

National Park Service  
U.S. Department of the Interior

Gateway National Recreation Area  
Sandy Hook Unit



# Relocate Hurricane Sandy Damaged Maintenance Facilities To More Sustainable Locations

## Environmental Assessment

### Gateway National Recreation Area Sandy Hook Unit



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## PROJECT SUMMARY

The National Park Service (NPS) proposes to permanently relocate maintenance operations that were located in buildings damaged during Hurricane Sandy within the Sandy Hook Unit of Gateway National Recreation Area (Gateway). This Environmental Assessment (EA) analyzes the impacts of the proposed action, which is also the NPS preferred alternative, and the no-action alternative on floodplains; wildlife and habitat; rare, threatened, and endangered species; the historic district; and noise. Under the no-action alternative, no new maintenance facilities would be constructed within the Sandy Hook Unit and the adaptive reuse of existing buildings to accommodate maintenance functions would not occur. Under the proposed action, a consolidated maintenance facility would be constructed within the Fort Hancock Historic Post Area directly north of the Kearney Road/Mercer Road intersection. The consolidation would include adaptively reusing Building 49 and Building 65; constructing a new vehicle/equipment maintenance and repair shop; improvements to site access, parking, and circulation; and adequate vehicle/equipment and materials storage and perimeter security.

This document has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA); regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500-1508); NPS Director's Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-Making* (DO-12); and the NPS NEPA Handbook (NPS 2015a).

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**Note to Reviewers and Respondents:** If you wish to comment on the EA, you may submit comments electronically through the NPS Planning, Environment and Public Comment (PEPC) (<http://parkplanning.nps.gov/gate>) website or you may mail written comments by June 16, 2016, to the address listed below. Before including 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 will be able to do so.

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## ACRONYMS AND ABBREVIATIONS

ALS	American Littoral Society
BFE	Base Flood Elevation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CLO	Cornell Lab of Ornithology
CUNY	City University of New York
CWF	Conserve Wildlife Foundation
CZMP	Coastal Zone Management Program
dB	Decibel
dba	A-weighted Noise Level
DBH	Diameter at Breast Height
DO	Director's Order
DOI	Department of Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
Gateway	Gateway National Recreation Area
GMP	General Management Plan
HMANA	Hawk Migration Association of North America
HVAC	Heating, Ventilating, and Air Conditioning
IT	Information Technology
MAST	Marine Academy of Science and Technology
MUP	Multi-use Pathway
NEPA	National Environmental Policy Act of 1969
NJ DFW	New Jersey Division of Fish and Wildlife
NJ ENSP	New Jersey Endangered and Nongame Species Program
NJ SHPO	New Jersey State Historic Preservation Office
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
OSHA	Occupational Safety and Health Administration
PEPC	Planning, Environment and Public Comment
USC	United States Code
USFWS	US Fish and Wildlife Service

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# CHAPTER 1: PURPOSE & NEED

The National Park Service (NPS) proposes to permanently relocate maintenance operations that were located in buildings damaged during Hurricane Sandy within the Sandy Hook Unit of Gateway National Recreation Area (Gateway). **Figure 1** shows the location of Gateway from a regional perspective. **Figure 2** shows in more detail the location of the proposed project within the Sandy Hook Unit. The proposed action includes the construction of a consolidated maintenance facility within the Fort Hancock Historic Post Area at the north end of Sandy Hook where the majority of former military facilities are located on the peninsula. The project area is located directly north of the Kearney Road/Mercer Road intersection, and is referred to in this Environmental Assessment (EA) as the “North Site.” The consolidation would include adaptively reusing Building 49 and Building 65; constructing a new vehicle/equipment maintenance and repair shop; improvements to site access, parking, and circulation; and adequate vehicle/equipment and materials storage and perimeter security.

This EA describes two alternatives for the proposed maintenance facility relocation, including the proposed action, which is also the NPS preferred alternative, and the no-action alternative, and analyzes the environmental consequences of implementing the alternatives. This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA); regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500-1508); NPS Director’s Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-Making* (DO-12); and the NPS NEPA Handbook (NPS 2015a).

## PURPOSE OF AND NEED FOR ACTION

The purpose of the project is to make the Sandy Hook Unit maintenance and storage facilities resilient to coastal storm surges and flooding through relocation to more sustainable locations, and where possible, adaptively reusing some existing facilities to improve the efficiency of park maintenance and recovery operations.

In October 2012, Hurricane Sandy affected 24 states, including the entire eastern seaboard, and caused particularly severe damage in New York and New Jersey. Hurricane Sandy reached New Jersey on October 29, 2012, resulting in substantial flood damage to maintenance facilities and equipment within the Sandy Hook Unit, and a drastic reduction in operational efficiency. Prior to Hurricane Sandy, maintenance operations within the Sandy Hook Unit were divided between two primary locations. At the north maintenance area, located near the northern end of the peninsula, maintenance operations were conducted in Buildings 124, 125, 130, 131, 132, 134, and 156. Buildings within the north maintenance area were constructed during the operation of the Sandy Hook Proving Ground and provided a variety of functions during that time, including a

machine and blacksmith shop, storage areas, and paint shop. At the south maintenance area, located near the middle of the peninsula off Hartshorne Drive, maintenance operations were conducted in Buildings 430, 431, 432, 433, 434, 435, and 437. The south maintenance area was formerly a part of the Nike Missile Launch Site on Sandy Hook and functioned primarily as barracks for enlisted military personnel. The south maintenance area is currently enclosed by chain link fence and barbed wire. Both maintenance areas lie within the boundary of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District, and the associated buildings are considered contributing resources to the District.

Both maintenance areas received substantial flood damage during Hurricane Sandy and continue to be used for maintenance operations, but with significantly reduced functionality and poor working conditions for maintenance staff. Furthermore, damage to the north maintenance area buildings has forced maintenance operations into additional facilities including Buildings 36 and 47, resulting in fragmented communications and poor information technology (IT) infrastructure and support. Therefore, this project is necessary because existing maintenance facilities, buildings, and equipment within the Sandy Hook Unit were significantly damaged during Hurricane Sandy resulting in loss of functionality. The proposed facilities would support Gateway maintenance staff and equipment while greatly reducing the potential for substantial damage during future catastrophic coastal storm surge or flood events.

## **PROJECT OBJECTIVES**

Objectives are more specific statements of purpose that provide additional bases for comparing the effectiveness of alternatives in achieving the desired outcomes of the action (NPS 2015). All alternatives carried forward for detailed analysis must meet all objectives to a large degree and must resolve the purpose of and need for action. The following objectives were identified by the planning team for this project:

1. Minimize impacts to natural and cultural resources;
2. Improve operations and storage/protection of critical supplies, tools, and equipment, particularly immediately before, during, and after a severe weather event;
3. Support routine maintenance operations with an efficient, sustainable, and storm resistant facility;
4. Improve facility and maintenance management efficiencies on a daily basis within the Sandy Hook Unit; and
5. Improve visitor appreciation and internal customer support through critical mission support.

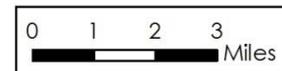


**Figure 1: Gateway National Recreation Area Regional Park Map**

Gateway National Recreation Area  
Relocate Hurricane Sandy Damaged Maintenance Facilities  
to More Sustainable Locations  
Environmental Assessment

**Legend**

- GATE Land
- Park Boundary
- Project Area
- State Highway
- Interstate Highway

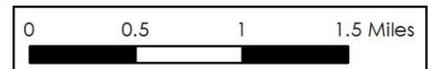


Data Source: NPS



**Figure 2: Sandy Hook Unit of Gateway National Recreation Area**

Gateway National Recreation Area  
Relocate Hurricane Sandy Damaged Maintenance Facilities  
to More Sustainable Locations  
Environmental Assessment



**Legend**

- GATE Land
- Park Boundary
- Project Area
- Roadways

Data Source: NPS

## RELATED PLANNING EFFORTS

**General Management Plan (GMP)** – The GMP suggests that the consolidation and relocation of maintenance areas will improve operational efficiency and provide more modern facilities from which to base maintenance activities (NPS 2014a).

The GMP categorizes the park's historic structures into three bands - *preserve*, *stabilize*, and *ruin* - to guide and prioritize future management. The park took into account such factors as condition, potential use, uniqueness to the park, and vulnerability to future storms when categorizing the properties. Buildings in the *preserve* band will be maintained and preserved, buildings in the *stabilize* band will be mothballed or otherwise receive minimal maintenance, and buildings in the *ruin* band will receive no maintenance and be left to decay in place or be partially or fully demolished. The buildings in the south maintenance area were placed in either the *preserve* or *stabilize* bands; the majority of the buildings in the north maintenance area are in the *ruin* band, except for 124 and 156, which are in the *stabilize* band.

The park will continue consultation under the Section 106 programmatic agreement for implementation of the GMP to determine the specific future treatment for each building. Potential options for the buildings in the *ruin* band include leaving the buildings as ruins, stabilizing them as shade structures, or demolition.

## ISSUES AND CONCERNS IDENTIFIED DURING SCOPING

The NPS, participating agencies and stakeholders, and members of the public identified specific issues and concerns during scoping. Issues and concerns that were retained for detailed analysis are included in the impact topics discussed in “Chapter 3: Affected Environment” and analyzed in “Chapter 4: Environmental Consequences.” Issues and concerns raised during scoping helped to guide the development of project alternatives and contributed to the selection of impact topics analyzed in detail in this EA.

### Planning Issues and Concerns Retained for Detailed Analysis

**Proposed project adds impervious surfaces and structures within the 100-year floodplain** – There are very few areas on the peninsula above the 100-year floodplain elevation, and all were considered in early planning as potential locations for the consolidated maintenance facility. However, as these sites were identified during scoping as important habitat for numerous resident and migratory birds and prime bird-watching areas for park visitors, an alternative location within the 100-year floodplain is being considered. At the North Site, the proposed action would add impervious surfaces and structures within the floodplain that could reduce the floodplain's ability to store, convey, and/or allow infiltration of flood waters; therefore, *Floodplains* is analyzed as an impact topic in this EA.

A Floodplain Statement of Findings has been prepared in consultation with the NPS Water Resources Division in accordance with NPS Director's Order 77-2: *Floodplain Management* and is provided as **Appendix A**.

**Reduction in successional maritime forest habitat area caused by the footprint of the proposed facility** – During the early stages of planning, the NPS identified potential locations for the consolidated maintenance facility, such as the Water Treatment Plant Site, which would require clearing of maritime forest to accommodate the facility. Public scoping and consultation with the US Fish and Wildlife Service underscored the need for careful site selection to minimize potential impacts to maritime forest habitat and associated wildlife. As a result of feedback from the public and agencies that discouraged construction and forest clearing in the vicinity of the Water Treatment Plant, the NPS dismissed this as a viable alternative, and eventually identified the North Site as the most suitable location for the consolidated maintenance facility. The construction of a consolidated maintenance facility at the North Site provides the opportunity to use a previously disturbed area to reduce impacts to maritime forest and important wildlife habitat. However, the North Site includes a small successional maritime forest area that has the potential to support resident and migratory birds, and may also support certain federal- and state-listed rare, threatened, and endangered species, including the federally listed northern long-eared bat (*Myotis septentrionalis*). The proposed action would require clearing of approximately 3.2 acres of successional maritime shrubland and forest within the project area. As a result, *Wildlife and Habitat* and *Rare, Threatened and Endangered Species* are analyzed as impact topics in this EA.

**The proposed action could add new elements to the historic district and require modifications to contributing structures** – During public scoping, commenters encouraged the NPS to preserve the historic character and integrity of Sandy Hook through adaptive reuse of existing vacant or underutilized buildings for the proposed maintenance facilities. In response to public comments, the NPS developed its design for the North Site to include the adaptive reuse of Buildings 49 and 65, which are contributing elements of the National Historic Landmark District. Repairs and modifications to these buildings would be needed to allow for their new functions as part of a consolidated maintenance facility. Also, new facilities such as the proposed vehicle/equipment maintenance and repair shop would be situated within the National Historic Landmark District, and would be visible from several buildings in the vicinity, including atop the Sandy Hook Light, an individually listed National Historic Landmark. Because modifications to Buildings 49 and 65 would be needed, and the new facilities could detract from the character of the National Landmark Historic District, the *Historic District* is analyzed as an impact topic in this EA.

**The proposed action could create noise in the vicinity of sensitive receptors** – Noise generated by the construction and operation of the consolidated maintenance facility was considered during development of the proposed action. During the initial public scoping, individuals representing the Marine Academy of Science and Technology (MAST) School expressed concern that the proposed action could be disruptive to the school. This feedback resulted in the dismissal of a potential site located along Gunnison Road from consideration

(known as the Tent City Site during scoping). The NPS ultimately recognized the North Site as a potential site that minimizes noise-related impacts; however, the proposed action would result in noise that could be audible to varying degrees from NPS residences on Mercer Road, the Sandy Hook Chapel, and the MAST School. As a result, *Noise* is analyzed as an impact topic in this EA.

### *Planning Issues and Concerns Dismissed from Detailed Analysis*

A number of issues and concerns were raised during scoping that were dismissed from detailed analysis because it was determined that they were not central to the proposal or of critical importance to the decision.

**Construction and maintenance facility operations could impact traffic and circulation** – Comments were received during scoping that expressed concern that construction and maintenance activities could increase traffic and restrict access and circulation in the vicinity of the MAST School. These concerns were generally related to the construction of a consolidated maintenance facility at the Tent City Site, which was located directly across Gunnison Road from the MAST School. The NPS dismissed the Tent City Site as a viable alternative because of its proximity to the MAST School and its potential impacts on local traffic, among other concerns. At the North Site, construction of the consolidated maintenance facility would result in fewer impacts to the MAST School. Construction vehicles would avoid the MAST School area by accessing the North Site using Hartshorne Drive, Kearney Road, and South Bragg Drive. Temporary work zone traffic control measures would be implemented to maintain vehicle circulation and access, and a detour would be arranged for users of the multi-use pathway (MUP) at the northern extents of the project area. Aside from this short detour, none of the temporary impacts to local roads during construction would restrict access to the park's attractions, and the overall impacts on vehicle circulation and access on Sandy Hook would be minor. Following construction, there would be an increase in activity at the North Site due to the relocation of maintenance facilities, as well as the incorporation of new facility access points off of Kearney Road and South Bragg Drive. However, the occasional maintenance vehicle on roads surrounding the facility would not result in impacts to traffic on Sandy Hook that would be detectable because the majority of maintenance activities would occur on weekdays during typical work periods when visitation to this area of the park is low. Based on these considerations, concerns related to traffic, access, and circulation have been dismissed from detailed analysis in this EA.

**Construction and maintenance facility operations could detract from recreational experiences** – During the initial stages of planning, the NPS considered whether the proposed action would disrupt popular recreational opportunities provided at Sandy Hook. Beaches are the primary visitor attraction on Sandy Hook, and potential sites for the consolidated maintenance facility were located away from popular beaches and beach amenities. At potential sites, including the Water Treatment Plant Site and the Tent City Site, primary visitor activities include bird watching, and hiking or biking the MUP. Birds of interest on Sandy Hook include the osprey (*Pandion haliaetus*), numerous migratory birds, and a wide variety of forest interior,

forest edge, and coastal bird species. The MUP runs the length of the Sandy Hook peninsula (8.6 miles) and passes by beaches, wetlands, maritime forests, and historic features associated with Sandy Hook's military history. Due in part to feedback provided by park visitors who enjoy the unique birdwatching and hiker/biker experiences provided in these areas of Sandy Hook, the Tent City Site and the Water Treatment Plant Site were dismissed as viable alternatives.

At the North Site, park visitors typically pass by the project area on Kearney Road or South Bragg Drive in route to other destinations on Sandy Hook. Visitors using the MUP may pass briefly through the north end of the project area when using the segment of the path along South Bragg Drive; otherwise, visitors are not encouraged to enter the area. Buildings within the project area are utilized by NPS Law Enforcement, Fire and Emergency Medical Services (EMS), resource management staff, the Sandy Hook lifeguards, and other authorized personnel. During construction, noise is not expected to be noticeable from the park's beaches where the majority of park visitors generally congregate. In order to mitigate indirect impacts to visitors, construction would be performed during weekdays and other off-peak periods. Park visitors would be notified in advance of any construction activities, and access to visitor attractions would be maintained for the duration of construction. Once constructed, the consolidated maintenance facility would be a noticeable addition to the landscape, but its overall effect on park visitors would be minimal. The new facilities would be partially obscured by existing buildings and located at a distance from recreational resources. The facility would have minimal effects on bird watching opportunities because the North Site is not a popular destination among bird watchers. Visitors using the MUP would cross a new crosswalk at the South Bragg Drive entrance to the new facility. Signs would be installed to warn motorists and pedestrians of shared use of the roadway. The crossing would be a noticeable change in the pathway, but the crossing would be short and similar to other crossings on the MUP, therefore its overall impact is expected to be minimal. Based on these considerations, visitor use and experience was dismissed from detailed analysis in this EA.

**Construction and maintenance facility operations could generate air emissions –**

During scoping, several commenters expressed concerns regarding potential air emissions and associated air quality impacts. Construction activities under the proposed action would generate emissions of volatile organic compounds and nitrogen oxides as a result of engine use associated with the operation of vehicles and equipment. Construction activities would also result in emissions of particulate matter (dust) and the construction of paved access roads and parking areas would emit fumes during the application of hot mix asphalt surfaces. To minimize impacts to air quality related to engine exhaust, the NPS would encourage construction workers to limit equipment idling times, place stationary emissions sources at a distance from one another, and operate equipment separately to the extent feasible. To prevent fugitive dust, mitigation measures would be employed which could include water spray dust control and/or dust barriers. Overall, the impacts to air quality would be minimal and would be limited to the construction period.

Facility designs would include the use of energy efficient lighting, heating, and air conditioning systems to reduce energy consumption and air emissions that could impact air quality. The

proposed fueling station would be designed and operated in accordance with applicable state and federal regulations and is not expected to impact ambient air quality. Buildings at the North Site would be equipped in a manner that would allow the incorporation of backup generators in the future. Should the NPS decide to install backup generators, the equipment would be tested regularly to verify that emissions would be within regulatory limits. Furthermore, maintenance activities, including the use of maintenance vehicles and equipment, would not increase as a result of the proposed project. Emissions from maintenance activities are not likely to be noticeable at the MAST School or park residences in the vicinity of the proposed facilities. Therefore, the operation of the consolidated maintenance facility at the North Site and associated maintenance activities would not have noticeable impacts on ambient air quality at a local or regional level. Based on these considerations, air quality has been dismissed from detailed analysis in this EA.

**Safety concerns related to construction and maintenance operations** – During scoping, the NPS received comments expressing concerns that the proposed project could result in potential safety concerns related to active construction, the operation of heavy machinery, and materials storage. In order to minimize safety hazards during construction of the proposed maintenance facility, construction workers would be responsible for following recommended safety procedures. The site would be off limits to park visitors, chain link fence or other types of temporary barriers would be used to prevent trespassing into the site, and signs would be installed along haul routes and access points to warn pedestrians and motor vehicles of construction activities. During the operation of the maintenance facility, safe work practices would be implemented to reduce the risk of injury to NPS maintenance staff and the potential for environmental contamination. In particular, the NPS would adhere to Occupational Safety and Health Administration (OSHA) guidelines for the proper storage and handling of potentially hazardous substances such as fuel and oil. The NPS would install perimeter security fencing around the maintenance facility to prevent unauthorized access, and construction materials would be located within a secure storage area within the facility. Properly implemented safety procedures and security measures would ensure minimal risk and impacts to construction workers, NPS staff, park visitors, and park partners. Based on these considerations, concerns related to human health and safety have been dismissed from detailed analysis in this EA.

**Archeological resources may exist within the project area** – The NPS conducted a Phase I archeological assessment of the North Site during the spring of 2015. The assessment concluded that there is low prehistoric archeological potential at the site, but potential exists for archeological resources related to the War of 1812 and subsequent military activity at Fort Hancock. In the winter of 2016, a Phase II archeological investigation was conducted at three locations within the North Site. No archeological resources were identified during the investigation. As a result, no further investigations were recommended and adverse impacts to archeological resources are not anticipated. Therefore, concerns related to archeological resources have been dismissed from detailed analysis in this EA.

**Impacts to lands held in trust by the Secretary of the Interior for the benefit of Indians** – Secretarial Order 3175 requires that any anticipated impacts to Indian trust

resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary 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 law with respect to American Indian and Alaska Native tribes. There are no Indian trust resources on Sandy Hook. No lands on Sandy Hook are held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, concerns related to Indian trust resources have been dismissed from detailed analysis in this EA.

**Disproportionate impacts to minority or low-income populations** – 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 effects of their programs and policies on minorities and low-income populations and communities. The Department of Interior implements this executive order by requiring its bureaus to explicitly discuss environmental justice in their environmental documents (DOI 1995).

According to the 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 (EPA 2015b). The goal of ‘fair treatment’ is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts. Communities in the vicinity of Sandy Hook contain both minority and low-income populations; however, concerns related to environmental justice have been dismissed from detailed analysis in this EA because:

- The park staff and planning team actively 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 alternative would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect adverse effects on any minority or low-income population.
- The impacts associated with implementation of the proposed alternative would not disproportionately affect any minority or low-income population or community.
- Implementation of the proposed alternative would not result in any identified effects that would be specific to any minority or low-income community.

## CHAPTER 2: ALTERNATIVES

This EA analyzes two alternatives:

No-Action Alternative: Under this alternative, the park's administration and maintenance staff would continue to operate out of the facilities that are currently accommodating these functions.

Proposed Action: Under the proposed action, a consolidated maintenance facility would be constructed within the Fort Hancock Historic Post Area at the "North Site" directly north of the Kearney Road/Mercer Road intersection. The consolidation would include the adaptive reuse of Building 49 and Building 65, and the construction of a new vehicle/equipment maintenance and repair shop. The existing north and south maintenance areas on Sandy Hook would be vacated and would not be accessible to the public. The proposed action is also the NPS preferred alternative.

The elements of these alternatives are described in detail in this chapter. Impacts associated with the actions proposed under each alternative are outlined in "Chapter 4: Environmental Consequences." In addition, several concepts were dismissed from further consideration, which are described in this chapter under "Alternatives Considered but Dismissed."

### **NO-ACTION ALTERNATIVE**

The no-action alternative represents a continuation of the present maintenance operations, management, and facility conditions within the Sandy Hook Unit. While the no-action alternative does not meet the purpose and need of the project, it does provide a basis for comparing the management direction and environmental consequences of the proposed action.

Under the no-action alternative, NPS maintenance would continue to operate from the existing north and south maintenance areas (see photos on the following page). Aside from routine repairs and minor improvements to existing facilities, the maintenance areas would generally remain the same. The north and south maintenance areas, as well as Buildings 20, 36 and 47, would be used to maintain vehicles, equipment, roads, grounds, buildings and utilities. The facilities would also provide for equipment and materials storage. With the exception of some small vehicle storage capabilities at the south maintenance area, most vehicles/equipment would be stored uncovered and unprotected from inclement weather. Maintenance facilities and equipment would be susceptible to future flood events and coastal storm surges due to their locations within the 100-year floodplain. At the North Site, Building 49 would continue to be used as a storage area by Gateway's Natural Resources Management staff and the Sandy Hook

lifeguards. Building 65 would remain vacant. Administrative functions would continue to be performed from Building 26 on Hudson Road.

In general, the NPS discourages visitor use of the north and south maintenance areas and Buildings 20, 36 and 47 for safety and security reasons. The maintenance areas are enclosed by existing chain link perimeter/security fencing to prevent unauthorized access. At the south maintenance area, perimeter fencing is a contributing element of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District. In future planning decisions, the NPS would continue to consider the contribution of the north and south maintenance facilities to the historic character and integrity of Sandy Hook.



Entrance to the North Maintenance Area



Building 431 at the South Maintenance Area

## **RELOCATE HURRICANE SANDY DAMAGED MAINTENANCE FACILITIES TO MORE SUSTAINABLE LOCATIONS (PROPOSED ACTION AND NPS PREFERRED ALTERNATIVE)**

Under the proposed action, a consolidated maintenance facility would be constructed at the North Site, which is situated within the Fort Hancock Historic Post Area, to the east of Kearney Road and directly north of the Kearney Road/Mercer Road intersection (see **Figure 2**). The area consists of a complex of buildings including Building 32, Building 33, Building 34, Building 49, Building 51, Building 65, and Building 79.

For the purposes of this EA, the North Site project area includes Buildings 49 and 65 (see photos on page 13); the gravel parking area behind Building 32; site access points along Kearney Road; a short segment of the MUP along South Bragg Drive; and forest, shrub, and grasslands to the east of Buildings 49, 65, and 79. The project area is 5.7 acres in area, and consists of 2.5 acres of developed land, interspersed with approximately 3.2 acres of native vegetation. The limits of the North Site project area are provided on **Figure 3**.



**Building 49 within the North Site Project Area**



**Building 65 within the North Site Project Area**

The consolidated maintenance facility would include adaptive reuse of Building 49 to accommodate maintenance operations associated with the Buildings and Utilities Maintenance Division. Building 49 was historically used as a warehouse, and is currently used as a storage area by Gateway's Natural Resources Management staff and the Sandy Hook lifeguards. The proposed modifications to Building 49 include new program elements such as a wood shop, multi-purpose room, new accessible restrooms (with shower facilities), new accessible locker rooms, as well as retaining a reduced storage area for the Sandy Hook lifeguards. Exterior rehabilitation would be required that would include, but would not be limited to, door replacements, roof replacement, and other exterior repairs. New loading doors, man doors, and accessible entrance features will be added to the exterior of the building. The building's structure will be upgraded to current code standards, and all new mechanical, electrical, and plumbing systems would be incorporated. A sprinkler system would also be included for fire suppression. Critical systems (i.e. heating and air conditioning units, security, computers, etc.) within Building 49 would be elevated to a minimum of three feet above the Base Flood Elevation (BFE), which is equal to or greater than the water surface elevation of the 500-year flood. Upgrades to Building 49 would be made to comply with current building codes. All work will be in keeping with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

The proposed action also includes the adaptive reuse of Building 65 to accommodate maintenance administration functions. The building was historically used as a storehouse and is currently vacant. The proposed modifications to Building 65 would include new program elements such as a new accessible internal stairway, an accessible path to the building entrance, open office area, private offices, accessible restrooms, and a conference room. Exterior rehabilitation would include addressing the deteriorating masonry and rehabilitating the existing wood windows and doors. The building would receive all new mechanical, electrical, and plumbing systems. A sprinkler system would also be included for fire suppression. Upgrades to Building 65 would be made to comply with current building codes. Critical systems (i.e. heating and air conditioning units, security, computers, etc.) within Building 65 would be

elevated to a minimum of BFE+3. All work will be in keeping with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

The NPS would construct a new vehicle/equipment maintenance and repair shop to the east of Building 65 under the proposed action. The new vehicle/equipment maintenance and repair shop would primarily accommodate the functions of the Roads and Grounds Maintenance Division, but would also support other maintenance functions, as necessary. The new vehicle/equipment maintenance and repair shop would include maintenance bays with automotive lifts, as well as equipment storage areas, work areas, offices, a breakroom, and bathrooms with lockers and shower facilities. Elevated concrete ramps would be constructed at the north and south ends of the shop to provide vehicle/equipment access to the maintenance bays. Near the south ramp, a wash station would be provided for vehicles entering the shop. Washwater from the station would drain to the site sanitary sewer line. The new shop would be the primary location for materials storage. The types of materials that would be stored include oil, transmission fluid, brake fluid, pesticides, and fertilizer, which would be stored in accordance with OSHA guidelines.

The NPS would construct the new vehicle/equipment maintenance and repair shop to be resilient to extreme weather conditions, such as high wind speeds and excessive salt spray, and would use hurricane-resistant construction techniques and facility designs that would take into account the latest NPS guidance addressing climate change and natural hazards in facility planning (NPS 2015b). The shop would be elevated using a structural slab or pier system to a minimum of BFE+2 (i.e. the 100-year floodplain elevation), as identified in the 2014 Preliminary Flood Insurance Study (FIS) for Monmouth County (FEMA 2014b). Also, critical systems (i.e. heating and air conditioning units, security, computers, etc.) within the new shop would be elevated to a minimum of BFE+3. A sprinkler system would also be included for fire suppression, and energy efficient heating and lighting systems would be incorporated into the design of the new facility.

An outdoor covered vehicle/equipment parking structure would also be constructed behind Building 49 under the proposed action. This structure would be appropriately sized to accommodate 18-20 maintenance vehicles. The roof of the structure would be constructed using a hurricane-resistant roof covering. In addition, a concrete pad would be installed for the floor of the vehicle bays. Lighting would be installed under the canopy of the structure and new electric power supply would be provided. In the vicinity of the new outdoor covered parking structure, the proposed action would also establish 10 uncovered parking spaces, a bulk materials storage area, and concrete dumpster pad with three sided wall and gate.

In order to minimize the potential for conflicts with NPS Law Enforcement and Fire and EMS facilities access and circulation, two new access points would be constructed for the consolidated maintenance facility. One access point would be constructed along an abandoned road bed off of Kearney Road, approximately 200 feet south of Building 32. A curb cut would be required at Kearney Road to accommodate the new paved entrance. This new access point would lead to the paved parking area proposed to the south of Building 65. The second access point would be

provided by constructing a new asphalt access road behind Buildings 49 and 79 that would continue northwest across the MUP, connecting to South Bragg Drive. A curb cut would be required at South Bragg Drive to accommodate the new access point. The access would primarily be used by on-duty maintenance personnel, vehicles, and equipment. A pedestrian crosswalk, rumble strips, and signage would be incorporated at the MUP crossing to direct pedestrians and bicyclists safely across the new access road. Furthermore, the existing access points off of Kearney Road directly south of Building 32 and between Buildings 33 and 34 would be available for facility access, if needed. Generally, access roads would be wide enough to provide two-way traffic for NPS maintenance staff and equipment circulation.

The NPS would install chain link security fencing to prevent unauthorized access to the new facilities (see **Figure 3** for the limits of fencing). Vehicle access to the fenced-in areas would be controlled by swing gates. The NPS would also install flood lights on poles and security lights on the buildings within the consolidated maintenance facility for additional security and to provide visibility during early morning and/or late evening maintenance activities. Exterior lighting would be shielded and would only cast light on grounds within the facility. Lights would be set using time clock controls that would shut the lights off during nighttime hours. In the event of an emergency or snow removal operations, manual override would allow maintenance staff full control of lighting. Manual override would be provided at the gated entrances to the maintenance facility. All buildings and ancillary structures would be powered with conventional power. Backup generators are not included in the proposed action, but infrastructure would be installed to allow backup generators to be installed at a later date.

Currently, parking for the existing facilities at the North Site is provided by an uneven, unmarked gravel surface behind Buildings 32, 33, 34 and 51 (see photo next page). As part of the development of a consolidated maintenance facility, vehicle parking would be incorporated that would be located outside of the proposed chain link security fencing. Between Buildings 32 and 49, an asphalt surface would be constructed for vehicle circulation and 15 marked parking spaces, including four handicap accessible spaces, for NPS Law Enforcement, maintenance staff, and authorized guests. Also, 41 parking spaces would be established just south of Building 65 that would be open to NPS maintenance staff for parking personal vehicles while on duty. Vehicle circulation through this parking area would consist of an asphalt surface; however, marked parking spaces would be constructed using porous pavers. Porous pavers were selected by the project design team in order to reduce stormwater runoff from the facility and capture parking lot pollutants as stormwater travels through it. In total, 60 marked parking spaces are proposed outside of the chain link fencing that would secure the consolidated maintenance facility.

Inside the chain link security fencing, 28 marked parking spaces, including two handicap accessible spaces, would be established between Building 65 and the proposed vehicle/equipment maintenance and repair shop. In addition, 10 parking spaces are proposed between Building 49 and the proposed outdoor covered parking structure. Asphalt would be used to construct vehicle circulation and the parking spaces at these locations. Parking spaces inside the security fencing would be accessed at gated entrances and would be used to store NPS

vehicles. In sum, 40 parking spaces would be provided for NPS maintenance vehicles inside the facility.



**Gravel parking area behind Buildings 32, 33, 34, and 51**

In addition to the proposed porous paving materials, stormwater management design for the North Site includes construction of two stormwater infiltration basins. One infiltration basin would be constructed to the northeast of the site behind the proposed outdoor covered vehicle/equipment parking structure. The basin would be 6,500 square feet in area with a maximum depth of one foot. The second infiltration basin would be constructed to the southeast of Building 65. The basin would be 3,078 square feet in area with a maximum depth of one foot. The locations of the proposed infiltration basins were selected to take advantage of existing low points across the North Site, and to avoid impacts to existing cultural resources (in the form of architectural remains). As per Energy Independence Security Act (EISA) 438 criteria, the basins would be constructed to control 95<sup>th</sup> percentile rainfall events; i.e. rainfall events whose precipitation total is greater than or equal to 95 percent of all 24-hour storms on an annual basis, or, common storms. The object of the basin design would be to maintain preconstruction hydrology, as called for by EISA 438. The infiltration basins would also capture and retain pollutants in runoff from the facility. All runoff from smaller, more frequent storm events would be contained within the basins. Runoff from more severe, less frequent storm events are likely to overtop the basin and flow into the adjacent vegetated floodplain areas surrounding the project area. Under the most severe storm circumstances, NPS vehicles and equipment would require removal from the North Site to avoid flood damage. NPS maintenance staff would follow evacuation procedures utilizing ancillary storage locations off of the Sandy Hook peninsula in the New Jersey Highlands.

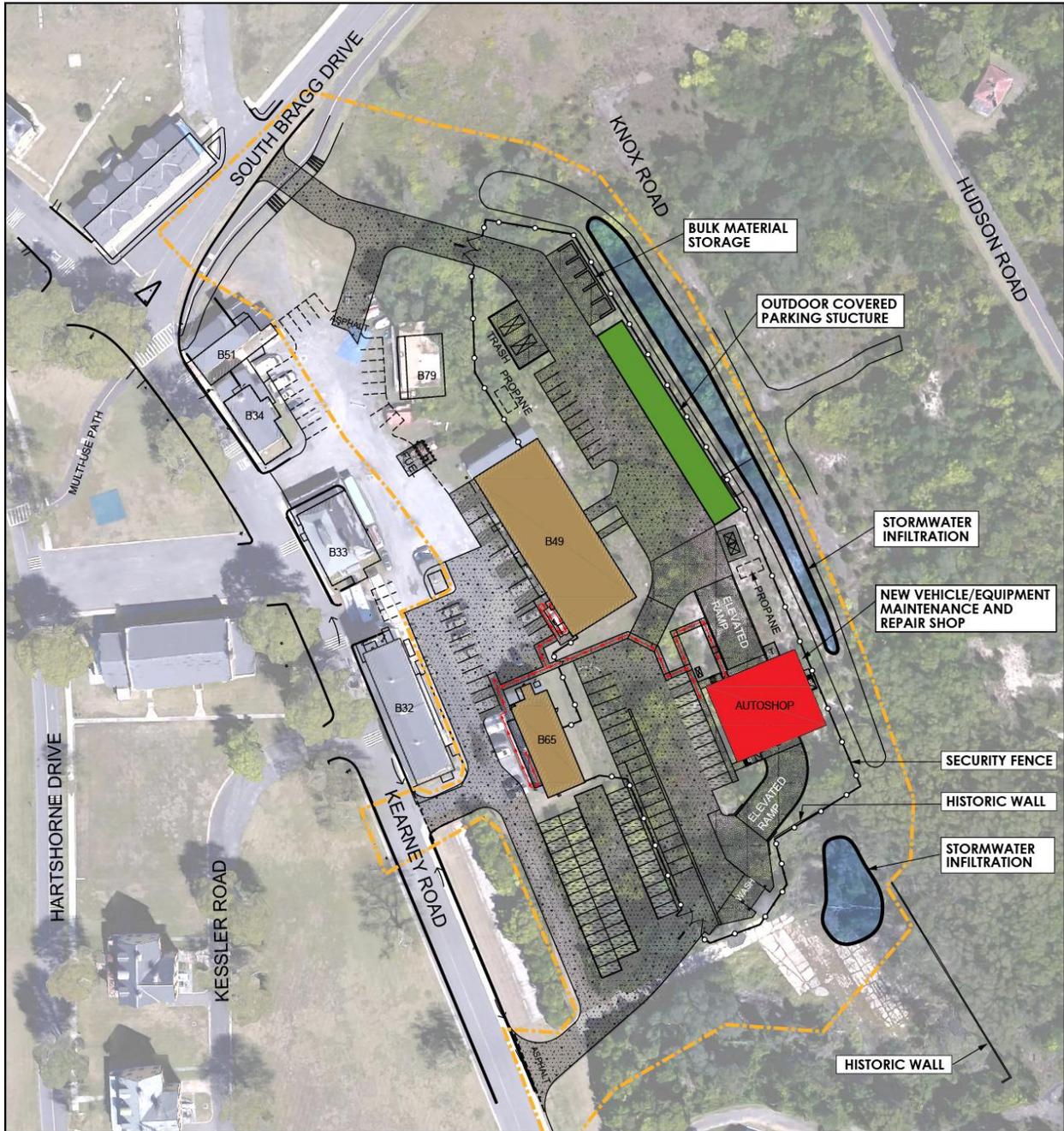
As part of the proposed action, the NPS would relocate the existing fuel station from the north maintenance area to a concrete slab to be installed at the North Site. Components of the fueling station would include a 1,000 gallon above-ground fuel storage tank and fuel dispensing system. The fueling station would be located to the northwest of Building 49. Its location outside of the security fence was chosen so that the fueling station could be used by NPS Law Enforcement and Fire and EMS personnel in addition to the maintenance staff. The fueling station would be

designed in accordance with all appropriate Federal Emergency Management Agency (FEMA) and NPS guidelines for the construction of fuel storage within the regulatory floodplain. The fuel storage tank and its components would be elevated by placing the tank on a metal frame anchored to a concrete pad, or by constructing concrete walls around the tank to protect it during floods, to a minimum of three feet above BFE (BFE+3), which is equal to or greater than the water surface elevation of the 500-year flood. For added protection, the fuel storage tank would have secondary containment greater than the volume of fuel storage. In addition, the fuel storage tank and dispensing system would be surrounded with bollards, or similar barriers, to protect the tank from potential vehicle collisions. An automatic shut-off system would be incorporated into the fueling station.

Under the proposed action, the NPS would prepare a landscape plan for the consolidated maintenance facility, which would include the installation of native trees and/or shrubs around the facility of the same or similar species as those that would be removed during construction. Plantings may be strategically placed for aesthetic purposes as a part of the facility design or to screen the facility from Kearney Road and other viewpoints in the vicinity. Turf grass would be established in areas where structures, gravel surfaces, or stormwater management are not proposed.

The layout of the North Site under the proposed action was designed with shared spaces in mind in order to minimize the footprint of the consolidated maintenance facility. **Figure 3** provides a conceptual layout of buildings and other facility elements including site access, parking, and perimeter security.

After construction of the new consolidated maintenance facility, the functions currently accommodated at the north and south maintenance areas on Sandy Hook would be relocated to the new facility. In the short-term, the existing north and south maintenance buildings would remain in place, but would not be used by the park and would be closed to the public. The park would assess any future uses or actions for these buildings in accordance with the GMP.



**Figure 3: Proposed Consolidated Maintenance Facility on Sandy Hook**

Gateway National Recreation Area  
 Relocate Hurricane Sandy Damaged Maintenance Facilities  
 to More Sustainable Locations  
 Environmental Assessment

**Legend**

- Concrete
- Asphalt
- Porous Pavement
- Outdoor Covered Parking Structure

- Existing Buildings To Be Repurposed
- New Building To Be Constructed
- ABA Route
- Project Area

Data Source: NPS

## MITIGATION MEASURES OF THE PROPOSED ACTION

Mitigation measures would be implemented, whenever feasible, to avoid and/or minimize environmental impacts under the proposed action. The exact mitigation measures to be implemented would depend upon the final design and approval of plans by relevant agencies. The following mitigation measures would be considered:

### Floodplains

- Implement a stormwater management plan consisting primarily of two infiltration basins designed to collect and retain runoff up to the 10-year storm event.
- Incorporate porous pavement into the site design, where possible, to reduce impervious surface area.
- Revegetate disturbed areas using NPS-approved native seed mixes and plantings.

### Wildlife and Habitat

- From April through October, strategies such as bird nest sweep surveying would be conducted to avoid potential impacts to breeding birds at the site.
- Replace trees to be removed with similar species at a minimum ratio of 1:1. Replacement trees would be similar in canopy cover at maturity to existing native trees on site.
- Lighting generated by the new facility would be limited to the extent possible. Exterior lighting would be shielded and would only cast light on grounds within the facility. Lights would be set using time clock controls that would shut the lights off during nighttime hours.

### Rare, Threatened, and Endangered Species

- Tree removal would be seasonally restricted from April through October to avoid potential impacts to adult, flightless, and less experienced flying juvenile northern long-eared bats during the summer maternity season.
- From April through October, strategies such as bird nest sweep surveying would be conducted to avoid potential impacts to state-listed breeding birds such as the American kestrel (*Falco sparverius*).

### Historic District

- Develop and coordinate context-sensitive facility designs with the NJ SHPO and other parties as appropriate.
- Complete improvements to existing facilities in accordance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (NPS 1995b) and the

*Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (NPS 1995) in order to avoid and/or minimize adverse impacts.

- Locate the new facilities to be partially or wholly obscured behind existing buildings or trees and out of sight of park visitors.
- Locate the vehicle/equipment maintenance and repair shop and stormwater infiltration basins to avoid disturbance to architectural remains associated with early 20<sup>th</sup> century coal storage processes.
- Implement careful excavation techniques to avoid impacts to a historic retaining wall several feet from the south ramp to the proposed repair shop.

### **Noise**

- Perform construction during normal business hours during weekdays to lessen the impact on noise sensitive resources.
- Use best available noise control techniques during construction (i.e. minimize equipment idling times; use hydraulically and/or electrically powered tools, etc.).
- Locate stationary noise sources as far from sensitive resources as possible during construction.
- Develop and implement a noise mitigation plan to comply with all federal, state, and local noise control laws and regulations.
- During operation of the new facilities, implement simple strategies to reduce noise levels in consideration of nearby residents (i.e. avoid noise generating activities at night and on weekends).

## **ALTERNATIVES DISMISSED FROM FURTHER CONSIDERATION**

During the planning process, the NPS considered a wide range of preliminary alternatives for the location and configuration of the new consolidated maintenance facility within the Sandy Hook Unit. Some of these alternatives were ultimately dismissed from detailed analysis because of comments received during public scoping that discouraged the use of certain sites, primarily due to impacts to maritime forests and associated bird habitat, potential impacts to species of special concern, and for the proximity of proposed maintenance activities to sensitive noise receptors, including the MAST School. Descriptions of these alternatives are provided below with the reasons for dismissal.

### **Construct a new consolidated maintenance facility at the 90 degree turn on**

**Atlantic Drive** – The NPS considered constructing a new consolidated maintenance facility at the 90 Degree Turn Site located along Atlantic Drive to the east of the Nike Missile Radar Site. The site consists of relatively undisturbed natural areas including maritime holly forest and

maritime red-cedar woodlands. The site was identified for consideration as a potential alternative because elevations are higher than anywhere else on the peninsula, providing a location for a consolidated maintenance facility above the 100-year floodplain. In addition, the site is centrally located on the peninsula and would therefore improve operational efficiency by providing equal access to areas north and south. The NPS dismissed the 90 Degree Turn Site from further consideration during the earliest stages of planning because of the site's location within a unique coastal maritime ecosystem with global rarity rankings of G1 (critically imperiled) and G2 (imperiled globally because of rarity), for the unavoidable clearing of maritime holly forest and maritime red-cedar woodlands and associated resident and migratory bird habitat, and for the known occurrence of numerous state-listed rare plant and animal species in the area.

**Construct a new consolidated maintenance facility at the Sandy Hook Water**

**Treatment Plant** – The NPS considered constructing a new consolidated maintenance facility at the Sandy Hook Water Treatment Plant. This site was identified for consideration because existing elevations within portions of the site are located above 100-year floodplain elevations. This site was also identified based on its potential to consolidate operations into one “campus” that would include both maintenance and water treatment operations, and due to its central location on the peninsula. The Water Treatment Plant Site was one of two potential alternatives presented to the public and agencies during the initial scoping period that occurred in September and October 2014. Numerous comments were received that discouraged the construction of a consolidated maintenance facility in this area because of the unavoidable clearing of maritime forest and associated resident and migratory bird habitat that would be required to accommodate the new consolidated maintenance facility, and also because the forested area surrounding the Water Treatment Plant is a prime location for bird watching due to its concentration of a wide variety of songbirds. Due to this public feedback, and the anticipated natural resource-related impacts that would occur, the NPS modified the site layout to minimize potential impacts by reducing the project footprint at the Water Treatment Plant Site. Two possible site layouts, as well as the adaptive reuse of some of the facilities at the Water Treatment Plant, were presented during an additional scoping period in March and April 2015. However, because concerns remained, public feedback discouraging the use of this site caused the NPS to ultimately dismiss the Water Treatment Plant Site as a potential location for the consolidated maintenance facility.

**Construct a new consolidated maintenance facility at the Tent City Site to the east of the NOAA Marine Sciences Laboratory**

– The NPS also presented the Tent City Site to the public and agencies during the initial scoping period as a potential alternative, along with the Water Treatment Plant Site, for a new consolidated maintenance facility. The Tent City Site is located directly east of the National Oceanic and Atmospheric Administration (NOAA) Marine Science Laboratory along Gunnison Road at the southern boundary of the Fort Hancock Historic Post Area. This site was considered as a potential alternative because the area has been disturbed by past activities and would therefore be effective in minimizing impacts to natural resources within the park. Also, existing buildings in the vicinity could be adaptively reused to accommodate maintenance functions in an effort to reduce the footprint of a new maintenance

facility, but at the same time keeping maintenance operations relatively consolidated. Comments received during the initial scoping period related to the Tent City Site cited various concerns primarily due to its proximity to the MAST School and the potential impacts of construction and maintenance noise, traffic, air emissions, etc. on the school. After gathering this feedback, the NPS modified its plans at the Tent City Site, and presented the revised alternative along with several potential variations during the additional scoping period in March and April 2015. The NPS ultimately dismissed the Tent City Site from detailed analysis because of the feedback provided by the public, particularly the MAST School, and because other new potential site locations were identified for the consolidated maintenance facility that eliminated or reduced these concerns.

**Adaptive reuse of the north and south maintenance areas** – During the initial scoping period, adaptive reuse was strongly encouraged, as commenters suggested the NPS use existing vacant and underutilized buildings in order to maintain the historic character and integrity of Sandy Hook, versus the construction of new facilities. Based on this public feedback, and the NPS's decision to dismiss the Water Treatment Plant Site and the Tent City Site as viable alternatives, the potential to adaptively reuse the existing north and south maintenance areas was analyzed in detail as an alternative to constructing a new consolidated facility. The analysis of this alternative led to its dismissal as a viable alternative, primarily because north and south maintenance are located in flood prone areas that are highly susceptible to future damage from storms and coastal flooding. This alternative was also dismissed because of the substantial repairs that would be required to restore the facilities to be safe, efficient, sustainable and flood-resilient.

**Construct an elevated north maintenance area** – Based on public comments received during scoping to reuse existing buildings on Sandy Hook for the new consolidated maintenance facility, and in order to sufficiently analyze the potential to reuse the north maintenance area, the NPS evaluated an option to elevate the north maintenance area by constructing a slab deck on piles. Under this alternative, which was presented during the additional scoping period in March and April 2015, Buildings 130, 132, and 156 would be lifted up onto approximately 4 acres of decking above the 100-year floodplain elevation. An outdoor maintenance yard and parking for staff would also be provided on the decking. This concept was initially considered by the NPS as a way to greatly reduce impacts to natural resources and to address public comments encouraging the reuse of existing buildings; however, the concept was ultimately dismissed from detailed analysis due to unreasonable impacts to the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District, and the high costs associated with constructing the elevated deck and lifting the existing structures, which would require substantial structural bracing, framing, and stabilization.

## CHAPTER 3: AFFECTED ENVIRONMENT

This chapter describes environmental conditions in and surrounding the proposed project area on Sandy Hook. These conditions serve as a baseline for understanding the resources that could be impacted by implementation of the proposed action. The resource topics presented in this chapter correspond to the planning issues and concerns described in “Chapter 1: Purpose and Need” and the resource discussions contained in “Chapter 4: Environmental Consequences.”

### FLOODPLAINS

Floodplains provide a wide range of benefits to both human and natural systems. According to FEMA, the natural and beneficial functions of floodplains can be categorized into three types, which are all interrelated. These are water resource functions, biological functions, and societal functions (FEMA 2015). Water resource functions of floodplains include natural flood storage, erosion control, groundwater recharge, and surface water quality treatment. At the North Site, the floodplain has a limited capacity to provide water resource functions. The Sandy Hook peninsula sits on surficial sediments that overlay Coastal Plain aquifers and confining units (NJDEP 2003). Groundwater is relatively close to the surface, and fluctuation of the groundwater table is minimal. Based on these characteristics, the floodplain has a low infiltration capacity and minimal potential for groundwater recharge. Also, the Sandy Hook peninsula provides low flood storage capacity because of its relatively small land area. The floodplain within the North Site also provides limited surface water quality treatment and erosion control functions, since much of the site is developed land.

Biological functions of floodplains include production export and provision of fish and wildlife habitats. For instance, floodplains help to maintain biodiversity through provision of breeding and feeding grounds. The North Site is partially developed, but successional maritime forest and shrublands within the project area provide habitat for a number of resident and migratory birds (see Wildlife and Habitat section). Societal resources are the floodplain functions that benefit human society with harvestable products, recreational opportunities, and educational values. Since the existing operations at the North Site discourage visitor use of the area, societal resources of the floodplain at the North Site are minimal. Other floodplain areas on the Sandy Hook peninsula provide recreational and educational opportunities for visitors.

There is functional value in a vegetated floodplain, which makes up approximately 3.2 acres of the project area. In the coastal environment, vegetated floodplains help to reduce surface erosion of loose sandy soils, and provide for the accumulation, filtration, and storage of groundwater. Vegetated floodplains in coastal areas also provide flood storage, and filter and absorb surface water runoff. Coastal storm events may cause changes to hydrological balance

and existing salt and freshwater balances, which may make the maritime shrubland, forests, and other vegetated coastal floodplains area vulnerable over time. If the balance or frequency of runoff into lower lying areas increases, there is potential for the health of the vegetated floodplain to decline over the long-term; because the vegetated floodplain is subject to changes in the salt and freshwater surface water balance.

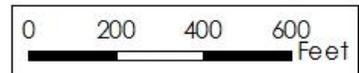
According to FEMA Flood Insurance Rate Maps (FIRM) 34025C0086G, 34025C0060G, and 34025C0080G, the entire Sandy Hook peninsula is within Flood Zone D (FEMA 2014a). The Zone D designation is used for areas where there are possible, but undetermined flood hazards. For the purposes of the analysis described in this EA, preliminary FEMA floodplain mapping has been used that represents the best available floodplain data for the project area. The floodplain mapping is provided in **Figure 4**. According to the mapping, the project area is entirely within the 100-year floodplain (also known as the base flood elevation or BFE). The 100-year floodplain represents areas of high flood risk according to FEMA. The NPS prepared a Floodplain Statement of Findings for the project that provides 100-year floodplain elevations in the vicinity of the North Site within the Fort Hancock Historic Post Area as identified in the 2014 preliminary FIS for Monmouth County (FEMA 2014b) (see **Appendix A**).

As described in the Gateway GMP (NPS 2014a), climate change is expected to bring accelerated sea level rise, heavy rainfall, and possible increases in storm frequency and intensity in the future. Rising sea level and increases in storm frequency and intensity are expected to cause shoreline erosion, saltwater intrusion, more frequent inundation from storms and floods, and increased risk of damaged to park facilities and infrastructure at Sandy Hook.



**Figure 4: North Site Project Area with Floodplain Designations**

Gateway National Recreation Area  
 Relocate Hurricane Sandy Damaged Maintenance Facilities  
 to More Sustainable Locations  
 Environmental Assessment



**Legend**

 Project Area	 100-year Floodplain	 500-year Floodplain	 Non-floodplain	Data Source: NPS
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## WILDLIFE AND HABITAT

### Habitat

Sandy Hook contains a variety of wildlife habitats, including beach and dune habitat, tidal and non-tidal wetlands, and maritime forest, i.e., forest that is influenced by coastal processes including salt spray, high winds, and dune deposition (Edinger et al. 2014). The project area includes approximately 2.5 acres of developed land, and 3.2 acres of native vegetation. Vegetative communities include approximately 3.2 acres of successional maritime shrubland and forest that have the potential to provide habitat for a variety of wildlife. The forested land is interspersed with shrubland providing edge habitat that is present at the border of the vegetated area and developed land. The project area also includes 0.36 acres of maintained turfgrass. Throughout the forest and shrubland there are indications of previous land use in the form of concrete rubble and stunted vegetative growth.

Successional maritime forest has a global rarity ranking of G4 (apparently secure globally) (Edinger et al. 2014). Within the Sandy Hook peninsula, there are approximately 116.68 acres of successional maritime forest. This forest community occurs most often on stabilized backdunes, generally leeward of secondary maritime dunes or in protected hollows. It can also be found farther inland in association with tall maritime shrubland. On Sandy Hook, this forest occurs mainly in the northern third section of the peninsula. Dominant trees in the canopy and subcanopy include black cherry (*Prunus serotina*) and common hackberry (*Celtis occidentalis*). Associated canopy species include red maple (*Acer rubrum*), American holly (*Ilex opaca*), white poplar (*Populus alba*), and black locust (*Robinia pseudoacacia*) with lesser amounts of eastern redcedar (*Juniperus virginiana*), Japanese black pine (*Pinus thunbergiana*), eastern cottonwood (*Populus deltoides*), and staghorn sumac (*Rhus typhina*). Dominant shrub species include black cherry and northern bayberry (*Morella pensylvanica*). Dominant vine species include poison ivy (*Toxicodendron radicans*), Japanese honeysuckle (*Lonicera japonica*), and Asian bittersweet (*Celastrus orbiculatus*) (Edinger et al. 2008).

During January 2016, the NPS performed a tree survey to assess the potential for the North Site to provide suitable habitat for the northern long-eared bat. Coniferous and deciduous tree species on the site are relatively small, ranging from 3-6 inches in diameter, with approximately five trees that range from 7-12 inches in diameter. Tree species consist of eastern redcedar, Virginia pine (*Pinus virginiana*), shortleaf pine (*Pinus echinata*), and pitch pine (*Pinus rigida*). Deciduous shrub-scrub species include chokecherry (*Prunus virginiana*), northern bayberry, strawberry bush (*Euonymus americanus*), sassafras (*Sassafras albidum*), and winged sumac (*Rhus copallina*).

### Wildlife

Sandy Hook is designated as a globally significant Important Bird Area, mainly due to nesting of the federally-threatened and state-endangered piping plover (*Charadrius melodus*). Other features at Sandy Hook that meet the criteria for an Important Bird Area include the presence of habitat supporting regional responsibility species, significant congregations of waterfowl, and

significant migrant stopover/flyover sites for landbirds and shorebirds (NJ Audubon 2014). This section focuses on species with breeding habitat requirements similar to habitats found at and adjacent to the project area, and species that may use the forested areas as stopover habitat during migration. This section does not include waterfowl, shorebirds, colonial-nesting waterbirds, or seabirds (gulls and terns), because the project area is not located along the shoreline or beaches.

### Breeding Birds

The New Jersey Audubon Society conducted breeding bird surveys at 60 point-count locations on Sandy Hook in 2005. The most common species observed were common yellowthroat (*Geothlypis trichas*), red-winged blackbird (*Agelaius phoeniceus*), eastern towhee (*Pipilo erythrophthalmus*), gray catbird (*Dumetella carolinensis*), and house wren (*Troglodytes aedon*) (Mizrahi et al. 2008). These common species are likely to nest in maritime forest habitats in proximity to the project area.

Studies conducted by Dr. Thomas Brown and his colleagues from the City University of New York (CUNY)-College of Staten Island in the years 2012, 2013, and 2014 (unpublished data) also provide an account of breeding birds on Sandy Hook. During summer banding efforts in 2012 within the maritime holly forest east of the Water Treatment Plant, Dr. Brown and colleagues suspected the following species were breeding near their netting location: American redstart (*Setophaga ruticilla*), American robin (*Turdus migratorius*), Carolina wren (*Thryothorus ludovicianus*), Cooper's hawk (*Accipiter cooperii*), eastern towhee, eastern wood pewee (*Contopus virens*), gray catbird, house wren, northern cardinal (*Cardinalis cardinalis*), wood thrush (*Hylocichla mustelina*), yellow-breasted chat (*Icteria virens*), and yellow-billed cuckoo (*Coccyzus americanus*). These species use forested and shrub habitats for breeding and could also occur in the successional maritime forest in the vicinity of the project area. These species are common in New Jersey, except for Cooper's hawk, wood thrush, and yellow-breasted chat, which are species of concern in the state (NJ DFW 2012). In 2013, two American redstarts and one gray catbird were recaptured during summer netting efforts.

### Migratory Birds

Sandy Hook is known as a migration stopover site for numerous bird species and species groups. Migratory songbirds were banded by Dr. Brown and colleagues at Sandy Hook between the years 2012 and 2014 (unpublished data). Spring banding efforts in all years occurred near the southern end of Sandy Hook, east of the maintenance buildings along Randolph Drive, and fall banding efforts occurred near the center of the peninsula adjacent to Parking Lot K and the tennis courts. Both banding efforts occurred near Sandy Hook's maritime holly forest habitats. Dr. Brown and colleagues banded 60 different species in 2012, 47 species in 2013, and 67 species in 2014. The most abundant bird species banded in 2012 was gray catbird. The most abundant species banded in 2013 were white-throated sparrow (*Zonotrichia albicollis*), golden-crowned kinglet (*Regulus satrapa*), and ruby-crowned kinglet (*Regulus calendula*). The most abundant species banded in 2014 were gray catbird, common yellowthroat, ruby-crowned kinglet, and white-throated sparrow. Gray catbirds and common yellowthroats are common breeders and migrate in large numbers in coastal New Jersey. Sparrows are known to stop over

in large flocks near Parking Lot K. The 2014 survey also captured four Bicknell's thrush (*Catharus bicknelli*), a Bird of Conservation Concern in US Fish and Wildlife Service Region 5 (USFWS 2008).

Species captured during fall 2012 mist-net surveys that had not been captured during previous efforts since 2009 included bobolink (*Dolichonyx oryzivorus*), blue grosbeak (*Passerina caerulea*), and Connecticut warbler (*Oporornis agilis*). New species captured during 2014 mist-net surveys included the state-endangered golden-winged warbler (*Vermivora chrysoptera*), clay-colored sparrow (*Spizella pallid*), orange-crowned warbler (*Oreothlypis celata*), and house finch (*Haemorhous mexicanus*). During migration, these species could use the successional maritime forest habitat adjacent to the project area.

Although most of the Fort Hancock Historic Post Area is developed, grasslands and old fields support small mammals, providing potential feeding opportunities for raptors and owls (NPS 2014a). Raptors are observed by Sandy Hook's Hawk Migration Association of North American (HMANA) Hawk Watch site. HMANA sites occur in areas with known concentrations of migrating raptors. The most recent publicly available data from Sandy Hook is from the 2012 spring migration survey. In 350 observation hours in March, April, and May, observers documented 2,798 raptors. The species most commonly observed was sharp-shinned hawk (*Accipiter striatus*) with 1,009 individuals documented (36% of raptors observed). Sharp-shinned hawk is a species of special concern in New Jersey (NJ DFW 2012).

Species known or suspected of breeding on Sandy Hook include osprey and Cooper's hawk. Osprey are known to nest on Sandy Hook, and are discussed along with the other state-listed raptors mentioned above in the rare, threatened, and endangered species sections of this EA. Cooper's hawk, a species of special concern in New Jersey (NJ DFW 2012), were heard making territorial calls or seen carrying food during Dr. Thomas Brown's banding efforts within the 2012 summer breeding season (unpublished data).

Based on studies conducted by Dr. Thomas Brown in 2014, barred owls (*Strix varia*) are known to nest on Sandy Hook. During fall migration, Dr. Brown and colleagues have banded numerous northern saw-whet owls (*Aegolius acadicus*), both juveniles and adults, near the center of the peninsula adjacent to Parking Lot K and the tennis courts (unpublished data). Long-eared owls (*Asio otus*) are discussed in the rare, threatened, and endangered species sections of this EA.

## **RARE, THREATENED, AND ENDANGERED SPECIES**

In a letter to Gateway National Recreation Area dated October 22, 2014, the US Fish and Wildlife Service stated that, "Other than the northern long-eared bat, the [federally] listed and proposed species that occur on Sandy Hook are restricted to beach and intertidal habitats." Federally listed species not expected to occur in the project area and, therefore, not analyzed in this EA, include piping plover (*Charadrius melodus*), rufa red knot (*Calidris canutus rufa*),

northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), and seabeach amaranth (*Amaranthus pumilus*). State-listed species not expected to occur in the project area and therefore not analyzed include the least tern (*Sternula antillarum*), yellow-crowned night heron (*Nyctanassa violacea*), and red-headed woodpecker (*Melanerpes erythrocephalus*).

#### Northern Long-eared Bat

The US Fish and Wildlife Service listed the northern long-eared bat as endangered on April 2, 2015 (USFWS 2015a). The Service found that listing was warranted due to the recent severe and ongoing decline of the species due to white-nose syndrome. The northern long-eared bat is a relatively wide-ranging bat, but its distribution appears patchy, and is usually found in low numbers in both roosts and hibernacula (Griffin 1940, Barbour and Davis 1969, Caire et al. 1979, Amelon and Burhans 2006, ASRD and ACA 2009). Insufficient data are available at this time to estimate a range-wide population.

In New Jersey, there are seven known hibernacula with one or more winter records of northern long-eared bats (USFWS 2015b). In northern New Jersey, northern long-eared bats hibernate from November 15 through April 1 (USFWS 2014). The NPS is not aware of northern long-eared bat hibernacula within 5 miles of Sandy Hook, and there are no documented occurrences on the peninsula.

The summer maternity season for northern long-eared bats in northern New Jersey is April 1 through September 30 (USFWS 2014). During the summer, northern long-eared bats inhabit forests and roost singly or in colonies in the cracks, crevices, and bark of both live and dead trees (Lacki and Schwierjohann 2001). They have been found roosting in structures such as buildings, barns, sheds, and cabins. Foster and Kurta (1999) have indicated that northern long-eared bats do not depend on any particular species of tree for roosting but tree characteristics, such as structure and decay, are important. Recent capture efforts have found northern long-eared bats in young stands and disturbed forests (Crampton and Barclay 1998, Foster and Kurta 1999, Cryan et al. 2001, Menzel et al. 2002, Henderson and Broders 2008, Henderson et al. 2008, ASRD and ACA 2009).

During late summer and early autumn, cave-dwelling bats migrate from their summer habitats to swarming sites where breeding likely occurs. Suitable fall swarming habitat for northern long-eared bats consists of forested habitats typically within 5 miles of a hibernaculum. Swarming habitat can occur in a range of sizes, including large forested blocks, small woodlots, and linear features, such as fencerows, riparian forests and other wooded corridors. In northern New Jersey, the fall swarming season occurs from August 16 through November 15 (USFWS 2014).

It is unknown if northern long-eared bats roost in summer on Sandy Hook or in the project area. Summer habitat and roost tree requirements for this species are diverse and likely vary by region. During January 2016, the NPS performed a tree survey to assess the potential for the North Site to provide suitable roosting habitat for the northern long-eared bat. Informal consultation with the US Fish and Wildlife Service is ongoing as of this EA to determine if any further studies are required, and if applicable, request guidance pursuant to meeting Section 7

consultation requirements and/or recommendations for improving protection of listed species that could potentially occur within the project area.

***State-Listed Birds***

Based on information provided by the Conserve Wildlife Foundation of New Jersey, and the habitat available at the North Site, seven state-listed bird species have the potential to occur in the project area (**Table 1**).

**Table 1: State-listed avian species potentially occurring within the project area**

Common Name (Scientific Name)	State Status	Potential Season of Occurrence on Sandy Hook Unit <sup>1</sup>
American kestrel ( <i>Falco sparverius</i> )	threatened	year-round resident
bald eagle ( <i>Haliaeetus leucocephalus</i> )	endangered	migration
golden-winged warbler ( <i>Vermivora chrysoptera</i> )	endangered	migration
long-eared owl ( <i>Asio otus</i> )	threatened	migration; winter resident
northern goshawk ( <i>Accipiter gentilis</i> )	endangered	migration; winter resident
osprey ( <i>Pandion haliaetus</i> )	threatened	confirmed breeding; summer resident
red-shouldered hawk ( <i>Buteo lineatus</i> )	endangered	migration

<sup>1</sup> Based on range maps provided in New Jersey Endangered and Threatened Species Field Guide (CWF 2015).

American kestrels inhabit open, grassy habitats with trees that provide cavities for nesting and serve as perches for hunting (CWF 2015). On Sandy Hook, kestrels could nest in the grasslands and old fields in the Fort Hancock Historic Post Area. During the 2012 spring migration survey conducted at Sandy Hook’s HMANA Hawk Watch site, 401 American kestrels were documented. Sixteen bald eagles were also documented during the 2012 survey. Although there have been recent increases in the number of bald eagle nests in New Jersey, a 2015 study conducted by the New Jersey Department of Environmental Protection found no bald eagle nests on Sandy Hook (NJDEP 2015). Additional species listed in **Table 1** that were documented in the 2012 survey include 131 red-shouldered hawks and one northern goshawk.

Mist-netting surveys conducted by Dr. Thomas Brown and his colleagues from the CUNY-College of Staten Island on Sandy Hook in 2014 (unpublished data) captured golden-winged warblers. Golden-winged warblers can be found in areas with patchy distribution of trees and shrubs. They use tall trees for perching, shrubs and saplings for foraging, and herbaceous vegetation for nesting (NJ DFW 2012e). Based on these habitat characteristics, this species could use the area surrounding the North Site during migratory periods.

Long-eared owls are rare in New Jersey as the landscape has shifted from a mosaic of wooded and open habitats to a mix of urban development and large blocks of mature forest (NJ DFW 2012b). On Sandy Hook, this owl may roost and nest in woodlands that are near or adjacent to open habitats, such as fields, meadows, barrens, and marshes. In 2014, 21 active osprey nests were documented on Sandy Hook (NPS unpublished data). Relative to the project area, the 2 closest osprey nests are 0.10 mile (~500 feet) to the west and 0.24 mile (~1,200 feet) to the north. Both nests are chimney nests on Buildings 80 and 114.

*New Jersey Species of Special Concern*

Numerous migratory birds that are New Jersey species of special concern have the potential to occur at Sandy Hook or in the project area during the breeding season or during migration.

**Table 2** lists species of special concern that, based on their habitat requirements, have the potential to breed in the project area or use the project area as a stopover site during migration. Although there are no documented occurrences of these birds in the project area, several species of special concern were documented at Guardian Park in spring and summer of 2014 and 2015 (CLO 2015).

<b>Table 2: Species of special concern documented during bird surveys conducted in 2014-2015</b>			
<b>Common Name<sup>1</sup></b>	<b>Scientific Name</b>	<b>Documented on Sandy Hook or potential habitat in Project Area?<sup>2</sup></b>	<b>Migrant that could use Project Area as Stopover?</b>
black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	Y	Y
<b>black-throated blue warbler</b>	<i>Setophaga caerulescens</i>	Y	Y
<b>black-throated green warbler</b>	<i>Setophaga virens</i>	Y	Y
blackburnian warbler	<i>Setophaga fusca</i>	N	Y
<b>blue-headed vireo</b>	<i>Vireo solitarius</i>	Y	Y
<b>broad-winged hawk</b>	<i>Buteo platypterus</i>	Y	Y
<b>brown thrasher</b>	<i>Toxostoma rufum</i>	Y	Y
Canada warbler	<i>Cardellina canadensis</i>	N	Y
cerulean warbler	<i>Setophaga cerulea</i>	N	Y
<b>Cooper's hawk</b>	<i>Accipiter cooperii</i>	Y	Y
gray-cheeked thrush	<i>Catharus minimus</i>	N	Y
<b>hooded warbler</b>	<i>Setophaga citrina</i>	Y	Y
Kentucky warbler	<i>Geothlypis formosa</i>	N	Y
<b>least flycatcher</b>	<i>Empidonax minimus</i>	Y	Y
<b>Nashville warbler</b>	<i>Oreothlypis ruficapilla</i>	Y	Y
<b>northern parula</b>	<i>Setophaga americana</i>	Y	Y
sharp-shinned hawk	<i>Accipiter striatus</i>	N	Y
<b>veery</b>	<i>Catharus fuscescens</i>	Y	Y
eastern whip-poor-will	<i>Antrostomus vociferus</i>	N	Y
winter wren	<i>Troglodytes hiemalis</i>	N	Y
wood thrush	<i>Hylocichla mustelina</i>	N	Y
<b>worm-eating warbler</b>	<i>Helmitheros vermivorum</i>	Y	Y
yellow-breasted chat	<i>Icteria virens</i>	N	Y

Source: CLO 2015

<sup>1</sup> Species common name in bold if documented on Sandy Hook.

<sup>2</sup> Documented on Sandy Hook OR breeding range includes coastal New Jersey and suitable breeding habitat is present or proximal to the project area.

## **HISTORIC DISTRICT**

The Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District, encompassing the entire Sandy Hook peninsula, includes numerous military-related resources, as well as the Sandy Hook Light, an individually listed National Historic Landmark. Fort Hancock, which comprised 110 contributing buildings and 16 batteries at the time of the resource's National Historic Landmark listing in 1982, played a role as one of New York Harbor's key lines of defense for over 200 years. Significant advancements in military defense technology (radar) were accomplished on the Proving Ground from the mid-nineteenth to late twentieth century.

Today, Fort Hancock retains much of its original design including its tree lined roads, housing, parade grounds, and athletic fields, although some of the outlying structures are no longer extant. Although the Proving Ground was closed in 1919, its former location, to the north and east of the fort, remains relatively intact as an open, flat landscape similar to its early twentieth century appearance. As such, the Historic District maintains many of its character-defining features.

### *Fort Hancock (1813 to 1974)*

Fort Hancock was originally constructed in 1813 as a wooden structure for the defense of New York Harbor during the War of 1812. Plans to construct a permanent fortification were proposed, but it took until 1859 for construction of a stone fortification to begin. Although utilized by the Army during the Civil War, the granite defensive structure was never completed as technological advancements in artillery allowed munitions to penetrate stone and rendered the fort obsolete (Hoffman 2015a).

Fort Hancock guarded New York Harbor, which was considered the nation's most important port. The first of the US Army's concrete gun batteries raised and lowered by steam powered hydraulic lifts were installed at Fort Hancock in 1895. Eventually, the original gun batteries were replaced by more efficient counterweighted gun batteries. Seven gun batteries of this type were constructed at Fort Hancock between 1896 and 1909. These batteries and others made the fort the most technologically advanced military defense in the nation during this time (Hoffman 2015a). Additional gun batteries were added in the years prior to World War I as longer range firing ground based munitions were developed. In the intervening years between World War I and World War II, as aerial bombing became a greater threat, the Army installed its new "anti-aircraft gun batteries" at Fort Hancock; however, with the rapid technological advancements developed in warfare during World War II, the idea of defending the nation's harbors by heavy artillery became outmoded (Hoffman 2015a).

In 1895 the Army began designing housing and other support buildings at Sandy Hook. Plans in 1896 called for 38 buildings and associated infrastructure to be constructed. Eighteen of the buildings, designed in the Colonial Revival style, served as officer's quarters. Four barracks, which housed 80 men, were constructed for enlisted personnel. Other buildings included the

Fort's headquarters, warehouses, noncommissioned officer housing, bakery, maintenance buildings, hospital, water pumping station, and horse stables. Additional facilities were added to Fort Hancock during the first decade of the 20<sup>th</sup> century. During this time the military and civilian population at the Fort reached between 500 and 800 people (Hoffman 2015b). During World War I, continued expansion of the Fort included numerous wooden barracks, mess halls, and other support structures to accommodate the over 2,000 soldiers stationed at the installation (Hoffman 2015a).

Between 1933 and 1942 the Fort became the testing site for thermal detection radar. The US War Department decided to move all radar research and development to Fort Hancock with a new facility located at the former Sandy Hook Proving Ground. The Works Progress Administration provided the labor for the construction of a field house and large shed-roofed testing garage. In 1939, research had shifted focus from thermal detection to radio detection and the Army brought in electrical contractors to help with the development of the new, more reliable radio detection technology. In 1941, eight additional shelters were constructed as part of new testing programs which were continued until early 1942 when operations were relocated (Eberhart 2008).

As the nation ramped up efforts during World War II, building projects at Fort Hancock resumed at a rapid pace with the construction of over 100 buildings, mostly barracks and associated mess halls. At its peak during World War II, the population at Fort Hancock increased to 7,000 to 12,000 personnel (Hoffman 2015a). Fort Hancock's strategic proximity to New York Harbor allowed the Fort to remain a viable military installation during the Korean War through the early 1970s as the home of one of the nation's Nike air defense missile sites. Barracks associated with the Nike missile site currently comprise the south maintenance area. In 1974, the Army Air Defense Command was deactivated and the base began a year-long process of shuttering the Fort's buildings. The Fort was transferred to the NPS in 1975 and is currently part of the Sandy Hook Unit of Gateway National Recreation Area (Hoffman 2015a).

#### *Sandy Hook Proving Ground (1874 to 1919)*

The Sandy Hook Proving Ground, established in 1874, remained separate from Fort Hancock until 1919 when operations were relocated to Maryland. The location of the Proving Ground provided an ideal setting for testing artillery and other munitions for accuracy and distance, with flat open areas close to water and away from populated areas. Originally, the proving ground was designed as a temporary facility with a few wooden structures and a two-story officer's quarters nearby. In 1889 a new rail line was constructed which allowed more efficient transport of munitions and artillery from the wharf to the Proving Ground. By 1893, an additional rail line was constructed along the length of Sandy Hook connecting the proving ground to established commercial rail lines (Hoffman 2015a).

Larger caliber guns were fired at the western end of the Proving Ground while smaller guns were mounted closer to the middle. The Proving Ground also included a series of 12-foot thick concrete walls used as test targets. A 50-foot observation deck was strategically located to observe the targets and provide analysis on the success of the artillery tests. Numerous buildings

were located on the site and included storage for ordnance equipment, shells, and powder among others. Also, shops were constructed for the repair and modification of ordnances tested (Hoffman 2015a). These shops make up what is now known as the north maintenance area.

Construction began on more substantial buildings in 1906. Most buildings constructed between 1906 and 1909 were built of red brick and included barracks, machine shops, and storehouses as well as a locomotive storehouse, chemical laboratory, laundry, power plant, paint shop, chapel, and residences for the foreman, locomotive engineer, and the master workman (Hoffman 2015a; Greenwood 1977). The permanence of the Proving Ground was short-lived due to the advancements in the technology and improvements in artillery firing distance making the testing facility, which was too short for the newer guns and cannons, obsolete. The Proving Ground remained open through World War I, but closed shortly after the War's conclusion and the operations were moved to Aberdeen, Maryland. Of the 100 buildings extant at the time the Proving Ground was closed, only 13 buildings remain and have been incorporated into Fort Hancock (Hoffman 2015a). According to the National Register of Historic Places Nomination Form for the Fort Hancock and the Sandy Hook Proving Ground Historic District, the Proving Ground is "the most significant section of the Historic District" (Greenwood 1977).

#### *Sandy Hook Light (1764 – Present)*

The Sandy Hook Light remains housed in Isaac Conro's original 1764 tower and is the oldest working lighthouse in the nation. The octagonal tower is 103 feet in height with a base diameter of 29 feet tapering to 15 feet at the top. The seven-foot thick base of the tower is constructed of stone while the remaining sections are brick. The four-foot wide by eight-foot high light, which consisted of 48 "oil blazes," housed in a thick glass lens, was reached by ascending a wooden circular staircase and an iron ladder (Greenwood 1975; USCG 2015; NPS 2015c).

With the exception of a brief time during the Revolutionary War, the light was a beacon for ships coming into and out of the New York harbor during the latter part of the eighteenth century. The light was transferred from private ownership to the Federal government in 1789 (Greenwood 1975; USCG 2015; NPS 2015c). In 1964, its bicentennial year, the light was listed as a National Historic Landmark. Today the NPS owns and operates the lighthouse and its light is maintained by the US Coast Guard.

#### *North and South Maintenance Areas*

The north maintenance area, located near the northern end of Sandy Hook, was the primary area where maintenance operations occurred prior to Hurricane Sandy. The north maintenance area consists of Buildings 124, 125, 130, 131, 132, 134, and 156, as well as outdoor uncovered space for vehicle, equipment, and materials storage. With the exception of Buildings 134 and 156, the buildings within the north maintenance area were constructed during 1907 as part of the Sandy Hook Proving Ground. These buildings were originally constructed to accommodate the power plant for the Proving Ground operations (Building 124), a machine and blacksmith shop (Building 125), a storage warehouse (Building 130), a shelter house (Building 131), and a paint shop (Building 132). Buildings 134 and 156 were constructed as part of Fort Hancock during the World War II-era (Greenwood 1977). Building 134 was constructed in 1941 to be used

as a paint storehouse, and Building 156 was constructed in 1942 to be used temporarily as the post engineer warehouse. Today, the north maintenance area provides limited uses due to damage caused by Hurricane Sandy and the deterioration of the structures. The NPS continues to use these facilities in a limited capacity for equipment and materials storage, a carpentry shop, and vehicle/equipment repairs.

The south maintenance area, located near the middle of the peninsula off Hartshorne Drive, is primarily used by the Roads and Grounds Division of NPS maintenance on Sandy Hook. The south maintenance area consists of Buildings 430, 431, 432, 433, 434, 435, and 437, as well as outdoor uncovered space for vehicle, equipment, and materials storage. All of these buildings were constructed in 1955, with the exception of Building 437, which was constructed in 1964, as part of the Nike Missile Launch Site on Sandy Hook. Buildings within the south maintenance area provided barracks for enlisted military personnel (Buildings 430, 431, 432, and 433), a latrine (Building 434), a boiler house (Building 435), and a ready building (Building 437) (Greenwood 1977). Presently, Buildings 430, 431, 432, and 433 are used for covered storage of materials and equipment, and Building 437 provides some space for equipment storage, but is primarily used as office space and a break area by maintenance staff.

Both maintenance areas lie within the boundary of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District, and the associated buildings are considered contributing resources to the District.

#### North Site Project Area

Buildings 32, 33, 34, 49, 51, and 65 (shown in **Figure 3**), within the project area at Fort Hancock, are considered contributing resources to the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District. **Table 3** provides past and current uses of the buildings within the project area, as well as past and current uses of various other buildings from which the consolidated maintenance facility would be visible.

#### Building 49

Building 49 was constructed in 1942 as a temporary building during World War II of approximately 9,000 square feet. Due to its temporary status at the time, the building was wood framed, with wood lap siding and a composition shingle roof. Four overhead doors were provided for access on the west side of the building, and two overhead doors on the east side, that appear to have been used to load materials to/from a rail spur that ran along the building's elevation. Currently, the building functions as one large storage space that's segregated for boat storage/lifeguard supplies in one part, and Gateway's Natural Resources Management staff on the other. The south end of the building houses a defunct office space & restroom, and a non-functional boiler. There is clear evidence of a fire in the south-central portion of the building. Several wood shelves, columns, floor boards, and a portion of the roof structure remain charred from the fire.

<b>Table 3: Past and current uses of buildings near the project area</b>		
<b>Building #</b>	<b>Past Use</b>	<b>Current Use</b>
1	Officers' Quarters	History House
2	Officers' Quarters	Presently Vacant
3	Officers' Quarters	Presently Vacant
21	Duplex Officer's Quarters	Presently Vacant
32	Quartermaster Office and Storehouse	Park Rangers Offices
33	Bakery	Presently Vacant
34	Fire Station Office	Fire Station Office-Currently Vacant
36	NCO Club – Post Stables Mule Barn	NPS Maintenance Storage
47	Commissary	NPS Buildings Maintenance
49	Quartermaster Warehouse	Natural Resources and Lifeguard Storage
51	Fire House #1	Fire House
65	Storehouse	Presently Vacant
67	Theater	Theater - Currently Vacant
73	Two Family NCO Quarters	NPS Housing – Seasonally Occupied
75	Two Family NCO Quarters	NPS Housing – Seasonally Occupied
79	Oil and Paint Storehouse	Miscellaneous Storage
102	Proving Ground Barracks	Education Center
114	Officer's Club	Vacant

***Building 65***

Building 65 was constructed in 1907 with triple wythe masonry bearing walls built on a stone foundation of approximately 2,560 square feet on each floor. The one and a half story floor structures are built of wood with a slate roof. On the west side, three of the building's four doors open on to an existing wood framed loading dock that served the building's historic purpose of a plumbing shop and storage area. Due to the poor condition of the loading dock, the entry doors are currently considered inaccessible. A small stairway and material lift provide access to the A-framed half story above. The existing nonfunctional lift was manufactured by Otis Elevator, and is comprised of an open platform with cast metal frame. Currently, the building houses miscellaneous storage, but is otherwise unused. Deferred maintenance of the building's roof drainage has allowed moisture to penetrate between the wythes in some areas. The building's exterior also suffers from overgrown vegetation and splitting grout.

To the east of Building 65 there are architectural remains associated with coal storage processes of the early 20<sup>th</sup> century. In the area, a long wooden trestle was constructed in 1921 to facilitate coal transfer from railroad cars. Large piles of coal were stored on a concrete apron beneath the trestle. From the piles, coal would be shoveled into carts and delivered across Fort Hancock. Coal storage operations were discontinued at the end of World War II when oil widely replaced coal as fuel for heating. Surviving remains of the 1921 facility include earthen embankments, the concrete apron, retaining walls and surrounding ramp roads. Remains of the former northern retaining wall associated with the trestle are within the extents of the North Site. Currently, the remains are covered in thick vegetation.

Architectural remains are also located within southern portions of the North Site. To the south of Building 65, surfaces made of concrete, stone, brick and asphalt mark the former location of Building 31. The building was originally constructed in the late 19<sup>th</sup> century as a coal storehouse.

In the 1930s, it was converted to a 16-car garage for officers stationed at Fort Hancock. The NPS demolished Building 31 in 1983 due to poor structural conditions. To the east of the former building, a concrete slab driveway remains as part of a former railroad spur. Park maintenance currently use the driveway to access an area where fallen trees and other landscape debris are dumped.

## NOISE

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, the distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is measured in decibels (dB), and the A-weighted Noise Level (dBA) is a common method for approximating the perception of sound by humans. Ambient noise, or background noise, is the level of the total noise in an area. The ambient noise level of an area can be used as a baseline to determine how the addition of new sounds might interfere with indoor and outdoor activities, be an annoyance, or affect human health.

Noise at the North Site within the Fort Hancock Historic Post Area includes sounds associated with Fire and EMS stationed at Buildings 34 and 51, as well as NPS Law Enforcement at Building 32. Loud vehicle sirens ring during emergency procedures. In 2013, the squad responded to 161 fire-related calls and 85 medical calls requiring use of an ambulance (Burton 2014). Aside from emergency response-related noise, the area where the North Site is located is a relatively quiet place. Other audible noise at the North Site includes vehicle noise associated with the comings and goings of park staff and Sandy Hook lifeguards. The sounds of vehicles passing on the streets surrounding the North Site also add to ambient noise in the area.

In the park areas outlying the North Site, audible noises include intermittent sounds created by birds, pedestrians, bicyclists, radios, and people enjoying themselves. At the former parade grounds between Kessler Road and Kearney Road, which are routinely used for recreational activities, noise is generated by gatherings and informal athletic events. Towards the shore, the sound of crashing waves is prominent.

**Table 4** shows typical ambient noise levels associated with residential communities. At the North Site, daily operations and surrounding land uses are likely comparable to normal suburban residential communities (41 to 45 dBA) due to natural noises, vehicles, periodic maintenance activities, and the occasional special event or gathering. During emergency response, noise levels may temporarily approach very loud to uncomfortably loud levels as vehicle sirens ring.

<b>Description</b>	<b>Typical Range (dBA)</b>	<b>Average (dBA)</b>
Very Quiet Rural or Remote Area	26 to 30	28
Very Quiet Suburban or Rural Area	31 to 35	33
Quiet Suburban Residential	36 to 40	38
Normal Suburban Residential	41 to 45	43
Urban Residential	46 to 50	48
Noisy Urban Residential	51 to 55	53
Very Noisy Urban Residential	56 to 60	58

Source: EPA 1974

In 1974, the EPA suggested that continuous and long-term noise (in excess of 65 dBA) is normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. From the North Site, the closest noise sensitive receptors are the NPS residences on Mercer Road to the south of the project area. Other sensitive receptors in the vicinity include the Sandy Hook Chapel (approximately 350 feet west) and the MAST School (approximately 1,200 feet southeast). Ambient noise associated with the North Site is audible from within the NPS residences, which are approximately 100 feet south, but only emergency response-related noises are audible at the Sandy Hook Chapel and the MAST School. Since ambient noise generated at the North Site occurs at a relatively low level and at a distance from these sensitive receptors, the noise is not known to interfere with any human activities.

## CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

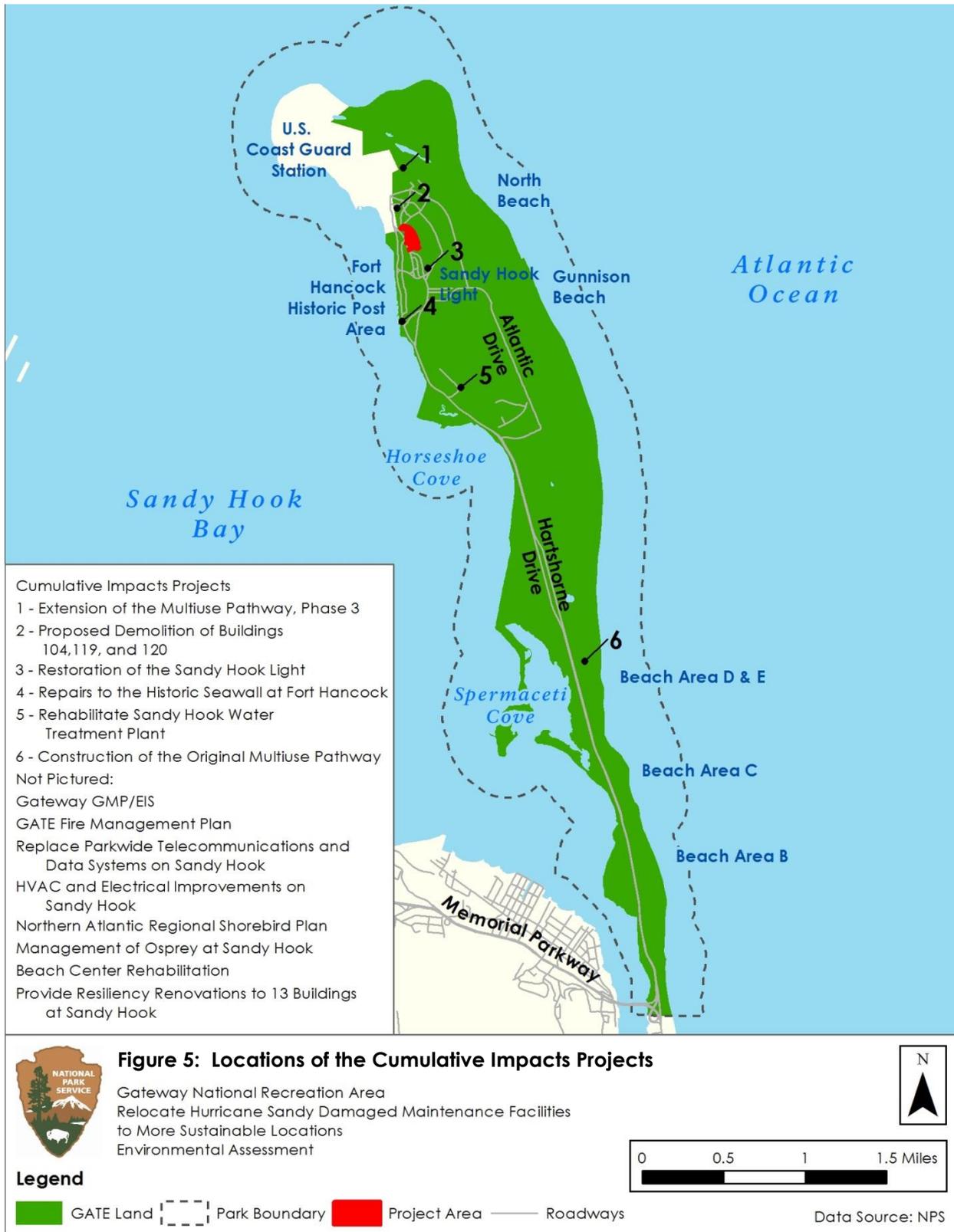
In accordance with the Council on Environmental Quality (CEQ) regulations, the environmental consequences analysis includes the direct, indirect, and cumulative impacts (40 CFR 1502.16). The intensity of the impacts is assessed in the context of the park's purpose and significance, and any resource-specific context that may be applicable (40 CFR 1508.27). Where appropriate, mitigating measures for adverse impacts are described and their effect on the severity of the impact is noted. The methods used to assess impacts vary depending on the resource being considered, but are generally based on a review of pertinent literature and park studies, information provided by on-site experts and other agencies, professional judgment, and park staff knowledge and insight.

**Cumulative Impacts Methodology** – This EA also considers cumulative impacts, namely “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 have been addressed in this EA by resource, and are considered for the proposed action and the no-action alternative. 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. The approximate location of each project is provided on **Figure 5**.

The projects considered in the cumulative impact analysis are as follows:

### CURRENT PROJECTS

**General Management Plan** – In 2014, Gateway developed a new GMP to outline the future management of the park. The GMP provided several alternatives that accounted for present and future challenges such as climate change and sea-level rise. Based on the concepts described, ongoing management of the Sandy Hook Unit will support a wide range of outdoor recreational opportunities as well as natural immersion and cultural interpretive experiences. Access improvements such as expanding ferry service, encouraging bike access, and exploring opportunities to provide additional public transportation services will also be considered. To guide and prioritize future management of the park's historic resources, the GMP categorizes them into three bands – *preserve*, *stabilize*, and *ruin* (see page 5 for more details on the preservation bands). Furthermore, the GMP suggests the consolidation and relocation of maintenance areas to improve operational efficiency and provide a more modern facility from which to base maintenance activities (NPS 2014a). Resources impacted by the implementation of the management concepts described in the GMP include floodplains, wildlife and habitat, rare, threatened, and endangered species, and the historic district.



**Gateway Fire Management Plan** – In May 2012, Gateway completed an EA for the development of a Fire Management Plan to guide both the operational and the conceptual aspects of fire management for the park, which includes the Sandy Hook Unit. The Fire Management Plan includes fire suppression, mechanical fuels treatment, and prescribed fire. Resources impacted by the Fire Management Plan include floodplains, wildlife and habitat, and the historic district.

**Replace Parkwide Telecommunications and Data Systems on Sandy Hook** – This project would replace underground telecommunications cabling and infrastructure with modern systems consisting of fiber optic cables for telephone service, data (internet and intranet), and fire/security alarms. Existing copper telecommunications lines originally installed by the US Army in the 1930s and 1940s are outdated and were severely damaged during Hurricane Sandy. As a result, service outages and failures have been occurring repeatedly since Hurricane Sandy. The project also includes the installation of a conduit loop around the Parade Grounds to provide present and future Fort Hancock connections, as well as the installation of new telephone and data service in 44 buildings throughout the park. Resources impacted by this telecommunications project include floodplains.

**Northern Atlantic Regional Shorebird Plan** – The US Shorebird Conservation Partnership, comprised of partners from state and federal agencies and non-governmental organizations developed a conservation strategy for migratory shorebirds and their habitats. This shorebird plan outlines the management and protection of shorebirds in the North Atlantic region. Resources impacted include wildlife and habitat and rare, threatened, and endangered species.

**Management of Osprey at Sandy Hook** – Potential locations for 12 osprey platforms were identified and mapped within the Sandy Hook Unit in order to mitigate for the removal of osprey nests and deter future osprey nesting on the chimneys of buildings within the Fort Hancock Historic Post Area. Initially, five locations will be selected from the 12 identified sites to erect new nest platforms with the intent of encouraging osprey nesting in other areas, and to replace platforms damaged by Hurricane Sandy. The remaining platforms will be installed over a time period of three to five years. Also, existing platforms will be repaired, and perching posts and predator guards added as necessary. Resources impacted include wildlife and habitat, historic structures and districts, and rare, threatened, and endangered species.

**Beach Center Rehabilitation** – This project would restore food service facilities at the Sandy Hook beach centers, which were severely damaged during Hurricane Sandy. This project includes sustainable food service capability at the beach centers by removing the permanent kitchen facilities and providing mobile food concessions at all beach center sites. Concession buildings at Beach Centers B, C, and E would be demolished, and concession buildings at Beach Centers D, G, and I would be rehabilitated with resilient materials and to allow for flow-through of floodwaters. In addition, concrete

pads with utility hook-ups for mobile food units would be installed at all of the Beach Centers. Resources impacted include floodplains.

## **NEAR FUTURE PROJECTS**

**Rehabilitate Sandy Hook Water Treatment Plant** – This project includes a new water treatment system at the Sandy Hook Water Treatment Plant. The new automated and self-contained treatment system would provide more consistent, high quality water within a smaller footprint, while providing operational flexibility. The treatment system would be placed at least seven feet above the 500-year floodplain elevation for long-term resiliency while preserving the viewshed by maintaining the visible structure elevations of the Water Treatment Plant. Impacted resources include floodplains and the historic district.

**Extension of the Multi-use Pathway, Phase 3** – The NPS is proposing an extension of the MUP to provide safe and enjoyable nonmotorized use by pedestrians and bicyclists. This project is a continuation of the 8.6 miles of MUP that have already been constructed at Sandy Hook. The alignment of the MUP extension was proposed to reduce the potential for accidents between visitors in motorized vehicles and nonmotorized visitors, to provide visitors with additional recreational opportunities, and to enhance visitor access to park resources. Resources impacted include floodplains, wildlife and habitat, rare, threatened, and endangered species, and the historic district.

**Restoration of the Sandy Hook Light** – This project involves the restoration of the Sandy Hook Light, which is individually listed in the National Register of Historic Places as a National Historic Landmark. Impacted resources include the historic district.

**Proposed Demolition of Buildings 104, 119, and 120** – The NPS plans to demolish three buildings previously used for seasonal housing that were heavily damaged by Hurricane Sandy. Building 102, a historic barracks, will be renovated to accommodate the lost housing capacity. Buildings 119 and 120 were temporary wooden buildings built during World War II for barracks and building 104 was used as housing for the Sandy Hook Proving Ground. Impacted resources include the historic district.

**Provide Resiliency Renovations to Buildings 28, 29, 30, 34, 51, 64, 71, 72, 73, 75, 144, 145 and 340 on Sandy Hook** – This project would improve the flood resiliency of the listed buildings, all of which are within the Fort Hancock Historic Post Area and are contributing resources to the historic district. Proposed renovations would include replacement of existing fuel oil tanks with underground propane tanks, replacement of existing boilers with new boilers installed at higher elevations, new mechanical rooms, and new hot water heaters. Interior wall and ceiling penetrations would be required for the new infrastructure. First-floor carpeting in the buildings would be removed and replaced with hard surface flooring or refinishing of existing hardwood

floors. A host of other site-specific improvements are also included in the proposal to enhance the resiliency of the buildings. Resources impacted by the project include the historic district.

## **COMPLETED PROJECTS**

**Construction of the original Multi-use Pathway** – In 2000, the NPS initiated the planning of the MUP on Sandy Hook to promote nonmotorized use of the park for visitors. The first phase, completed in 2004, developed a 5.5 mile asphalt trail segment that provides access from Sandy Hook’s entrance to the ferry dock at Fort Hancock. The second phase, which was completed in 2008-2009, added an approximately 3.1 mile segment to the MUP by creating a loop between the North Beach Plaza, the Gunnison Beach Plaza, and the Mortar Battery at Fort Hancock. Initial planning for the MUP was conducted through the development of an EA for Phases 1 and 2 of the project. Resources impacted include wildlife and habitat rare, threatened, and endangered species, and the historic district.

**HVAC and Electrical Improvements on Sandy Hook** – The NPS completed Phase I of HVAC and electrical improvements on Sandy Hook that included replacement of the heating cooling and electrical units in Buildings 26, 32, and 58 and the Sandy Hook Chapel. Four ground-level air conditioning condensers, refrigerant lines from the condensers to existing air handler units, and coils in existing air handling units were replaced. The NPS is currently designing Phase II of the project to improve the resiliency of 13 additional buildings on Sandy Hook. Resources impacted by these improvements include the historic district.

**Repairs to the Historic Seawall at Fort Hancock** – This project involved emergency spot repair of the historic seawall at Fort Hancock. Approximately 45 cubic yards of stone was deposited against the seawall to repair the erosion that had occurred, and approximately 50 cubic yards of clean sand was then deposited to bring the eroded areas back to grade. The work occurred on the landward side of the seawall, and material was contained within the original footprint in both dimension and height. Future work to stabilize the historic seawall as well as the Sandy Hook Chapel seawall is expected. Resources impacted include floodplains and the historic district.

An assessment of the potential significance of the impacts according to context and intensity is provided for each impact topic in the “Conclusion” section under each alternative. Resource-specific context is presented in the “About the Analysis” section under each impact topic and applies across all alternatives. Intensity of the impacts is presented in the “Conclusion” section using relevant factors that address the severity of the impact.

## FLOODPLAINS

**About the Analysis** – Analysis of the proposed alternatives on floodplains was performed using the best available floodplain data for the Sandy Hook peninsula. Predictions of short-term and long-term impacts were based on an assessment of floodplain functions and values, professional judgment, and similar projects. In addition, the future extent of the 100-year floodplain given the effects of sea level rise was considered.

**Study Area** – The study area for floodplains includes the area within the limits of the proposed action. Outlying floodplain areas that would be protected through construction of the proposed stormwater management basin were also considered.

**Impacts of the No-Action Alternative** – Under the no-action alternative, no construction would occur at the North Site that would result in impacts to the floodplain. No impervious surface would be added that would reduce the infiltration capacity of the floodplain, and no structures would be constructed that would affect the floodplain's ability to store and transport flood waters. During small and larger precipitation events, surface water runoff would occur on the existing site; these precipitation events would be absorbed by the adjacent vegetated floodplain.

**Cumulative Impacts** – The no-action alternative would not impact the floodplain; therefore, the no-action alternative would not contribute to the cumulative impacts of other past, present, or reasonably foreseeable future actions.

**Conclusion** – No impacts to floodplains would occur under the no-action alternative because no activities would be conducted that would affect the floodplains ability to infiltrate, store, or transport flood waters. There would be no impacts to floodplains under the no-action alternative; therefore, the no-action alternative would not contribute to the cumulative impacts of other projects.

**Impacts of the Proposed Action** – Under the proposed action, a consolidated maintenance facility would be constructed at the North Site, which would result in a total increase in impervious surface of 1.94 acres within the 100-year floodplain. Approximately 3.2 acres of successional maritime forest and shrubland would be cleared within the floodplain, and 1.26 acres of vegetated floodplain would be converted to impervious surface. Increases in impervious surface could result in a reduction in the infiltration and groundwater recharge capacity of the floodplain and increased runoff from the site.

To reduce surface water runoff and encourage infiltration, the NPS would implement a stormwater management plan that would primarily consist of constructing two infiltration basins. Each basin would be designed to collect runoff from the facility and would have the capacity to completely retain smaller, more frequent storm events (up to the 10-year storm event) onsite. To further reduce surface water runoff from the facility and encourage infiltration,

the NPS would use porous pavement as the surface for several parking spaces at the facility, which would allow water to percolate slowly into the soil below. Disturbed areas would be revegetated to minimize impervious surface within the floodplain, where possible, using NPS-approved native seed mixes and plantings. In addition, site designs were modified during project planning to leave the gravel parking lot between Buildings 33, 34, 51 and 79 unchanged to further minimize impervious surface.

During more severe, less frequent storms that exceed the 10-25 year storm event, stormwater runoff from the facility would not be completely contained within the infiltration basins. During these storms, runoff would flow offsite, temporarily inundating a larger portion of the adjacent vegetated floodplain. Vegetation in the floodplain is expected to be tolerant of freshwater inundation to a degree. Over the long-term, flood flows could contribute to shrubland and forest dieback in the vegetated floodplain adjacent to the project site.

**Cumulative Impacts** – Other past, present, and reasonably foreseeable future actions that have occurred or would occur within the floodplain at Sandy Hook include the Gateway GMP, replacement of parkwide telecommunications and data systems, beach center rehabilitation, rehabilitation of the Sandy Hook Water Treatment Plant, and repairs to the historic seawall at Fort Hancock. These projects generally consist of improvements to existing park facilities to increase flood resiliency and would not have adverse impacts to the functions and values of the floodplain that would be noticeable. The proposed action would not result in short-term impacts to the floodplain, as a stormwater management plan would be implemented to retain smaller, more frequent flood events onsite. Long-term adverse impacts to the vegetated floodplain adjacent to the site are likely to occur from future, less frequent storm events that inundate the area. However, because the past, present, and reasonably foreseeable future actions would not result in impacts to the functions and values of the floodplain, there would be no cumulative impacts as a result of the proposed action.

**Conclusion** – Implementation of the proposed action would result in a minimal increase of stormwater runoff as compared to predevelopment conditions in the recent past, because the area being developed as part of the new consolidated maintenance facility is small relative to the overall area of the vegetated floodplain. Under relatively frequent flood events (less than the 10-year event), there would be no impacts to the vegetated floodplain, as stormwater would be captured in the infiltration basins. Infiltration and evaporation from the basins would protect the adjacent vegetated floodplain from the effects of more frequent inundation, and would offset impacts to the infiltration and groundwater recharge capacity of the floodplain associated with increase in impervious surface. Also, other measures to reduce runoff, including porous pavement, would be implemented to further minimize runoff-related impacts. Occasional increases in stormwater runoff from the site during more severe storms in the future would result in a minimal adverse impact to the adjacent vegetated floodplain, as stormwater would temporarily inundate these areas under a limited number of storm events and may contribute to shrubland and forest dieback over the long-term. There would be no cumulative impacts because other past, present, and reasonably foreseeable future actions would not result in short- or long-term impacts to the floodplain that would be noticeable.

## **WILDLIFE AND HABITAT**

**About the Analysis** – Potential impacts to wildlife and habitat were analyzed using animal and plant data collected by the NPS, conservation groups, and other regional sources. The analysis was generally based on the importance of impacted habitat areas to wildlife communities. Predictions of short-term and long-term impacts were based on professional judgement and known impacts to wildlife and habitat from similar projects.

**Study Area** – The study area for wildlife and habitat includes the forest and shrubland within the limits of the proposed action area, as well as the successional maritime shrubland and forest on the Sandy Hook peninsula. Shoreline habitat areas were generally excluded from analysis because the proposed action would take place in the interior of the peninsula.

**Impacts of the No-Action Alternative** – The no-action alternative would result in no impacts to wildlife or habitat associated with clearing, construction activities, or increased lighting and noise. Habitat within and adjacent to the project area and the wildlife species that use those habitats as breeding or migratory stopover areas would not be affected.

**Cumulative Impacts** – The no-action alternative would not impact wildlife and habitat. Therefore, the no-action alternative would not contribute to the cumulative impacts of other past, present, or reasonably foreseeable future actions.

**Conclusion** – No impacts to wildlife or habitat would occur under the no-action alternative. There would be no habitat loss, disturbance, or displacement of local or migratory wildlife. The no-action alternative would not contribute to the cumulative impacts of other projects.

### **Impacts of the Proposed Action**

#### *Breeding Birds*

Construction of a consolidated maintenance facility would result in noise and possible vibrations from vehicles and equipment, as well as an increased human presence that may temporarily displace breeding birds for the duration of construction. Edge- and forest-breeding birds in the project area that are displaced would be expected to move to other similar habitat on Sandy Hook. Additionally, tree clearing required to construct the facility would result in a loss of approximately 3.2 acres of potential habitat for breeding birds. The timing of tree clearing greatly influences the likelihood and extent of impacts on breeding birds, as it has the potential to destroy nests, eggs, or hatchlings if conducted during the active breeding season. To reduce the potential for tree clearing to impact breeding birds, tree clearing would be restricted between April and October. Also, NPS biologists would conduct nest sweep surveys prior to tree clearing to further minimize potential harm to breeding birds. Therefore, any harm to birds, nests, eggs, or hatchlings related to tree clearing would last no more than one breeding season.

Following construction, normal day to day maintenance activities, as well as noise, lighting, and an increased human presence in the area may disturb nearby nesting birds. For some species, this could lead to decreased breeding success and survival. During long-term site use and activity, birds that reinhabit the adjacent forest and shrubland may be temporarily displaced when personnel are onsite, but they would be expected to return to the area when the facility is not particularly active or would simply habituate to the dynamics of the new environment. Additionally, species susceptible to edge effects may have decreased reproductive success or survival related to increased exposure to predators or nest parasitism. Species that are well adapted to edge habitat are likely to inhabit newly created edge habitats. Furthermore, forest and shrubland removal may reduce some insect species and/or change the insect community in the cleared areas. As a consequence, the food resources available to nesting birds could change. Forest breeding raptors and owls may also be impacted by removal of successional maritime shrubland and forest at the project area in a similar manner. Clearing would reduce habitat for small mammals that are prey for these species. To reduce or offset these potential effects, the NPS would implement a landscape plan. Areas cleared along the outer limits of facility, the forest edge and surrounding the infiltration basins, would be revegetated, where feasible, using native trees and shrubs. Trees cleared from the site would be replaced at a minimum 1:1 ratio with native trees similar in canopy cover at maturity. Tree and shrub plantings may occur onsite and at a currently undetermined offsite location on the peninsula. The replacement of trees and shrubs would likely reduce or offset the majority of effects related to habitat reduction over the long-term.

#### *Migratory Birds*

Migratory birds are not anticipated to be using the project area as stopover habitat while tree clearing is being conducted. The NPS has committed to a seasonal restriction on tree clearing between April and October. Tree clearing outside this time period would minimize the potential for impacts to migratory birds, as it would occur outside of the migratory stopover period for most species. However, noise and possible vibrations from vehicles and equipment, as well as an increased human presence, may temporarily displace migratory birds for the remaining duration of construction, if construction is ongoing when they return to the peninsula. Active construction may also dissuade migratory birds from using the adjacent shrub and forest areas as stopover habitat, but this would likely occur for no more than one season.

Forest and shrubland clearing would result in a small loss of approximately 3.2 acres of potential stopover habitat for migratory birds after the maintenance facility is constructed. Clearing would eliminate vegetation that serves as cover for migrants who may be more susceptible to predation while migrating due to depleted fat reserves and low energy. Forest and shrubland removal would reduce the amount of food sources (insects) available to migrants in the cleared area. Food sources are important to migrating birds that must refuel to restore fat reserves before their next flights. Forest and shrubland removal may also result in a small loss of stopover habitat for migrant raptors, such as sharp-shinned hawk and Cooper's hawk, common migrants known to occur over Sandy Hook. Other construction activities and long-term future maintenance activities should not impact raptors during migration because raptors are diurnal migrants, and their migratory flights are not affected by landscape conditions at night.

Additionally, the potential effects of exterior lighting on migratory birds that use the moon and stars for navigation was considered during project planning. Disturbances to migrating birds after dark associated with lighting would likely be avoided because the lighting would only cast down on grounds within the facility, and would be shut off during nighttime hours. Certain circumstances, such as emergency response and preparedness, would require the operation of exterior lighting at night, but these situations would be infrequent.

Forest and shrubland clearing is not anticipated to result in long-term potential effects to migratory birds on Sandy Hook because of the small area to be cleared and because sufficient vegetative cover and suitable foraging areas are available throughout the peninsula. Any effects from forest and shrubland clearing would only occur for one migration period. To ensure that potential effects are minimized or avoided, the NPS plans to implement a landscape plan. Areas cleared along the outer limits of facility, the forest edge and surrounding the infiltration basins, would be revegetated, where feasible, using native trees and shrubs. Trees cleared from the site would be replaced at a minimum 1:1 ratio with native trees similar in canopy cover at maturity. Tree and shrub plantings may occur onsite and at a currently undetermined offsite location on the peninsula. Revegetation would likely reduce or offset the majority of effects related to the reduction of migratory bird stopover habitat over the long-term.

**Cumulative Impacts** – Other past, present, and reasonably foreseeable future actions that affect wildlife and habitat include the construction of the original multi-use pathway, phase 3 extension of the pathway, the Gateway Fire Management Plan, the Gateway GMP, the Northern Atlantic Regional Shorebird Plan, and management of osprey at Sandy Hook. Development of previous phases of the MUP has resulted in adverse impacts to habitat areas, largely in the form of permanent conversion of natural areas to pavement. Implementation of the Gateway Fire Management Plan would have both adverse and beneficial impacts. Although fire management strategies proposed in the Plan would require ground disturbances that would temporarily affect wildlife and habitat, the strategies would reduce the overall impacts of wildland fires. Provisions of the Gateway GMP are expected to stabilize and improve habitat areas through management of park sites. Both the Northern Atlantic Regional Shorebird Plan and the management of osprey at Sandy Hook are aimed at maintaining and improving habitat areas. These plans generally focus on shoreline habitat areas, whereas the proposed project area is located in the interior of Sandy Hook. Overall, adverse impacts of the proposed action, in conjunction with the impacts of these other actions, would result in an adverse cumulative impact on wildlife species and their habitats. The proposed action would contribute a small adverse increment to the cumulative impacts to wildlife and habitat, primarily through the removal of successional maritime forest and shrub habitat, resulting in an overall adverse cumulative impact.

## **Conclusion**

### *Breeding Birds*

Successional maritime shrubland and forest in the project area are suitable habitat for a number of breeding birds. Noise and vibrations from vehicles and equipment, as well as an increased human presence during construction, would result in adverse impacts from the temporary

displacement of breeding birds for the duration of construction. Short-term impacts would be minor because birds displaced from the project area would be expected to relocate to other similar habitat on Sandy Hook. Therefore, these temporary impacts would last only for the duration of construction.

The proposed action would clear approximately 3.2 acres of forest and shrubland that currently occupy the North Site, which has the potential to destroy nests, eggs, or hatchlings if conducted during the active breeding season. However, short-term adverse impacts to breeding birds would be minimal because tree clearing would be restricted between April and October, and because nest sweep surveys would be conducted prior to tree clearing to further minimize potential harm to breeding birds. Any harm to birds, nests, eggs, or hatchlings related to tree clearing would last no more than one breeding season.

Tree clearing would result in long-term adverse impacts to breeding birds due to the reduction in habitat. However, impacts would be minimal because the loss of 3.2 acres is a small amount (less than 3 percent) of the overall habitat that is available. Also, birds may return to the area and habituate to edge environments surrounding the new maintenance facility. To minimize long-term adverse impacts, the NPS would implement a landscape plan to offset the impacts of forest clearing. The landscape plan would include revegetation of cleared areas along the outer limits of the facility, the forest edge, and surrounding the infiltration basins using native trees and shrubs. Trees cleared from the site would be replaced at a minimum 1:1 ratio with native trees similar in canopy cover at maturity. Therefore, long-term impacts are likely to reduce over time as newly forested areas reach maturity and increase habitat area for breeding birds and other wildlife.

### Migratory Birds

Migratory birds would not be impacted from tree clearing activities because a seasonal restriction would be enforced between April and October, which is outside of the migratory stopover period for most species. If construction is ongoing when migratory birds are present, noise and possible vibrations from vehicles and equipment, as well as an increased human presence, may result in short-term adverse impacts. However, impacts would be minimal because construction activities would likely dissuade migratory birds from using the adjacent shrub and forest areas as stopover habitat, which would likely occur for no more than one migration season.

Forest and shrubland clearing would result in the loss of approximately 3.2 acres of potential stopover habitat for migratory birds. Clearing is not anticipated to result in adverse effects to migratory birds over the long-term because of the small area to be cleared and because sufficient vegetative cover and other suitable foraging areas are available. Any effects from forest and shrubland clearing would only occur for one migration period. The NPS would implement a landscape plan that would include revegetation of cleared areas along the outer limits of facility, the forest edge, and surrounding the infiltration basins, would be conducted using native trees and shrubs. Trees cleared from the site would be replaced at a minimum 1:1 ratio with native

trees similar in canopy cover at maturity, which would likely reduce or offset the majority of long-term effects related to the reduction of migratory bird stopover habitat.

## **RARE, THREATENED, AND ENDANGERED SPECIES**

**About the Analysis** – Analysis of the proposed action on rare, threatened, and endangered species was performed using data from studies conducted on Sandy Hook and correspondence from the US Fish and Wildlife Service. Predictions of short-term and long-term impacts were based on professional judgement and known impacts to species based on similar projects.

**Study Area** – The study area for rare, threatened, and endangered species includes the forest and shrubland within the limits of the proposed action, as well as the successional maritime forest on the Sandy Hook peninsula. Shoreline habitat areas were generally excluded from analysis because the proposed action would take place in the interior of the peninsula. For planning purposes, it is assumed that the northern long-eared bat is present where suitable summer roosting habitat may exist (i.e. forest).

**Impacts of the No-Action Alternative** – Under the no-action alternative, impacts to rare, threatened, and endangered species associated with forest clearing, construction activities, and increased lighting or noise would not occur. Habitat within and adjacent to the project area and the rare, threatened, and endangered species that may potentially use those habitats would not be affected.

**Cumulative Impacts** – The no-action alternative would not result in impacts to rare, threatened, and endangered species; therefore, the no-action alternative would not contribute to the cumulative impacts of other past, present, or reasonably foreseeable future actions.

**Conclusion** – No impacts to rare, threatened, and endangered species would occur under the no-action alternative. There would be no habitat loss, disturbance, or displacement of local or migratory rare, threatened, and endangered species. The no-action alternative would not contribute to the cumulative impacts of other projects.

### **Impacts of the Proposed Action**

#### *The Northern Long-eared Bat*

At the time of this EA, there are no records of northern long-eared bat or known northern long-eared bat roosts in the project area or on Sandy Hook. The entire Sandy Hook Peninsula is within the summer range of the northern long-eared bat. The shrubland and forested area within the action area consists primarily of coniferous tree species, relatively small in diameter, ranging from 3-6 inches in diameter at breast height (DBH), interspersed with approximately 5 predominantly deciduous tree species that range from 7-12 inches DBH. The relative predominance of shrub species are small in diameter ranging from 3-6 inch DBH, and are

somewhat less diverse, with lesser habitat value than is provided by a late-successional forest, thus representing less suitable habitat. Construction activities could potentially remove some roost trees. A northern long-eared bat present in a roost tree or foraging habitat that is being felled will likely exit the tree and fly to another nearby tree.

Under the proposed action, approximately 3.2 acres of successional maritime shrubland and forest would be cleared that could result in the removal of some roost trees. The timing of tree removal greatly influences the likelihood and the extent of impacts on individual bats. It is assumed bats have the ability to flee their roosts and fly to other nearby trees during tree removal activities, but removal of occupied roosts may result in injury or mortality to some roosting bats. Bats that flee potential roost sites in buildings could experience similar effects.

Due to the more suitable roosting and foraging habitat in the greater maritime forest area on Sandy Hook, combined with the unknown numbers of northern long-eared bats utilizing the action area, the reduction of roosting and foraging habitat is not a considerable limiting factor for the northern long-eared bat.

No tree removal work would be done during April thru October. Due to the small number of trees and shrubs to be removed, along with the seasonal restriction for tree removal during the maternity season, the relocation of maintenance facilities to this site would not substantially alter the larger successional maritime shrubland and forest present on Sandy Hook. The NPS activities as proposed are not likely to adversely affect the continued existence of the northern long-eared bat or their habitat.

#### State-Listed Bird Species

State-listed species with the potential to occur in the vicinity of the North Site include a total of seven resident and migratory birds. The proposed action would clear approximately 3.2 acres of forest and shrubland. As such, the timing of clearing influences considerably the likelihood and extent of impacts on state-listed bird species.

Breeding birds with potential to occur in the proposed project area include the state-listed American kestrel. At the time of clearing, adult birds would have the ability to flee their nests or perches during tree removal, but nestlings or new fledglings may be injured or killed. As such, the timing of clearing would be a factor in the extent of impacts on breeding birds. Once the clearing was complete, there would be slightly less habitat area for nesting and foraging.

Migratory birds with potential to occur in the proposed project area include the bald eagle and the golden-winged warbler. Clearing would eliminate vegetation that serves as cover for these migrants during a time when they have depleted fat reserves and low energy. Clearing would also reduce the amount of food sources (insects) available to migrants. Food sources are important to migrating birds that must refuel to restore fat reserves before their next flights.

Under the proposed action, the NPS would install exterior lights on poles and security lights on buildings for safety purposes and to illuminate maintenance activities during low-light

conditions. Illumination of the night sky can have detrimental effects on migratory birds that use the moon and stars for navigation. To avoid disturbances to migrating birds after dark, the lighting would only cast light on grounds within the facility, and the lighting would be shut off during nighttime hours.

Potentially affected owl and raptor species include long-eared owl, northern goshawk, and red-shouldered hawk if they nest, forage, or stopover during migration in the proposed project area. Forest clearing would affect habitat for small mammals or birds that are prey for these raptor species. Owl and raptor species are expected to habituate to the forest adjacent to the area proposed for clearing. As a result, competition for the forest's resources may occur among owls and raptors. American kestrels, bald eagles, and ospreys use more open habitats to locate prey; therefore, their foraging is not likely to be affected by forest clearing.

The closest osprey nests to the North Site are approximately 0.10 mile to the west and 0.24 mile to the north. 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. Actions that cause ospreys to change their behavior, and especially to leave their nest, constitute a disturbance. Ospreys often habituate to normal human activities. Direct approaches to osprey nests by humans would likely result in a flight response or may cause an osprey to abandon their nest. Because the osprey nests on Sandy Hook are relatively far from the North Site, ospreys are unlikely to be disturbed by the proposed action. Still, temporary noise associated with construction could cause disturbance, particularly if construction is performed after the birds arrive and begin nesting. The NPS employs wildlife biologists to monitor the activities of certain species on Sandy Hook including osprey. If disturbances to osprey were observed as a result of the proposed action, the NPS would modify construction activities as needed to avoid impacts.

**Cumulative Impacts** – Other past, present and reasonably foreseeable future actions that have or will affect rare, threatened, and endangered species and habitat include construction of the original multi-use pathway, phase 3 extension of the pathway, the Gateway Fire Management Plan, the Northern Atlantic Regional Shorebird Plan, management of osprey on Sandy Hook, and the Gateway GMP. Development of previous phases of the MUP has resulted in adverse impacts to habitat used by rare, threatened, and endangered species, largely in the form of permanent conversion of natural areas to pavement. Conversely, provisions of the Gateway Fire Management Plan, Northern Atlantic Regional Shorebird Plan, and management of osprey at Sandy Hook are aimed at maintaining and improving rare, threatened, and endangered species habitat areas. Provisions of the Gateway GMP are expected to stabilize and improve habitat areas through the management of park sites. The proposed action would add a small incremental impact based on the clearing required by the project. However, the identification of the North Site as a potential site during the scoping period was partly based on its minimal impact on forest habitat. Other locations for the project such as the Water Treatment Plant Site were eliminated because they would require a larger area of forest clearing. Under the proposed action, the NPS would maintain its high-priority conservation and

monitoring measures for rare, threatened, and endangered species. Overall, the impact of the proposed action, in conjunction with the impacts of these other actions, would result in an adverse cumulative impact on rare, threatened, and endangered species and their habitats. The proposed action would contribute a small adverse incremental impact primarily through the removal of approximately 3.2 acres of successional maritime shrubland and forest habitat.

## **Conclusion**

### ***The Northern Long-eared Bat***

Under the proposed action, approximately 3.2 acres of successional maritime shrubland and forest would be cleared that could remove some roost trees, resulting in short-term adverse impacts to the northern long-eared bat for the duration of construction. However, impacts are expected to be minimal because a northern long-eared bat present in a roost tree or foraging habitat that is being felled will likely exit the tree and fly to another nearby tree. To minimize the potential for impacts to northern long-eared bats during construction, tree removal would not be conducted from April to October; therefore, due to the small number of trees and shrubs to be removed, the unlikeliness that northern long-eared bats are inhabiting the project area, and because tree clearing would occur outside of the summer maternity period, the proposed action would not result in population-level effects, and is not likely to adversely affect the continued existence of the northern long-eared bat or their habitat.

Over the long-term, the proposed action is expected to have minimal impacts on the northern long-eared bat due to the abundant amounts of suitable roosting and foraging habitat in the vicinity, and the low numbers of known northern long-eared bats in the action area. Any long-term adverse effects, particularly from tree clearing, the potential for roost trees to be removed, and a slight reduction in habitat would likely last for only one season and is not likely to adversely affect the continued existence of the northern long-eared bat.

### ***State-Listed Bird Species***

Under the proposed action, approximately 3.2 acres of forest and shrubland would be cleared that may result in short-term adverse impacts to state-listed bird species for the duration of construction. Short-term impacts would be minimal; however, because tree clearing would be restricted from April to October to ensure that nestlings or new fledglings are not affected. Adult birds in the area when tree clearing is conducted would be able to flee the area to other suitable habitat areas in the vicinity. Also, strategies to avoid potential short-term impacts to nesting birds, such as bird nest sweep surveying, would be conducted prior to tree clearing activities. Minimal effects to osprey are expected during construction because nesting occurs at a distance from the North Site, and because monitoring is conducted to prevent impacts to breeding pairs.

Following construction, a slight reduction in habitat for nesting and foraging would result in long-term adverse impacts to state-listed threatened and endangered birds. Long-term impacts are expected to be minimal because of the relatively small size of the project, the considerable amount of habitat remaining on Sandy Hook, and because migratory birds would be expected to use adjacent lands for foraging and cover. To a small degree, competition for the adjacent land's

resources may occur among migrants, but these impacts would be small, limited to individuals, and would not result in population-level effects. Therefore, long-term impacts to migrant bird populations are not expected to occur. Overall, clearing would remove less than 3 percent of the successional maritime shrubland and forest on the peninsula. Because the area of clearing would be relatively small, and because of the opportunity for state-listed species to relocate to suitable habitats nearby, impacts to breeding birds would last no more than one season.

## HISTORIC DISTRICT

**About the Analysis** – Potential impacts to National Register of Historic Places listed or eligible resources were analyzed in consideration of guidelines stated within the *Secretary of the Interior’s Standards for the Treatment of Historic Properties* (NPS 1995b) and the *Guidelines for the Treatment of Cultural Landscapes* (NPS 1992). The analysis of the potential impacts of the project on historic structures focused on whether the proposed undertaking would alter, directly or indirectly, characteristics of a historic property that qualify it for inclusion in the National Register. In addition, potential impacts to the character-defining features of the landscape were analyzed, including topography, buildings, and vegetation, and the views of these features from various points within the Historic District.

**Study Area** – Contributing resources of the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District in the vicinity of the North Site, as well as the existing north and south maintenance areas, were included in the study area. Viewpoints from contributing resources, and the individually listed Sandy Hook Light, were also considered.

**Impacts of the No-Action Alternative** – Under the no-action alternative, the NPS would continue to use existing buildings at the north and south maintenance areas. In addition, Building 49 would continue to function as a storage area for Gateway’s Natural Resources Management staff and the Sandy Hook lifeguards, and Building 65 would remain vacant, until a suitable use for the building is identified. At a minimum, the NPS would continue to perform routine repairs to existing maintenance facilities, as needed, to ensure the continuing use of the facilities. In addition, other rehabilitation efforts may be undertaken to improve the functionality and work environment of the existing facilities for maintenance staff.

**Cumulative Impacts** – Minimal impacts to the historic district associated with routine repairs and the continued use of existing facilities are anticipated under the no-action alternative. Since this alternative would have minimal impacts, and impacts are not expected to be adverse, the no-action alternative would not contribute to the cumulative impacts of other past, present, or reasonable foreseeable future projects.

**Conclusion** – Under the no-action alternative, the NPS would continue to use existing buildings at the north and south maintenance areas. Routine repairs would be performed, as needed, to existing maintenance facilities in addition to other rehabilitation efforts to improve

the functionality and work environment of the existing facilities for maintenance staff. Any repairs to designated historic structures or contributing features would be conducted in accordance with the Secretary of the Interior's *Standards for Rehabilitation of Historic Buildings*. Therefore, the no-action alternative is not expected to result in adverse impacts to the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District, or resources that contribute to its significance. The no-action alternative would not contribute to the cumulative impacts of other projects.

## **Impacts of the Proposed Action**

### *Building 49*

Exterior and interior alterations to Building 49 are proposed to accommodate the building's expanded function as a maintenance facility for Gateway's Buildings and Utilities Maintenance Division. The exterior rehabilitation efforts would include replacing the existing roof with a new roof comprised of composition shingles. Wood lap siding would be repaired and damaged boards replaced in kind. Existing overhead doors would be removed and replaced with new insulated overhead doors, and a new overhead door would be installed on the east elevation of the building. The new overhead door was requested by maintenance staff in order to allow clear passage between the east and west elevations. Also, a new entry door would be installed on the west elevation towards the center of the building. Entry doors and windows would be rehabilitated to the extent possible. Doors and windows that cannot be rehabilitated would be replaced in-kind, and any new doors or windows within new openings would be compatible with the existing doors and windows. Existing stairs and landings are in poor condition. Stairs and landings would be replaced to meet building code requirements. To rehabilitate these existing exterior features, materials would be used that would be compatible with the building. The new overhead door and the new entry door would be noticeable changes to the exterior of the building, but they would not appear out of place because they would be constructed with materials that would be compatible with the building's other installations.

Within the building, modifications would be made to establish workshop space, offices, restroom facilities with lockers and showers, and materials storage, in addition to the existing storage space. Building components that were previously damaged by fire would be removed and replaced or otherwise repaired. In the workshop space, interior walls would be finished in treated plywood and existing floors would be sanded and sealed. The ceiling would remain open to the structure above. Office and common area walls would be finished with painted drywall (above BFE+3) and floors would be prepared for floor coverings. The ceiling in these areas would be finished by suspended acoustical tiles or drywall ceiling. Insulation would be installed in the building as appropriate to meet energy code requirements. Overall, the new interior spaces would not be in great contrast with former uses of the building, and would reuse as much of the existing construction as possible.

### *Building 65*

To accommodate Gateway's maintenance administration functions, exterior and interior alterations to Building 65 are proposed. On the exterior, roof drainage would be restored and

masonry would be repaired to address deficiencies caused by failing downspouts. The existing slate roof would be replaced in kind. Existing entry doors and windows would be rehabilitated. On the west elevation, the existing platform would be repaired and upgraded in kind to make the front entry doors accessible. The existing stairs would be removed and replaced with a new accessible ramp and stairs on each side of the platform. Modifications to the building's west elevation also include the installation of a handrail at the perimeter of the entry platform to meet building code requirements for safety. Although the handrail would be designed to be compatible with the building, it would be inconsistent with the historic use of the platform as a loading dock.

The interior of Building 65 would be modified to provide space for offices and work stations, a conference room, restrooms, and storage space for files and other office supplies, servers, and mechanical systems. Existing floors would be sanded and sealed on the first and second levels. Existing beadboard walls within the building would be restored. New walls would be constructed to establish the various workspaces, with closets finished with painted drywall. An existing interior stairwell would be replaced in kind to meet current building code requirements. In addition, the material lift in Building 65 would be fixed in place at the second floor level. All parts of the lift would be restored, and guardrails would be installed at the second floor for safety purposes. Overall, the refurbished material lift would preserve an aspect of the historical use of Building 65. The new interior spaces would not be in great contrast with former uses of the building, and would utilize as much of the existing construction as possible.

#### Vehicle/Equipment Maintenance and Repair Shop

As currently designed, the vehicle/equipment maintenance and repair shop would be a one-story, gable-roofed building with full-width one-story shed roofed wings. The building would be approximately 33 feet tall, which would be comparable in height to Building 49 (~ 23 feet tall) and Building 65 (~ 30 feet tall). The exterior would be sheathed in lap siding with single light windows on the upper portion of the west and east elevations and pedestrian entry and garage bay doors in the gable ends. The interior of the building would include maintenance bays, a tool room, a welding room, an office, break room, restroom facilities, and lockers. Construction of the vehicle/equipment maintenance and repair shop would add a new element to the National Historic Landmark District that would be within view from several buildings that contribute to the significance of the district, and from the Sandy Hook Light. However, from Kearney Road and points west of the North Site, view of the repair shop would be obscured by Building 65. Additionally, the building would be clad in lap siding similar to Building 49 and would be designed to be consistent in character with surrounding historic resources.

Architectural remains of former coal storage operations are located to the east and south of the North Site. Most of the remains are located outside of the proposed project area. However, a retaining wall associated with coal storage operations in the early 20<sup>th</sup> century is located in the vicinity of the proposed vehicle/equipment maintenance and repair shop. As currently designed, the south ramp leading to the building would be constructed several feet from where the retaining wall is located. The former site of Building 31, a coal storehouse, would be unchanged. Concrete and stone surfaces that mark the former location of the building would be avoided by

the project design. Similarly, the proposed action would avoid modification of the concrete slab driveway at the south end of the North Site.

#### *Outdoor Covered Vehicle/Equipment Parking Structure*

The outdoor covered vehicle/equipment parking structure would feature a metal clad shed roof, metal support posts, and a concrete base for parking. The height of the structure would be just over 16 feet above the ground. Views of the parking structure would be partially concealed from publicly accessible areas in the vicinity by nearby buildings. However, construction of the outdoor covered parking structure would add a new element to the viewshed of the buildings surrounding the proposed structure.

In addition, driveways and parking areas would add new elements to the viewshed within the historic district. The gravel surface between existing buildings would be regraded and would generally maintain its current appearance. Vegetated lands to the north, east and south of existing buildings would appear much differently as they would be cleared and paved with asphalt. The landscape would also be cleared for the stormwater management basin, which would be a noticeable change in the southeast corner of the North Site. Tree clearing for the driveways, parking areas, and infiltration basins would remove some of the vegetative cover surrounding Buildings 49 and 65. The buildings would be more visible from Kearney Road, Kessler Road, and possibly more visible from the Sandy Hook Light.

#### *North and South Maintenance Areas*

Relocation of maintenance operations to the North Site would remove active uses from historic buildings at the north and south maintenance areas. It is likely that the condition of these buildings would deteriorate when unoccupied, leading to adverse impacts – particularly at the north maintenance area due to the flood-prone nature of the area. However, the ultimate disposition of the individual buildings at these facilities would be carried out as in accordance with the criteria and priority banding from the GMP.

**Cumulative Impacts** – Other past, present and reasonably foreseeable future actions, such as the restoration of the Sandy Hook Light, would have beneficial impacts on the historic district. Proposed renovations to 13 buildings in the historic district would help to preserve the buildings into the future, resulting in beneficial impacts. Prioritization of the park's resources under preserve, stabilize, and ruin bands as described in the Gateway GMP would have beneficial impacts to structures in the preservation band, but would likely result in adverse impacts to structures in the ruin bands. Additionally, the proposed demolition of Buildings 104, 119 and 120 would have an adverse impact. Demolition activities would remove historic structures from the district. Impacts would be minimized through context sensitive design, agency consultation, and stakeholder coordination, but the cumulative impact of these actions would be adverse. The proposed action would also result in adverse impacts to the historic district due to modifications to existing buildings, the addition of new structures at the North Site, and the abandonment of the north and south maintenance areas. When the adverse impacts of the proposed action are combined with the beneficial and adverse impacts of other past, present, and reasonably

foreseeable future projects, there would be an overall adverse incremental effect on the historic district.

**Conclusion** – The adaptive reuse of Buildings 49 and 65 would require exterior and interior modifications to historic buildings. Modifications would result in impacts to the historic fabric of the buildings, as some original building materials would be replaced; however, the NPS and the project design team would study sensitive integration of new building features extensively before project implementation. Existing materials would be restored to the extent possible, and new materials would be selected that would be compatible with the existing construction. It is anticipated that each building’s status as a contributing resource to the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District would be retained.

Adaptive reuse of Building 65 would benefit the historic district through conversion of vacant space to functional space. The active use of a previously unoccupied building would help to preserve the structure over the long-term. The restored material lift in the building and accompanying signage would provide an account of historical use of the building. Conversely, the addition of a handrail to the building’s entry platform to meet safety code requirements would have an adverse impact because the handrail would be inconsistent with the building’s historical use. The handrail would be integrated into the building’s appearance using context sensitive design to minimize adverse impacts.

Facility designs would avoid modification of historic architectural remains including the former site of Building 31 and the concrete driveway at the south end of the project area. Construction of the south ramp to the vehicle/equipment maintenance and repair shop is proposed several feet from a historic retaining wall (currently overgrown by vegetation). During project planning, the project team considered the location of the retaining wall and potential impacts as a result of the proposed action. The south concrete ramp to the repair shop was redesigned in order to avoid the retaining wall. Careful excavation techniques would be implemented during construction of the repair shop ramp to avoid unintended impacts.

The construction of the vehicle/equipment maintenance and repair shop, the outdoor covered parking structure, stormwater infiltration basin, driveways and parking areas would add new elements to the National Historic Landmark District. Although the repair shop would be clad in similar materials as Building 49, the repair shop would be within view from surrounding historic resources including Buildings 1, 2, 32, 33, 34, 47, 49, 51, 65, 75 and 114. Because the proposed repair shop would be the same height as Building 49, and the roof of Building 49 is currently visible from atop the Sandy Hook Light, the roof of the proposed repair shop would also be apparent from atop the lighthouse (see photo next page).



**View northward from atop the Sandy Hook Light**

The outdoor covered parking structure would also have a visual impact on surrounding historic resources, but views of the structure from surrounding areas would be partially obscured by Building 49 and forested land. Because the structure's height would be considerably lower than the surrounding buildings, and obscured by vegetation, the structure is not expected to be noticeable from atop the Sandy Hook Light.

Visual impacts of the new driveways, parking areas, and stormwater management basin would be readily apparent. Passersby would likely identify that the new features were constructed well after the period in which Buildings 49 and 65 were originally constructed. Although there would be impacts on viewsheds within the historic district, the impacts would be limited because the new features would be located to the side and to the rear of the consolidated maintenance facility, and would not dominate the site. Historic buildings and remaining forest and shrub vegetation outlying the North Site would help to shield the cleared areas from view. As a result, there would be an adverse impact on the historic district, but the relatively small scale of the project would not detract from or diminish the property's historic character.

Removing active uses from the existing north and south maintenance areas would also have adverse impacts, as their condition is likely to deteriorate once unoccupied. Buildings 125, 130, 131, 132, and 134 in the north maintenance area are listed in the ruin band from the GMP. Through assessment in the GMP, the NPS has determined that preservation or stabilization of these structures would not be practical based on existing conditions; therefore, although the condition of these buildings may degrade considerably from their current condition, removing active uses from the north maintenance area would not result in any new or different adverse impacts than were anticipated in the GMP for all structures located in the ruin band. Buildings 124 and 156 at the north maintenance area and all buildings at the south maintenance area are in the stabilize or preserve bands; therefore, while it is expected that the condition of these buildings may degrade somewhat below their current condition, it is likely that they will be considered for some level of repair and/or stabilization in the future that would avoid and minimize the extent of further deterioration. The NPS would subsequently make decisions about the future treatment of each individual building according to the guidelines for each band in the GMP, and assess the environmental impacts of those decisions at that time.

Overall, the proposed exterior and interior modifications to Buildings 49 and 65 would result in minimal adverse impacts to the historic district because they would be made in adherence to standards for rehabilitation. Adverse impacts would result from the construction of the vehicle/equipment maintenance and repair shop and the outdoor covered parking structure, as new elements would be introduced to the viewshed of buildings that contribute to the historic district's significance. Similarly, the new driveways, parking areas, and infiltration basins would be noticeable and would have an adverse impact on the historic district. However, the impact of the new facilities on the historic district would be small because the new structures would not be incompatible, out of scale, in great contrast, or out of character with the surrounding area and the aesthetics or character of adjacent structures. Also, the new facilities would be partially or wholly obscured by existing buildings or trees from most vantage points surrounding the North Site. In sum, there would be minimal visual effects because the NPS would develop context sensitive designs in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (NPS 1995b) and the *Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (NPS 1995), and because the NPS would continue to minimize the adverse impacts of the proposed project on historic resources to the greatest extent possible.

## NOISE

**About the Analysis** –To determine potential noise impacts, the range of activities taking place at the proposed maintenance facility and the existing maintenance areas were considered. The park land surrounding these areas was evaluated for any sensitive receptors that could be adversely affected by the new facility. In addition, potential noise impacts resulting from the use of machinery and equipment during the construction period were analyzed. Impacts were assessed quantitatively based on the EPA's Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin on Safety (EPA 1974). This report suggested that continuous and long-term noise (in excess of 65 dBA) is normally unacceptable for noise-sensitive land uses such as residences, schools, and churches.

**Study Area** – The study area for noise generally includes developed lands outlying the existing maintenance areas and the proposed project area. Sensitive receptors in the vicinity of the North Site and the existing North Maintenance Area include the Sandy Hook Chapel, the MAST School, and the NPS residences on Mercer Road. There are no sensitive receptors near the South Maintenance Area. **Table 5** provides the approximate distance between the North Site and the North Maintenance Area to the sensitive receptors.

<b>Table 5: Distance from Sensitive Receptors to the North Site and North Maintenance Area</b>		
<b>Sensitive Receptor</b>	<b>North Site</b>	<b>North Maintenance</b>
NPS Residences on Mercer Road (Building 75)	100 feet	1,800 feet
MAST School	1,200 feet	3,000 feet
Sandy Hook Chapel	350 feet	1,400 feet

Note: There are no sensitive receptors near the South Maintenance Area

**Impacts of No-Action Alternative** – Under the no-action alternative, noise currently generated by activities at the North Site would remain the same. Emergency response-related noise would be audible in the vicinity, including sensitive receptors such as the NPS residences on Mercer Road, the Sandy Hook Chapel, and the MAST School, but the noise would be brief and would be required for public safety. Ambient noise generated during other activities at the North Site would be only slightly detectable in the vicinity, including the residences on Mercer Road.

Noise generated by operations at the north and south maintenance areas would also remain the same under the no-action alternative. Noise associated primarily with vehicles and equipment moving in and out of the facilities, human interactions, and other maintenance activities at the facilities would be audible in the vicinity of the sites. Noise levels associated with light vehicle traffic and the operation of tractors and diesel equipment can range from 56 dBA to 95 dBA at a distance of 50 feet (EPA 1974). Based on this range, noise generated at the north maintenance area would be audible from the US Coast Guard Station and outlying buildings including Building 114. Noise generated at the south maintenance area are buffered by forested land, but would be audible from the Nike Missile Launch Site and nearby segments of the MUP.

**Cumulative Impacts** – The no-action alternative would not result in increases in noise levels above the existing ambient condition; subsequently, the no-action alternative would not contribute to the cumulative impacts of other past, present or reasonably foreseeable future actions.

**Conclusion** – Noise impacts would not occur under the no-action alternative because there would be no changes to the existing activities carried out at the site. Ambient noise levels would remain within the 41-45 dBA range, typical for normal suburban residential areas, and would be periodically elevated to loud levels for brief periods during emergency responses. Ambient noise perceived in the vicinity of the North Site, including sensitive receptors such as the NPS residences on Mercer Road, the Sandy Hook Chapel, and the MAST School, would remain the same. Existing noise generated at the north and south maintenance areas would continue. Existing noise would be audible in areas outlying the sites, but there are no sensitive receptors in the vicinity that would be impacted. The no-action alternative would not contribute to the cumulative impacts of other projects on Sandy Hook.

**Impacts of the Proposed Action** – At the North Site, noise levels would be temporarily elevated during the construction of the consolidated maintenance facility. Noise would be generated by heavy equipment during the construction of the new vehicle/equipment

maintenance and repair shop, paving of the asphalt service/storage area, assembly of the outdoor covered parking structure, pouring concrete, and excavation of the stormwater infiltration basins. Construction noise would also be generated during curb cutting at the two new access points (jackhammering). The proposed modifications to Buildings 49 and 65, the installation of the fueling and vehicle wash stations, and the installation of other facility infrastructure and amenities are not likely to require machinery that would generate substantial noise.

Maximum average noise levels generated by construction activities typically range from 80 to 90 dBA at a distance of 50 feet for excavation, grading, and finishing activities (see **Table 6**). With multiple pieces of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active construction sites. Noise from a point source (i.e., stationary construction equipment) generally decreases by 6 dBA per doubling of distance.

<b>Table 6: Noise Levels Associated with Outdoor Construction</b>	
<b>Construction Phase</b>	<b>dBA Leq at 50 feet from source</b>
Ground Clearing	84
Excavation, Grading	89
Foundations	78
Structural	87
Finishing	89

(Source: Bolt, Beranek and Newman 1971)

Sensitive receptors in the vicinity of the North Site include the residences on Mercer Road, the Sandy Hook Chapel, and the MAST School. The nearest residence on Mercer Road (Building 75) is approximately 100 feet from the southern extents of the project area. With a decrease in point source noise of 6 dBA per doubling of distance, construction noise experienced outside Building 75 would range from approximately 74 dBA to 84 dBA. Additionally, standard buildings typically provide about 15 dBA of noise reduction between exterior and interior noise levels with the windows partially open (EPA 1978). As a result, interior noise levels within Building 75 would range from 59 to 69 dBA during construction activities, which would correspond to noise levels at or above very noisy urban residential conditions. However, loud noises generated during construction would not be constant and are only likely to occur for short periods.

The Sandy Hook Chapel is approximately 350 feet from the western extents of the project area. Construction noise experienced outside the Chapel would range from approximately 65 dBA to 75 dBA, and interior noise levels would range from approximately 50 dBA to 60 dBA, which would be comparable to noisy urban residential conditions. Buildings along Kearney Road between the Chapel and the construction site would reduce the level of construction noise to a degree through deflection. Additionally, loud noises generated during construction would not be constant and are only likely to occur for short periods.

The MAST School is approximately 1,200 feet from the southern extents of the project area. With a decrease in point source noise of 6 dBA per doubling of distance, construction noise experienced at the MAST School would range from approximately 53 dBA to 63 dBA. Additionally, considering the interior noise reduction of 15 dBA provided by standard buildings, noise levels within the MAST School would range from approximately 38 dBA to 48 dBA. As a result, noise levels would be comparable to normal suburban residential conditions, which would be an acceptable noise level for the facility.

In the long-term, the consolidated maintenance facility would add a number of noise sources to the ambient noise associated with the North Site due to the introduction of maintenance operations and functions that do not currently occur at the site. Added noise would include vehicles and equipment moving in and out of the facility, human interactions, and other maintenance activities. Noise levels associated with light vehicle traffic and the operation of tractors and diesel equipment can range from 56 dBA to 95 dBA at a distance of 50 feet (EPA 1974). As a result, noise levels experienced at the NPS residence (Building 75) on Mercer Road that are generated at the maintenance facility during active periods would range from approximately 44 to 83 dBA, and approximately 29 to 68 dBA inside the residence. Ambient noise generated by the consolidated maintenance facility would be considerably lower inside the Chapel (20 dBA to 59 dBA) and inside the MAST School (8 dBA to 47 dBA). During periods of inactivity at the new facility, the noise levels experienced at the Chapel and the MAST School would be similar to preconstruction ambient noise conditions. Therefore, long-term adverse impacts are anticipated to the NPS residence because of the potential for noise generated by the maintenance facility to be above ambient noise levels. Impacts are anticipated to be minor because loud noises from the maintenance facility would not be constant, are likely to only occur for short periods, and would be relatively infrequent.

**Cumulative Impacts** – Past, present, and reasonably foreseeable future projects would require construction periods that would result in temporary noise impacts on Sandy Hook. The proposed projects generally consist of small-scale restorations and improvements to park facilities that would require the use of heavy equipment. Although the proposed action and other improvement projects are not expected to be constructed at the same time, the amount of work to be completed could create persistent background noise that would be noticeable to park visitors. Noise impacts from the construction of the consolidated maintenance facility would be temporary and would add an incremental short-term adverse cumulative impact to the impacts of other projects that may be construction on Sandy Hook during the same timeframe; however, because there are no new noise sources proposed among the past, present, and reasonably foreseeable future projects, no long-term cumulative impacts would occur.

**Conclusion** – During construction of the consolidated maintenance facility, noise impacts would depend on the level of noise generated by equipment, the distance between construction activities and the nearest noise-sensitive uses, and the existing noise levels at those sensitive uses. Project construction would involve use of equipment that would typically generate noise levels in the 80 to 90 dBA range within 50 feet. In some areas, intervening structures/sound walls, trees and berms (between the project area during construction and receptors) may

provide some noise attenuation. To minimize noise impacts during construction, work would be scheduled during normal business hours on weekdays. Weekday construction would minimize impacts on the Sandy Hook Chapel, which is typically used on weekends. Construction activities would follow a noise mitigation plan that would be implemented to comply with all federal, state, and local noise control laws. The project contractor would implement practices outlined in an approved noise mitigation plan, such as noise barriers, the use of hydraulically and/or electrically powered tools, noise level monitoring, and other noise control techniques in order to lessen the impact of construction noise on park visitors, residences, and partners. Noise effects on construction personnel would be limited by ensuring all personnel wear adequate personal hearing protection to limit exposure in compliance with Federal health and safety regulations. Based on these considerations, construction-related noise would likely result in minor adverse impacts that would be temporary, lasting only for the duration of construction.

Once operational, there would be an increase in noise generated at the North Site associated with the new maintenance facility. Temporary periods of noise generated by vehicles and equipment moving in and out of the facility, and various other maintenance activities, would result in noise that would be noticeable from surrounding areas. Noise from light vehicles, tractors, and diesel vehicles is likely to range from approximately 29 to 68 dBA inside Building 75, the closest sensitive receptor. To minimize the effects of noise generated by maintenance activities, the NPS would identify simple strategies to reduce noise levels in consideration of nearby residents, the Sandy Hook Chapel, the MAST School, and other potentially sensitive areas. The majority of noise generating activities would be conducted between the hours of 7:00 a.m. and 4:00 p.m. on weekdays, with the exception of beach combing, which may occur earlier in the morning. The NPS would not conduct noise generating activities at night or on weekends. Overall, low-level adverse noise impacts would be noticeable in the vicinity of the North Site; however, impacts are anticipated to be minor because loud noises from the maintenance facility would not be constant, are likely to only occur for short periods, and would be relatively infrequent. Additionally, to a small degree, there would be a beneficial impact in the vicinity of the north and south maintenance areas because of the reduced noise in these areas, as they would no longer be used by the NPS for maintenance operations. Based on the potential for persistent noise associated with the construction of the proposed action and other improvement projects on Sandy Hook, there would be short-term adverse cumulative impacts, but no long-term cumulative impacts would occur.

## CHAPTER 5: CONSULTATION AND COORDINATION

The NPS places a high priority on public involvement in the NEPA process and on giving the public an opportunity to comment on the proposed action. Consultation and coordination with federal, state, and local agencies, and American Indian tribes was also conducted to identify issues and/or concerns related to natural and cultural resources within the Sandy Hook Unit of Gateway. Chapter 5 provides a summary of the public involvement and agency consultation that occurred in the preparation of the EA.

### **PUBLIC INVOLVEMENT**

#### *Initial Public Scoping*

The initial public scoping period began on September 22, 2014, and ended October 22, 2014. The NPS issued a press release and posted project information, including the scoping newsletter, to the Planning, Environment and Public Comment (PEPC) website to provide a project overview and invited the public to participate in the planning process. In addition, a public open house was held on October 8, 2014, at the Sandy Hook Chapel to provide the public with information about the proposed maintenance facilities relocation project, as well as solicit input regarding the project.

During this initial scoping period, the NPS presented two potential sites, the Water Treatment Plant Site and the Tent City Site, for the proposed consolidated maintenance facility. In total, 864 pieces of public correspondence were received. Numerous comments were received that discouraged the construction of a consolidated maintenance facility at the Water Treatment Plant Site because of the unavoidable clearing of maritime forest and associated resident and migratory bird habitat that would be required to accommodate the new consolidated maintenance facility, and also because the forested area surrounding the Water Treatment Plant is a prime location for bird watching due to its concentration of a wide variety of songbirds. Comments received during the initial scoping period related to the Tent City Site cited various concerns primarily due to its proximity to the MAST School and the potential impacts of construction and maintenance noise, traffic, air emissions, etc. on the school. Commenters also strongly encouraged the NPS to adaptively reuse existing vacant and underutilized buildings in order to maintain the historic character and integrity of Sandy Hook. Based on the public feedback provided during the initial scoping period, the NPS began working on modifications to the conceptual site layouts for both the Water Treatment Plant Site and the Tent City Site, and to locate other, more suitable sites for the consolidated maintenance facility that eliminate or effectively reduce the impacts that would be expected if the Water Treatment Plant Site or the Tent City Site were identified as the preferred alternative.

### Additional Public Scoping

Based on public feedback received during the initial public scoping period, the NPS identified several new potential locations and conceptual layouts for the proposed consolidated maintenance facility, including potential opportunities to adaptively reuse existing buildings on Sandy Hook. The NPS held an additional scoping period from March 26, 2015, through April 26, 2015, to introduce the new site options and facility concept layouts to the public and to gather feedback. A press release was issued on March 24, 2015, to announce the additional scoping period and a public open house was held on April 13, 2015.

During this scoping period, the NPS presented modified versions of the Water Treatment Plant Site and the Tent City Site that were previously presented during the initial scoping period, as well as an option to adaptively reuse some existing facilities at the Water Treatment Plant in order to minimize the project footprint. Additionally, several new potential alternatives for the consolidated maintenance facility, including the adaptive reuse of Buildings 47, 57, and 65, were presented. In total, 68 pieces of public correspondence were received during the additional scoping period. Public concern remained regarding the construction of a consolidated maintenance facility at the Water Treatment Plant and the Tent City Site, related to impacts to maritime forest and the MAST School, respectively, which ultimately resulted in the dismissal of both sites as viable alternatives by the NPS. The proposed concept to adaptively reuse Buildings 47, 57, and 65 was mostly supported by the public during the additional scoping period and therefore the concept was modified and is identified as the proposed action in this EA.

## **AGENCY AND TRIBAL CONSULTATION**

### Section 106 of the National Historic Preservation Act

Consultation with the New Jersey SHPO and the Advisory Council on Historic Preservation is being conducted in accordance with Section 106 of the National Historic Preservation Act. On September 8, 2014, letters were sent to the New Jersey Department of Environmental Protection, State Historic Preservation Office, and the Advisory Council on Historic Preservation, initiating the Section 106 consultation process on potential effects to the Fort Hancock and the Sandy Hook Proving Ground National Historic Landmark District and its contributing resources. Section 106 consultation is on-going at the time of this EA; should consultation result in a finding of adverse effect to historic properties, the park will draft a Memorandum of Agreement outlining mitigation measures and post it to PEPC for public review.

### Tribal Consultation

The park initiated tribal consultation on September 10, 2014. Letters seeking consultation were sent to the Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge-Munsee Mohican Tribal Community. In response, the Delaware Nation Cultural Preservation Office stated that the location of the project does not endanger cultural or religious sites and that the project should continue as planned; however, if archeological sites or objects are uncovered, construction should stop until the appropriate state agencies and tribal organizations are

consulted. As of May 2016, a response has not yet been received from the Delaware Tribe Historic Preservation Representatives or the Stockbridge-Munsee Mohican Tribal Historic Preservation Office.

#### Section 7 of the Endangered Species Act

Section 7 of the Endangered Species Act requires federal agencies to consult with the US Fish and Wildlife Service 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 US Fish and Wildlife Information, Planning and Conservation System. Subsequently, in a letter sent in March 2015, the NPS initiated informal consultation with the US Fish and Wildlife Service about the presence of federally listed threatened or endangered species in the vicinity of the action area. Based on information gathered during scoping and an initial review of the US Fish and Wildlife Service Information, Planning and Conservation website, four federally listed species were considered to potentially have a presence in or adjacent to one or more of the potential project area(s): seabeach amaranth (*Amaranthus pumilus*), piping plover (*Charadrius melodus*), roseate tern (*Sterna dougallii dougallii*), and northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*). The red knot (*Calidris canutus ssp. rufa*) and the northern long-eared bat (*Myotis septentrionalis*) were listed; and subsequently evaluated during development of the EA.

Pursuant to the Endangered Species Act, the NPS would make a finding that the preferred alternative may affect but is not likely to adversely affect the northern long-eared bat; and would have no effect on the seabeach amaranth, piping plover, red knot, roseate tern or the northeastern beach tiger beetle. The NPS will continue to consult with the US Fish and Wildlife Service with regard to listed species.

#### Coastal Zone Management Act Federal Consistency Determination

Coastal zone management for the proposed action is federally authorized by the Coastal Zone Management Act. The Coastal Zone Management Program (CZMP) federal consistency review process is described in 15 CFR 930: Federal Consistency with Approved Coastal Management Programs. The CZMP gives day-to-day management authority to the state of New Jersey. The New Jersey Department of Environmental Protection, Coastal Management Office will review this project for Federal Consistency. The NPS has determined that the proposed action would be consistent, or consistent to the maximum extent practicable, with the coastal policies set forth by the New Jersey Department of Environmental Protection, Coastal Management Program.

#### Sensitive Species

The NPS sent a letter to the New Jersey Department of Environmental Protection, Endangered and Nongame Species Program on September 22, 2014, requesting information regarding state-listed rare, threatened, or endangered plant or animal species, significant natural communities, and/or other environmentally sensitive areas that may occur in the vicinity of the proposed sites for the consolidated maintenance facility. As of May 2016, a response has not yet been received from the Endangered and Nongame Species Program.

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## APPENDIX A: DRAFT FLOODPLAIN STATEMENT OF FINDINGS

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## **DRAFT FLOODPLAIN STATEMENT OF FINDINGS**

### Relocation of Hurricane Sandy Damaged Maintenance Facilities To More Sustainable Locations within the Sandy Hook Unit

Gateway National Recreation Area, Sandy Hook Unit  
Monmouth County, New Jersey

Recommended:

\_\_\_\_\_  
Jennifer Nersesian  
Superintendent  
Gateway National Recreation Area

\_\_\_\_\_  
Date

Certification of Technical Adequacy and Service-wide Consistency:

\_\_\_\_\_  
Water Resources Division

\_\_\_\_\_  
Date

Approved:

\_\_\_\_\_  
Michael A. Caldwell  
Regional Director  
Northeast Region

\_\_\_\_\_  
Date

## DRAFT FLOODPLAIN STATEMENT OF FINDINGS

### INTRODUCTION

Executive Order 11988 (Floodplain Management) and Executive Order 13690 (Establishing a Federal Flood Risk Management Standard), which amended 11988 on January 30, 2015, require the National Park Service (NPS) and other federal agencies to evaluate the likely impacts of actions in floodplains. NPS Director's Order 77-2: *Floodplain Management* and Procedural Manual 77-2 provide NPS procedures for complying with Executive Order 11988 and Executive Order 13690.

The NPS proposes to permanently relocate maintenance operations that were located in buildings damaged during Hurricane Sandy within the Sandy Hook Unit of Gateway National Recreation Area (Gateway). This Statement of Findings (SOF) for Floodplains was prepared per Director's Order 77-2: *Floodplain Management* for the proposed construction of a consolidated maintenance facility at the North Site within the Fort Hancock Historic Post Area on Sandy Hook. According to FEMA Flood Insurance Rate Maps (FIRM) 34025C0086G, 34025C0060G, and 34025C0080G, the entire Sandy Hook peninsula is within Flood Zone D (FEMA 2014a). The Zone D designation is used for areas where there are possible but undetermined flood hazards. However, based on preliminary FEMA floodplain mapping of the Sandy Hook peninsula, the project area for the proposed maintenance facility is located entirely within the 100-year floodplain (**Attachment 1**).

The NPS requires the preparation and approval of a SOF for any proposed action that is located within a defined regulatory floodplain "when it is not practicable to locate or relocate development or inappropriate human activities to a site outside and not affecting the floodplain... (NPS 2003)" Construction of the consolidated maintenance facility at the North Site within the Fort Hancock Historic Post Area would result in approximately 5.7 acres of disturbance and an increase of approximately 1.94 acres of impervious area within the 100-year floodplain. Approximately 3.2 acres of successional maritime forest and shrubland would be cleared within the floodplain, and 1.26 acres of vegetated floodplain would be converted to impervious surface. The construction of new maintenance facilities and associated infrastructure within the 100-year floodplain is subject to the NPS floodplain policies and procedures (NPS 2003). This Floodplain SOF documents compliance with the NPS floodplain management procedures.

### PROPOSED ACTION

Under the proposed action, a consolidated maintenance facility would be constructed at the North Site, which is situated within the Fort Hancock Historic Post Area, to the east of Kearney Road and directly north of the Kearney Road/Mercer Road intersection (see **Attachment 2**).

The area consists of a complex of buildings including Building 32, Building 33, Building 34, Building 49, Building 51, Building 65, and Building 79.

For the purposes of this EA, the North Site project area includes Buildings 49 and 65 (see photos on page 13); the gravel parking area behind Building 32; site access points along Kearney Road; a short segment of the MUP along South Bragg Drive; and forest, shrub, and grasslands to the east of Buildings 49, 65, and 79. The project area is 5.7 acres in area, and consists of 2.5 acres of developed land, interspersed with approximately 3.2 acres of native vegetation. The limits of the North Site project area are provided on **Attachment 2**.

The consolidated maintenance facility would include adaptive reuse of Building 49 to accommodate maintenance operations associated with the Buildings and Utilities Maintenance Division. Building 49 was historically used as a warehouse, and is currently used as a storage area by Gateway's Natural Resources Management staff and the Sandy Hook lifeguards. The proposed modifications to Building 49 include new program elements such as a wood shop, multi-purpose room, new accessible restrooms (with shower facilities), new accessible locker rooms, as well as retaining a reduced storage area for the Sandy Hook lifeguards. Exterior rehabilitation would be required that would include, but would not be limited to, door replacements, roof replacement, and other exterior repairs. New loading doors, man doors, and accessible entrance features will be added to the exterior of the building. The building's structure will be upgraded to current code standards, and all new mechanical, electrical, and plumbing systems would be incorporated. A sprinkler system would also be included for fire suppression. Critical systems (i.e. heating and air conditioning units, security, computers, etc.) within Building 49 would be elevated to a minimum of three feet above the Base Flood Elevation (BFE), which is equal to or greater than the water surface elevation of the 500-year flood. Upgrades to Building 49 would be made to comply with current building codes. All work will be in keeping with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

The proposed action also includes the adaptive reuse of Building 65 to accommodate maintenance administration functions. The building was historically used as a storehouse and is currently vacant. The proposed modifications to Building 65 would include new program elements such as a new accessible internal stairway, an accessible path to the building entrance, open office area, private offices, accessible restrooms, and a conference room. Exterior rehabilitation would include addressing the deteriorating masonry and rehabilitating the existing wood windows and doors. The building would receive all new mechanical, electrical, and plumbing systems. A sprinkler system would also be included for fire suppression. Upgrades to Building 65 would be made to comply with current building codes. Critical systems (i.e. heating and air conditioning units, security, computers, etc.) within Building 65 would be elevated to a minimum of BFE+3. All work will be in keeping with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

The NPS would construct a new vehicle/equipment maintenance and repair shop to the east of Building 65 under the proposed action. The new vehicle/equipment maintenance and repair

shop would primarily accommodate the functions of the Roads and Grounds Maintenance Division, but would also support other maintenance functions, as necessary. The new vehicle/equipment maintenance and repair shop would include maintenance bays with automotive lifts, as well as equipment storage areas, work areas, offices, a breakroom, and bathrooms with lockers and shower facilities. Elevated concrete ramps would be constructed at the north and south ends of the shop to provide vehicle/equipment access to the maintenance bays. Near the south ramp, a wash station would be provided for vehicles entering the shop. Washwater from the station would drain to the site sanitary sewer line. The new shop would be the primary location for materials storage. The types of materials that would be stored include oil, transmission fluid, brake fluid, pesticides, and fertilizer, which would be stored in accordance with OSHA guidelines.

The NPS would construct the new vehicle/equipment maintenance and repair shop to be resilient to extreme weather conditions, such as high wind speeds and excessive salt spray, and would use hurricane-resistant construction techniques and facility designs that would take into account the latest NPS guidance addressing climate change and natural hazards in facility planning (NPS 2015b). The shop would be elevated using a structural slab or pier system to a minimum of BFE+2 (i.e. the 100-year floodplain elevation), as identified in the 2014 Preliminary Flood Insurance Study (FIS) for Monmouth County (FEMA 2014b). Also, critical systems (i.e. heating and air conditioning units, security, computers, etc.) within the new shop would be elevated to a minimum of BFE+3. A sprinkler system would also be included for fire suppression, and energy efficient heating and lighting systems would be incorporated into the design of the new facility.

An outdoor covered vehicle/equipment parking structure would also be constructed behind Building 49 under the proposed action. This structure would be appropriately sized to accommodate 18-20 maintenance vehicles. The roof of the structure would be constructed using a hurricane-resistant roof covering. In addition, a concrete pad would be installed for the floor of the vehicle bays. Lighting would be installed under the canopy of the structure and new electric power supply would be provided. In the vicinity of the new outdoor covered parking structure, the proposed action would also establish 10 uncovered parking spaces, a bulk materials storage area, and concrete dumpster pad with three sided wall and gate.

In order to minimize the potential for conflicts with NPS Law Enforcement and Fire and EMS facilities access and circulation, two new access points would be constructed for the consolidated maintenance facility. One access point would be constructed along an abandoned road bed off of Kearney Road, approximately 200 feet south of Building 32. A curb cut would be required at Kearney Road to accommodate the new paved entrance. This new access point would lead to the paved parking area proposed to the south of Building 65. The second access point would be provided by constructing a new asphalt access road behind Buildings 49 and 79 that would continue northwest across the MUP, connecting to South Bragg Drive. A curb cut would be required at South Bragg Drive to accommodate the new access point. The access would primarily be used by on-duty maintenance personnel, vehicles, and equipment. A pedestrian crosswalk, rumble strips, and signage would be incorporated at the MUP crossing to direct

pedestrians and bicyclists safely across the new access road. Furthermore, the existing access points off of Kearney Road directly south of Building 32 and between Buildings 33 and 34 would be available for facility access, if needed. Generally, access roads would be wide enough to provide two-way traffic for NPS maintenance staff and equipment circulation.

The NPS would install chain link security fencing to prevent unauthorized access to the new facilities (see **Attachment 2** for the limits of fencing). Vehicle access to the fenced-in areas would be controlled by swing gates. The NPS would also install flood lights on poles and security lights on the buildings within the consolidated maintenance facility for additional security and to provide visibility during early morning and/or late evening maintenance activities. Exterior lighting would be shielded and would only cast light on grounds within the facility. Lights would be set using time clock controls that would shut the lights off during nighttime hours. In the event of an emergency or snow removal operations, manual override would allow maintenance staff full control of lighting. Manual override would be provided at the gated entrances to the maintenance facility. All buildings and ancillary structures would be powered with conventional power. Backup generators are not included in the proposed action, but infrastructure would be installed to allow backup generators to be installed at a later date.

Currently, parking for the existing facilities at the North Site is provided by an uneven, unmarked gravel surface behind Buildings 32, 33, 34 and 51 (see photo next page). As part of the development of a consolidated maintenance facility, vehicle parking would be incorporated that would be located outside of the proposed chain link security fencing. Between Buildings 32 and 49, an asphalt surface would be constructed for vehicle circulation and 15 marked parking spaces, including four handicap accessible spaces, for NPS Law Enforcement, maintenance staff, and authorized guests. Also, 41 parking spaces would be established just south of Building 65 that would be open to NPS maintenance staff for parking personal vehicles while on duty. Vehicle circulation through this parking area would consist of an asphalt surface; however, marked parking spaces would be constructed using porous pavers. Porous pavers were selected by the project design team in order to reduce stormwater runoff from the facility and capture parking lot pollutants as stormwater travels through it. In total, 60 marked parking spaces are proposed outside of the chain link fencing that would secure the consolidated maintenance facility.

Inside the chain link security fencing, 28 marked parking spaces, including two handicap accessible spaces, would be established between Building 65 and the proposed vehicle/equipment maintenance and repair shop. In addition, 10 parking spaces are proposed between Building 49 and the proposed outdoor covered parking structure. Asphalt would be used to construct vehicle circulation and the parking spaces at these locations. Parking spaces inside the security fencing would be accessed at gated entrances and would be used to store NPS vehicles. In sum, 40 parking spaces would be provided for NPS maintenance vehicles inside the facility.

In addition to the proposed porous paving materials, stormwater management design for the North Site includes construction of two stormwater infiltration basins. One infiltration basin

would be constructed to the northeast of the site behind the proposed outdoor covered vehicle/equipment parking structure. The basin would be 6,500 square feet in area with a maximum depth of one foot. The second infiltration basin would be constructed to the southeast of Building 65. The basin would be 3,078 square feet in area with a maximum depth of one foot. The locations of the proposed infiltration basins were selected to take advantage of existing low points across the North Site, and to avoid impacts to existing cultural resources (in the form of architectural remains). As per Energy Independence Security Act (EISA) 438 criteria, the basins would be constructed to control 95<sup>th</sup> percentile rainfall events; i.e. rainfall events whose precipitation total is greater than or equal to 95 percent of all 24-hour storms on an annual basis, or, common storms. The object of the basin design would be to maintain preconstruction hydrology, as called for by EISA 438. The infiltration basins would also capture and retain pollutants in runoff from the facility. All runoff from smaller, more frequent storm events would be contained within the basins. Runoff from more severe, less frequent storm events are likely to overtop the basin and flow into the adjacent vegetated floodplain areas surrounding the project area. Under the most severe storm circumstances, NPS vehicles and equipment would require removal from the North Site to avoid flood damage. NPS maintenance staff would follow evacuation procedures utilizing ancillary storage locations off of the Sandy Hook peninsula in the New Jersey Highlands.

As part of the proposed action, the NPS would relocate the existing fuel station from the north maintenance area to a concrete slab to be installed at the North Site. Components of the fueling station would include a 1,000 gallon above-ground fuel storage tank and fuel dispensing system. The fueling station would be located to the northwest of Building 49. Its location outside of the security fence was chosen so that the fueling station could be used by NPS Law Enforcement and Fire and EMS personnel in addition to the maintenance staff. The fueling station would be designed in accordance with all appropriate Federal Emergency Management Agency (FEMA) and NPS guidelines for the construction of fuel storage within the regulatory floodplain. The fuel storage tank and its components would be elevated by placing the tank on a metal frame anchored to a concrete pad, or by constructing concrete walls around the tank to protect it during floods, to a minimum of three feet above BFE (BFE+3), which is equal to or greater than the water surface elevation of the 500-year flood. For added protection, the fuel storage tank would have secondary containment greater than the volume of fuel storage. In addition, the fuel storage tank and dispensing system would be surrounded with bollards, or similar barriers, to protect the tank from potential vehicle collisions. An automatic shut-off system would be incorporated into the fueling station.

Under the proposed action, the NPS would prepare a landscape plan for the consolidated maintenance facility, which would include the installation of native trees and/or shrubs around the facility of the same or similar species as those that would be removed during construction. Plantings may be strategically placed for aesthetic purposes as a part of the facility design or to screen the facility from Kearney Road and other viewpoints in the vicinity. Turf grass would be established in areas where structures, gravel surfaces, or stormwater management are not proposed.

The layout of the North Site under the proposed action was designed with shared spaces in mind in order to minimize the footprint of the consolidated maintenance facility. **Attachment 2** provides a conceptual layout of buildings and other facility elements including site access, parking, and perimeter security.

After construction of the new consolidated maintenance facility, the functions currently accommodated at the north and south maintenance areas on Sandy Hook would be relocated to the new facility. In the short-term, the existing north and south maintenance buildings would remain in place, but would not be used by the park and would be closed to the public. The park would assess any future uses or actions for these buildings in accordance with the GMP.

## **SITE DESCRIPTION**

Floodplains provide a variety of benefits to natural environments and human society. Benefits provided by the floodplain at the North Site are primarily associated with the infiltration, storage, and transport of flood waters during storms. At a larger scale, Sandy Hook, as well as other coastal barrier islands and peninsulas, are valuable for ecology, recreation, and flood protection due to the dynamic nature of these landforms. The level of protection from flooding is the result of oceanic forces that are absorbed by these barrier landforms. This is particularly evident during storm surges where the energy from the force of waves is greatly reduced on the mainland from the “barrier effect” (NPS 1979). Therefore, it is assumed that Sandy Hook provides some level of protection for the mainland from damage caused by coastal storm surge.

There is also functional value in a vegetated floodplain, which makes up approximately 3.2 acres of the project area. In the coastal environment, vegetated floodplains help to reduce surface erosion of loose sandy soils, and provide for the accumulation, filtration, and storage of groundwater. Vegetated floodplains in coastal areas also provide flood storage, and filter and absorb surface water runoff. Coastal storm events may cause changes to hydrological balance and existing salt and freshwater balances, which may make the maritime shrubland, forests, and other vegetated coastal floodplains area vulnerable over time. If the balance or frequency of runoff into lower lying areas increases, there is potential for the health of the vegetated floodplain to decline over the long-term; because the vegetated floodplain is subject to changes in the salt and freshwater surface water balance.

FEMA is the principal source for floodplain mapping in the United States. FEMA identifies areas that are considered at high risk of flooding. Flood prone areas are located at or below Base Flood Elevations (BFE), also known as the 100-year floodplain. The 100-year flood is defined as a flood that has a 1 percent chance of being equaled or exceeded in any given year. FEMA also identifies the 500-year floodplain, which represents areas of moderate flood risk (0.2 percent chance of being equaled or exceeded in any given year).

According to the preliminary FEMA Flood Insurance Study (FIS) prepared for Monmouth County, NJ, the established 1 Percent Annual Chance flood elevation (i.e. the 100-year floodplain elevation) at the North Site is 11.1 feet and the .02 Percent Annual Chance flood elevation (i.e. the 500-year floodplain elevation) is 14.4 feet above mean sea level (FEMA 2014b). Areas below this elevation are subject to wave generated coastal flooding from storm surges predominantly associated with hurricanes and nor'easters with an undetermined level of flood risk. The preliminary FIS report, which has a projected effective date of September 2016, shows transects along the Sandy Hook peninsula that have established 100-year and 500-year flood elevations. The transect line nearest the project area is transect 65 with a 100-year flood elevation ranging from 10.3 to 11.1 feet and a 500-year elevation ranging from 14.1 to 14.4 feet along the Atlantic Ocean (FEMA 2014b). The preliminary floodplain elevations from the 2014 FIS account for the effects of tidal and wind wave heights from coastal storm surges with significant wave heights and wave run-up analysis provided.

As a result of Hurricane Sandy, maintenance and other facilities on Sandy Hook were greatly affected. During the storm, the National Oceanic and Atmospheric Administration (NOAA) tidal sensor located on Sandy Hook recorded maximum water level values that exceeded the historical maximum value prior to being damaged when the hurricane made landfall. According to NOAA's tidal gage #8531680 at Sandy Hook, the high water mark, which is considered the stillwater elevation without waves, was 9.21 feet at 6:00 p.m. on October 29, 2012 (FEMA 2014b). The maximum storm tide elevation and storm surge elevation is likely to have been even higher during the storm than the maximum recorded tidal elevations previously recorded (NOAA 2013). In addition, sea level rise on Sandy Hook is a concern due to an average increase of 1.6 inches per decade recorded since 1933 at the tide gauge located at the US Coast Guard Station. More recently observed tide levels are indicative of the need to plan for future storms due to ordinary high tides inundating mainland streets in New Jersey, along with the anticipated increase in storm intensity and occurrence (National Parks Conservation Association 2014).

## **JUSTIFICATION FOR USE OF THE FLOODPLAIN**

The purpose of the proposed project is to construct a consolidated maintenance facility that is resilient to coastal storm surges and flooding at the North Site on Sandy Hook. According to preliminary FEMA floodplain mapping, the North Site project area is located entirely within the 100-year floodplain of Sandy Hook Bay and the Atlantic Ocean. However, the majority of Sandy Hook is located within the 100-year floodplain, with only a few areas located outside of the 100-year floodplain, but within the 500-year floodplain. A review of these slightly elevated areas where a consolidated maintenance facility could be constructed on Sandy Hook showed unique coastal ecosystems, such as maritime holly forest that would result in unacceptable impacts to wildlife and habitat, including migratory birds and numerous species of special concern. Constructing the maintenance facility at other elevated areas on Sandy Hook, including the Nike Missile Launch Site, would likely result in adverse effects to these historic resources. The proposed location for the consolidated maintenance facility at the North Side provides the opportunity to adaptively reuse existing facilities, which effectively reduces the area of

disturbance of the project. Also, the location of the North Site within the interior of the peninsula provides some degree of protection from coastal storm surges and flooding.

## **MITIGATION MEASURES**

Avoidance and minimization measures were applied throughout the project design to reduce impacts to the floodplain. Furthermore, the NPS set out to design the facility to be resilient to flooding in accordance with the latest FEMA and NPS guidelines. As a response to climate change and the associated increased risk of coastal storm surge from sea level rise, the NPS has issued a handbook to address climate change and natural hazards. The handbook conforms to Executive Order 13690, providing decision-makers with facility design and construction guidance to maximize resiliency against coastal flood risk (NPS 2015). In consideration of the latest NPS guidelines, the following mitigation measures would be implemented to minimize impacts to the floodplain and to make the maintenance facility at the North Site resilient to coastal flooding:

- Implement a stormwater management plan consisting primarily of two infiltration basins designed to collect and retain runoff up to the 10-year storm event.
- Incorporate porous pavement into the site design, where possible, to reduce impervious surface area.
- Revegetate disturbed areas using NPS-approved native seed mixes and plantings.
- Elevate the new vehicle/equipment maintenance and repair shop using a structural slab or pier system to a minimum of two feet above the Base Flood Elevation (BFE) (i.e. the 100-year floodplain elevation) (BFE+2) as identified in the 2014 Preliminary Flood Insurance Study (FIS) for Monmouth County (FEMA 2014b).
- Elevate critical systems (i.e. heating and air conditioning units, security, computers, etc.) within Building 49, Building 65, and the new vehicle/equipment maintenance and repair shop to a minimum of three feet above BFE (BFE+3), which is equal to or greater than the water surface elevation of the 500-year flood.
- Elevate the fuel storage tank and its components by placing the tank on a metal frame anchored to a concrete pad, or by constructing concrete walls around the tank to protect it during floods, to a minimum of three feet above BFE (BFE+3), which is equal to or greater than the water surface elevation of the 500-year flood.

## **CONCLUSION**

The proposed consolidated maintenance facility would result in a total increase in impervious surface of 1.94 acres within the 100-year floodplain. Approximately 3.2 acres of successional maritime forest and shrubland would be cleared within the floodplain, and 1.26 acres of

vegetated floodplain would be converted to impervious surface. Increases in impervious surface could result in a reduction in the infiltration and groundwater recharge capacity of the floodplain and increased runoff from the site. However, the increase in stormwater runoff as compared to predevelopment conditions in the recent past would be minimal, because the area being developed as part of the new facility is small relative to the overall area of the vegetated floodplain. Under relatively frequent flood events (less than the 10-year event), there would be no impacts to the vegetated floodplain, as stormwater would be captured in the infiltration basins. Infiltration and evaporation from the basins would protect the adjacent vegetated floodplain from the effects of more frequent inundation, and would offset impacts to the infiltration and groundwater recharge capacity of the floodplain associated with increase in impervious surface. Also, other measures to reduce runoff, including porous pavement, would be implemented to further minimize runoff-related impacts. Occasional increases in stormwater runoff from the site during more severe storms in the future would result in a minimal adverse impact to the adjacent vegetated floodplain, as stormwater would temporarily inundate these areas under a limited number of storm events and may contribute to shrubland and forest dieback over the long-term.

Due to the relatively small-scale of the project and the implementation of mitigation measures, no increase in flood elevations or undue risks to human health or property would occur. To make the maintenance facility resilient to flooding, the NPS would elevate all new structures a minimum of two feet above the BFE (BFE+2) as identified in the 2014 preliminary FIS for Monmouth County (FEMA 2014b). The NPS would also elevate critical systems within Building 49, Building 65, and the new vehicle/equipment maintenance and repair shop, and the proposed above-ground fuel storage tank and its components, a minimum of three feet above the BFE (BFE +3) as identified in the 2014 preliminary FIS for Monmouth County (FEMA 2014b) to minimize flood risks in accordance with the latest NPS guidelines.

The NPS finds that this proposed action is consistent with the policies and procedures of Director's Order #77-2: *Floodplain Management*.

## REFERENCES

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- 2014a Preliminary Flood Insurance Rate Map (FIRM) Panel 34025C0060G. FEMA Map Service Center. Online: <https://msc.fema.gov/portal/advanceSearch>. Accessed March 25, 2015
- 2014b Preliminary FEMA Flood Insurance Study, Monmouth County, City of New Jersey. FEMA Map Service Center. Online: <https://msc.fema.gov/portal/advanceSearch>. Accessed March 25, 2015

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- 2013 Water Level and Meteorological Data Report: Hurricane Sandy. Online: [http://tidesandcurrents.noaa.gov/publications/Hurricane\\_Sandy\\_2012\\_Water\\_Level\\_and\\_Meteorological\\_Data\\_Report.pdf](http://tidesandcurrents.noaa.gov/publications/Hurricane_Sandy_2012_Water_Level_and_Meteorological_Data_Report.pdf). Accessed October 22, 2015

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### National Park Service (NPS)

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## DRAFT FLOODPLAIN STATEMENT OF FINDINGS

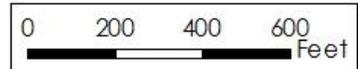
### ATTACHMENTS

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**Attachment 1: North Site Project Area with Floodplain Designations**

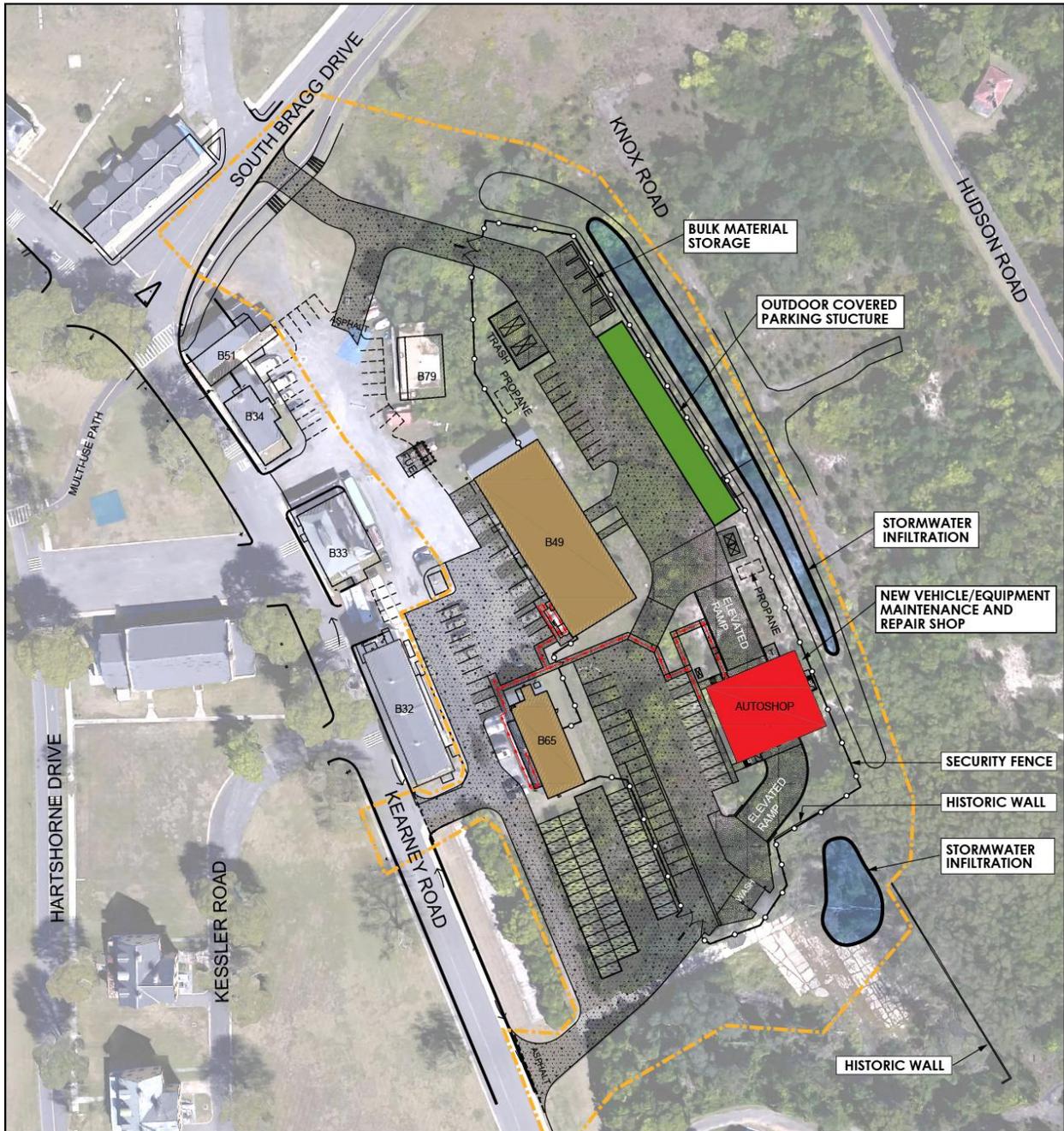
Gateway National Recreation Area  
Relocate Hurricane Sandy Damaged Maintenance Facilities  
to More Sustainable Locations  
Environmental Assessment



**Legend**

- Project Area
- 100-year Floodplain
- 500-year Floodplain
- Non-floodplain

Data Source: NPS

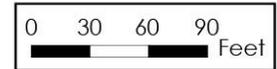


**Attachment 2: Proposed Consolidated Maintenance Facility on Sandy Hook**

Gateway National Recreation Area  
 Relocate Hurricane Sandy Damaged Maintenance Facilities  
 to More Sustainable Locations  
 Environmental Assessment

**Legend**

- |          |                                   |                                     |
|----------|-----------------------------------|-------------------------------------|
| Concrete | Porous Pavement                   | Existing Buildings To Be Repurposed |
| Asphalt  | Outdoor Covered Parking Structure | New Building To Be Constructed      |
|          | ABA Route                         | Project Area                        |



Data Source: NPS

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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 our 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 US administration.

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