Two approximately 500-foot access points were considered, including use of an existing unpaved trail between Gunnison Road and Lot G. Both points considered would have extended from Gunnison Road, across from the MAST Campus. To reduce impact on vegetation, this element was considered but dismissed from further analysis.

SUMMARY COMPARISON OF THE ALTERNATIVES AND THEIR ENVIRONMENTAL CONSEQUENCES

The following table provides a summary comparison of the alternatives as well as how each meets the project purpose and need.

TABLE 1. SUMMARY COMPARISON OF ALTERNATIVES

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
MUP Design	No changes would be made to the existing MUP.	Asphalt-paved, 12-foot-wide, lined, two-way corridors with appropriate wayfinding, signage, and amenities. New segments would total 1.4 miles.	Same as alternative B, except: New segments would total 1.5 miles.
Nine Gun Battery Segment	No changes would be made to the existing MUP.	Routed from the existing MUP, through Lot J to North Bragg Road. The path would then form an approximately 0.5-mile loop centered on, and within the existing footprint of North Bragg Road. Motorized vehicles would only use the western side of North Bragg Road to access Lots K and M.	Similar to alternative B, except, the MUP would only follow the east side of North Bragg Road from Lot J to Lot M. Same as alternative B.
Trail Plaza	One trail plaza near the Mortar Battery that offers interpretive signage, a bench, and bike racks.	A new approximately 30-foot by 30-foot trail plaza would be constructed in the northwestern corner of Lot M. The plaza could include interpretive signage, concrete pavers, benches, and bike racks.	Same as alternative B.

TABLE 1. SUMMARY COMPARISON OF ALTERNATIVES (CONTINUED)

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Magruder/Gunnison Segment	No changes would be made to the existing MUP.	Approximately 0.5 mile along the eastern side of Magruder Road, between Guardian Park and Hudson Road. A visual barrier would provide separation of vehicular and non-vehicular traffic. Approximately 0.4 mile along Gunnison Road/Atlantic Drive between Magruder Road and Gunnison Beach. A visual barrier would provide separation of vehicular and non-vehicular traffic.	Same as alternative B. Approximately 0.7 mile of MUP between Magruder Road and Gunnison Beach through a combination of undeveloped wooded land, unpaved trails, Lot G, and an existing boardwalk.
Construction Staging	No construction staging would be required.	Use of Lots J and K, and part of Lot G.	Same as alternative B.

The following table provides a summary of the environmental consequences related to each alternative. A more detailed explanation of impacts is presented in “Chapter 4: Environmental Consequences.”

TABLE 2. SUMMARY OF ENVIRONMENTAL CONSEQUENCES

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Vegetation	Disturbances to vegetation would be limited to routine maintenance/landscaping activities and use of the existing MUP, parking lots, and roads within the study area. No vegetation would be removed. These impacts would not be significant.	Disturbances to vegetation would be primarily related to routine maintenance/landscaping along the MUP, roads, and parking lots within the study area. The impacts could be slightly more adverse than under alternative A, because there would be more MUP and because there would be some vegetation removal in the Nine Gun Battery (opportunistic grasses and forbs that have sprouted in the roadbed). However, it is not anticipated that these impacts would be significant.	Disturbances to vegetation would occur during routine maintenance/landscaping along the MUP, roads, and parking lots. In addition, 0.3 acres of forest vegetation, and 0.2 acres of field vegetation would be removed to accommodate the new path between the existing MUP and Gunnison Beach. It is not anticipated that these impacts would be significant.

TABLE 2. SUMMARY OF ENVIRONMENTAL CONSEQUENCES (CONTINUED)

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Wetlands	No impacts to wetlands would occur. There would be no loss of wetlands, and the functions and values of the existing wetlands would be unchanged. This alternative would not have a significant impact on wetlands.	No impacts to wetlands would occur in the Magruder/Gunnison area; however, minimal wetland fill could occur in the Nine Gun Battery, if construction of the new MUP segment exceeds the footprint of the existing road. It is anticipated that less than 0.02 acres of wetlands in the Nine Gun Battery area would be affected, and most impacts could be mitigated. These impacts are not to be significant.	No impacts to wetlands would occur in the Nine Gun Battery area. In the Magruder/Gunnison area, construction of the new MUP segment could impact a small portion of the two 0.16-acre forested wetland areas (0.32 acres total) east of the James J. Howard Marine Science Laboratory. It is anticipated that construction of the MUP in this area would impact no more than 0.10 acres of these wetlands. Therefore, this alternative is not anticipated to result in a significant impact.
Wildlife and Wildlife Habitat	There would be no change to the existing MUP or existing habitat within the study area. Therefore, this alternative would not result in a significant impact on wildlife and wildlife habitat.	Disturbances to wildlife and wildlife habitat would be limited because the new segments would mostly be within existing road alignments. Adverse impacts would mostly be temporary and related to construction activities. Disturbances to wildlife could occur from use of the MUP, especially in the Nine Gun Battery area; however, it is anticipated that the abundance of similar habitat adjacent to the MUP would allow wildlife to relocate and easily adapt to maintain normal biological activities. Therefore, this alternative would not likely result in a significant impact on wildlife and wildlife habitat.	Disturbances to wildlife and wildlife habitat would primarily be related to construction of the new MUP alignment through the forest and field habitat east of the James J. Howard Marine Sciences Laboratory. Approximately 0.3 acres of forest habitat and 0.2 acres of field habitat would be removed. Some habitat fragmentation could occur, though any resulting changes in wildlife patterns would be within the natural range of variability. Therefore, this alternative would not likely result in a significant impact on wildlife and wildlife habitat.

TABLE 2. SUMMARY OF ENVIRONMENTAL CONSEQUENCES (CONTINUED)

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
State-Listed Species	There would be no change to the existing MUP or existing habitat within the study area. Therefore, this alternative would not result in a significant impact on state-listed species.	Disturbances to state-listed species would be limited because the new MUP segment would mostly be within existing road alignments. Adverse impacts would mostly be temporary and related to an increased human presence during construction. Disturbances to state-listed animal species could occur from use of the MUP, especially in the Nine Gun Battery area; however, it is anticipated that the abundance of similar habitat adjacent to the MUP would allow state-listed species to relocate and easily adapt to maintain normal biological activities. Therefore, this alternative would not likely result in a significant impact on state-listed species.	Disturbances to state-listed species would primarily be related to construction of the new MUP alignment through the forest and field habitat east of the James J. Howard Marine Sciences Laboratory. Direct impacts to nesting birds are unlikely, but vegetation removal in this area would reduce available habitat that could be used by state-listed birds such as bobolink, Savannah sparrow, American kestrel, and northern harrier. Given the small scale of habitat loss, compared to the available habitat area in the unit, and because many species, including the state-listed osprey are known to be habituated to human presence, it is anticipated that this alternative would not result in a significant impact on state-listed species.

TABLE 2. SUMMARY OF ENVIRONMENTAL CONSEQUENCES (CONTINUED)

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Cultural Landscape	<p>There would be no change to the existing MUP and/or other modern infrastructure in the study area. Although the presence of the existing MUP segments have slightly reduced the integrity of the cultural landscape of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, there would be no further loss of integrity under this alternative. Therefore, there would be no significant impact on the cultural landscape.</p>	<p>New segments of the MUP are unlikely to reduce the integrity of the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. The new segments would primarily be constructed within the footprint of existing roads, and new signage along Magruder and Gunnison Roads, which are contributing resources within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, would be limited and would conform to the style and size of existing signage. Therefore, the landscape would be largely unchanged. This alternative would have no impact on character-defining features of the cultural landscape. This alternative would not likely have a significant impact on the cultural landscape.</p>	<p>New MUP segments are unlikely to diminish the integrity of the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, especially within the Magruder/ Gunnison area. Although historic circulation patterns would be slightly altered as the MUP would be routed through an existing forest and field landscape, this landscape is considered successional woodlands and is a non-contributing resource within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District cultural landscape. Further, development of the MUP along Magruder and Gunnison Roads, which are contributing resources within the historic district, would be limited and would be consistent with surrounding developments (lining of roads and small signs). Given the scale of these developments, compared to the scale of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, this alternative is not anticipated to result in a significant impact on the cultural landscape.</p>

TABLE 2. SUMMARY OF ENVIRONMENTAL CONSEQUENCES (CONTINUED)

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Visitor Use and Experience	No changes would be made to the existing MUP or other resources within the unit; therefore, there would no change to visitor experience. The potential for conflicts between motorized and nonmotorized visitors would continue if nonmotorized visitors continue to use existing roads to access points of interest. Access to existing park resources would be unchanged. This alternative would not have a significant impact on visitor use and experience.	Improvements to the MUP would enhance the visitor experience by reducing safety concerns, creating additional space for nonmotorized recreation, and providing access to more park resources along the MUP. Temporary adverse impacts could occur during construction due to temporary changes in parking and circulation. These impacts are not likely to be significant.	Improvements to the MUP would enhance the visitor experience by reducing safety concerns, creating additional space for nonmotorized recreation, and providing access to more park resources along the MUP. Impacts of this alternative could be more beneficial than those for alternative B because locating the MUP through the forest and field areas would extend visitor access to more natural areas. Temporary adverse impacts could occur during construction due to temporary changes in parking and circulation. These impacts are not likely to be significant.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

In accordance with the DO-12 Handbook, the NPS identifies the environmentally preferable alternative in its NEPA documents for public review and comment [Sect. 4.5 E(9)]. The environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative (43 CFR 46.30). Alternative A would not enhance existing conditions but would best protect the existing natural and cultural resources in the study area because no new construction would occur. Based on the analysis of environmental consequences of each alternative, described in chapter 4, alternative A is the environmentally preferable alternative.

NPS PREFERRED ALTERNATIVE

Alternative B was identified as the NPS preferred alternative because, of the two action alternatives, it best protects natural and cultural resources. Both action alternatives would be equally successful in meeting the project's purpose to enhance the existing MUP system within the Sandy Hook Unit and neither would have a significant impact on natural or cultural resources. As described in chapter 4, both action alternatives have a slight visual effect on cultural landscapes, but would not cause any direct effects to significant resources. Alternative C would have a slightly more adverse impact on the cultural landscape because it would slightly alter the historic circulation patterns in the Magruder/Gunnison area. The portion of alternative C that traverses the existing forest and field would adversely impact some vegetation, wetlands, and could temporarily disrupt wildlife and wildlife habitat, including state-listed species such as osprey during construction. Conversely, alternative B would be constructed along existing roads, primarily within the footprint of existing pavement, limiting the potential for impacts to the park's natural and cultural resources. Therefore, alternative B has been identified as the NPS preferred alternative.

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AFFECTED ENVIRONMENT

Situated in northeastern New Jersey at the mouth of New York Harbor, Sandy Hook is home to a variety of natural and cultural resources. The proposed action is confined to the study area, which is outlined on figures 2 and 3. In general, the study area, which varies slightly by impact topic, encompasses an approximately 100-foot corridor, centered on the proposed MUP extension alignments. Organized by resource topic, this chapter describes the resources that could be impacted by the proposed action.

VEGETATION

Vegetation within the Sandy Hook Unit is typical of coastal barrier communities where exposure to the elements can be high and sometimes severe. As a whole, Sandy Hook has a diverse range of vegetation communities, including intertidal beach and dune-swale complexes along the Atlantic seaboard; maritime forests and fields in the interior; and intertidal wetlands along Sandy Hook Bay. Turf and landscaped areas are also prevalent around facilities associated with Fort Hancock.

The vegetation of Gateway NRA is mostly successional, reflecting both the history of anthropogenic disturbance and alteration in the park, and natural ecological change, as evidenced by beach and dune complexes resulting from shoreline dynamics over time. In Sandy Hook, vegetation communities with little disturbance are few in number, and include only the remaining portions of an American Holly Forest, which is not within the study area. Excluding landscapes intentionally created and maintained by humans (i.e., lawns, gardens, etc.), Sandy Hook's vegetation can be placed into several groups. These include: wetland, forest and woodland, shrubland, and meadow (NRCS 2001, NPS 2008). The most prevalent vegetation communities in the study area are forests (identified as maritime forests), maintained fields, fallow fields, and landscaped areas.

The forest and woodland group can include a variety of vegetation communities, such as American holly forest, red cedar woodland, swamp white oak forest, mixed hardwood forest, and succession deciduous forest (NRCS 2001, NPS 2008). In the study area (and in Sandy Hook as a whole), successional deciduous forest is the most prevalent community within this group. During field work associated with the wetland delineation completed for the project in September 2012, dominant species in the Sandy Hook Unit were observed to include black cherry (*Prunus virginiana*), Virginia pine (*Pinus virginiana*), and common hackberry (*Celtis occidentalis*) (NPS 2013b). Common nonnative or exotic species can

include white mulberry (*Morus alba*), tree-of-heaven (*Ailanthus altissima*), silk tree (*Albizia julibrissin*), and autumn olive (*Eleagnus umbellata*). The shrubland group is characterized by vegetation communities such as bayberry thicket, sumac grove, and coastal shrub thicket (NRCS 2001, NPS 2008). The study area does not intersect prevalent shrubland communities. However, bayberry (*Morella pensylvanica*) and shining sumac (*Rhus copallina*) are commonly found interspersed with successional deciduous forest and, in the case of sumac, often near roadsides and edge communities.

Meadow found within the study area includes switchgrass brake, bluestem meadow, weeping lovegrass brake, managed grassland, and mugwort meadow. The fields near Nine Gun Battery have a mixture of these communities, with dominant species such as switchgrass (*Panicum virgatum*), little bluestem (*Schizachyrium scoparium*), and nonnative mugwort (*Artemisia vulgaris*). Managed grassland is common near Nine Gun Battery, especially within Lot K, which is dominated by crabgrass (*Digitaria* spp.). The crabgrass is regularly mowed by NPS. Roadside easements throughout Sandy Hook often include managed grassland and are also regularly maintained through mowing. Weeping lovegrass (*Eragrostis cylvula*) can form large, monospecific stands within other grasslands (NRCS 2001, NPS 2008); however, this species is limited within the study area to a small field next to Lot G.

Detailed data regarding vegetation within Sandy Hook was collected as part of the 2011 BioBlitz conducted by the American Littoral Society for the NPS (NPS 2011b). While data collection points were not specific to the study area for the proposed action, the results reveal very high biodiversity with the Sandy Hook Unit as a whole. For instance, 151 species of terrestrial plants were observed in 5 separate locations, 31 of which were found near the study area in the Fort Hancock area.

In addition to the forest and woodland group described above, forests in Sandy Hook also include wetland communities in basins near the interior of Sandy Hook. The existing wetlands are described in the following section.

WETLANDS

The identification of wetlands and other waters of the U.S. within the project area is necessary to ensure their protection in accordance with federal laws (section 404 of the Clean Water Act [CWA] and the Rivers and Harbors Act of 1899) and state laws. Additional information about these laws is provided in chapter 5 of this EA. At the state and federal level, wetlands are defined as

“Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” (33 CFR 328.3[b]; 40 CFR 230.3[t])

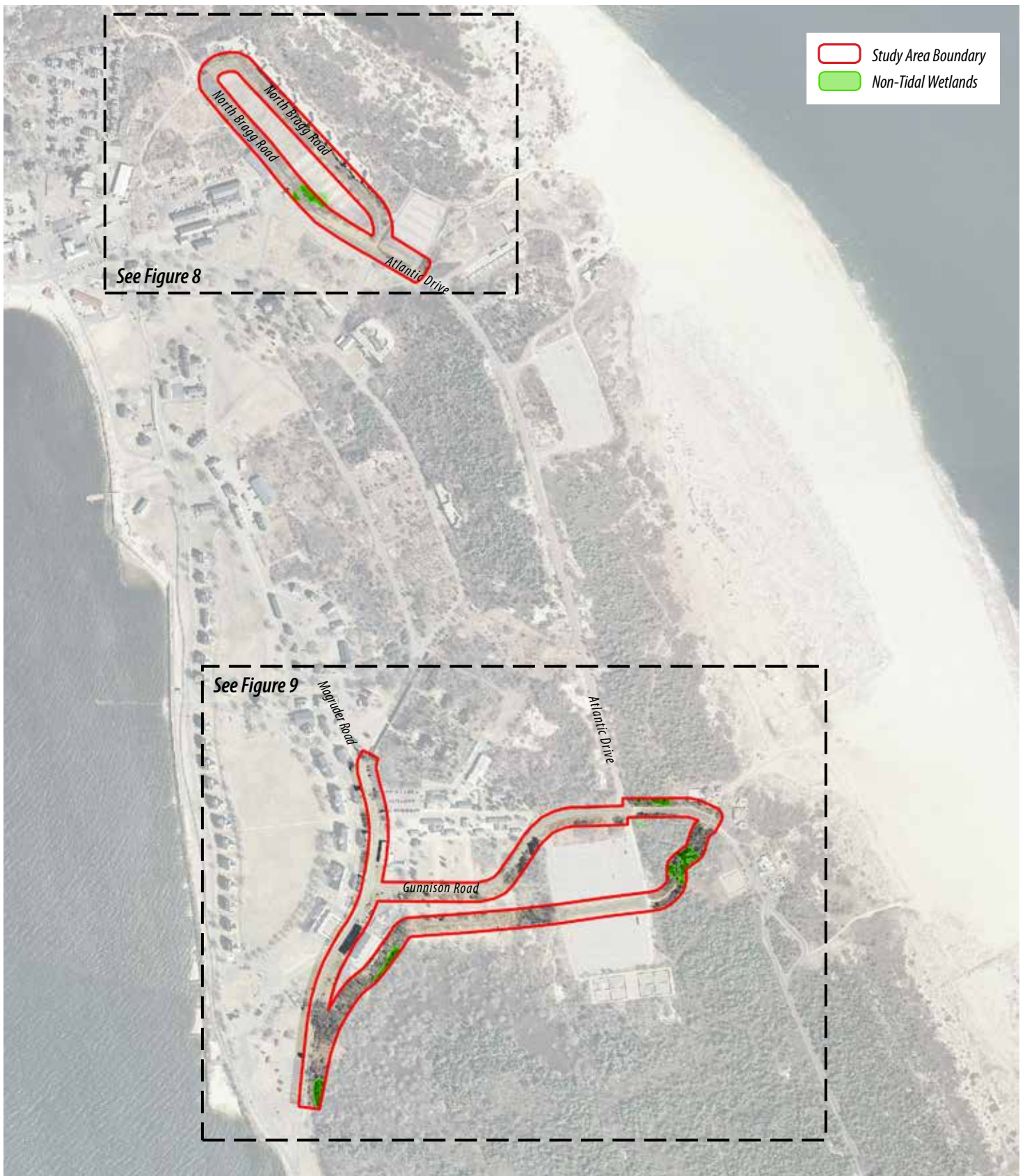
The NPS has adopted the Cowardin System, which defines wetlands as “Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979).”

Wetland delineation fieldwork was conducted on September 12 and 13, 2012 using the technical criteria and procedures outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coast Region (Version 2.0)* and associated guidance to identify jurisdictional boundaries within the property (USACE 2010, NPS 2013b). Wetland classification followed the “Cowardin System” in accordance with NPS Procedural Manual 77-1 (NPS 2012). As part of this study, a wetland functions and values assessment was prepared for all wetland resources following the *New England Highway Methodology* developed by the USACE (USACE 1993). Based on the assessment model, the palustrine wetland areas retain substantial functional capacity for groundwater discharge/recharge, floodflow alteration, sediment/toxicant retention, nutrient retention, production export, wildlife habitat, and visual quality/aesthetics. Function and values of the wetlands within the study area are described in the following paragraphs. Despite the proximity of marine and estuarine environments, all wetlands within the study area are characterized as freshwater, non-tidal systems (i.e., systems with no apparent influence from regular or irregular tidal cycles).

The wetland delineation identified seven wetland areas within the study corridor (figures 7-9). Two of these wetlands areas, totaling 0.16 acre, are non-tidal emergent wetlands in the Nine Gun Battery area. These wetlands are separated by North Bragg Road, near Lot K (see figure 8) and can be described as small depressions routinely mowed by the park. Surface water is present for brief periods during the growing season (temporarily flooded), but the water table usually lies well below the soil surface. The short duration of standing water, coupled with the relative disturbance, limits the wetlands’ ability to provide certain functions, such as wildlife habitat for aquatic species like amphibians.

However, the wetlands do provide opportunities for birds to drink and bathe in freshwater. Because of the depressional nature of these wetlands relative to the surrounding areas, these systems have the ability to collect and store flood waters (flood storage) and filter pollutants while storing such water (sediment/toxicant retention). This is particularly important for this region where historic uses may have caused soil contamination from coal storage and other potential products.

The remaining five wetlands areas in the study area, totaling 0.70 acre, are non-tidal forested wetlands in the Magruder/ Gunnison area and are part of a non-tidal forested wetland system located east of Magruder Road and on both sides of Gunnison Road. One 0.16-acre wetland located near the beginning of the new MUP segment in the Magruder Gunnison area (figure 9, Wetland K) comprises a young forested system with a heavy understory of woody shrubs merging into a solid stand of *Phragmites australis*. Stain lines and blackened leaves provide evidence that this wetland can become inundated at times with up to 8 inches of water. The wetland was dry during the delineation effort, and inundation appears to be seasonal. Groundwater recharge and flood storage are among the principal functions of this wetland, and it is uncertain whether ponding is of a long duration sufficient to support the life cycle of amphibian species. Likewise, the proximity of the system to area infrastructure allows the wetland to collect and absorb nutrients and sediments. The multi-layered vegetation (trees and shrubs) provide habitat for wildlife, although ground cover is absent throughout much of the forested area.



Source: Bing Orthophotography; USFWS NWI Digital Data



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

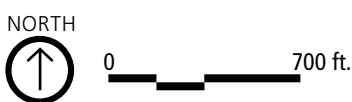
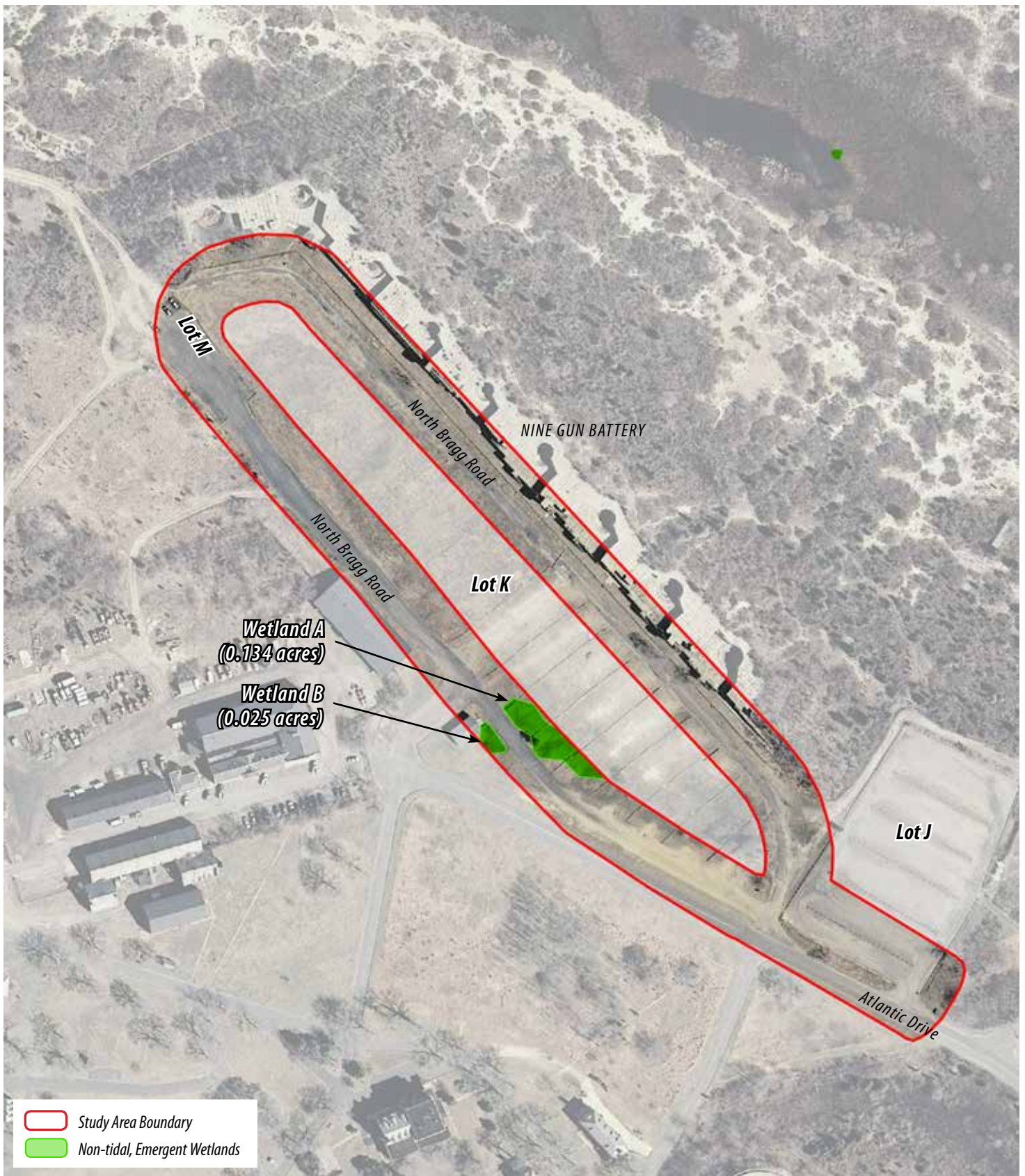


Figure 7
Existing Wetland Areas



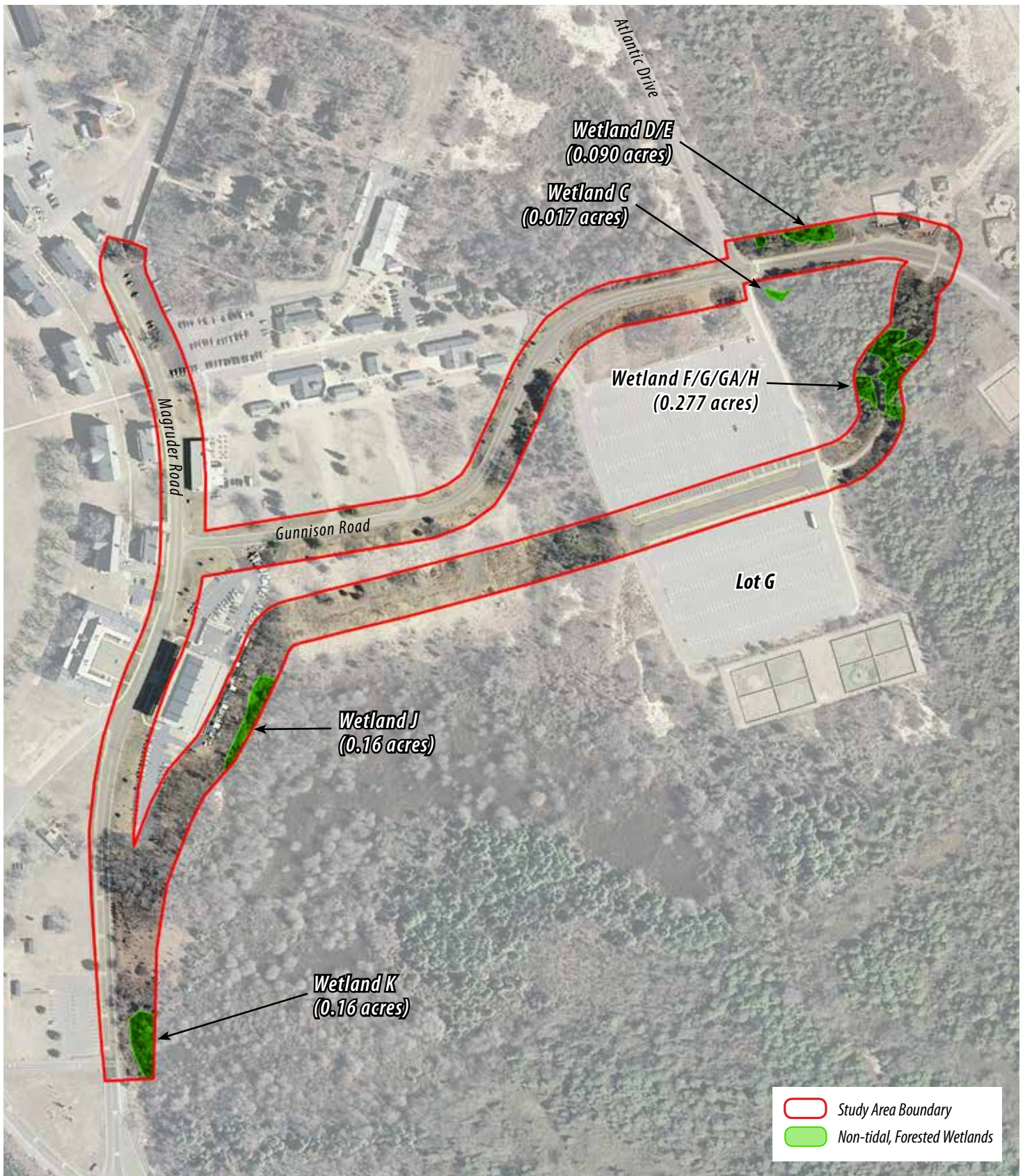
Source: Bing Orthophotography



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 8
**Existing Wetlands - Nine Gun
Battery Area**



Source: Bing Orthophotography

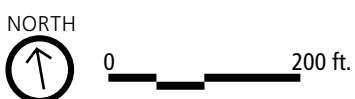


Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 9

Existing Wetlands - Magruder/Gunnison Area



Another 0.16-acre wetland is located immediately east of the James J. Howard Marine Sciences Laboratory (Wetland J). The delineated portion of this wetland is only a small portion of a much larger wetland system. The functions and values assessment was performed based on the observations of the wetland being delineated, which is a groundwater saturated system dominated primarily by the invasive plant *Phragmites australis*. The invasion of this nuisance exotic species has greatly deteriorated the functions and values of the system overall to the point that such functions as wildlife habitat, recreation, and scientific value are minimal to non-existent. Similar to other wetlands within the study area, this wetland's dominant functions include groundwater recharge, flood storage, sediment/toxicant and nutrient removal, and wildlife habitat.

The remaining 0.38 acre of wetlands in the study area would not be impacted by the proposed action, but include approximately 0.28 acre of wetlands adjacent to an existing boardwalk that provides access to Gunnison Beach from Lot G and approximately 0.1 acre of wetlands on either side of Atlantic Drive, near Gunnison Beach. The wetlands near the boardwalk are part of a single wetland system (figure 9, Wetland F/G/GA/H) bisected by the existing boardwalk. This wetland is a depressional system with a mixture of small emergent pockets with standing water surrounded by heavy native vine cover and young hardwoods. Semi-permanent inundation was observed in portions of the wetland where depths reached 4 to 8 inches. Principal functions include groundwater recharge, flood storage, and wildlife habitat, and secondary functions include sediment/toxicant removal, nutrient removal, recreational use (primarily wildlife observation), educational/scientific value, uniqueness/heritage, and visual quality.

The wetlands on either side of Atlantic Drive are extensions of the same wetland and are characterized by depressions in the landscape where small, shallow pockets of standing water are present within vegetation dominated by emergent plants. The juxtaposition of the wetland relative to area development and impervious surface makes these wetlands important for the treatment of runoff.

The non-tidal emergent wetlands near North Bragg Road have sparse vegetation due to mowing and maintenance activities. Dominant vegetation includes hydrophytic (water-loving) sedges (*Cyperus* spp.), grasses (*Echinocloa* spp.), and non-woody stem forbs (*Polygonum* spp.). Forested non-tidal wetland communities are dominated by hydrophytic trees and shrubs such as red maple, sweet gum, black gum, bayberry, and American holly. Infestations of the highly invasive nonnative common reed (*Phragmites australis*) are apparent along the border of several forested wetlands in the study area.

WILDLIFE AND WILDLIFE HABITAT

Gateway NRA has approximately 270 miles of shoreline, approximately two-thirds of which are covered by salt marsh, estuarine, and marine waters (NRCS 2001). The remaining third, mostly in the Sandy Hook Unit, is characterized by barrier island habitats such as beaches, maritime shrublands, maritime forests, and non-tidal wetlands. Many portions of Sandy Hook are heavily developed. As a result of this habitat diversity, many wildlife species inhabit Sandy Hook. In general, the project area is dominated by various forms of terrestrial vegetation, primarily coastal grassland, lawns, shrubs, and maritime forests intermixed with park infrastructure such as roads, buildings, and parking areas. Wildlife at Sandy Hook can be generally categorized into groups of mammals, birds, reptiles, amphibians, fish, and invertebrates.

More than 24 species of mammals have been found within Gateway NRA, some of which have been observed in the study area. Mammal species with the potential to occur in the study area include native species such as the eastern grey squirrel, raccoon, ground hog (*Marmota monax*), little brown bat (*Myotis lucifugus*), and white-tailed deer (*Odocoileus virginianus*) (NPS 2011b). In general, these species are commonly found within partially developed habitat similar to that found in the study area.

Over 325 species of birds have been recorded within Gateway NRA, including species that are state and federally endangered or of special concern (NRCS 2001). The proposed action would not impact federally listed bird species; however, state-listed birds that could be impacted by the proposed action are discussed further in the state-listed species section below. The Sandy Hook bird population reflects its location along the Atlantic Flyway, a north-south migratory corridor for many migratory landbird, shorebird, and waterbird species. During mid to late April, the peak numbers of northbound migrant raptors are observed. These species include the sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), American kestrel (*Falco sparverius*), and merlin (*Falco columbarius*). Southbound migration begins in mid-July with the arrival of adult shorebirds. Migration intensifies in mid-to-late August with Baird's sandpipers (*Calidris bairdii*), hudsonian godwit (*Limosa haemastica*), buff-breasted sandpiper (*Tryngites subruficollis*), and red-necked phalarope (*Phalaropus lobatus*). During winter, large numbers of waterfowl often reside in protected coves throughout the bay, mostly in areas which are far removed from the study area (NJ Audubon Society 2009). A total of 104 bird species have been observed within Sandy Hook, but only 8 bird species were observed in the Fort Hancock area and have the potential to occur within the study area (NPS 2011b). These include the American goldfinch (*Carduelis tristis*), black-throated blue warbler (*Setophaga caerulescens*), blue jay (*Cyanocitta cristata*), Cooper's hawk, eastern bluebird (*Sialia sialis*), golden-crowned kinglet (*Regulus satrapa*), house finch (*Carduelis mexicanus*), and western kingbird (*Tyrannus verticalis*).

In comparison to birds, relatively few species of reptiles and amphibians are present in the park. In total, over 25 species of reptiles and amphibians are found within Gateway NRA. While turtles, snakes, frogs, salamanders, and newts were all identified during the 2011 BioBlitz (NPS 2011b), none were found in proximity to the study area. However, it is likely that more detailed, site-specific investigations within the study area would reveal at least some of the species identified elsewhere in the park. For instance, diamondback terrapins (*Malaclemys terrapin*) are common in estuaries, sea turtles have been found in marine waters, and seven turtle species are known within uplands and freshwater wetlands (NRCS 2001). Six species of snakes inhabit the park, including the eastern hognose (*Heterodon platyrhinos*). The hognose is one of several native species that were once locally extinct and have been reintroduced to Gateway NRA by park biologists. Eight species of amphibians in the park are comprised of various salamanders, newts, toads, and frogs. Of these, the northern spring peeper (*Pseudacris crucifer*) was reintroduced in combination with the eastern hognose to increase food availability for the snake. In total, over half of the reptile and amphibian species are present due to reintroductions (following local extinction) by park biologists to appropriate park habitats (NRCS 2001).

The bays and ocean surrounding Sandy Hook have a diverse fish community, with over 81 species of fish reported from Gateway NRA estuarine and marine waters (NRCS 2001). However, none of the habitat found within the study area is suitable for estuarine and marine fish species. In contrast, the freshwater wetlands in the study area may have some limited habitat for freshwater fish species; however, detailed fish inventories have not been conducted within the study area.

Invertebrate species have not been well studied at Gateway NRA; however, the 2011 BioBlitz conducted for NPS identified 83 species of terrestrial invertebrates and 31 species of aquatic invertebrates in Sandy Hook (NPS 2011b). Terrestrial invertebrates observed included a large variety of dragonflies, damselflies, grasshoppers, spiders, butterflies, moths, beetles, and bees, and many of these species were noted to occur near or within the study area (NPS 2011b). Aquatic invertebrates are common in estuaries, marshes, and other nearshore waters away from the study area, and include species of shrimp, amphipods, and crabs, among others; none of which were identified within the study area for the proposed action (NRCS 2001).

STATE-LISTED SPECIES

Information obtained from the USFWS and the NJDEP Division of Fish and Wildlife (NJDFW) identified both federal and state-listed species within the project area. In particular, five federal and state-listed species occur within the project area: piping plover (*Charadrius melodus*), northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), seabeach amaranth (*Amaranthus pumilus*), roseate tern (*Sterna dougallii dougallii*) and the red knot (*Calidris canutus*). For the reasons described in the chapter 1 dismissal of “Federally listed species” as an impact topic, it is unlikely that these species would be impacted by the proposed action.

Ten additional state-listed bird species were observed at Sandy Hook during the BioBlitz conducted in 2011 (NPS 2011b). The species identified during the survey were the bobolink (*Dolichonyx oryzivorus*), beach wormwood (*Artemisia campestris caudata*), Savannah sparrow (*Passerculus sandwichensis*), black-crowned night heron (*Nycticorax nycticorax*), cattle egret (*Bubulcus ibis*), northern harrier (*Circus cyaneus*), osprey (*Pandion haliaetus*), pied-billed grebe (*Podilymbus podiceps*), American kestrel (*Falco sparverius*), and the least tern (*Sterna antillarum*). Based on previous correspondence with the USFWS, the threatened osprey (*Pandion haliaetus*), endangered least tern (*Sterna antillarum*), and rare beach wormwood (*Artemisia campestris caudata*) may occur within the project area.

In addition, an osprey nest is present south of Gunnison Road at the edge of an existing field (figures 4b, 5b, and 6b). The nest is situated on a man-made platform specifically constructed for osprey nesting, and is just south of the 100-foot wide corridor associated with alternative C. However, due to the proximity of the platform to the project area, osprey could be present within either of the action alternative study areas. However, ospreys often habituate to normal human activities. Scientists have learned that when a nesting pair of ospreys establishes a nest site with ongoing human activities nearby, the birds tend to show tolerance to the human presence throughout the incubation and rearing of young. Human disturbances introduced to a nearby nest after the birds have begun nesting causes a higher risk of nest abandonment (NJDFW 2013d).

Habitats within the study area comprise various forms of upland and wetland vegetative community types. Vegetation assemblages include coastal grassland, maintained lawns, shrubs, and maritime forests intermixed with park infrastructure such as roads, buildings, and parking areas. While no listed species were directly observed within study area boundaries during the September 2012 field studies for this project (other than the osprey nest south of the alternative C alignment), several listed species were observed in Sandy Hook during the 2011 BioBlitz (NPS 2011b), as discussed above. Habitats that could be used by state-listed species occur within the study area. In particular, the Nine Gun Battery area and

the area south of Gunnison Road contain small meadows with a mixture of graminoids and herbaceous dicotyledons available for use by state-listed bobolink, savannah sparrow, northern harrier, and American kestrel. Habitats for the state-listed pied-billed grebe and black-crowned night heron do not occur within the study area. The latter species prefer habitats such as shorelines, marshes, and open water.

In addition to the species described above, the State of New Jersey currently designates 52 species of animals as “Special Concern” including 43 birds, 4 reptiles, and 5 amphibians. The designation of Special Concern is given to species “that warrant special attention because of inherent vulnerability to environmental deterioration or habitat modification that would result in its becoming threatened if conditions surrounding the species begin or continue to deteriorate” (NJDFW 2012). Many of the avian species on this list include spring/summer migrants such as warblers that use the canopy of forests, and shorebirds that are found in tidal marshes, beaches, and dunes (Bull and Farrand 1977). The study area contains very little forested habitat, as the MUP extension would be designed to avoid large trees or to use existing paths. In addition, the proposed alternatives would be located within the interior of Sandy Hook and would not involve work within tidal marsh, beaches, or dunes that would impact special concern shorebirds.

CULTURAL LANDSCAPE

The cultural landscape of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District encompasses 97 acres in the Sandy Hook Unit. This historic district is roughly bounded by Route 36 on the south, the Atlantic Ocean to the east, Sandy Hook Bay to the west, and Lower New York Harbor to the north.

The natural landscape of the Sandy Hook barrier peninsula, in general, may be characterized as vegetated dunes, oceanfront beaches, and bayshore zones. However, the land within the cultural landscape was heavily modified in the 19th and 20th centuries to adapt the tract for military use. As a result, the cultural landscape fronting onto Sandy Hook Bay is flat and relatively treeless, with large lawn areas for drill functions and only a narrow band of shade trees around the perimeter of the Parade Ground. Vistas and views primarily consist of views out to Sandy Hook Bay and the Atlantic Ocean, with the buildings and landforms of coastal New Jersey and New York as backdrops in the distance. Distinctive elements in the landscape include the historic buildings along Sandy Hook Bay, the crescent-shaped Parade Ground, and the series of gun batteries that were constructed across the barrier peninsula to defend New York Harbor from attack in wartime.

Circulation within the cultural landscape is oriented to land transportation, as it was originally intended, including a main roadway that leads to a network of curvilinear roads around and north of the Parade Ground. A seasonal ferry landing on Sandy Hook Bay near the intersection of South Bragg Drive and Hartshorne Drive is a more recent alteration in the circulation system. The portions of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District within the project area are described below and depicted on figures 10 and 11. Individual historic structures within the project area are identified on figures 12 and 13.



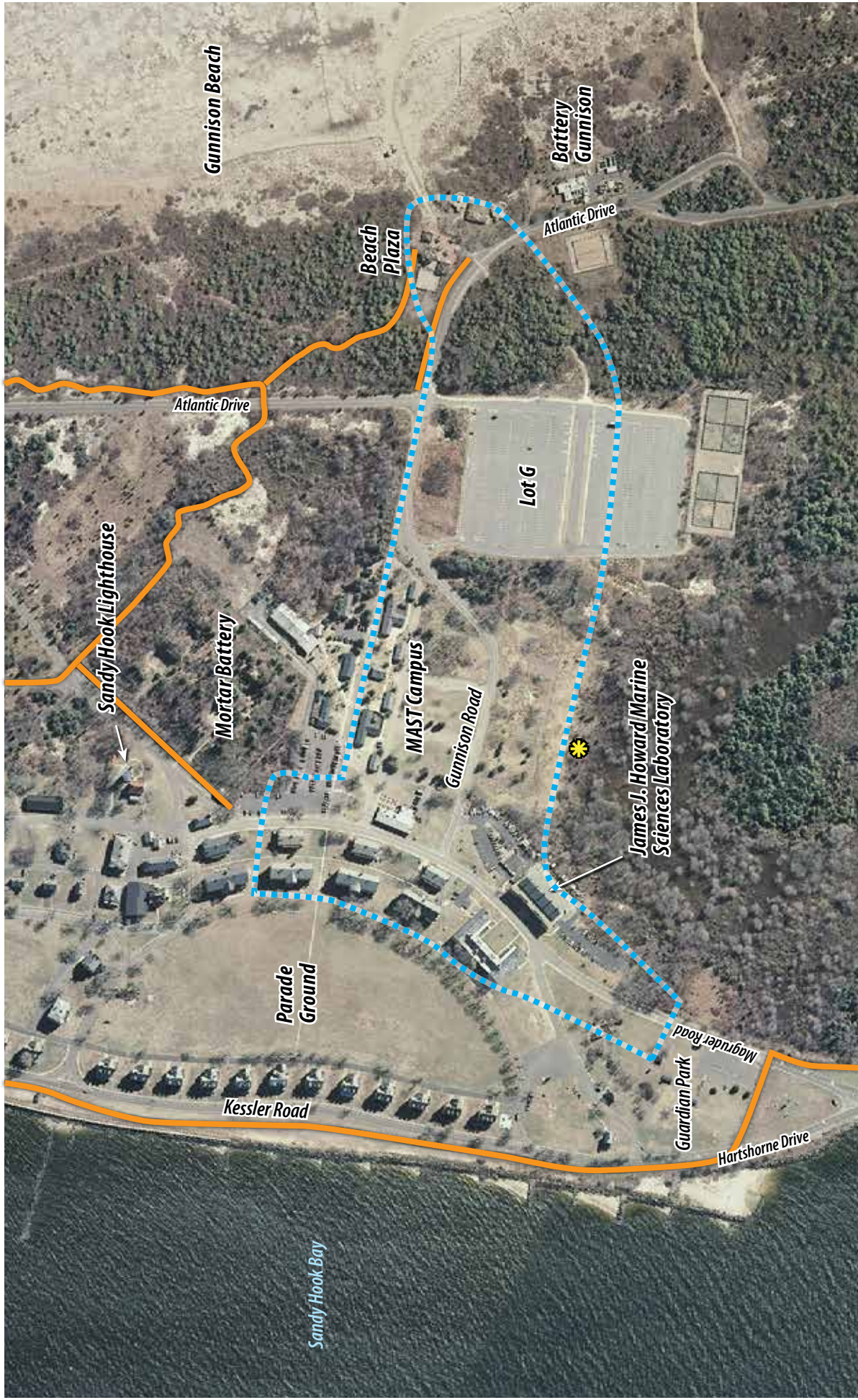
Source: 2007 New Jersey State Orthophotography

- Area of Potential Effect
- Existing Multi-Use Path




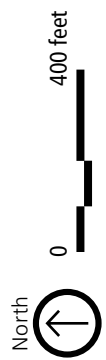
Gateway National Recreation Area
Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 10
Area of Potential Effect - Nine Gun
Battery Area



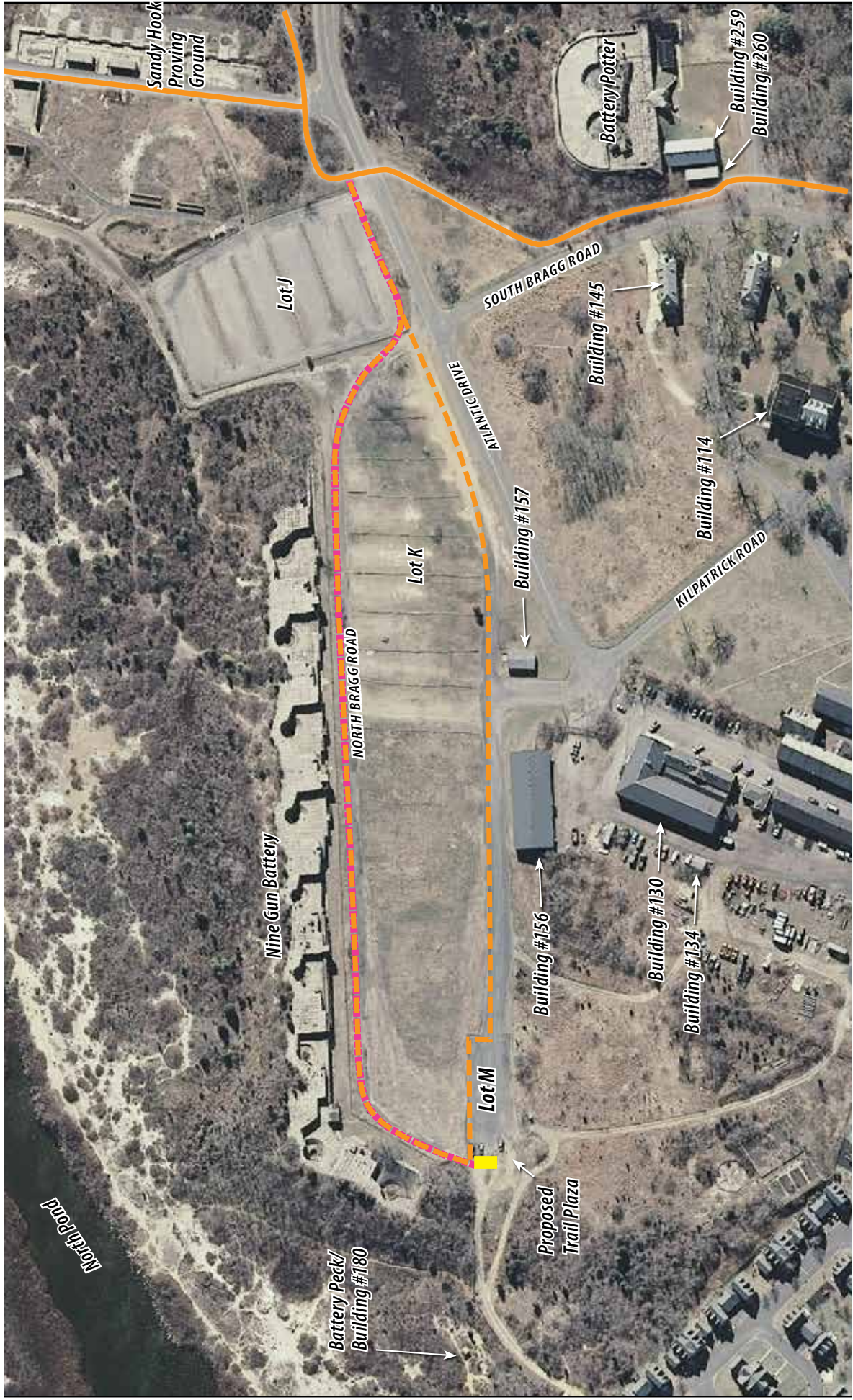
Source: 2007 New Jersey State Orthophotography

- - - Area of Potential Effect
- Existing Multi-Use Path
-  Osprey Pole



Gateway National Recreation Area
 Sandy Hook Multi-Use Path Phase 3
 Environmental Assessment

Figure 11
Area of Potential Effect -
Magruder/Gunnison Area



Source: 2007 New Jersey State Orthophotography

- Existing Multi-Use Path
- - - Alternative B: Proposed Multi-Use Path
- - - Alternative C: Proposed Multi-Use Path

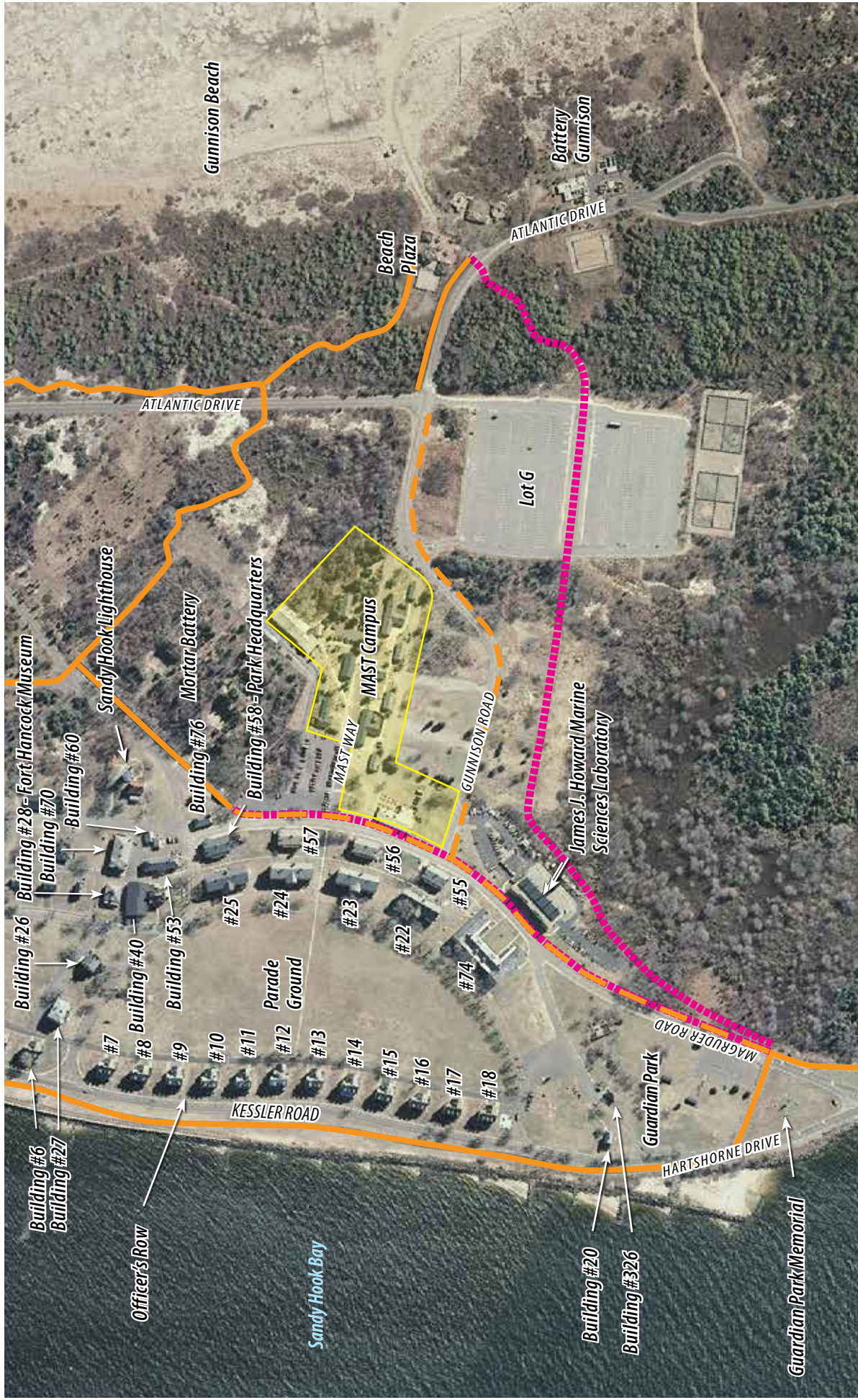


Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 12

Nine Gun Battery Cultural Landscape, The Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District



Source: 2007 New Jersey State Orthophotography

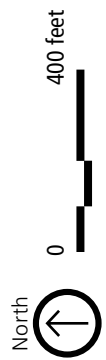


Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3
Environmental Assessment

Figure 13

Magruder/Gunnison Area Cultural Landscape, The
Fort Hancock and the Sandy Hook Proving Ground
National Historic Landmark Historic District



NINE GUN BATTERY AREA

The Nine Gun Battery area consists of four batteries (collectively identified as Historic Structure [HS] 181) which originally held a total of 9 guns and an adjacent open grass-covered oval area devoid of trees to the west. The batteries, named Alexander, Richardson, Bloomfield, and Halleck, were built between 1899 and 1902 and dominate the east side of this mainly open area in the Proving Ground. In front of the batteries is an open flat oval-shaped area surrounded by a wood rail fence, which is itself encircled by narrow asphalt-paved North Bragg Road on the east that intersects with Atlantic Drive, Kilpatrick Road, and South Bragg Road, all to the west of the oval-shaped area. The asphalt-paved North Bragg Road is currently in poor condition. The eastern leg of North Bragg Road dates to the early 20th century, as maps from 1915-1921 show its placement here, while the western leg is only partially in place by the early 20th century. The road is not noted as a contributing structure in the 2009 Cultural Landscape Inventory (NPS). The southern end of the area is designated for parking as Lot K, while a similarly sized rectangular lot, Lot J, is southeast. Lot M is a small parking area at the northwest intersection of the east and west legs of North Bragg Drive.

The batteries, abandoned by the military in the mid-20th century, are constructed of reinforced concrete with brick quoins on some sections and are one and a half stories to two stories in height and are now surrounded by a chain link fence. The ground levels contained the ammunition magazines and shell lift elevators, while the gun platforms are on top of the magazines and are generally open. The gun platforms have low concrete parapets on the ocean (east) side. To the north of Nine Gun Battery and within view of the proposed trail plaza is Battery Peck (HS 180), which dates to 1902 and features an overlook added to the original concrete structure.

The open, flat area west of the gun batteries formerly contained a series of buildings and railroad sidings during its most active years during WWI and WWII, in marked contrast to its current appearance. Currently, a small number of buildings are located to the southwest of, and in fairly close proximity to the gun batteries. These buildings include a small gable-roofed shed (HS 157) and the large Post Engineer Warehouse (HS 156) from 1942 that has a gable roof and wood walls set on concrete piers. West of HS 157 is HS 130, a 1907 former warehouse and storehouse, that is a single story red brick building with three gable roofs, supported by steel trusses on the south wing and by wood trusses on the north and east wings. The much smaller HS 134 is located north of HS 130 and is also behind and west of HS 156; dating to 1941, the former paint storehouse is a one-story tile masonry structure with a gable roof on a concrete slab foundation. To the south, and some distance further away to the southwest, are identical buildings numbered HS 145 and 144 on Canfield Road, which served as Duplex Officers' Quarters. Dating to 1939, the buildings are rectangular, two and a half story buff brick buildings with partially raised basements. Both have hip roofs with two external end chimneys. Close to these duplexes is HS 114, the former Second Empire style Officers' Club, which is the oldest brick building in the Proving Ground area that dates to 1878-1879. The open vegetated area east of HS 145, 144, and 114 held numerous utilitarian structures that dated to WWII and have since been removed. To the southwest from the duplexes and officers' club across South Bragg Drive are two smaller gable-roofed buildings that both date to 1901. HS 259 was a powerhouse that served the gun batteries and other post buildings, while HS 260 was a coal shed. East of these two structures, and with which they are associated, is Battery Potter

(HS 264), which borders the open area south and north of South Bragg Road; the existing MUP is just north of Battery Potter, HS 259, and 260 and is just south of HS 145, 144, and 114.

MAGRUDER/GUNNISON AREA

The cultural landscape in this area consists of two distinct areas, one that was developed in the early 20th century on the east side of the Parade Ground at Magruder Road and the second in an area east of Magruder Road that was built in the early 1940s by the Works Progress Administration.

The area on the east side of the Parade Ground at Magruder Road, known as Barracks Row, is at the southern end of the buildings grouped around the Parade Ground that face the bay. The buildings closest to where the MUP phase 3 is proposed consists of former service buildings and the barracks for enlisted men. The largest building in this area is the former Barracks and Mess (HS 74), a two and a half-story buff brick hip-roofed building with a U-shaped footprint and hip-roofed dormers that dates to 1909. Nearby is the former Post Laundry (HS 77), a concrete one-story structure built in 1910, that was used during WWII as the Post Exchange garage, tailor, and shoe shop and then later in the 20th century as a carpentry shop. Also nearby are some of the buildings that made up the Mess halls group (HS 55, 56, and 57) that were built in 1905. These are located east of the Enlisted men's barracks and are one and a half-story rectangular buildings in the same buff brick as the post quarters that served barracks numbered as HS 22-25. The buildings feature hip roofs with dormers, white stone water tables and brown stone facing on the concrete foundations, and long porches on their west sides, away from Magruder Road; although, there are partial porches on the north corner of the buildings' east elevations fronting on Magruder Road. A few small trees are located along the west side of Magruder Road here, but they exhibit no formal arrangement or line.

East of Magruder Road at Gunnison Road, where alternative B heads west towards Gunnison Beach, is the MAST campus, which is composed of mainly 1940 buildings erected by the Works Progress Administration employees that served a National Guard cantonment in WWII as mess halls, latrines, garage, and dispensary. The buildings (HS 301 –306 and 315-321) are all a single story in height with side gable roofs and concrete block walls and foundations which front Mast Way, a narrow paved road which is perpendicular to Magruder Road. The buildings are covered with a smooth stucco exterior, with newer window sash and roofs covered with asphalt shingles. To the south of the MAST campus is the modern (1989) James J. Howard Marine Sciences Laboratory building, a non-contributing building, on the east side of Magruder Road, which shares the same scale and buff brick exterior as the Barracks and Mess Building (HS 74) opposite it to the west on Magruder Road.

The circulation system within this area that is affected by alternatives B and C encompasses Magruder Road, Mast Way, and Gunnison Road, all of which are contributing structures within the cultural landscape. Alternatives B and C would parallel or cross, respectively, Atlantic Drive on the east side of the project area. This road was not addressed in the 2009 Cultural Landscape Inventory (NPS).

South of the campus buildings, on the opposite side of Gunnison Road, between Magruder Road and Lot G, is a vegetated field and forested area, which is considered successional woodland, which is a non-contributing element to the cultural landscape (NPS 2009). A section of alternative C's proposed path would be routed through this field and forested area. Specifically, the alignment would extend behind the

Howard Marine Sciences Laboratory and then continue across Lot G to Gunnison Beach. At the eastern terminus of both alternatives B and C, at the Gunnison Beach Plaza, are a relatively recent series of square, hip-roofed pavilions and an open paved plaza, at Atlantic Drive and Garrison Road north of Lot G.

VISITOR USE AND EXPERIENCE

NPS *Management Policies 2006* (NPS 2006b) states that enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy parks. The Sandy Hook Unit attracts more than 2 million visitors annually. Visitors can enjoy a range of activities including biking, sunbathing, fishing and bird watching, or visiting a historic military community. During the summer months, Sandy Hook's beaches are the primary visitor destination. Various tours and educational programs are offered at Sandy Hook year round. Resources within the study area are primarily cultural in nature and include the Nine Gun Battery, Battery Peck, Battery Gunnison, Battery Potter, History House, Mortar Battery, the Sandy Hook Lighthouse and Keepers Quarters, Guardian Park, Gunnison Beach, and paved recreational trails (the existing MUP).

The MUP provides visitors with an opportunity for nonmotorized outdoor recreation such as biking, walking, jogging, and in-line skating, as well as access to many of the park resources. From a recreational perspective, the MUP provides a nearly 9 mile, asphalt-paved path designated for nonmotorized use, and is compliant with the Americans with Disabilities Act of 1990 (ADA). Viewsheds visitors may enjoy along the path range from beaches and the ocean to historic military sites. At the core of Fort Hancock, near the Mortar Battery, a trail plaza provides interpretive signage, a bench, and bike racks for visitor use. As the path traverses Sandy Hook from the unit entrance to Fort Hancock it also provides nonmotorized access to many recreational and educational points of interest. Crosswalks and signage are provided at intersections between the MUP and park roads. Additional wayfinding or interpretive signage is limited along the existing MUP.

Land access to Sandy Hook is available through a combination of major highways, state routes, and local roads using either private vehicles or public transportation. Public transportation options include bus and train service. In addition, regional ferry service provides access to Sandy Hook from points in New Jersey and New York, including a number of the other NPS sites in and around New York Harbor. A park-operated shuttle bus service provides visitors with transportation from the ferry dock to various points of interest within the unit, including Gunnison Beach, North Beach, and Beaches D and E (via Lots D and E). Once at Sandy Hook, visitors use the existing roads and/or MUP to access park resources. The roads within the study area provide two-way traffic. With the exception of a small section of Atlantic Drive adjacent to Gunnison Beach, there are no sidewalks or designated pedestrian lanes along the roads. Several parking lots are scattered throughout the unit and concentrated near the beaches and other points of interest. There are a total of approximately 4,274 parking spaces available in the Sandy Hook Unit, approximately 1,256 of which are within the project area (Lots G, J, and K) (NPS 2005):

- Lot G (Gunnison Beach) – approximately 781 spaces
- Lot J (Proving Ground) – approximately 250 spaces

- Lot K (Nine Gun Battery) – approximately 200 spaces

Available parking counts do not include data for Lot M; however, for the purposes of this EA it is estimated that Lot M could accommodate approximately 25 vehicles. This estimate is included in the totals above.

4

ENVIRONMENTAL CONSEQUENCES

GENERAL METHODOLOGY FOR ANALYZING IMPACTS

In accordance with the CEQ regulations, direct, indirect, and cumulative impacts are described (40 CFR 1502.16) and the impacts are assessed in terms of context and intensity (40 CFR 1508.27). Where appropriate, mitigating measures for adverse impacts are also described and incorporated into the evaluation of impacts.

GEOGRAPHIC AREA EVALUATED FOR IMPACTS

The geographic study area is generally defined as an approximately 100-foot-wide corridor centered on the proposed alignments for the MUP extension (figures 4a-6b). This includes the area immediately south of the Nine Gun Battery, including North Bragg Road, Lots K and M, and an area between Lot J and Atlantic Drive, as well as the area within and adjacent to the proposed alignments along Magruder and Gunnison Roads, within Lot G, and through the wooded area between the existing MUP on Magruder Road and Lot G. The specific alignments are described in chapter 2. Impact topics that considered a larger study area, such as cultural landscape and visitor use and experience, include a description of the applicable study area in the impact topic-specific methodologies below.

TYPE OF IMPACT

Impacts are discussed by type, as follows (the terms “impact” and “effect” are used interchangeably throughout this document):

Direct: Impacts that would occur as a result of the proposed action at the same time and place of implementation (40 CFR 1508.8).

Indirect: Impacts that would occur as a result of the proposed action but later in time or farther in distance from the action (40 CFR 1508.8).

Adverse: An impact that causes an unfavorable result to the resource when compared to the existing conditions.

Beneficial: An impact that would result in a positive change to the resource when compared to the existing conditions.

CUMULATIVE IMPACT ANALYSIS METHODOLOGY

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts were determined for each impact topic by combining the impacts of the alternative being analyzed and other past, present, and reasonably foreseeable actions that would also result in beneficial or adverse impacts. Because some of these actions are in the early planning stages, the evaluation of the cumulative impact is based on a general description of the projects. These actions were identified through the internal and external project scoping processes and are summarized below.

Past, Present, and Reasonably Foreseeable Future Actions

Repaving Hartshorne Drive. In order to improve the condition of Hartshorne Drive, the road was recently repaved. Hartshorne Drive is the sole entry road to Sandy Hook and provides access to the unit from Route 36. This action impacted visitor use and experience.

Development of previous phases of the Multi-Use Path. The first phase of the project, 5.5 miles from the park entrance to the Fort Hancock ferry dock, was completed in 2004. Phase 2, the section of the path in the vicinity of the chapel, was completed in April, 2009. The most recent section of the MUP, phase 2B, was completed in May 2010. As described previously in this EA, the primary purpose of the path is to improve visitor safety by separating pedestrians, bicyclists, and other nonmotorized tourists from automobile traffic, to provide a great recreational amenity for park visitors, and to encourage alternative means of experiencing the park (NPS 2002). This action has and would continue to have the potential to impact vegetation, wetlands, wildlife and wildlife habitat, state-listed species, cultural landscape, and visitor use and experience.

Post-Hurricane Sandy Improvements. In October 2012, Hurricane Sandy caused substantial damage to the infrastructure at Sandy Hook, including the existing roads, MUP, parking lots, and boardwalks. Over the past year, the park has been taking steps to repair this damage and restore infrastructure to its pre-Hurricane condition. These actions have and will continue to impact cultural landscape and visitor use and experience.

Cumulative Impact Terminology

Cumulative impacts are considered for all alternatives, and are presented at the end of each impact topic discussion. In defining the contribution of each alternative to cumulative impacts, the following terminology is used:

Imperceptible: The incremental impact contributed by the alternative to the overall cumulative impact is such a small increment that it is impossible or extremely difficult to discern.

Noticeable: The incremental impact contributed by the alternative, while evident and observable, is still relatively small in proportion to the overall cumulative impact.

Appreciable: The incremental impact contributed by the alternative constitutes a large portion of the overall cumulative impact.

ASSESSING IMPACTS USING CEQ CRITERIA

The impacts of the alternatives are assessed using the CEQ definition of “significantly” (1508.27), which requires consideration of both context and intensity:

- (a) **Context** – This 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. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short and long-term effects are relevant.
- (b) **Intensity** – This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:
 - (1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance the effect would be beneficial.
 - (2) The degree to which the proposed action affects public health or safety.
 - (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, parklands, prime farmlands, wetland, wild and scenic rivers, or ecologically critical areas.
 - (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.
 - (5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

- (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- (8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
- (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
- (10) Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.

For each impact topic analyzed, an assessment of the potential significance of the impacts according to context and intensity is provided in the “Conclusion” section that follows the discussion of the impacts under each alternative. Resource-specific context is presented in the “Methodology” section under each impact topic and applies across all alternatives. Intensity of the impacts is presented using the relevant factors from the list in (b) above. Intensity factors that do not apply to a given resource topic and/or alternative are not discussed.

VEGETATION

METHODOLOGY

Information about vegetation that could be impacted by the proposed action was compiled using vegetation classification and mapping efforts from literature and studies pertaining to Gateway NRA and Sandy Hook (NPS 2008). This information was supplemented with vegetation data collected during a wetland inventory conducted in September 2012. Predictions about impacts were based on recent studies and previous projects with similar vegetation.

The geographic area considered for this impact topic is an approximate 100-foot wide corridor centered on the proposed MUP alignment.

The resource-specific context for the evaluation of impacts on vegetation includes the following:

- amount and frequency of disturbance and/or removal of vegetation
- breadth of impact (i.e., individual plant, local community, regional community)
- vegetation is the basis of the ecological community, meaning that other important resources depend on vegetation
- rare vegetation associations are unique

IMPACTS OF ALTERNATIVE A (NO-ACTION)

Impacts

Under alternative A there would be no change to the existing MUP. Therefore, in general, vegetation within the study area would be unchanged under this alternative. Changes in vegetation would be primarily related to routine mowing and maintenance operations, such as within Lot K and along existing segments of the MUP and roads. In addition, continued use of Lot K, which is grass covered, would result in further damage to the grass from vehicles and pedestrians. Similarly, grass covered areas adjacent to existing roads and MUP segments could be damaged through continued use of the MUP, if users do not confine their use to paved areas.

Cumulative Impacts

Development of previous phases of the MUP have resulted in impacts to existing plant communities, including grassland, shrub, and woodland vegetation species. It was estimated that phase 1 of the MUP, in particular, would result in the removal of 6 acres of vegetation (NPS 2002). However, most of the plant species impacted were determined to be abundant in the park (NPS 2002). The impact of alternative A, in conjunction with the impacts of this other action, would result in an adverse cumulative impact on vegetation. Alternative A would contribute an imperceptible adverse increment to the overall cumulative impact.

Conclusion

Alternative A would result in some adverse impacts to vegetation as a result of routine operations and use of the existing MUP, parking lots, and roads within the study area. These impacts would be localized and very small in scale, and would primarily affect grass or similar vegetation. Alternative A would contribute an imperceptible adverse increment to the overall adverse cumulative impact on vegetation. The adverse impacts of alternative A would not likely be significant because there would be no additional vegetation removal and disturbances to vegetation would be extremely localized and, in many cases, temporary. Further, alternative A would have no impact on rare vegetation associations or ecological communities.

IMPACTS OF ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Impacts

Under alternative B, the MUP loop in the Nine Gun Battery area would have limited impacts on vegetation. This segment of the MUP would be centered on North Bragg Road and construction activities would be confined to the existing road footprint. The portion of North Bragg Road adjacent to the Nine Gun Battery is not used regularly for vehicular travel, allowing opportunistic grasses and forbs (herbaceous plants without woody stems) to sprout from the road bed, which is in poor condition. However, these opportunistic species have a very small distribution and are low in value to the overall vegetative community. The western portion of North Bragg Road is maintained to support the regular vehicular travel and is not subject to growth of opportunistic plant species. In addition, the new trail plaza would be constructed along the western side of Lot M, which is currently void of vegetation. It is anticipated that the new trail plaza would be confined to the boundaries of Lot M and would not extend into currently vegetated areas.

Adverse impacts to vegetation associated with extension of the MUP along Magruder Road would also be relatively small due to the proposed location of the MUP within the existing road easements. The roadside area along the east side of Magruder Road is characterized by maintained turfgrasses that are kept short during the growing season by commercial mowers. Shrubs and trees have been planted sporadically along the road for aesthetic purposes, and the growth of any natural vegetative community is near non-existent. Additional mowing/landscaping could be required under this alternative to maintain vegetation along the MUP. Routine use of the MUP could also result in localized adverse impacts to vegetation if visitors do not confine their use of the MUP to paved areas. Overall, the construction the MUP along Magruder Road would have very little impact on the overall natural vegetation community in the study area.

Similar to the other areas of MUP extension, construction along Gunnison Road would occur within the existing paved road easement. Impacts to the adjacent vegetation would be limited to routine mowing/landscaping activities and incidental trampling (or similar disturbance) during use of the MUP. Vegetation along Gunnison road is characterized by a narrow strip of maintained turfgrasses which extends typically less than 10 feet from the shoulder of the road. Beyond the turfgrass, vegetation is characterized as an “edge” community with a mixture of opportunistic forbs among the outer extent of a naturally occurring successional forest.

Construction activities could result in some temporary and localized adverse impacts on vegetation from the use of equipment and/or material staging. In general, the use of Lots G, J, and K for material and equipment staging would be expected to have very little impact on the natural vegetation community. Lot G and J are maintained with asphalt pavement. Lot K is unpaved and is covered by turfgrasses similar to those found along maintained roadsides. Any damage incurred to turfgrasses from staging in Lot K would be minimal, temporary, and expected to regrow in a similar fashion post construction. Similarly, any vegetation adjacent to the MUP that is damaged during construction would be expected to regrow after construction is complete.

Cumulative Impacts

As described for alternative A, development of previous phases of the MUP have resulted in impacts to existing plant communities, including grassland, shrub, and woodland vegetation species. The adverse cumulative impacts associated with previous phases of the MUP, along with the adverse impacts of alternative B, would have an adverse cumulative impact on vegetation. Alternative B would contribute an imperceptible adverse increment to cumulative impacts on vegetation.

Conclusion

As described above, alternative B would result in adverse impacts on vegetation. These impacts would be primarily related to routine mowing/landscaping along the MUP, roads, and within Lot K; incidental damage from visitor use of the MUP, if not confined to paved areas; and incidental damage during construction. There would also be minimal vegetation removal in the Nine Gun Battery where opportunistic grasses and forbs have sprouted within the eastern half of North Bragg Road. Alternative B would contribute an imperceptible adverse increment to the overall adverse cumulative impact on vegetation. These adverse impacts would not be significant because they would be extremely localized and would be very small in scale compared to the larger local and regional vegetative communities. Some vegetation disturbances could occur from routine maintenance/landscaping, but there would no vegetation removal under alternative B. In addition, alternative B would have no impact on rare vegetation associations.

IMPACTS OF ALTERNATIVE C

Impacts

Although some components of alternative C would be similar to those described for alternative B, the alignments in the Nine Gun Battery area and between Magruder Road and the Gunnison Beach would be different. The alignment along the east side of Magruder Road, between the existing MUP and the Mortar Battery would be the same under each action alternative; therefore the impacts would be the same.

In the Nine Gun Battery area, alternative C would not form a loop around Lot K, Lot M, and the existing field. Instead, the MUP would extend only along the eastern half of North Bragg Road. As described under alternative B, this portion of North Bragg Road is in poor condition and is not used regularly for vehicular travel, allowing opportunistic grasses and forbs (herbaceous plants without woody stems) to sprout from the road bed. However, these opportunistic species have a very small distribution and are low in value to the overall vegetative community. Also like alternative B, the new trail plaza would be constructed along the western side of Lot M which is currently void of vegetation. Therefore, adverse impacts to vegetation in this area would be limited to continued, periodic mowing of Lot K and any future maintenance/landscaping along the MUP.

In addition to the alignment along the east side of Magruder Road in the Magruder/Gunnison area, this alternative would include permanent removal of approximately 0.3 acre of natural, maritime forest

vegetation, just east of the James J. Howard Marine Sciences Laboratory. East of the forested area, this segment would extend approximately 600 feet through an early successional field before connecting to an existing unpaved trail leading to the asphalt-paved Lot G. The footprint of the MUP through this field would permanently displace approximately 0.2 acre of meadow vegetation. In addition, the unpaved trail leading to Lot G would be widened and paved to accommodate the new MUP segment. Therefore, the turfgrasses and forbs that currently exist along the unpaved trail would be permanently removed. A small amount of forested vegetation surrounding the existing trail also could be permanently removed. It is not anticipated that any improvements to the existing boardwalk between Lot G and Gunnison Beach would require disturbance to existing vegetation. Subsequent to construction, additional mowing/landscaping could be required to maintain vegetation along the MUP. In all proposed segments, routine use of the MUP also could result in localized adverse impacts to vegetation if visitors do not confine their use of the MUP to paved areas.

Construction activities could result in some temporary and localized adverse impacts on vegetation from the use of equipment and/or material staging. In general, the use of Lots G, J, and K for material and equipment staging would be expected to have very little impact on the natural vegetation community. Lot G and J are maintained with asphalt pavement. Lot K is unpaved and is covered by turfgrasses similar to those found along maintained roadsides. Any damage incurred to turfgrasses from staging in Lot K would be minimal, temporary, and expected to regrow in a similar fashion post construction. Similarly, any vegetation adjacent to the MUP that is damaged during construction would be expected to regrow after construction is complete.

Cumulative Impacts

As described for alternative A, development of previous phases of the MUP have resulted in impacts to existing plant communities, including grassland, shrub, and woodland vegetation species. The adverse cumulative impacts from the previous phases of the MUP, along with the adverse impacts of alternative C, would have an adverse cumulative impact on vegetation. Alternative C would contribute a noticeable adverse increment to cumulative impacts on vegetation.

Conclusion

Alternative C would result in adverse impacts on vegetation. The most noticeable adverse impacts would be related to the removal of approximately 0.5 acres of forest and field vegetation during the construction of the MUP in the Magruder/Gunnison area and periodic mowing/landscaping of the vegetation adjacent to the MUP. Temporary adverse impacts would be related to the use and staging of construction equipment and materials, but conditions would be restored after construction is complete. Alternative C would contribute a noticeable adverse increment to the overall adverse cumulative impact on vegetation. These adverse impacts would not be significant because they would be localized and would not have a noticeable impact on the local and/or regional vegetation communities. Although there would be some vegetation removal under this alternative, given the small scale of removal in the context of the size of the forested area, and in the context of the local and regional vegetation communities, the vegetation removal would not be to a degree that is considered significant. In addition, under alternative C no rare vegetation associations would be disturbed to accommodate the MUP extension.

WETLANDS

METHODOLOGY

The planning team based the impact analysis and conclusions for possible impacts to wetlands on the result of the wetland delineation conducted at the unit in September 2012 (NPS 2013b), review of existing literature and studies, information provided by experts in the NPS and other agencies, and Gateway NRA staff insights and professional judgment. Map locations of wetlands were compared with locations of proposed development and modifications of existing facilities. Predictions about site impacts were based on previous studies of impacts to wetlands from similar projects and recent scientific data.

The resource-specific context for the evaluation of impacts on wetlands includes the following:

- Executive Order 11990 directs the NPS to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.
- U.S. Army Corps of Engineers, through the federal Nationwide Permit program (33 CFR 330), views the discharge of dredge or fill material up to 0.5 acre into non-tidal waters of the United States for recreational projects as having less than minimal impact on the aquatic environment.
- NPS Procedural Manual 77-1 adopts a goal of “no net loss of wetlands;” in addition, the NPS will strive to achieve a longer-term goal of net gain of wetlands.
- NJDEP Division of Land Use Regulation authorizes activities in freshwater wetlands for construction of nonmotorized multiple use paths through General Permit 17A, as long as wetland disturbances do not exceed 0.25 acres in area.
- wetlands have unique functions and values (groundwater recharge; stormwater storage and discharge; unique habitats; etc.) that are intrinsic to wetlands and cannot be easily duplicated or replaced.
- wetland functions and values have a direct impact on the quality of the associated wetland systems.

IMPACTS OF ALTERNATIVE A (NO-ACTION)

Impacts

Under alternative A there would be no change to the existing MUP and public use of the MUP would be expected to continue in a manner similar to its present use. As a result, the seven wetland areas within the study corridor, totaling 0.16 acres of non-tidal emergent wetlands in the Nine Gun Battery area and 1.15 acres of non-tidal forested wetlands in the Magruder/Gunnison area, would not be expected to change under this alternative. The mowing, maintenance, and other routine operations would continue on the non-tidal emergent wetlands separated by North Bragg Road, and the wetlands would retain their current functions and values. Similarly, the non-tidal forested wetland systems located east of Magruder Road and on both sides of Gunnison Road would remain in their current condition and retain their current functions and values. Infestations of the highly invasive nonnative common reed along the border of

several forested wetlands in the study area would be expected to expand; however, this expansion is not directly related to the existing MUP.

Cumulative Impacts

Since alternative A would have no impact on existing wetlands, there would be no cumulative impact on wetlands.

Conclusion

Alternative A would have no impact on wetlands within the study area. There would be no loss of wetlands, and the function and value of existing wetlands would be unchanged.

IMPACTS OF ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Impacts

Under alternative B, no impacts to wetlands would occur in the Magruder/Gunnison area because the alignment would be constructed within the existing upland roadside easements. In addition, the use of Lots G, J, and K for construction staging activities would not be expected to impact wetlands.

The construction of the new MUP loop near the Nine Gun Battery could impact two small non-tidal emergent wetlands, totaling approximately 0.16 acre along North Bragg Road. While alternative B would not include construction activities outside the existing footprint of North Bragg Road, the proximity of these wetlands to the existing road introduces a potential for temporary adverse impacts along the boundary of the wetlands closest to the road. Direct impacts could include the placement of a small amount of fill material in the wetlands should construction activities accidentally exceed the existing footprint of North Bragg Road. However, mitigation measures, such as fencing to delineate the project limits, would be implemented during construction, minimizing the potential for accidental fill of the existing wetlands. Indirect impacts could include the addition of sediment to wetlands as a result of surface runoff from the construction zone. It is anticipated that such actions would only affect a small fraction of the wetlands (less than 10 percent of each). BMPs would be implemented during construction to avoid or minimize direct and indirect impacts to wetlands along North Bragg Road. The use of heavy equipment near wetland areas would be limited to the greatest extent possible and would be monitored closely by the NPS. Further, because appropriate mitigation measures would include the use of standard erosion and sediment control devices, the risk of indirect impacts is very low. If small amounts of sediment run-off flows into the wetlands during MUP expansion, the sediment would be removed and would allow the wetlands to retain their current function and value. It is not anticipated that visitor use of the MUP loop at the Nine Gun Battery would impact the existing wetlands.

Cumulative Impacts

Development of the previous phases of the MUP has resulted in direct impacts to approximately 1.3 acres of wetlands. The impact of alternative B, in conjunction with the impacts of this other action, would result in an adverse cumulative impact on wetlands. Alternative B, which would impact less than 0.02 acres of additional wetlands, would contribute an imperceptible adverse increment to cumulative impacts on wetlands.

Conclusion

Alternative B would have no impact on wetlands in the Magruder/Gunnison area; therefore, there would be no change in wetlands function, value, or quality in this area. Near the Nine Gun Battery, the potential placement of a small amount of fill material in the wetlands adjacent to North Bragg Road or the addition of sediment to these wetlands during construction (via surface runoff) could affect a small fraction of the approximately 0.16 acre of wetlands. However, due to the small size of the wetland areas it is anticipated that any loss of wetlands would be negligible and that the existing wetlands would retain their function, value, and quality. Visitor use of the MUP would have no impact on the existing wetlands. Alternative B would contribute an imperceptible adverse increment to the overall adverse cumulative impact on wetlands. Alternative B would not result in a significant impact on existing wetlands because there would be no change in current wetland functions and values, and the quality of the wetlands would be unchanged. In addition, although construction could result in some wetland fill and sedimentation, BMPs would be implemented and it is anticipated that only a small fraction (less than 0.02 acre) of the total 0.16 acre of wetlands near the Nine Gun Battery would be affected; therefore, the impact would be considered “less than minimal” by USACE and would be permitted under NJDEP General Permit 17A.

IMPACTS OF ALTERNATIVE C

Impacts

Although some components of alternative C would be similar to those described for alternative B, much of the alignments would be different. In the Nine Gun Battery area, alternative C would not form a loop around Lot K, Lot M, and the existing field. Instead, the MUP would extend only along the eastern half of North Bragg Road. Therefore, this alternative would not have the potential to impact the two small non-tidal emergent wetlands on the western half of North Bragg Road.

In the Magruder/Gunnison area, MUP expansion would include a 0.7-mile segment to provide a MUP connection between Magruder Road and Atlantic Drive as well as a 0.5-mile segment along the eastern side of Magruder Road between the existing MUP and the existing trail plaza at the Mortar Battery. The latter segment would have no impact on wetlands, as no wetlands were identified within 50 feet on either side of the proposed alignment. However, construction of the 0.7-mile segment between Magruder Road and Gunnison Beach could impact two existing forested wetland areas (Wetlands K and J; see figure 9). Each of these wetland areas is approximately 0.16 acre in size. It is not anticipated that either of these wetland areas would be entirely lost as a result of the construction of this new MUP segment; however, a

small portion of the western side of each wetland could be impacted to accommodate the proposed alignment. Direct impacts could include the placement of a small amount of fill material (a total of less than 0.1 acre) in the wetlands. The existing boardwalk leading to Gunnison Beach (between Lot G and Gunnison Road) would be incorporated into the MUP under this alternative, though there would be no changes to its current location or structure. Therefore, use of this bridge for the MUP would have no impact on the surrounding wetlands.

During construction, impacts could include the addition of sediment to wetlands via surface runoff from the construction zone. However, BMPs would be implemented during construction and it is anticipated that most indirect impacts would be avoided. Appropriate BMPs would include standard erosion and sediment control devices, such as fencing, to reduce the potential for adverse impacts. In addition, during construction, the use of heavy equipment near wetland areas would be limited to the greatest extent possible and monitored closely by the NPS. If sedimentation into the wetland areas were to occur during construction, the sediment would be removed, allowing the wetlands to retain their current function and value. It is anticipated that the potential for sedimentation would be limited due the implementation of mitigation measures, such as the installation of fencing to mark the project limits.

Cumulative Impacts

As described for alternative B, development of the previous phases of the MUP has resulted in direct impacts to approximately 1.3 acres of wetlands. Alternative C, which would impact up to 0.1 acre of additional wetlands. Therefore, this alternative would contribute an imperceptible adverse increment to cumulative impacts on wetlands that has resulted from the first two phases of the MUP.

Conclusion

Alternative C could result in adverse impacts on wetlands. The new MUP segment near the Nine Gun Battery would have no impact on wetlands. In the Magruder/Gunnison area, a small fraction of two forested 0.16-acre wetlands may be filled (less than 0.1 acre) to facilitate the new MUP alignment. This could minimally reduce the function and values associated with each individual wetland area. However, given the scale of these wetlands, compared to the larger 130-acre forested wetland system to the west of these areas, it is not anticipated that alternative C would alter the overall quality of the forested wetland system as a whole and/or the functions and values associated with that system. Alternative C would contribute an imperceptible adverse increment to the overall adverse cumulative impact on wetlands. Alternative C would not result in a significant impact on wetlands because, although there could be some loss of wetland functions and values to individual wetland areas, BMPs would be implemented to reduce these impacts, there would be no change in in the overall function and value of the larger 130-acre forested wetland system, and the quality of that wetland system would be unchanged. In addition, less than 0.1 acres of wetlands would be filled under this alternative. Although this represents a “net loss” of wetlands, because 0.5 acres of wetlands would be impacted, pursuant to NPS Procedural Manual 77-1, it is considered by the USACE to be a “less than minimal” impact, and construction of the new MUP alignment would be permitted under NJDEP General Permit 17A (NPS 2012).

WILDLIFE AND WILDLIFE HABITAT

METHODOLOGY

The NPS Organic Act, which directs all parks to conserve wildlife unimpaired for future generations, is interpreted by the agency to mean that native animal life should be protected and perpetuated as part of the park's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible; otherwise they are protected from harvest, harassment, or harm by human activities. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and the ecological integrity of animals. Information on wildlife was obtained from park staff and through consultation with the USFWS and the NJDEP.

The geographic area considered for this impact topic is an approximate 100-foot wide corridor centered on the proposed MUP alignment. However, impacts to wildlife and wildlife habitat are also considered in the context of species diversity and abundance within the Sandy Hook Unit as a whole.

The resource-specific context for the evaluation of impacts on wildlife and wildlife habitat includes the following:

- wildlife is not separately named as a fundamental resource of the park
- because the surrounding area is highly urbanized with little natural habitat remaining, the park represents a high percentage of available habitat for some species
- natural areas at Sandy Hook are named as a fundamental park resource
- the region in which the park is located is situated such that it funnels migratory species both from the east to the west and from the south to the north into the New York Bight and New York Bay, making it a unique area for wildlife
- the degree to which abundance and diversity of native species and/or the quality of their habitat are disrupted, and whether those disruptions would be within the natural range of variability

IMPACTS OF ALTERNATIVE A (NO-ACTION)

Impacts

Under alternative A there would be no change to the existing MUP and public use of the MUP would be expected to continue in a manner similar to its present use. As a result, wildlife behavior and habitat would not be expected to change under this alternative. Periodic and temporary disturbances to wildlife could occur from continued use of the MUP (i.e., human presence and noise). However, it is likely that many wildlife species have become habituated to the human presence along the MUP and would not be affected by its continued use.

Cumulative Impacts

Alternative A would have no impact on wildlife and wildlife habitat; therefore, there would be no cumulative impact.

Conclusion

Alternative A would not result in changes to the existing MUP or existing infrastructure or natural areas in the park. This alternative would not result in a significant impact on wildlife or wildlife habitat because there would be no change in available wildlife habitat and this alternative would have no impact on abundance or diversity of native species.

IMPACTS OF ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Impacts

Under alternative B, the proposed loop in the Nine Gun Battery area would have very little impact on wildlife or wildlife habitat because the MUP would be constructed within the existing footprint of North Bragg Road. Bicycles would likely have the greatest potential to cause direct impacts through incidental collisions with wildlife. However, very few collisions are anticipated given the typical speed of bicyclists along the MUP. Further, only a small percentage of the overall wildlife community within the unit would be affected by construction of alternative B. This is because the adjacent habitat is currently occupied by maintained field or younger successional field habitat where wildlife is sparse and primarily limited to small mammals and common songbirds. Some habitat fragmentation could occur from construction of the new MUP segment around North Bragg Road; however, because adequate habitat for species that occupy the Nine Gun Battery area would continue to be available in the immediate area, adverse impacts would likely be minimal. In addition, potential impacts to state-listed bird species are described in the “State-Listed Species” section below.

Impacts to wildlife from factors such as noise disturbance from increased human presence would be minimal because motorized vehicles are prohibited on the MUP. Pedestrian and bicycle use would increase the potential for disturbance to wildlife, compared to current conditions; however, the ample habitat and natural community in the vicinity of the proposed MUP would allow wildlife to relocate and easily adapt to maintain normal biological activities. Impacts to wildlife and wildlife habitat within the Nine Gun Battery area would likely be of short duration and well within natural fluctuations.

The proposed MUP expansion along Magruder Road and Gunnison Road also would be expected to have very little impact on wildlife and wildlife habitat. Similar to the MUP expansion in the Nine Gun Battery area, very few collisions are anticipated due to the slow velocity typically associated with bicyclists and pedestrians. While the MUP expansion near the roads could increase noise disturbance, the abundance of similar habitat adjacent to the MUP would allow wildlife to relocate and easily adapt to maintain normal biological activities. Therefore, impacts to wildlife and wildlife habitat within the Magruder/Gunnison area would likely be of short duration and well within natural fluctuations.

Temporary impacts to wildlife could occur during construction due to increased noise and human presence within the unit. However, it is anticipated that any wildlife displaced during construction would return to the area and resume normal behaviors after construction activities are completed.

Cumulative Impacts

Development of previous phases of the MUP has resulted in adverse impacts to wildlife habitat areas. In particular, it was estimated that phase 1 of the MUP would result in direct impacts to approximately 6 acres of wildlife habitat (NPS 2002). The impact of alternative B, in conjunction with the impacts of this other action, would result in an adverse cumulative impact on wildlife and wildlife habitat. Alternative B, which would have very limited impacts on wildlife and wildlife habitat, would contribute an imperceptible adverse increment to cumulative impacts on wildlife and wildlife habitat.

Conclusion

Alternative B would have very limited impacts on wildlife and wildlife habitat because the proposed alignments would be constructed within the footprint of existing roads and would likely only increase human presence in the Nine Gun Battery area. Adverse impacts would primarily be related to visitor use of the MUP in the Nine Gun Battery area and temporary impacts during construction of the MUP. Alternative B would contribute an imperceptible adverse increment to the overall adverse cumulative impacts on wildlife and wildlife habitat. Alternative B would not have a significant impact on wildlife and wildlife habitat because it would not result in observable or measurable impacts on the abundance and diversity of native species and/or the quality of their habitat. Impacts to wildlife and wildlife habitat would primarily be of short duration and well within natural fluctuations. Although wildlife is not a fundamental resource of the park, the natural areas that serve as wildlife habitat are a fundamental park resource. However, alternative B would not noticeably reduce natural habitat areas and would not disrupt natural migration patterns.

IMPACTS OF ALTERNATIVE C

Impacts

Although some components of alternative C would be similar to those described for alternative B, much of the alignments would be different. In the Nine Gun Battery area, alternative C would only extend along the eastern half of North Bragg Road instead of forming a complete loop. However, despite the reduced MUP footprint in the Nine Gun Battery area, the impacts on wildlife and wildlife habitat would be generally the same. This is because while the eastern half of the road would be used for the MUP, the western half of the road would continue to be used by motorized vehicles to access Lots K and M. Further, as described in alternative B, wildlife are sparse in the adjacent field habitat and are primarily limited to small mammals and common songbirds. Adequate habitat for these species would continue to be available in the Nine Gun Battery area; therefore, under either alternative, adverse impacts would

likely be minimal. Potential impacts to state-listed bird species are described in the “State-Listed Species” section below.

In addition, like alternative B, impacts to wildlife from factors such as noise disturbance from increased human presence would be minimal because motorized vehicles are prohibited on the MUP. Pedestrian and bicycle use would increase the potential for disturbance to wildlife, compared to current conditions; however, the ample habitat and natural community in the vicinity of the proposed MUP would allow wildlife to relocate and easily adapt to maintain normal biological activities. Impacts to wildlife and wildlife habitat within the Nine Gun Battery area would likely be of short duration and well within natural fluctuations.

In the Magruder/Gunnison area, MUP expansion would include a 0.5-mile segment along the eastern side of Magruder Road between the existing MUP and the existing trail plaza at the Mortar Battery, which is common to both action alternatives. However, this segment would have no impact on wildlife and wildlife habitat because this segment would be constructed within the footprint of the existing road and would not change existing habitat areas. The primary difference between alternatives B and C is the routing in the Magruder/Gunnison area. Specifically, under alternative C a new 0.7-mile MUP segment would be constructed through a currently wooded area and a field between Magruder Road and Gunnison Beach. To accommodate this segment, approximately 0.3 acre of forested vegetation and potential wildlife habitat would be permanently removed just east of the James J. Howard Marine Sciences Laboratory. Beyond the forest, this segment would extend east through an early successional field before connecting to an existing unpaved trail that leads to Lot G. The footprint of the MUP through this field would permanently displace approximately 0.2 acre of meadow vegetation. The permanent removal of vegetation in forests and fields could adversely impact wildlife and wildlife habitat within the study area by fragmenting the larger natural community. Habitat fragmentation can affect normal biological activities of wildlife, such as interrupting natural travel corridors, foraging territory, and refuge capability from predators. Impacts from habitat fragmentation could be detectable but would not be outside the natural range of variability and would not interfere with factors affecting wildlife population levels.

Temporary impacts to wildlife could occur during construction due to increased noise and human presence within the unit. However, it is anticipated that any wildlife displaced during construction would return after and resume normal behaviors after construction activities are completed.

Cumulative Impacts

As described for alternative B, development of previous phases of the MUP has resulted in adverse impacts to wildlife habitat areas. The adverse cumulative impacts associated with the previous phases of the MUP, along with minimal adverse impacts of alternative C, would have an adverse cumulative impact on wildlife and wildlife habitat. Alternative C, would remove approximately 0.5 acres of wildlife and wildlife habitat, contributing an imperceptible adverse increment to the cumulative impacts on wildlife and wildlife habitat.

Conclusion

Alternative C would have minimal adverse impacts on wildlife and wildlife habitat because many of the proposed alignments would be constructed within the footprint of existing roads. The exception to this is the 0.7-mile segment between the existing MUP on Magruder Road and Gunnison Beach, which would permanently remove 0.3 acre of forest habitat and 0.2 acre of field habitat. Visitor use of the MUP would only increase human presence in the Nine Gun Battery area. Alternative C would contribute an imperceptible adverse increment to the overall adverse cumulative impacts on wildlife and wildlife habitat. Alternative C would not have a significant impact on wildlife and wildlife habitat because this alternative would not alter species abundance or diversity within the unit. Although some habitat fragmentation could occur, the resulting changes in wildlife patterns (if any) would be within the natural range of variability. Although wildlife is not a fundamental resource of the park, the natural areas that serve as wildlife habitat are a fundamental park resource. However, alternative C would not noticeably reduce natural habitat areas, and would not disrupt natural migration patterns.

STATE-LISTED SPECIES

METHODOLOGY

NPS *Management Policies 2006* (NPS 2006b) states that potential impacts of agencies actions will be considered on state- or locally listed species. The NPS is required to control access to critical habitat of such species and to perpetuate the natural distribution and abundance of these species and the ecosystem upon which they depend.

The New Jersey Endangered Species Conservation Act of 1973 (§23:2A-6) states that “no person shall take, possess, transport, export, process, sell or offer for sale, or ship, and no common or contract carrier shall knowingly transport or receive for shipment any species or subspecies of wildlife appearing on the following lists: (1) the list of wildlife determined to be endangered by the commissioner pursuant to this act; (2) the list of nongame species regulated pursuant to this act; and (3) any Federal list of endangered species.”

The USFWS and the NJDEP were consulted to identify rare, threatened, and endangered species and designated critical habitats that may exist within the project area or otherwise be affected by the proposed alternatives. Information on possible threatened or endangered candidate species, and species of special concern also was obtained from past Sandy Hook studies and plans, as well as from informal consultations with the NMFS. Map locations of habitats associated with threatened, endangered, candidate species, and species of special concern were compared with locations of proposed developments and existing facilities. Known impacts caused by development and human-uses were also considered. Potential impacts to federally listed species have been dismissed from detailed consideration in this EA, for the reasons described in chapter 1 (“Impacts Topics Dismissed from Further Analysis”).

The geographic area considered for this impact topic is an approximate 100-foot wide corridor centered on the proposed MUP alignment. However, impacts to state-listed species are also considered in the context of the Sandy Hook Unit as a whole.

The resource-specific context for the evaluation of impacts on state-listed species includes the following:

- No listed or rare species are identified as fundamental resources by the park.
- The criteria used by all agencies to determine whether an impact is significant (CEQ criteria) include one that addresses adverse impacts on listed species or their habitat. All federal agencies are specifically charged by the Endangered Species Act to conserve listed species and are prohibited from taking actions that would jeopardize the continued existence of these species; *NPS Management Policies 2006* and *DO-77* also direct the NPS to treat state-listed species in the same way that federally listed species are treated to the extent practicable.
- Maintaining the integrity of local populations (occurrences) of state-listed species and their habitat is important because these species are rare, have specialized habitat requirements, and because the parks serve as a refuge from surrounding habitat loss and alteration due to development pressure in the region.

IMPACTS OF ALTERNATIVE A (NO-ACTION)

Impacts

Under the no-action alternative, no disturbances or impacts to natural habitats would occur within the study area. The existing MUP would remain open for visitor use, and those undisturbed habitats within the study area would remain available for use by listed species. No direct impact to listed species habitats from land disturbances would occur. Disturbances to normal behavioral patterns are possible to state-listed species from visitor noise as pedestrians, bikers, and other visitors continue using the existing trail system. Ospreys using the nesting platform east of the James J. Howard Marine Sciences Laboratory would continue to experience the same level of disturbances from humans in the immediate vicinity (cars, pedestrians, bikers) as under current conditions. The nesting pair of osprey exhibit habituation to humans in the area, and impacts from noise and human movements would not be expected to cause the ospreys to abandon using the nest platform under this alternative.

Cumulative Impacts

Alternative A would have no impact on wildlife and wildlife habitat in Sandy Hook; therefore, there would be no cumulative impact.

Conclusion

Alternative A would have no impact on state-listed species within the study area or within the Sandy Hook Unit. The existing MUP would remain open for visitor use in its current alignments. This alternative would not have a significant impact on state-listed species because undisturbed habitats within the study area would remain available for use by listed species and local populations would maintain their integrity. Further, there are no listed or rare species within the park that are also identified as a fundamental resource by the park.

IMPACTS OF ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Impacts

Under alternative B, the MUP would include usage of an existing gravel roadbed (North Bragg Road) around a small field at the Nine Gun Battery. This MUP segment would run immediately east of the paved road to Lot M, within the edge of a mixed graminoid/broadleaf field of successional vegetation that is potential foraging/nesting habitat for the bobolink and savannah sparrow. The American kestrel and the northern harrier may also seek to use this open habitat for hunting. Approximately one-half of the field is mowed for overflow parking (Lot K), while the remainder, once used for parking, has reverted to a small field.

Temporary impacts to these state-listed birds could occur during construction due to disturbance from equipment noise and human activity. Impacts could be mitigated if construction was conducted during the non-migratory/non-nesting season (November 1 – March 31). It is not expected that the construction of alternative B would encroach into the field habitat along the eastern stretch closest to the battery (i.e., a direct loss of habitat). However, the new segment would place pedestrians and bikers in proximity to sections of the field that currently have few visitors. Some MUP users could stray off the path to view plant life or historical features of the gunnery, resulting in human encroachments into vegetated areas available for use by state-listed birds.

The trail plaza would be constructed in the northwest corner of the Nine Gun Battery, within the footprint of the existing Lot M. Therefore, it is not anticipated that there would be any direct loss of listed species; however, temporary disturbances to foraging birds could occur, resulting in birds exhibiting a flight response as humans travel through the Nine Gun Battery area. This impact also could be mitigated by having construction occur during the non-migratory season.

Alternative B also would include construction of a MUP segment along the shoulder of the existing Magruder and Gunnison Roads. This segment would be constructed within the footprint of the existing roads; therefore, there would be limited potential for adverse impacts on state-listed species. In addition, the section adjacent to Magruder Road comprises mowed and maintained lawn grasses and ornamental shrubs that would not be considered listed species habitat. The section adjacent to Gunnison Road is the only part of the proposed alignment in this area containing tall grasses with scattered shrubs that could be considered habitat for listed birds. While there could be some loss of successional habitat for development of the new MUP segments, given the existing disturbance caused by motorized vehicles, bicyclists, and pedestrians, it is unlikely that the proposed MUP corridor is currently used by state-listed birds.

The alignments proposed under alternative B are also unlikely to impact the existing osprey pole, located 250 feet south of the proposed MUP segment along Gunnison Road. Osprey nests are protected during the breeding season (April 1 – October 31) under the New Jersey Endangered and Nongame Species Conservation Act and the Federal Migratory Bird Treaty Act. These laws require that nests be protected from disturbance, harassment, and physical removal during the nesting season. As described in chapter 3, ospreys often habituate to normal human activities resulting in no impact to birds. However, direct approaches to a nest by humans would likely result in a flight response by the adult birds or may cause ospreys to abandon the nest. Such actions that cause ospreys to change their behavior, and especially to

leave their nest, constitute disturbance and are illegal under state law (NJDFW 2013c). Because the nesting pair of ospreys near the study area are habituated to the current level of human use and noise associated with the existing road, it is unlikely that the addition of the MUP along the road shoulder would noticeably increase the level of human disturbance that might cause the nesting pair to abandon use of the platform. Temporary disturbance to nesting ospreys could occur during construction due to increases in noise, particularly if construction is performed after the birds arrive and begin nesting. However, this could be avoided by scheduling construction after fledglings leave the nest (NJDFW 2013d; VIMS 2013).

Cumulative Impacts

It is unlikely that previous segments of the MUP have impacted state-listed species such as the least tern, piping plover, or osprey. It was estimated that phase 1 of the MUP would impact approximately 3.7 acres of habitat suitable for supporting wild wormwood (NPS 2002). However, it was further estimated that development of phase 1 of the MUP would result in the loss of less than 1 percent of the wild wormwood population within the park (NPS 2002). The impact of alternative A, in conjunction with the impacts of this other action, would result in an adverse cumulative impact on state-listed species. Alternative B, which would have very limited impacts on state-listed species, would contribute an imperceptible adverse increment to cumulative impacts on state-listed species.

Conclusion

Alternative B would result in minimal adverse impacts on state-listed species. Temporary adverse impacts would be related to increased noise and human presence during construction, and would not extend beyond the construction period. Adverse impacts would primarily occur in the Nine Gun Battery area due to anticipated increases in human presence from MUP use and associated noises. Alternative B would contribute an imperceptible adverse increment to the overall adverse cumulative impacts on state-listed species. Alternative B would not result in a significant impact on state-listed species because the new MUP segments would be constructed within the footprint of existing roads and would only have limited potential to disrupt habitat areas for state-listed plant or animal species. As such, the integrity of local populations of state-listed species would be maintained. In addition, none of the actions proposed under alternative B would jeopardize the continued existence of state-listed species. Further, there are no listed or rare species within the park that are also identified as a fundamental resource by the park.

IMPACTS OF ALTERNATIVE C

Impacts

Similar to alternative B, under alternative C the MUP would be constructed within the footprint of an existing paved roadbed (North Bragg Road) along the east side of the grassy field at the Nine Gun Battery. No encroachments into the field would occur under this alternative. Although the new MUP segment would only be constructed along the eastern side of North Bragg Road, impacts to state-listed

birds at this location would be similar to alternative B and would primarily be from use of the new MUP segment (human presence, noise) and temporary disturbances during construction.

Alternative C would include construction of the MUP along the east shoulder of Magruder Road and could result in some impacts to the existing maintained lawn and landscaping. However, no impacts to state-listed species would be expected along this stretch of the proposed MUP because this area currently is subjected to pedestrian and vehicular use (on the roads) and is unlikely to provide habitat for state-listed birds. Another segment of the MUP would diverge off of the existing MUP, near the intersection of Hartshorne Drive and Magruder Road, and extend through a wooded area behind the existing James J. Howard Marine Sciences Laboratory building. The MUP would curve towards the east and bisect an open field and small wooded patch until reaching Lot G. From Lot G, the MUP would use an existing corridor with a boardwalk to provide access to the Gunnison Beach Plaza. This aging boardwalk would likely require improvements to accommodate visitor use of the MUP; however, any improvements would occur within the footprint of the existing boardwalk and would not likely impact the surrounding habitat areas.

Impacts on habitats potentially available for use by state-listed species in the Gunnison Road area would include the loss of successional vegetation south of Gunnison Road. This stretch of the MUP could be used by the bobolink, Savannah sparrow, American kestrel, and northern harrier. Much of the existing pathway through this area, however, consists of packed gravel with vegetation coverage less dense than similar areas of natural soils. Direct impacts to nesting birds are highly unlikely given the ground substrate and sparse vegetation, although the MUP corridor could cause a reduction in available habitat for foraging birds. Construction and post-construction disturbances to state-listed species could occur from human noise, as well as humans straying off the MUP and encroaching into the adjacent meadow.

The alignment proposed under alternative C would be placed approximately 100 feet north of the existing osprey nesting platform. Temporary disturbance and noise from construction activities could cause the nesting pair of ospreys to abandon use of the nesting platform. If construction activities would be completed within this section prior to ospreys arriving in March, disturbance to the nesting pair would be reduced. Post-construction impacts to ospreys could occur from increased noise and human activities associated with MUP use during the nesting season. Ospreys that arrive and begin nesting with the MUP in place would likely be habituated to the presence of humans on the pathway and would not be impacted by use of the MUP (Levenson and Koplin 1984; NJDFW 2013d; VIMS 2013). However, curious MUP users could leave the MUP corridor to get a closer view of the nest site, resulting in increased probability of disturbances to nesting ospreys. It is likely that signage would be placed along the MUP in this area warning visitors to stay on the pathway and not approach the nesting platform. Due to the proximity of the osprey next to the MUP alignment proposed under alternative C (100 feet), this alternative would have a higher potential for disturbance to ospreys than the other alternatives.

East of Lot G, the MUP would use the existing road corridor where the current wooden boardwalk crosses a narrow wetland system. This boardwalk is frequently used by visitors during the summer months, as it provides pedestrian access between Lot G and Gunnison Beach. The adjacent wetland contains a small pool of standing water just west of the boardwalk surrounded by emergent and forested vegetation. The wetland could potentially be usable habitat for the state-threatened black-crowned night heron searching for prey species such as amphibians. However, current use of the boardwalk by visitors during daytime hours likely causes repeated disturbances to the extent that herons most likely avoid the area. The current level of MUP use would be expected to continue under this alternative such that disturbances in the area

from humans walking on the boardwalk would likely cause herons to avoid the wetland. Nocturnal use of the wetland by herons could occur when MUP users are absent. Improvements to the existing boardwalk could result in temporary disturbances to the area, causing herons to seek other wetlands for food during daytime hours.

Cumulative Impacts

As described for alternative B, it is unlikely that previous segments of the MUP have impacted state-listed species such as the least tern, piping plover, or osprey, but may have impacted a small amount of habitat suitable for supporting wild wormwood (NPS 2002). The adverse cumulative impacts associated with the first two phases of the MUP, along with alternative C, would have an adverse cumulative impact on state-listed species. Alternative C, which would remove approximately 0.3 acres of forest habitat and 0.2 acres of field habitat that is potential habitat for state-listed bird species, would contribute a noticeable adverse increment to cumulative impacts on state-listed species.

Conclusion

Alternative C would result in adverse impacts on state-listed species. Temporary adverse impacts would occur during construction and would be related to increased human presence and noise. Adverse impacts associated with MUP use under this alternative would primarily be related to construction of the MUP through an existing wooded/field area that could serve as habitat for state-listed species. The removal of approximately 0.3 acres of forest habitat and 0.2 acres of field habitat would reduce potential habitat areas for state-listed bird species. Alternative C would contribute a noticeable adverse increment to the overall adverse cumulative impacts on state-listed species. However, alternative C would not result in a significant impact on state-listed species because the integrity of local populations of state-listed species would be maintained and none of the actions proposed under alternative C would jeopardize the continued existence of state-listed species. Most notably, existing osprey populations are habituated to human presence and are unlikely to be noticeably affected by visitor use of the new MUP segments. Further, there are no listed or rare species within the park that are also identified as a fundamental resource by the park.

CULTURAL LANDSCAPE

METHODOLOGY

Potential impacts on the cultural landscape are based on changes to character-defining features of the resources, which are the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places. These features contribute to the property's integrity, which is composed of location, design, setting, materials, workmanship, feeling, and/or association.

There are two study areas for cultural landscape associated with the proposed action. The northern study area, the Nine Gun Battery area, is defined as the area of direct impact for phase 3 of the MUP along

North Bragg Road, as well as the surrounding areas that would be visible from the project area. The Magruder/Gunnison area, the southern study area, is defined as the area of direct impact for phase 3 of the MUP along Magruder Road and Gunnison Road and the surrounding area that would be visible from the proposed improvements. However, because these study areas are encompassed by the Sandy Hook and the Fort Hancock Proving Ground National Historic Landmark Historic District, impacts are considered both in the context of the study areas and within the larger context of the Historic District as a whole.

The resource-specific context for the evaluation of impacts on the cultural landscape includes:

- The subject cultural landscape includes significant components of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, which is a National Historic Landmark District significant in the areas of military and social history, significant events, and engineering.
- While there has been some change to the cultural landscape, including the removal of a number of buildings and structures west of the Nine Gun Battery structures, conversion of many of the WWII one-story structures in the Magruder/Gunnison Road area for educational purposes, and the late 20th century construction of the Marine Sciences laboratory on Magruder Road, the landscape as a whole retains its integrity.

IMPACTS OF ALTERNATIVE A (NO-ACTION)

Impacts

Under this alternative, no new MUP segments would be constructed and there would be no changes to existing conditions within the study areas. In addition, public use of the MUP would be expected to continue in a manner consistent with its present use (pedestrians, bicyclists, in-line skaters, and individuals in wheelchairs). Therefore, alternative A would be unlikely to noticeably alter the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Alternative A could result in some incidental localized impacts on the cultural landscape from continued public use of the MUP (i.e., possible damage to adjacent lawn areas that are part of the cultural landscape and routine maintenance of the MUP); however, adverse impacts associated with these activities would not be noticeable in the larger context of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District.

Cumulative Impacts

The development of the existing segments of the MUP and post-Hurricane Sandy improvements have contributed and continue to contribute to the cumulative impact on the cultural landscape in the project area. Prior to construction, it was anticipated that the initial phases of the MUP would have a “minor permanent impact to the viewshed of the landscape.” However, mitigation measures, such as restoration of the hedge at Fort Hancock, were incorporated to minimize the adverse impact (NPS 2002). Based on this information, construction of the first two phases of the MUP has resulted in an adverse impact on the cultural landscape. Improvements to the existing roads, parking lots, and boardwalks as part of the post-

Sandy efforts have been focused on restoring the park to pre-Sandy conditions. Much of this infrastructure contributes to the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Therefore, restoration benefits the cultural landscape by ensuring these features are preserved as close to their historic appearance as possible. The impact of alternative A, in conjunction with the impacts of these other actions, would result in an adverse impact on the cultural landscape. Because alternative A would have no noticeable impact on the cultural landscape, this alternative would not contribute to the cumulative impact.

Conclusion

Under alternative A, there would be no changes to the existing MUP and there would be no development within the study area. Public use of the MUP would be expected to continue in a manner consistent with its present use. Therefore, although alternative A could result in some incidental localized impacts on the cultural landscape from continued public use of the MUP, it is unlikely that the integrity of the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District would be altered. Alternative A would not contribute to the overall adverse cumulative impact. These impacts would not be significant because there would be no new construction and in comparison to the scale of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, the impact associated with this alternative would be imperceptible. The cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District would retain its physical integrity.

IMPACTS OF ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Impacts

Under alternative B, in the Magruder/Gunnison area, the MUP would be extended along existing paved roads (Magruder Road and Gunnison Road); therefore, this alternative is not likely to affect current circulation patterns. Magruder and Gunnison Roads are contributing resources within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. However, it is not anticipated that existing roads would be widened to accommodate phase 3 of the MUP, although new paving and marking would occur to distinguish the road from the MUP and wayfinding signage would be installed along the side of the road. Signage would be limited and would conform to the size and style of existing signage within the unit. Further, all of the roads in this area are currently asphalt-paved, and the new paving would not markedly change their existing appearance. The proposed improvements would be minor in comparison to the scale of other modern developments within the study areas such as the construction of the 1989 James J. Howard Marine Sciences Laboratory and paved parking lots. Based on this information, it is unlikely that the proposed alignments in the Magruder/Gunnison area would have a noticeable impact on the historic roads or the associated viewsheds.

In the Nine Gun Battery area, the proposed MUP segment would be constructed over the existing paved (but in poor condition) road (North Bragg Road), which forms a loop around an existing field and Lot K. Similar to the Magruder/Gunnison area, the footprint of North Bragg Road would not be extended to

accommodate the new MUP segment. Formalization of the road (i.e., paving) would slightly alter viewsheds near the Nine Gun Battery by giving it a more modern appearance. In addition, the proposed trail plaza could include benches, interpretive signage, and bicycle racks and be paved with concrete pavers. However, this area currently serves as an informal parking area, which does not markedly contribute to the cultural landscape for the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, although it likely pre-dates the ending period of significance date of 1974.

In both study areas, additional signage would be installed adjacent to the MUP to identify the route, direct visitors to key points of interest, and provide interpretation of key resources. The signage would introduce modern features to the cultural landscape; however, the size of the signage would be minimal, and the quality would be consistent in size and style with other signage already present within the historic district, elsewhere at Sandy Hook. The proposed improvements associated with the MUP segment are unlikely to have an adverse visual impact on the cultural landscapes within the two study areas. In addition, the new MUP segments could introduce more visitors to the study area, but it is not expected that the increased volume would affect the integrity of the cultural landscape.

Cumulative Impacts

The construction of the existing segments of the MUP and post-Hurricane Sandy Improvements have contributed and continue to contribute to the cumulative impact on the cultural landscape. As described under alternative A, construction of the first two phases of the MUP has resulted in an adverse impact on the cultural landscape. Improvements to the existing roads, parking lots, and boardwalks associated with post-Hurricane Sandy efforts have been focused on restoring the park to pre-Sandy conditions. Much of this infrastructure contributes to the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Restoration of these features benefits the cultural landscape by ensuring these features are preserved as close to their historic appearance as possible. These cumulative impacts, along with the impacts of alternative B, would have an adverse cumulative impact on the cultural landscape, primarily related to the existing phases of the MUP. Alternative B would contribute an imperceptible adverse increment to cumulative impacts on the cultural landscape.

Conclusion

Under alternative B extension of the MUP in the Magruder/Gunnison area would include new paving and marking to distinguish the road from the MUP; however, it is not anticipated that the footprint of the road would be expanded. Similarly, it is not anticipated that the footprint of North Bragg Road would be extended to accommodate the new MUP segment. Improvements associated with this alternative, including the re-paving of the east and west legs of North Bragg Road, improvements to Magruder and Gunnison Roads, the new trail plaza, and the proposed signage that would be installed along the route would introduce modern elements to the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. However, these elements would only present minor intrusions on the viewshed and would not alter the integrity of the cultural landscape, especially when considered in the context of the Fort Hancock and the Sandy Hook Proving

Ground National Historic Landmark Historic District. These developments also would be small in scale in comparison to other modern improvements that have already been constructed within the historic district. Alternative B would contribute an imperceptible adverse increment to the overall adverse cumulative impacts on the cultural landscape. These impacts would not be significant because improvements would not affect the character-defining features that contribute to the historic district's significance and the cultural landscape would retain its physical integrity.

IMPACTS OF ALTERNATIVE C

Impacts

Under alternative C, the MUP would not follow the entire loop of North Bragg Road. Instead, the proposed extension would be routed only along the eastern side of North Bragg Road to the proposed trail plaza. Therefore the western side of North Bragg Road would be retained in its current condition, reducing adverse impacts associated with this component, compared to alternative B. Consistent with alternative B, the proposed route would be asphalt-paved for formalization purposes (the existing road is also asphalt-paved but in poor condition) but would not exceed the existing footprint of North Bragg Road. In addition, some directional and interpretive signage would be installed along the route and a trail plaza would be constructed in the northwest corner of the Nine Gun Battery area. These elements would give the Nine Gun Battery area a slightly more modern appearance but would be very minimal in scale, compared to the entire extent of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District and the nature of other modern improvements within the project areas, such as the construction of the 1989 James J. Howard Marine Sciences Laboratory and paved parking lots. As described for alternative B, the site of the proposed trail plaza does not markedly contribute to the cultural landscape for the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, although it likely pre-dates the ending period of significance date of 1974. The proposed improvements associated with the MUP segment are unlikely to have an adverse visual impact on the cultural landscape.

In the Magruder/Gunnison area, MUP expansion would include a 0.7-mile segment to provide a MUP connection between Magruder Road and Atlantic Drive as well as a 0.5-mile segment along the eastern side of Magruder Road between the existing MUP and the existing trail plaza at the Mortar Battery. There has been little change to the circulation system in this portion of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District since its original construction in the 1940s. The latter segment would be constructed within the existing footprint of Magruder Road and would only require markings and potentially new paving to distinguish between the road and the MUP. Some wayfinding signage also would be installed. Although Magruder and Gunnison Roads are contributing resources within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, given this segment's proximity to modern developments associated with the 1989 James J. Howard Marine Sciences Laboratory, the MAST campus, and the existing trail plaza near the Mortar Battery, alternative C is unlikely to have a noticeable impact on the cultural landscape (both from a localized perspective and in the context of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District). In addition, signage to be installed along the roads would be limited and would conform to the size and style of existing park signage.

The approximate 0.7-mile segment of phase 3 of the MUP would be constructed through an area that is currently undeveloped and composed of successional woodlands, which is a non-contributing element to the cultural landscape (NPS 2009). This segment would slightly alter the existing circulation patterns, which have been in place since the 1940s. However, given the small scale of the improvements in consideration of the entire extent of the larger Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, it is unlikely that the integrity of the cultural landscape as a whole would be diminished. Therefore, it is not anticipated that the proposed improvements associated with this MUP segment would have an adverse visual impact on the cultural landscape.

Cumulative Impacts

The construction of the existing segments of the MUP and post-Hurricane Sandy Improvements have contributed and continue to contribute to the cumulative impact on the cultural landscape. As described under alternative A, construction of the first two phases of the MUP has resulted in an adverse impact on the cultural landscape. Improvements to the existing roads, parking lots, and boardwalks associated with post-Hurricane Sandy efforts have been focused on restoring the park to pre-Sandy conditions. Much of this infrastructure contributes to the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Restoration of these features benefits the cultural landscape by ensuring these features are preserved as close to their historic appearance as possible. These cumulative impacts, along with the impacts of alternative C, would have an adverse cumulative impact on the cultural landscape, primarily related to the existing phases of the MUP. Alternative C would contribute an imperceptible adverse increment to cumulative impacts on the cultural landscape.

Conclusion

Improvements associated with alternative C are unlikely to noticeably diminish the integrity of the cultural landscape for the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Elements of this alternative, such as the re-paving of North Bragg Road, improvements to Magruder and Gunnison Roads, the removal of successional forest to accommodate the trail, the new trail plaza, and the proposed signage that would be installed along the route would introduce modern elements to the cultural landscape associated with the historic district. However, these elements would only present minor intrusions on the viewshed and would not alter the integrity of the cultural landscape, especially when considered in the context of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Adverse impacts in the Nine Gun Battery area would be incrementally less adverse than those associated with alternative B because only the eastern side of North Bragg Road would be paved. These components also would be small when compared to the other modern developments within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. Alternative C would contribute an imperceptible adverse increment to the overall adverse cumulative impacts on the cultural landscape. These impacts would not be significant because, although the improvements would slightly reduce the integrity of the cultural landscape, the improvements would be very small in scale compared to existing modern developments within the study

area and when considered in the context of the larger Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District.

VISITOR USE AND EXPERIENCE

METHODOLOGY

Potential impacts on visitor use and experience are assessed based on the current description of visitor use and experience presented in this document. Enjoyment of park resources and values by visitors is part of the fundamental purpose of all parks. Past interpretive and administrative planning documents provided background on changes to visitor use and experience over time. Anticipated impacts on visitor use and experience were analyzed using information from previous studies and park staff. For this analysis, visitor use and experience includes visitor understanding, satisfaction, and safety, as well as access and circulation.

For the purposes of the visitor use and experience impact analysis, the study area was considered to be the entire Sandy Hook Unit as any impacts to visitor use and experience within the project area would affect a visitor's overall experience within the unit.

The resource-specific context for the evaluation of impacts on visitor use and experience includes the following:

- the ability of visitors to enjoy the following recreation experiences, considered fundamental values by the park: nature observation walking, biking, and visiting historic sites
- the ability for visitors to experience feelings associated with open space in high-density areas, views of New York Harbor, and direct sensory experiences with natural elements
- the ability for visitors to enjoy a safe experience within the park
- the convenience of the MUP for accessing the many points of interest, including both natural and cultural resources
- the impacts of temporary construction and/or demolition on visitor use and experience

IMPACTS OF ALTERNATIVE A (NO-ACTION)

Impacts

Under alternative A, there would be no change to the existing MUP, and visitor use and experience of the MUP would continue in a manner similar to its present use. The MUP would continue to provide 8.6 miles of 12-foot-wide, asphalt pathway. The MUP would maintain access for a variety of users, providing paths along the bay side of Sandy Hook with loops between the Nine Gun Battery and Magruder/Gunnison area. However, MUP users would not have direct access to the Nine Gun Battery as the current alignment is only adjacent to the eastern side of Nine Gun Battery and requires use of a portion of Atlantic Drive. In the Magruder/Gunnison area, including portions of Fort Hancock, visitors would have

to diverge from the MUP onto nearby roads to experience these areas and other points of interest. Visitors would continue to benefit from the interpretive signage, bicycle racks, and bench at the trail plaza near the Mortar Battery; however, no additional signage/wayfinding would be provided along the path, which could deter some visitors from using the MUP. Roads would continue to be the preferable route for some nonmotorized users since the roads provide more direct access to points of interest and have clearer signage. The unit would continue to provide 1,256 parking spaces for visitors and staff within the project area (Lots G, J, K, and M). Both motorized and nonmotorized users may be concerned about their safety while sharing the road. Continued use of the roads by nonmotorized traffic would maintain a heightened potential for accidents between users.

Cumulative Impacts

Repaving of Hartshorne Drive, development of the existing segments of the MUP, and post-Hurricane Sandy improvements have contributed and continue to contribute to the cumulative impact on visitor use and experience. The recently repaved Hartshorne Drive improved the condition and appearance of the main access road to the unit, enhancing the overall visitor experience. The existing phases of the MUP have provided visitors with additional opportunities for outdoor recreation at Sandy Hook and enhanced public health and safety by reducing the potential for conflicts between motorized vehicles and pedestrians/bicyclists. Post-Hurricane Sandy improvements to the existing roads, parking lots, MUP, and boardwalks have restored visitor access throughout the unit and help ensure continued safe access to park resources. The impact of alternative A, in conjunction with the impacts of these other actions, would result in a beneficial impact on visitor use and experience. Alternative A would contribute an imperceptible adverse increment to this cumulative impact.

Conclusion

Alternative A would continue to have an adverse impact on visitor use and experience. No new access to resources or opportunities for recreation would be added under the no-action alternative, and there would continue to be some potential for accidents between road users because some visitors would likely continue to choose to use the road for walking or biking. Alternative A would contribute an imperceptible adverse increment to the overall beneficial cumulative impact. The adverse impact on visitor use and experience would not be significant because visitors would continue to have a variety of opportunities to experience recreational activities that are considered fundamental values for the park and visitors would continue to be provided with a safe park experience. Specifically, existing portions of the MUP would continue to provide visitors with the opportunity to walk and bike within the park, and there would be no change in visitor access to the park's natural and cultural resources. Although the Nine Gun Battery would not be directly accessible on the MUP, the MUP would continue to provide access to natural and cultural resources such as the beaches along Hartshorne Drive, Fort Hancock, and Guardian Park. Safety concerns associated with visitors who choose to exit the MUP and share roads with motorized vehicles would continue. However, the existing portions of the MUP have reduced safety concerns within the unit to the point that there is not a substantial potential for collisions. Alternative A also would have no impact on the ability for visitors to experience feelings associated with open space, views of New York Harbor, or opportunities for direct sensory experiences with natural elements.

IMPACTS OF ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Impacts

Under alternative B, extension of the MUP would connect existing parts of the path and provide additional access to points of interest within Sandy Hook; therefore, visitor use and experience would be expected to improve. Alternative B would add approximately 1.4 miles to the existing MUP, resulting in 10.0 total miles of 12-foot-wide, asphalt pathway. The new segments would provide better access to points of interest, including Gunnison Beach and the Nine Gun Battery. Near the Nine Gun Battery, MUP users would turn onto the new 0.5-mile loop of trail near Atlantic Drive. This loop would provide direct access to the Nine Gun Battery and a new trail plaza similar in design to the one at the MUP trailhead in Fort Hancock. This would enhance the visitor experience, including safety, by providing nonmotorized users with direct access to the historic site, without having to share Atlantic Drive with motorized vehicles. The conversion of a portion of Lot M to the trail plaza would result in the loss of some parking spaces in the Nine Gun Battery area. However, even if all of approximated 25 parking spaces in Lot M are no longer available, this would remove less than 2 percent of the available visitor parking spaces in the study area, and 5 percent of the available visitor parking spaces near the Nine Gun Battery (Lots J, K, and M).

In the Magruder/Gunnison area, 0.9 miles of new pathway would be added to the MUP. The new segments would run along the east side of Magruder Road, connecting the existing MUP (from a point across from Guardian Park) with the MUP trail plaza near the Mortar Battery, and along Gunnison Road, connecting the Gunnison Beach plaza with the new MUP segment at the corner of Magruder Road and Gunnison Road. The new segments in the Magruder/Gunnison area would provide more direct MUP access to historic resources such as the Mortar Battery and the Sandy Hook Lighthouse and would provide more direct visitor access to Gunnison Beach. The additional mileage provided by the new alignments would give visitors more opportunities for nonmotorized recreation and would create a closed loop for nonmotorized use, allowing visitors to experience a variety of resources along the MUP.

Additional signage/wayfinding also would be added along the path to make visitor use of the MUP clearer and easier. As such, the MUP would likely become a more desirable route than the road for nonmotorized users. Potential for accidents between motorized and nonmotorized traffic would decrease.

Construction activities could result in temporary adverse impacts on the visitor experience. Traffic patterns could be temporarily altered in the Nine Gun Battery and Magruder/Gunnison areas, not only along the roads, but also within Lots K, L, and G where construction materials would be staged. Visitor use of the MUP also could be temporarily altered in some areas; however, it is not anticipated that construction of the new MUP segments would prohibit access to park resources. Visitors would be temporarily inconvenienced while the new segments are constructed; however, once construction is complete, the overall visitor experience in Sandy Hook would be improved.

Cumulative Impacts

Repaving of Hartshorne Drive, development of the existing segments of the MUP, and post-Hurricane Sandy improvements have contributed and continue to contribute to the cumulative impact on visitor use

and experience. The recently repaved Hartshorne Drive improved the condition and appearance of the main access road to the unit, enhancing the overall visitor experience. The existing phases of the MUP have provided visitors with additional opportunities for outdoor recreation at Sandy Hook and enhanced public health and safety by reducing the potential for conflicts between motorized vehicles and pedestrians/bicyclists. Post-Hurricane Sandy improvements have restored visitor access throughout the unit and help ensure continued safe access to park resources. These beneficial cumulative impacts, combined with the impacts of alternative B, would have a beneficial cumulative impact on visitor use and experience. Alternative B would contribute a noticeable beneficial increment to the cumulative impact on visitor use and experience.

Conclusion

Overall, alternative B would have a beneficial impact on visitor use and experience. The new segments of the MUP would enhance visitor access to a variety of park resources, would provide additional mileage and a closed loop path for improved recreational opportunities, and the potential for accidents between road users would be reduced. Alternative B would contribute a noticeable beneficial increment to the overall beneficial cumulative impact on visitor use and experience. These impacts would not be significant because visitors would continue to have the opportunity to partake in recreational activities that are considered fundamental values by the park and would continue to have access to a variety of natural and cultural resources within the unit. These opportunities would be enhanced by improvements to the MUP (i.e., increased path for walking and biking, and direct access to more natural and cultural resources). In addition, visitor safety would be enhanced by closing the loop on the MUP; however, because 8.6 miles of MUP already exists at Sandy Hook, these improvements would not be of a degree that is significant. Alternative B would not alter visitors' ability to experience feelings associated with open space or views of New York Harbor, and would have no impact on visitors' ability to have a direct sensory experience with natural elements within the unit. Construction activities would result in temporary adverse impacts to traffic patterns and parking, and could limit visitor use of the MUP in some areas; however, these impacts would not be significant because visitors would continue to have access to all park resources throughout construction, and conditions would be restored upon completion of the MUP.

IMPACTS OF ALTERNATIVE C

Impacts

Under alternative C, extension of the MUP would connect portions of the existing path to close the loop on the MUP system. In addition, the improvements would connect the MUP to more points of interest within Sandy Hook; therefore, visitor use and experience would be expected to improve. The new MUP segments would add approximately 1.5 miles to the existing MUP, resulting in 10.1 total miles of 12-foot-wide, asphalt pathway. The new segments would provide better access to some points of interest within Sandy Hook. Near the Nine Gun Battery, MUP users would turn onto the new 0.3-mile segment of trail near Atlantic Drive. The segment would provide direct access to the Nine Gun Battery, ending at a new trail plaza similar in design to the one at the MUP trailhead in Fort Hancock. Like alternative B, this

would enhance the visitor experience, including safety, by providing nonmotorized users with direct access to the historic site, without having to share Atlantic Drive with motorized vehicles. The conversion of a portion of Lot M to the trail plaza would result in the loss of some parking spaces in the Nine Gun Battery area. However, even if all of approximated 25 parking spaces in Lot M are no longer available, this would remove less than 2 percent of the available visitor parking spaces in the study area, and 5 percent of the available visitor parking spaces near the Nine Gun Battery (Lots J, K, and M).

In the Magruder/Gunnison area, 1.2 miles of new pathway would be added to the MUP. One new segment would run along the east side of Magruder Road between Guardian Park and the Mortar Battery. The other segment would also begin at the existing MUP near Guardian Park and would end at the Gunnison Beach plaza, traversing a combination of forest, field, a currently unpaved path, Lot G, and an existing boardwalk. The new segments in the Magruder/Gunnison area would provide more direct MUP access to historic resources such as the Mortar Battery and the Sandy Hook Lighthouse, and would provide more direct visitor access to Gunnison Beach via the MUP. The additional mileage provided by the new alignments would give visitors additional opportunities for nonmotorized recreation and would create a closed loop for nonmotorized use, allowing visitors to experience a variety of resources along the MUP. Constructing the MUP through the currently forested and field area, and proximal to an existing osprey pole, would provide visitors with new opportunities to experience the park's natural resources along the MUP. Therefore, alternative C would have an incrementally more beneficial impact on visitor use and experience compared to alternative B. However, as these natural areas are currently visible, to some degree, along existing roads, the increase would only be minimal.

Consistent with alternative B, this alternative would include the installation of additional signage/wayfinding along the path to make visitor use of the MUP clearer and easier. The MUP would likely become a more desirable route than the road for nonmotorized users. Potential for accidents between motorized and nonmotorized traffic would decrease.

Construction activities could result in temporary adverse impact on the visitor experience. Traffic patterns could be temporarily altered in the Nine Gun Battery and Magruder/Gunnison areas, not only along the roads, but also within Lots K, L, and G where construction materials would be staged. Visitor use of the MUP also could be temporarily altered in some areas; although, it is not anticipated that construction of the new MUP segments would prohibit access to park resources. Visitors would be temporarily inconvenienced while the new segments are constructed; however, once construction is complete, the overall visitor experience in Sandy Hook would be improved.

Cumulative Impacts

Repaving of Hartshorne Drive, development of the existing segments of the MUP, and post-Hurricane Sandy improvements have contributed and continue to contribute to the cumulative impact on visitor use and experience. The recently repaved Hartshorne Drive improved the condition and appearance of the main access road to the unit, enhancing the overall visitor experience. The existing phases of the MUP have provided visitors with additional opportunities for outdoor recreation at Sandy Hook and enhanced public health and safety by reducing the potential for conflicts between motorized vehicles and pedestrians/bicyclists. Post-Hurricane Sandy improvements have restored visitor access throughout the unit and help ensure continued safe access to park resources. These beneficial cumulative impacts,

combined with the impacts of alternative C, would have a beneficial cumulative impact on visitor use and experience. Alternative C would contribute a noticeable beneficial increment to cumulative impact on visitor use and experience.

Conclusion

Overall, alternative C would have a beneficial impact on visitor use and experience. Similar to alternative B, the new segments of the MUP would enhance visitor access to a variety of park resources, would provide additional mileage and a closed loop path for improved recreational opportunities, and the potential for accidents between road users would be reduced. Alternative C would contribute a noticeable beneficial increment to the overall beneficial cumulative impact on visitor use and experience. These impacts would not be significant because visitors would continue to have the opportunity to partake in recreational activities that are considered fundamental values by the park and would continue to have access to a variety of natural and cultural resources within the unit. These opportunities would be enhanced by improvements to the MUP (i.e., increased path for walking and biking, and direct access to more natural and cultural resources). The benefits of alternative C would be slightly greater than those associated with alternative B because visitors would have more opportunity to view natural resources along the MUP. In addition, like alternative B, this alternative would enhance visitor safety by closing the loop on the MUP; however, because 8.6 miles of MUP already exists at Sandy Hook, these improvements would not be of a degree that is significant. Alternative C would not alter visitors' ability to experience feelings associated with open space or views of New York Harbor, and would have no impact on visitors' ability to have a direct sensory experience with natural elements within the unit. Construction activities would result in temporary adverse impacts on traffic patterns and parking and could limit visitor use of the MUP in some areas; however, these impacts would not be significant because visitors would continue to have access to all park resources throughout construction and conditions would be restored upon completion of the MUP.

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CONSULTATION AND COORDINATION

This “Consultation and Coordination” chapter describes the public involvement and agency consultation used during the preparation of the EA. A combination of activities, including public scoping, internal workshops, and agency briefings, has helped to guide the NPS in developing this EA. This chapter provides a detailed list of the various consultations initiated during the development of the EA, as well as a list of preparers and the list of recipients for this document.

BRIEF HISTORY OF PLANNING AND PUBLIC INVOLVEMENT

This document has been prepared in accordance with the National Environmental Policy Act of 1969, as amended; regulations of the Council on Environmental Quality (40 CFR 1500-1508); and NPS Director’s Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-Making (2011) and accompanying DO-12 Handbook (2001). Pursuant to DO-12, the NPS has made a diligent effort to involve the interested and affected public in this NEPA process. This process, known as scoping, is initiated at the beginning of a NEPA project to identify the range of issues, resources, and alternatives to address in the EA. Typically, both internal and public scoping is conducted to address these elements. State and federal agencies were contacted to uncover any additional planning issues and to fulfill statutory requirements, as described in the following sections. The planning process for the proposed action was initiated during the internal scoping efforts in November 2011. This process introduced the purpose, need, and objectives of the project as well as potential alternatives.

INTERNAL SCOPING

The internal scoping process for the proposed project began in November 30, 2011 when representatives from Sandy Hook, the NPS Denver Service Center, and their consultants met to discuss the purpose and need of the project, potential alternatives that could meet these needs, and resource conditions and issues within the project area. The group also initiated plans for future agency and public scoping activities. Throughout the development of this EA, the group coordinated regularly to review relevant issues,

discuss the development of alternatives and impact analysis, and further develop means of including agencies and the public in the planning process.

PUBLIC SCOPING

Public scoping for this project began on July 5, 2012, when the proposed alternative alignments for phase 3 of the MUP were made available to the public on the NPS Planning, Environment and Public Comment (PEPC) website. The official public comment period for the alternatives began on July 5, 2012 and concluded on August 10, 2012. During this period, one correspondence was entered into PEPC. The commenter did not oppose extending the MUP but asked that the NPS consider paving the new segment with gravel, or a similar material, to avoid additional paved surfaced at the unit. This comment was taken into consideration during the development of alternatives presented in this EA.

The interested public and agencies will have an opportunity to review and comment on this EA during a 30-day review period.

AGENCY CONSULTATION

The NPS initiated scoping with multiple relevant agencies early in the planning process. Scoping information was sent to the USFWS, USACE, ACHP, New Jersey SHPO, NJDEP, and the NMFS. This consultation is discussed in more detail below. Copies of the scoping letters and responses from the agencies, if applicable, can be found in appendix A.

SECTION 7 OF THE ENDANGERED SPECIES ACT

Section 7 of the ESA requires federal agencies to consult with the USFWS regarding the potential for proposed actions to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The NPS reviewed species data for the project area through the USFWS IPaC system. Subsequently, in a letter dated June 14, 2012, the NPS initiated informal consultation with the USFWS about the presence of federally listed threatened or endangered species in the vicinity of the park. The USFWS replied in a letter dated June 27, 2012, providing a list of sensitive species that have a known occurrence or potential habitat in the Sandy Hook, NJ-NY USGS quadrangle in which Sandy Hook lies. Based on consultation with USFWS and a review of the IPaC website, five federally listed species were noted within the project area: Northeastern beach tiger beetle (*Cincindela dorsalis dorsalis*), seabeach amaranth (*Amaranthus pumilus*), piping plover (*Charadrius melodus*), roseate tern (*Sterna dougallii dougallii*) and red knot (*Calidris canutus ssp. rufa*). In a consultation letter to USFWS dated May 11, 2012, NPS determined “it does not appear that the project area contains habitat types that would support any of [the listed] species. Therefore, the NPS concludes that a determination of “no effect” is reasonably justified” (Appendix A). In the June 2012 response letter, USFWS concurred with NPS findings that “the proposed extension of the existing MUP is not likely to adversely affect (NLTA) federally listed or candidate species” (Appendix A). The USFWS letter further stated, “no further consultation pursuant to the ESA is required.”

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the impacts of their undertakings on historic properties. This EA evaluates impacts on cultural resources according to *NPS Management Policies 2006*. Compliance with section 106 of the NHPA is being carried out separately but concurrently with the NEPA process. Agency consultation and section 106 initiation letters for the project were sent to both the SHPO and ACHP on August 2, 2012.

The NPS has made a preliminary finding (of “no adverse effect”) for this undertaking. In compliance with section 106, the NPS has provided the SHPO with a copy of the EA, an Assessment of Effect on historic properties and a request for concurrence with the NPS determination, and any additional relevant information, as necessary. The execution of a decision document for the identified action will be dependent on completion of the section 106 process.

SECTION 404 OF THE CLEAN WATER ACT AND RIVERS AND HARBORS ACT

The identification of wetlands and other waters of the U.S. within the project area is necessary to ensure their protection in accordance with federal laws (section 404 of the Clean Water Act [CWA] and the Rivers and Harbors Act of 1899) and state laws. At the state and federal level, wetlands are defined as:

“Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b]; 40 CFR 230.3[t]).

Wetlands, as separately classified ecosystems, are designated as a special aquatic site under section 404 of the CWA and are therefore a subset to waters of the U.S.

NPS PROCEDURAL MANUALS 77-1 AND 77-2

For the reasons described below, and pursuant to NPS Procedural Manuals 77-1: *Wetland Protection* (NPS 2012) and 77-2: *Floodplain Management* (NPS 2004), implementation of the NPS preferred alternative would not result in impacts to wetlands and/or floodplains to the extent that preparation of a Statement of Findings (SOF) would be required.

As described in chapter 4, potential impacts to wetlands from the NPS preferred alternative (alternative B) would be limited to the Nine Gun Battery area where two small non-tidal, emergent wetlands occur. The edge of these wetlands could be impacted by the development of the MUP in this area, though it is anticipated that the proposed action would impact less than 0.1 acre of these wetlands. As stipulated in section 4.2.1 of NPS Procedural Manual 77-1, the following is included in the list of “excepted actions”

“Scenic overlooks and foot/bike trails or boardwalks, including signs, where primary purposes include public education, interpretation, or enjoyment of wetland resources and where total

wetland impacts from fill placement are 0.1 acre or less (parking lots, access roads, borrow sites, and other associated facilities cannot be excepted)” (NPS 2012).

Therefore, a SOF for wetlands is not required” (NPS 2012).

Similarly, as described in chapter 1, the proposed action would have no noticeable impact on floodplain values, would require little physical development, and would not involve overnight occupation. A maximum of 2.2 acres of paved surface would be installed in the park to construct the new MUP segments. However, at least 55 percent of the proposed trail would be situated on existing asphalt. Therefore, pursuant to NPS Procedural Manual 77-2 (section V.B. Excepted Actions), a SOF for floodplains is not required (NPS 2004).

COASTAL ZONE MANAGEMENT ACT

Coastal zone management (CZM) for the proposed action is federally authorized by the Coastal Zone Management Act, as amended. The coastal zone management program (CZMP) federal consistency review process is described in federal regulation 15 CFR 930: Federal Consistency with Approved Coastal Management Programs. The CZMP leaves day-to-day management decisions at the state level in New Jersey. The NJDEP Land Use Regulation Program will review this project for Federal Consistency. The Federal Consistency Determination prepared for and the NJDEP is attached to this EA as appendix B.

LIST OF PREPARERS AND CONTRIBUTORS

This document was prepared by Vanasse Hangen Brustlin, Inc. (VHB) with input from staff at Gateway NRA, the NPS Denver Service Center, and the NPS Northeast Region Office. The NPS has independently reviewed all sections of the EA prior to publication and is responsible for the content of the EA.

TABLE 3. LIST OF PREPARERS AND CONTRIBUTORS

Name	Title	Responsibility
Contractor Team/ Vanasse Hangen Brustlin, Inc.		
Kimberly Threlfall	Project Manager	Guidance of NEPA process, document preparation and review, project management
Tricia Wingard	NPS Program Manager	Guidance of NEPA process and document review
Mariah Murphy	Junior Environmental Planner	Document preparation
Margaret Beavers	Environmental Scientist	Graphics and GIS analysis
Tim Davis	Senior Environmental Scientist	Natural resources review and analysis
Chris Senfield	Wetland Scientist	Natural resources review and analysis
Rita Walsh	Senior Preservation Planner	Cultural resources review and analysis

TABLE 3. LIST OF PREPARERS AND CONTRIBUTORS (CONTINUED)

Name	Title
NPS Team	
Gateway National Recreation Area	
Dave Avrin	Chief of Resource Management
Doug Adamo	Chief of Natural Resources, Gateway NRA
Marilou Ehrler	Historic Architect
Kathy Foppes	Chief of Cultural Resources
Joan McDonald	Natural Resource Specialist
Brian Forseth	Chief of Maintenance
Jeanne McArthur-Heuser	Park Ranger
Jeff Kangas	Facility Operations Manager
Pete McCarthy	Unit Coordinator, Sandy Hook
Shawn Miller	UXO Officer
Minka Sendich	Planner
NPS Northeast Region Office	
Joel Dukes	Archeologist
Jacki Katzmire	Regional Environmental Coordinator
NPS Denver Service Center	
Lee Terzis	Environmental Compliance Specialist
Darin Thacker	Project Manager

PUBLIC REVIEW

The EA will be on formal public and agency review for 30 days and has been distributed to a variety of interested individuals, agencies, and organizations, including those listed below. It also is available for public review on the NPS Planning, Environment, and Public Comment (PEPC) web site <<http://parkplanning.nps.gov/gate>>, and hard copies are available at the NPS headquarters at Sandy Hook.

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APPENDIX A: RELEVANT CORRESPONDENCE



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609-646-9310 Fax: 609-646-0352
<http://www.fws.gov/northeast/njfieldoffice>



IN REPLY REFER TO:
12-I-0294

Douglas A. Adamo, Chief
Division of Natural Resources
Gateway National Recreation Area
210 New York Avenue
Staten Island, New York 10305
Fax Number: (718) 354-4548

JUN 27 2012

Reference: Multiuse Pathway, Gateway National Recreation Area, Sandy Hook Unit, Monmouth County, New Jersey

The U.S. Fish and Wildlife Service (Service) has reviewed the above-referenced Multiuse Pathway (MUP) pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA) to ensure the protection of federally listed endangered and threatened species. The following comments do not address all Service concerns for fish and wildlife resources and do not preclude separate review and comment by the Service as afforded by other applicable environmental legislation.

A known occurrence or potential habitat for the following federally listed or candidate species is located on or near the project's impact area. However, the Service concurs that the proposed extension of the existing MUP is not likely to adversely affect (NLTA) federally listed or candidate species for the reasons listed below.

Species	Basis for Determination
Northeastern beach tiger beetle (<i>Cincindela dorsalis dorsalis</i>), threatened; seabeach amaranth (<i>Amaranthus pumilus</i>) Threatened; piping plover (<i>Charadrius melodus</i>), Threatened; and roseate tern (<i>Sterna dougallii dougallii</i>), Endangered	Since the proposed extension of the existing MUP is outside of piping plover Critical Zone nesting area, this does not change our February 25, 2003 Biological Opinion (ES-03/113) determination on piping plover as well as our February 3, 2003 concurrence (ES-02/874) on roseate tern, seabeach amaranth, and northeast beach tiger beetle.

Except for the above-mentioned species, no other federally listed or proposed threatened or endangered flora or fauna under Service jurisdiction are known to occur within the proposed project's impact area. Therefore, no further consultation pursuant to the ESA is required. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered.

Please refer to this office's web site at <http://www.fws.gov/northeast/njfieldoffice/Endangered/> for further information including federally listed and candidate species lists, procedures for requesting ESA review, the National Bald Eagle Management Guidelines, and contacts for obtaining information from the New Jersey Natural Heritage and Endangered and Nongame Species Programs regarding State-listed and other species of concern.

Authorizing Supervisor:

Ron Popowski



United States Department of the Interior

NATIONAL PARK SERVICE

Gateway National Recreation Area
210 New York Ave., Staten Island, N.Y. 10305

IN REPLY REFER TO:
L7619 (GATE-NRM)

June 14, 2012

Eric Davis
U.S. Fish and Wildlife Service
New Jersey Field Office
927 N. Main Street
Heritage Square, Building D
Pleasantville, New Jersey 08232

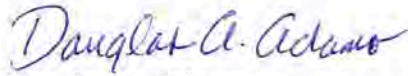
Dear Mr. Davis:

The National Park Service (NPS) has initiated the planning process to continue constructing an extension of the existing Multiuse Pathway (MUP) in the Sandy Hook Unit at Gateway National Recreation Area. The existing portion of the MUP allows pedestrians, cyclists, in-line skaters, and wheelchair users to safely enjoy the park without competing with motorists. The first phase of the project, a 5.5 mile MUP from the park entrance to the Fort Hancock ferry landing, was completed in 2004. Subsequently, the second phase was completed in 2008 and 2009 and consisted of an additional 3.1 miles of pathway. This phase of construction would complete two remaining sections of the pathway in the northern part of the unit, including completing a trail loop throughout the Fort Hancock area of Sandy Hook. These sections would add approximately 1.0-1.5 miles to the existing pathway.

This letter serves as notification that we have begun the National Environmental Policy Act (NEPA) compliance process and are proposing to have an Environmental Assessment (EA) available for public and regulatory review in the summer of 2012. This letter also serves as a record that the NPS is initiating informal consultation with your agency pursuant to the requirements of the 1973 Endangered Species Act, as amended, and NPS *Management Policies 2006*. As part of the scoping for this project, we request any information regarding listed or proposed threatened or endangered species or critical habitats that might occur in the project vicinity, and any special management considerations for such species. The project area is depicted on the enclosed Sandy Hook, NJ-NY USGS Quadrangle.

We appreciate your initial input on this project proposal and look forward to working with your agency as we move forward. If you need any additional information or should you have any questions regarding this project, please feel free to contact me by telephone at (732) 354-4510 or email (Doug_Adamo@nps.gov).

Sincerely,



Douglas A. Adamo
Chief, Natural Resource Management Division

cc:

Chief, Resource Management Division, GATE
Coordinator, Sandy Hook Unit, GATE
NEPA Specialist, GATE-NRMD
NPS-DSC (L. Terzis, D. Thacker,)
VHB (T. Wingard)

Enclosure



United States Department of the Interior

NATIONAL PARK SERVICE
Gateway National Recreation Area
Sandy Hook Unit
58 Magruder Road
Fort Hancock, NJ 07732

IN REPLY REFER TO:

August 2, 2012

John M. Fowler, Executive Director
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW, Suite 803
Old Post Office Building
Washington, DC 20004

Dear Mr. Fowler:

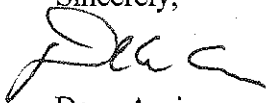
The National Park Service (NPS) has initiated the planning process to construct an extension of the existing Multiuse Pathway (MUP) in the Sandy Hook Unit at Gateway National Recreation Area. The MUP allows pedestrians, cyclists, in-line skaters, and wheelchair users to safely enjoy the park without competing with motorists. The existing MUP was constructed in two phases; the first phase of the project, a 5.5 mile MUP from the park entrance to the Fort Hancock ferry landing, was completed in 2004. A second phase was completed in 2008 and 2009 and consisted of an additional 3.1 miles of pathway. We consulted with your office on the EA for the earlier phases of the MUP. This third phase of construction would add two segments to the MUP to complete a trail loop throughout the Fort Hancock area of Sandy Hook. This new section would add approximately 1.5 miles to the existing MUP.

To comply with the provisions of the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) will be prepared for this phase of the project to assess potential impacts on natural and cultural resources. In addition, an Assessment of Effect (AoE) for all cultural resources potentially affected will be developed to comply with section 106 of the National Historic Preservation Act (NHPA), of 1966 as amended. In accordance with section 800.8 (3)(c) of the Advisory Council on Historic Preservation's regulations (36 CFR 800), we wish to invite you to participate and are notifying your office in advance of the park's intention to prepare a separate AoE to meet its obligations under section 106. The EA and AoE will be available for your review in the summer of 2012.

The location of the proposed MUP extension is within the Fort Hancock and Sandy Hook Proving Ground Historic District, a National Historic Landmark District (NHL). An archeological survey will be conducted (including appropriate coordination with your office and the Advisory Council on Historic Preservation), and the results will be incorporated into the section 106 and NEPA compliance documents.

We appreciate your consultation on this project and look forward to working with your agency as we move forward. If you need any additional information or should you have any questions regarding this project, please feel free to contact me by telephone at (718) 354-4625 or email (Dave_Avrin@nps.gov).

Sincerely,

A handwritten signature in dark ink, appearing to read 'Dave Avrin', with a stylized flourish at the end.

Dave Avrin
Chief, Division of Resources Management

cc: Darin Thacker, NPS-DSC
Lee Terzis, NPS-DSC
Daniel Saunders, NJ SHPO
Tricia Wingard, VHB
Pete McCarthy, Unit Coordinator, GATE



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Gateway National Recreation Area
210 New York Ave., Staten Island, N.Y. 10305

L7619 (GATE-NRM)

June 14, 2012

Dr. Thomas Noji
National Marine Fisheries Service
James Howard Marine Science Laboratory
74 Magruder Road
Highlands, New Jersey 07732

Dear Dr. Noji:

The National Park Service (NPS) has initiated the planning process to continue constructing an extension of the existing Multiuse Pathway (MUP) in the Sandy Hook Unit at Gateway National Recreation Area. The existing portion of the MUP allows pedestrians, cyclists, in-line skaters, and wheelchair users to safely enjoy the park without competing with motorists. The first phase of the project, a 5.5 mile MUP from the park entrance to the Fort Hancock ferry landing, was completed in 2004. Subsequently, the second phase was completed in 2008 and 2009 and consisted of an additional 3.1 miles of pathway. This phase of construction would complete two remaining sections of the pathway in the northern part of the unit, including completing a trail loop throughout the Fort Hancock area of Sandy Hook. These sections would add approximately 1.0-1.5 miles to the existing pathway.

This letter serves as notification that we have begun the National Environmental Policy Act (NEPA) compliance process and are proposing to have an Environmental Assessment (EA) available for public and regulatory review in the summer of 2012. As a park cooperator, we look forward to receiving any comments you may have regarding the NEPA process or the project proposal itself.

If you need any additional information or should you have any questions regarding this project, please feel free to contact me by telephone at (732) 354-4510 or email (Doug_Adamo@nps.gov).

Sincerely,

Douglas A. Adamo
Chief, Natural Resource Management Division

cc:

Chief, Resource Management Division, GATE
Coordinator, Sandy Hook Unit, GATE
NEPA Specialist, NRMD-GATE
NPS-DSC (L. Terzis, D. Thacker)
VHB (T. Wingard)



United States Department of the Interior

NATIONAL PARK SERVICE

Gateway National Recreation Area
210 New York Ave., Staten Island, N.Y. 10305

IN REPLY REFER TO
L7619 (GATE-NRM)

June 14, 2012

Tom Micai
New Jersey Department of Environmental Protection
Coastal Management Program
401-07D
P.O. Box 420
401 East State Street
Trenton, NJ 08625-0420

Dear Mr. Micai:

The National Park Service (NPS) has initiated the planning process to continue constructing an extension of the existing Multiuse Pathway (MUP) in the Sandy Hook Unit at Gateway National Recreation Area. The existing portion of the MUP allows pedestrians, cyclists, in-line skaters, and wheelchair users to safely enjoy the park without competing with motorists. The first phase of the project, a 5.5 mile MUP from the park entrance to the Fort Hancock ferry landing, was completed in 2004. Subsequently, the second phase was completed in 2008 and 2009 and consisted of an additional 3.1 miles of pathway. This phase of construction would complete two remaining sections of the pathway in the northern part of the unit, including completing a trail loop throughout the Fort Hancock area of Sandy Hook. These sections would add approximately 1.0-1.5 miles to the existing pathway.

This letter serves as notification that we have begun the National Environmental Policy Act (NEPA) compliance process and are proposing to have an Environmental Assessment (EA) available for public and regulatory review in the summer of 2012. The EA will include documentation as required for compliance with the Coastal Zone Management Act and New Jersey's Coastal Management Program.

We appreciate your initial input on this project and look forward to working with your agency as we move forward. If you need any additional information or should you have any questions regarding this project, please feel free to contact me by telephone at (732) 354-4510 or email (Doug_Adamo@nps.gov).

Sincerely,



Douglas A. Adamo
Chief, Natural Resource Management Division

cc:

Chief, Resource Management Division, GATE
Coordinator, Sandy Hook Unit, GATE
NEPA Specialist, GATE-NRMD
NPS-DSC (L. Terzis, D. Thacker)
VHB (T. Wingard)



United States Department of the Interior

NATIONAL PARK SERVICE

Gateway National Recreation Area
210 New York Ave., Staten Island, N.Y. 10305

IN REPLY REFER TO
L7619 (GATE-NRM)

June 14, 2012

Richard Tomer,
Chief, Regulatory Branch
U.S. Army Corps of Engineers
New York District
26 Federal Plaza, Room 1937
New York, New York 10278-0090

Dear Mr. Tomer:

The National Park Service (NPS) has initiated the planning process to continue constructing an extension of the existing Multiuse Pathway (MUP) in the Sandy Hook Unit at Gateway National Recreation Area. The existing portion of the MUP allows pedestrians, cyclists, in-line skaters, and wheelchair users to safely enjoy the park without competing with motorists. The first phase of the project, a 5.5 mile MUP from the park entrance to the Fort Hancock ferry landing, was completed in 2004. Subsequently, the second phase was completed in 2008 and 2009 and consisted of an additional 3.1 miles of pathway. This phase of construction would complete two remaining sections of the pathway in the northern part of the unit, including completing a trail loop throughout the Fort Hancock area of Sandy Hook. These sections would add approximately 1.0-1.5 miles to the existing pathway.

This letter serves as notification that we have begun the National Environmental Policy Act (NEPA) compliance process and are proposing to have an Environmental Assessment (EA) available for public and regulatory review in the summer of 2012. As part of the NEPA process, a wetland delineation will be performed within the project area and the results will be incorporated into the EA.

We appreciate your initial input on this project proposal and look forward to working with your agency as we move forward. If you need any additional information or should you have any questions regarding this project, please feel free to contact me by telephone at (732) 354-4510 or email (Doug_Adamo@nps.gov).

Sincerely,

A handwritten signature in blue ink that reads "Douglas A. Adamo". The signature is fluid and cursive, with the first name "Douglas" being more prominent.

Douglas A. Adamo

Chief, Natural Resource Management Division

cc:

Chief, Resource Management Division, GATE
Coordinator, Sandy Hook Unit, GATE
NEPA Specialist, GATE-NRMD
NPS-DSC (L. Terzis, D. Thacker)
VHB (T. Wingard)



United States Department of the Interior

NATIONAL PARK SERVICE
Gateway National Recreation Area
Sandy Hook Unit
58 Magruder Road
Fort Hancock, NJ 07732

IN REPLY REFER TO:

August 2, 2012

Mr. Daniel Saunders
Deputy State Historic Preservation Officer
Department of Environmental Protection
Natural and Historic Resources
Historic Preservation Office
P.O. Box 404
Trenton, New Jersey 08625-0404

Dear Mr. Saunders:

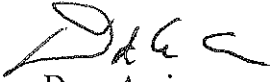
The National Park Service (NPS) has initiated the planning process to construct an extension of the existing Multiuse Pathway (MUP) in the Sandy Hook Unit at Gateway National Recreation Area. The MUP allows pedestrians, cyclists, in-line skaters, and wheelchair users to safely enjoy the park without competing with motorists. The existing MUP was constructed in two phases; the first phase of the project, a 5.5 mile MUP from the park entrance to the Fort Hancock ferry landing, was completed in 2004. A second phase was completed in 2008 and 2009 and consisted of an additional 3.1 miles of pathway. We consulted with your office on the EA for the earlier phases of the MUP. This third phase of construction would add two segments to the MUP to complete a trail loop throughout the Fort Hancock area of Sandy Hook. This new section would add approximately 1.5 miles to the existing MUP.

To comply with the provisions of the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) will be prepared for this phase of the project to assess potential impacts on natural and cultural resources. In addition, an Assessment of Effect (AoE) for all cultural resources potentially affected will be developed to comply with section 106 of the National Historic Preservation Act (NHPA), of 1966 as amended. In accordance with section 800.8 (3)(c) of the Advisory Council on Historic Preservation's regulations (36 CFR 800), we wish to consult with you and are notifying your office in advance of the park's intention to prepare a separate AoE to meet its obligations under section 106. The EA and AoE will be available for your review in the summer of 2012.

The location of the proposed MUP extension is within the Fort Hancock and Sandy Hook Proving Ground Historic District, a National Historic Landmark District (NHL). An archeological survey will be conducted (including appropriate coordination with your office and the Advisory Council on Historic Preservation), and the results will be incorporated into the section 106 and NEPA compliance documents.

We appreciate your consultation on this project and look forward to working with your agency as we move forward. If you need any additional information or should you have any questions regarding this project, please feel free to contact me by telephone at (718) 354-4625 or email (Dave_Avrin@nps.gov).

Sincerely,

A handwritten signature in dark ink, appearing to read 'Dave Avrin', with a stylized flourish at the end.

Dave Avrin
Chief, Division of Resources Management

cc: Darin Thacker, NPS-DSC
Lee Terzis, NPS-DSC
John Fowler, ACHP
Tricia Wingard, VHB
Pete McCarthy, Unit Coordinator, GATE

APPENDIX B: FEDERAL CONSISTENCY DETERMINATION LETTER

Mr. Marty Rosen
New Jersey Department of Environmental Protection
Coastal Management Office
401 East State Street
401-07C, P.O. Box 420
Trenton, New Jersey 08625-0420

Subject: Federal Consistency Determination
Expansion of Existing Multi-Use Path
National Park Service
Gateway National Recreation Area, Sandy Hook Unit

Dear Mr. Rosen:

The National Park Service (NPS) respectfully requests a Federal Consistency Determination for the proposed extension to an existing 8.6-mile Multi-Use Path (MUP) in the Sandy Hook Unit (Sandy Hook or the unit) of Gateway National Recreation Area (the park) (figure 1), which has been designed for nonmotorized use.

The park, which is managed by the NPS, is located in the northeastern tip of New Jersey. The unit receives a large number of visitors in the summer, primarily beach goers and those looking to experience the many natural resources and the historic features associated with the unit's military history. NPS proposes to expand the existing MUP by a total of approximately 1.4 miles (figures 2 and 3) in order to:

- reduce the potential for accidents between visitors in motorized vehicles and nonmotorized¹ visitors, particularly within the southern portion of Fort Hancock and near the Nine Gun Battery;
- provide visitors with additional recreational opportunities; and
- enhance visitor access to park resources.

The proposed action would create a closed loop system for visitors and enhance visitor safety. The new segments of the MUP would be 12-foot wide, two-way corridors and would be asphalt-paved and striped to be consistent with the design of the existing MUP. Where feasible, the new alignments would be constructed within existing road easements, over currently paved surfaces. The existing vehicular travel lanes would not be narrowed. Each new segment would be equipped with appropriate wayfinding, signage, and amenities such as bike racks and benches. During construction, equipment and materials would be staged in existing parking lots. Photographs of the project area are included in attachment 2 of this letter. Components of the proposed action include:

¹ "Nonmotorized" visitors include walkers, joggers, skaters, and bicyclists.

- construction of an approximately 0.5 mile MUP segment in the Magruder/Gunnison area along Magruder Road,
- construction of an approximately 0.3 mile MUP segment along the southern side of Gunnison Road;
- construction of an approximately 0.1 mile MUP segment between the Atlantic Drive/Gunnison Road intersection and Gunnison Beach,
- construction of an approximately 0.5 mile MUP loop in the Nine Gun Battery area, around Parking Lots K, Lot M, and an existing field;
- use of Parking Lot G, Lot J, and part of Lot K for construction staging activities; and
- construction of a small (approximately 30 feet by 30 feet) trail plaza in the northwest corner of the Nine Gun Battery area.

Concurrent to this submittal, the NPS has released an Environmental Assessment (EA) for the proposed action for public review, in compliance with the National Environmental Policy Act (NEPA). During the preparation of the EA, environmental studies have been performed at the site, including a wetland delineation. Based on these field studies and in accordance with section 307 (c) of the Coastal Zone Management Act of 1972, the NPS has determined that the proposed action is consistent to the maximum extent practicable with the enforceable policies of New Jersey's coastal management program. It is anticipated that the proposed action would not have direct, long-term, adverse impacts on the coastal zone or coastal zone resources and uses. The potential for temporary and indirect impacts would be minimal and is summarized below for each of the enforceable regulatory programs of New Jersey's Coastal Management Program. This determination is based on a review of the proposed action's conformance with the enforceable policies of the state's coastal program as described in the Coastal Zone Management Rules (N.J.A.C. 7:7E), the Coastal Permit Program Rules (N.J.A.C. 7:7), and the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A).

FRESHWATER WETLANDS MANAGEMENT

A field delineation of jurisdictional wetlands was performed for the proposed trail improvements. Two non-tidal emergent wetlands, totaling 0.16 acre, were demarcated in the study area (no tidal wetlands occur within the study area). The delineated wetlands are located in the Nine Gun Battery area and are separate by North Bragg Road, near Parking Lot K (see figures 4-6). These wetlands are small, isolated depressions observed to have disturbed vegetation due to mowing and maintenance activities. Dominant vegetation includes sedges (*Cyperus* spp.), barnyard grass (*Echinochloa* spp.), and smartweeds (*Polygonum* spp.). Note that while small non-tidal wetlands areas were also identified in the Magruder/Gunnison area, none of these wetlands would be impacted by the proposed action because construction would occur over existing pavement, in the footprint of existing roads or sidewalks.

At this point in the planning process, it is anticipated that the new MUP loop at the Nine Gun Battery will be placed within the footprint of the existing gravel roadbed that splits these two small emergent wetlands. Using this design, no impacts to the adjacent wetlands would occur, and the project would not have noticeable short-term or long term impacts on wetlands within the coastal area. However, if it is determined during final design that the MUP should be cited on the east side of and adjacent to North Bragg Road, the MUP would encroach slightly into the emergent wetland on the east side of the road causing the fill

of approximately 900 square feet (0.2 acre) of isolated, non-tidal emergent wetland, and resulting in long-term impacts on non-tidal wetlands within the coastal area. However, it is unlikely that the impacts of the proposed action would noticeably impact other coastal resources. Standard erosion and sedimentation control practices would be implemented during construction to avoid impacts to wetlands beyond the area of disturbance. NPS would submit applications to the appropriate regulatory agencies for permits to impact this wetland once the final plan is completed. As part of these efforts, NPS would consult with the appropriate agencies, and obtain necessary permits to ensure compliance with the Coastal Area Facility Review Act (CAFRA). Based on this information, it is not anticipated that the proposed action would have noticeable short-term or long-term impacts on wetlands within the coastal area. The proposed action would be designed to be compliant with American Association of State Highway and Transportation Officials (AASHTO) guidelines and would meet the criteria for General Permit 17A.

COASTAL WETLANDS MANAGEMENT

No coastal wetlands occur within the study area for the proposed action. Wetlands within the study area that occur within the CAFRA zone are described in the previous section.

FLOOD HAZARD MANAGEMENT

Although the proposed action would be constructed within the 100-year floodplain and other areas of special consideration, little physical development would be required. The MUP extension would not reduce normal floodplain functions, such as flood capacity.

Although the proposed action would include the installation of a maximum of 2.0 acres of new paved surfaces, the new MUP segments would be constructed primarily over existing paved surfaces. Newly paved areas (those areas that are currently unpaved) would be limited to the new trail plaza in the Nine Gun Battery, totaling approximately 0.02 acre in size. The proposed action would have no impact on surface water bodies, riparian zones, or other water body related areas. As such, and because the proposed action will be regulated under the New Jersey Coastal Zone Management policies, no separate flood hazard approval is required for the proposed action.

TIDELANDS

Although the entire project area is within the coastal zone and at the confluence of the Raritan Bay, Lower New York Bay, and the Atlantic Ocean, the proposed action would not involve activities with the potential to impact tidelands. Development of the proposed action would not include activity directly on tidelands. Additionally, during construction, BMPs would be implemented to ensure tidal waters at Sandy Hook are not impacted.

Dunes Management

No dunes exist within the study area for the proposed action. The areas where the trail improvements are proposed generally include regions of Sandy Hook that have incurred previous human alterations.

Non-Point Source Pollution Control

The preferred alternative would introduce new infrastructure into the project area, including new segments of the MUP and construction of a new trail plaza. These developments could present a source of non-point source pollution; however, the implementation of sedimentation and erosion control measures during construction would avoid potential for introducing any sediments to reach any nearby aquatic environments. The new MUP segments would generally be constructed within the footprint of existing paved roads, therefore, in these areas there would be no increase in non-point source pollution. The exception is in the Nine Gun Battery area where the new trail plaza and 0.5 mile loop would be constructed. In this area, it is estimated that less than 0.02 acres of new pavement would be installed. Additionally, the MUP would be used primarily by pedestrians, bikers, and in-line skaters, all of which are typically non-polluting forms of recreation. Therefore, it is not anticipated that the proposed action would noticeably increase non-point source pollution.

Point Source Pollution Control

The proposed action would not introduce any point sources that would require regulation.

Shoreline Sanitation

No wells and no new drain fields would be required for the project.

We respectfully request that the New Jersey Coastal Management Program concur with this consistency determination. Please find enclosed for your review the following documents:

- A summary table of the impacts associated with the proposed action (to vegetation, wetlands, wildlife and wildlife habitat, state-listed species, cultural landscape, and visitor use and experience)
- Photographs of the project area and graphics depicting the alignment for the proposed action and existing freshwater wetlands along the alignment
- The Public Review Environmental Assessment for the Sandy Hook Multi-Use Path, Phase 3

If you have any questions or require additional information, please contact Pete McCarthy at (732) 872-5913 or email (Pete_McCarthy@nps.gov).

Sincerely,

Pete McCarthy
Coordinator, Sandy Hook Unit

cc: Darin Thacker, NPS-DSC
Lee Terzis, NPS-DSC
Kim Threlfall, VHB
Tim Davis, VHB

Enclosures

ATTACHMENT 1: SUMMARY OF IMPACTS

This table provides a summary of the environmental consequences related to each alternative. A more detailed explanation of the impacts is presented in “Chapter 4: Environmental Consequences” of the Environmental Assessment for the Sandy Hook Multi-Use Path, Phase 3.

Table 1: Summary of Impacts

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Vegetation	Disturbances to vegetation would be limited to routine maintenance/landscaping activities and use of the existing MUP, parking lots, and roads within the study area. No vegetation would be removed. These impacts would not be significant.	Disturbances to vegetation would be primarily related to routine maintenance/landscaping along the MUP, roads, and parking lots within the study area. The impacts could be slightly more adverse than under alternative, because there would be more MUP and because there would be some vegetation removal in the Nine Gun Battery (opportunistic grasses and forbs that have sprouted in the roadbed). However, it is not anticipated that these impacts would be significant.	Disturbances to vegetation would occur during routine maintenance/landscaping along the MUP, roads, and parking lots. In addition, 0.3 acres of forest vegetation, and 0.2 acres of field vegetation would be removed to accommodate the new path between the existing MUP and Gunnison Beach. It is not anticipated that these impacts would be significant.
Wetlands	No impacts to wetlands would occur. There would be no loss of wetlands, and the functions and values of the existing wetlands would be unchanged. This alternative would not have a significant impact on vegetation.	No impacts to wetlands would occur in the Magruder/Gunnison area; however, minimal wetland fill could occur in the Nine Gun Battery, if construction of the new MUP segment exceeds the footprint of the existing road. It is anticipated that less than 0.02 acres of wetlands in the Nine Gun Battery area would be affected, and most impacts could be mitigated. These impacts would not be significant.	No impacts to wetlands would occur in the Nine Gun Battery area. In the Magruder/Gunnison area, construction of the new MUP segment could impact a small portion of the two 0.16-acre forested wetland areas (0.32 acres total) east of the James J. Howard Marine Science Laboratory. It is anticipated that construction of the MUP in this area would impact no more than 0.10 acres of these wetlands. Therefore, this alternative is not anticipated to result in a significant impact.

Table 1: Summary of Impacts (Continued)

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Wildlife and Wildlife Habitat	There would be no change to the existing MUP or existing habitat within the study area. Therefore, this alternative would not result in a significant impact on wildlife and wildlife habitat.	Disturbances to wildlife and wildlife would be limited because the new segments would mostly be within existing road alignments. Adverse impacts would mostly be short-term and related to construction activities. Disturbances to wildlife could occur from use of the MUP, especially in the Nine Gun Battery area; however, it is anticipated that the abundance of similar habitat adjacent to the MUP would allow wildlife to relocate and easily adapt to maintain normal biological activities. Therefore, this alternative would not result in a significant impact on wildlife and wildlife habitat.	Disturbances to wildlife and wildlife and wildlife habitat would primarily be related to construction of the new MUP alignment through the forest and field habitat east of the James J. Howard Marine Sciences Laboratory. Approximately 0.3 acres of forest habitat and 0.2 acres of field habitat would be removed. Some habitat fragmentation could occur, though any resulting changes in wildlife patterns would be within the natural range of variability. Therefore, this alternative would not result in a significant impact on wildlife and wildlife habitat.
State-Listed Species	There would be no change to the existing MUP or existing habitat within the study area. Therefore, this alternative would not result in a significant impact on state-listed species.	Disturbances to state-listed species would be limited because the new MUP segment would mostly be within existing road alignments. Adverse impacts would mostly be temporary and related to an increased human presence during construction. Disturbances to state-listed animal species could occur from use of the MUP, especially in the Nine Gun Battery area; however, it is anticipated that the abundance of similar habitat adjacent to the MUP would allow state-listed species to relocate and easily adapt to maintain normal biological activities. Therefore, this alternative would not result in a significant impact on state-listed species.	Disturbances state-listed species would primarily be related to construction of the new MUP alignment through the forest and field habitat east of the James J. Howard Marine Sciences Laboratory. Direct impacts to nesting birds are unlikely, but vegetation removal in this area would reduce available habitat that could be used by state-listed birds such as bobolink, Savannah sparrow, American kestrel, and northern harrier. Given the small scale of habitat loss, compared to the available habitat area in the unit, and because many species, including the state-listed osprey are known to be habituated to human presence, it is anticipated that this alternative would not result in a significant impact on state-listed species.

Table 1: Summary of Impacts (Continued)

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Cultural Landscape	<p>There would be no change to the existing MUP and/or other modern infrastructure in the study area. Although the presence of the existing MUP segments have slightly reduced the integrity of the cultural landscape of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, there would be no further loss of integrity under this alternative. Therefore, there would be no significant impact on the cultural landscape.</p>	<p>New segments of the MUP are unlikely to reduce the integrity of the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District. The new segments would primarily be constructed within the footprint of existing roads, and new signage along Magruder and Gunnison Roads, which are contributing resources within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, would be limited and would conform to the style and size of existing signage. Therefore, the landscape would be largely unchanged. This alternative would have no impact on character-defining features of the cultural landscape. This alternative would not likely have a significant impact on the cultural landscape.</p>	<p>New MUP segments are unlikely to diminish the integrity of the cultural landscape associated with the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, especially within the Magruder/ Gunnison area. Although historic circulation patterns would be slightly altered as the MUP would be routed through an existing forest and field landscape, this landscape is considered successional woodlands and is a non-contributing resource within the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District cultural landscape. Further, development of the MUP along Magruder and Gunnison Roads, which are contributing resources within the historic district, would be limited and would be consistent with surrounding developments (lining of roads and small signs). Given the scale of these developments, compared to the scale of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark Historic District, this alternative is not anticipated to result in a significant impact on the cultural landscape.</p>

Table 1: Summary of Impacts (Continued)

	Alternative A (No-Action)	Alternative B (NPS Preferred Alternative)	Alternative C
Visitor Use and Experience	No changes would be made to the existing MUP or other resources within the unit; therefore, there would no change to visitor experience. The potential for conflicts between motorized and nonmotorized visitors would continue if nonmotorized visitors continue to use existing roads to access points of interest. Access to existing park resources would be unchanged. This alternative would not have a significant impact on visitor use and experience.	Improvements to the MUP would enhance the visitor experience by reducing safety concerns, creating additional space for nonmotorized recreation, and, providing access to more park resources along the MUP. Temporary adverse impacts could occur during construction due to temporary changes in parking and circulation. These impacts would not be significant.	Improvements to the MUP would enhance the visitor experience by reducing safety concerns, creating additional space for nonmotorized recreation, and providing access to more park resources along the MUP. Impacts of this alternative could be more beneficial than those for alternative B because locating the MUP through the forest and field areas would extend visitor access to more natural areas. Temporary adverse impacts could occur during construction due to temporary changes in parking and circulation. These impacts are not likely to be significant.

ATTACHMENT 2:
FIGURES AND PHOTOGRAPHS



Source: ESRI Streetmap USA Digital Data V. 10



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3



Figure 1
Regional Overview



Source: 2007 New Jersey State Orthophotography

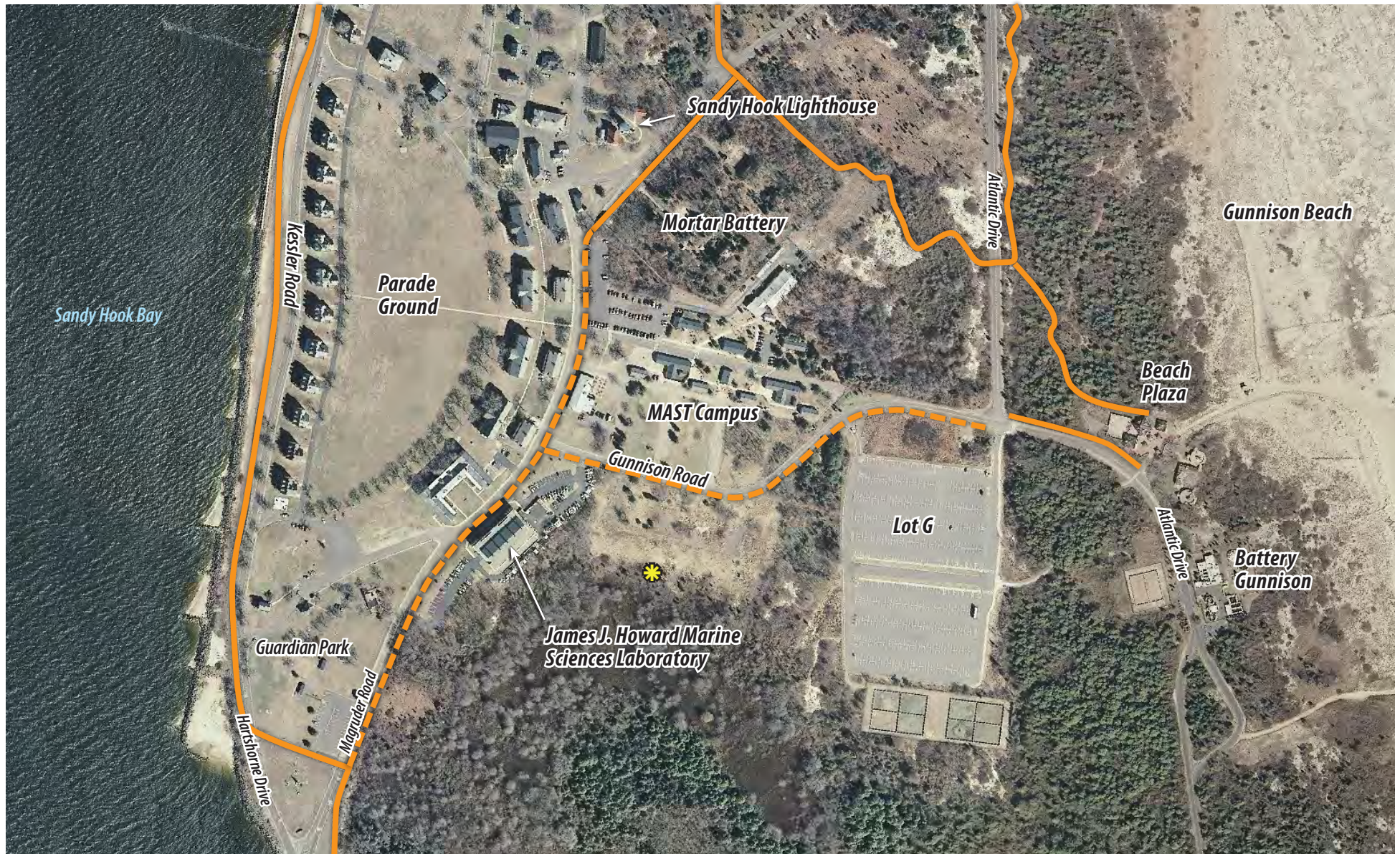
- Existing Multi-Use Path
- - - Proposed Multi-Use Path



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3

Figure 2
Proposed Action: Nine Gun Battery Area



Source: 2007 New Jersey State Orthophotography

- Existing Multi-Use Path
- - - Proposed Multi-Use Path
- ★ Osprey Pole



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3

Figure 3
Proposed Action: Magruder/Gunnison Area



Source: Bing Orthophotography; USFWS NWI Digital Data



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3



Figure 4
Existing Wetland Areas



Source: Bing Orthophotography

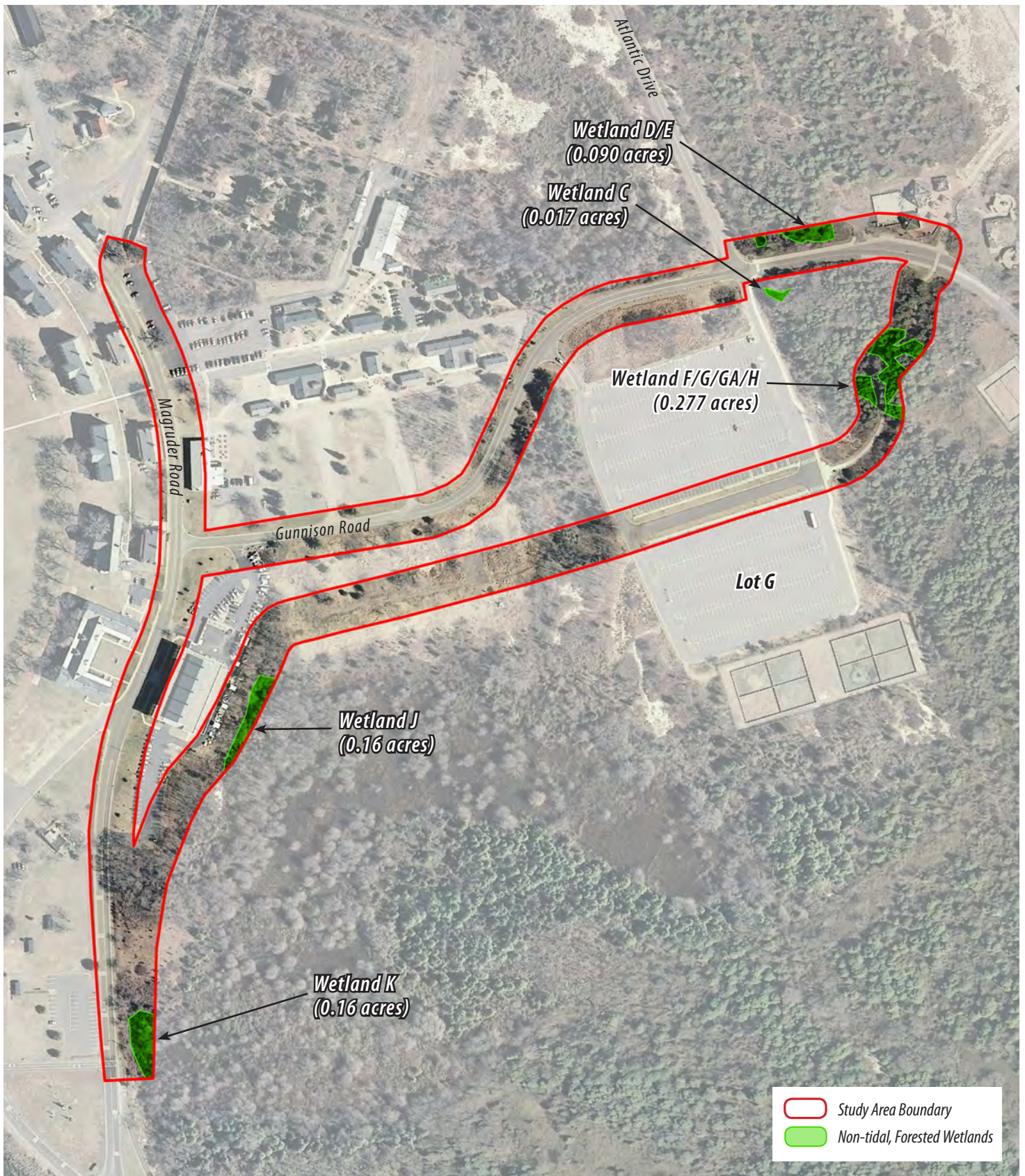


Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3



Figure 5
Existing Wetlands - Nine Gun
Battery Area



Source: Bing Orthophotography



Gateway National Recreation Area

Sandy Hook Multi-Use Path Phase 3

Figure 6
Existing Wetlands -
Magruder/Gunnison Area





1. View of the northern half of North Bragg Road, facing west/northwest (November 2011)



2. View of the northern side of North Bragg Road, facing west (September 2012)



3. View of the location of the proposed trail plaza, facing south (November 2011)



4. View of the south side of North Bragg Road, facing east (November 2011)



5. View of North Bragg Road, facing east, along the southern side of the road. Lot K is visible on the north side of the road (November 2011).



6. View west toward the Nine Gun Battery, from the existing MUP path at the southeast corner of Lot J, on Atlantic Drive. Lot J is visible immediately west of the existing path. (November 2011).



7. View of the wetland on the north side of North Bragg Road, facing west. Note the surface water and sediment deposits left on vegetation from recent ponding. (September 2012)



8. View of the wetland on the south side of North Bragg Road, facing east. Note surface disturbance from mowing within dark colored, hydric soils. (September 2012)



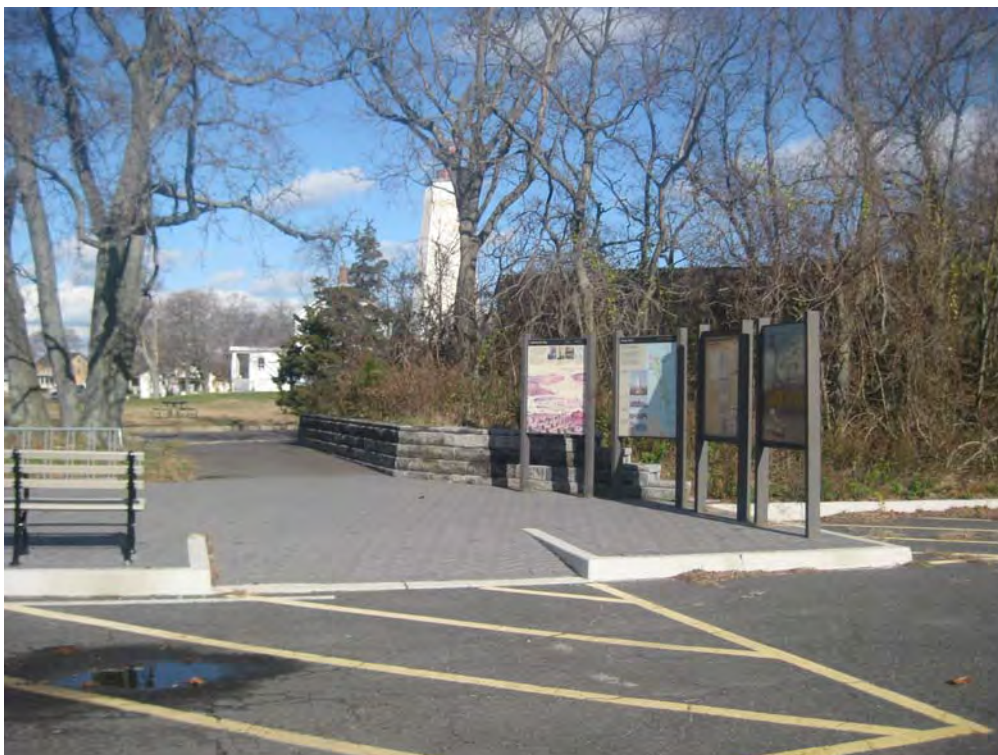
9. View south along the existing MUP from the start of beginning of the new MUP segment along Magruder Road. (November 2011)



10. View facing north along the east side of Magruder Road, from just south of the James J. Howard Marine Sciences Laboratory.



11. View facing north along Magruder Road, from the intersection of Gunnison Road and Magruder Road (November 2011).



12. View of the existing trail plaza near the Mortar Battery, facing north (November 2011)



13. View west along the southern side of Gunnison Road, toward Magruder Road (November 2011)



14. View of Gunnison Road, facing east, from near the intersection of Gunnison Road and Magruder Road (November 2011)



15. View facing east on Atlantic Drive, toward Gunnison Beach. The existing sidewalk will be used for the MUP (November 2011)



16. View of the entrance to the Gunnison Beach Plaza, facing east (November 2011)

ATTACHMENT 3:

SANDY HOOK MULTI-USE PATH, PHASE 3

ENVIRONMENTAL ASSESSMENT



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

June 2014

United States Department of the Interior – National Park Service

