

ENVIRONMENTAL ASSESSMENT

Adaptive Use of Fort Hancock and the Sandy Hook Proving Ground Historic District



Photo Courtesy of Tom McGuire

Prepared by
The National Park Service
In Association with
Sandy Hook Partners LLC
February 2002, Revised July 2003



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Sandy Hook Proving Ground Historic District**

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**Sandy Hook Unit
Gateway National Recreation Area • New York/New Jersey**

United States Department of the Interior/National Park Service

Introduction

The Sandy Hook Unit of Gateway National Recreation Area, a unit of the National Park System, proposes to embark upon an important and exciting project: the rehabilitation and return to active use of the nationally significant historic buildings of Fort Hancock and the Sandy Hook Proving Ground. Since the establishment of the park in 1972, both park management and other advocates of historic preservation have been frustrated by the general inability to preserve these beautiful structures. The physical needs of these buildings, after years of neglect, far exceed available funds and manpower. It has been all that the park could do to stem the tide of deterioration. While staff and partners have worked hard to preserve this precious historic resource, its total loss has always been a real possibility and remains so today if nothing further is done.

Through the National Park Service authority to offer long-term leases of certain buildings in exchange for capital improvement and fair market return, we can actually save Fort Hancock and the Sandy Hook Proving Ground. The \$60 to \$90 million dollar investment by the Sandy Hook Partners (including utilities and information technology upgrades) will bring alive again 36 of the 37 Fort Hancock's buildings involved in the lease and will also be a benefit to the NPS as well as the other institutions and organizations at Sandy Hook. The rehabilitation will be done under the close supervision of the park, and according to the stringent standards of the National Park Service, the National Historic Preservation Act and the State of New Jersey Historic Preservation Office. The park's limited assets can then be redirected and focused on the rescue of other significant historic structures, and lease income will provide new financial resources to that effort.

This project is just a part of our overall vision for the future of Sandy Hook. In addition to a rehabilitated and revitalized Fort Hancock, a seven-mile multi-use pathway will provide safe and enjoyable access for bicyclists and pedestrians to the wealth of park resources and sites. A \$3 million dollar permanent ferry dock will enhance accessibility to the park ease competition for parking within the park. Finally, initiatives are under way to reduce the park's reliance on non-renewable energy sources, and become an outstanding example of energy conservation and the utilization of alternate energy sources.

This park, as all units of the National Park System, takes seriously its mission to preserve its historic and natural resources, and to make them available for the enjoyment of the American people. Park management is confident that this project will not diminish Sandy Hook's natural resources, nor limit current recreational opportunities. The document that follows illustrates the years of careful planning that have led us to this proposal, the large number of partners and stakeholders who have participated in the planning, and the lines of thought that led to this particular proposal. The National Park Service invites you to consider it carefully, and looks forward to your thoughtful comment and input.

EXPERIENCE YOUR AMERICA
The National Park Service cares for special places saved by the
American People so that all may experience our heritage.

Environmental Assessment -Executive Summary

Adaptive Use of Fort Hancock and the Sandy Hook Proving Ground Historic District

This Environmental Assessment evaluates actions to fully implement the "Fort Hancock Gateway Village" concept approved in the 1979 *General Management Plan*. This adaptive use concept was reaffirmed in the 1990 *General Management Plan Amendment* that identified historic leasing as a means to implement the plan. It does not reevaluate alternatives considered in previous planning processes. The Assessment evaluates a No Action Alternative that continues current management practices and a Rehabilitation Alternative (Proposed Action) that provides for rehabilitation and reuse of 100 historic structures (37 associated with the historic leasing program, 19 used by park partners and 44 continued use for park service purposes).

Under the No Action Alternative, the NPS would continue to manage the property according to established policies, standards and guidelines within current budgetary constraints. A limited number of historic structures would be rehabilitated by non-profit partners and by the NPS as funds from the NPS competitive funding program allow. Most structures would continue to deteriorate, some to a condition beyond repair.

In the Proposed Action, all landscape and historic structures would be rehabilitated according to *Secretary of the Interior's Standards for the Treatment of Historic Properties*. To the greatest degree possible, all character defining features would be preserved and protected in place. Two options for replacing missing or deteriorated features and installing new features needed to support the adaptive use are considered. The first Option replaces missing and adds new features in a contemporary compatible design. The second Option replaces missing and adds new features with accurate reproductions of features that existed during the periods of greatest significance of the Fort Hancock and Sandy Hook Proving Ground zones. Both options provide for replacement of the missing Fort Hancock Hospital and construction of a new NPS maintenance building in the existing maintenance yard.

Presently Fort Hancock has 708 parking spaces. To support new uses, approximately 665 additional spaces would be required. Alternatives for parking including construction of a 1400 car intercept lot south of Fort Hancock and expanded on street parking were considered and dismissed because they would not meet the requirements of the adaptive use program. The 665 new parking spaces would be gained through redesign and expansion of six existing parking lots and construction of six new lots on six acres of previously disturbed land dispersed around the perimeter of the fort. As mitigation, a comparably-sized area known as K lot would be re-vegetated as high value habitat. The number of beach parking spaces, capped at 4,300 would remain the same because beach goers could use spaces on the eastern edge of Fort Hancock on summer weekends.

One hundred and fifty missing trees would be replaced and landscaping appropriate to the district would be added. New walkways, lighting and site furnishing would be added as required.

Electrical and phone lines along Hartshorne Drive from the park entrance to the fort would be put underground. Within Fort Hancock, electric, telephone, water and sewer lines would be repaired or replaced within existing utility trenches. Natural gas service would be provided to the Park. In Fort Hancock, gas lines would be installed in existing utility trenches. Along Hartshorne Drive, the gas line would follow the proposed Multi-Use Path and its impacts evaluated in the MUP Environmental Assessment.

Impacts of the No Action Alternative on the National Historic Landmark would be major and long term. Integrity of the property would continue to be lost. This alternative would have no or only minor impacts on natural resources and the socioeconomic environment.

Impacts of the Rehabilitation Alternative on the National Historic Landmark would be major and long-term. The condition of the landscape and structures would be greatly improved and all aspects of site integrity would be maintained or enhanced. Natural resource impacts would result primarily from construction of new parking lots. Natural vegetation and wildlife habitat would be impacted but mitigated. There would be only minor and short-term impacts on endangered and other species of special concern. The Socioeconomic impacts would be major and long-term by increasing local employment, enhancing local business and improving Sandy Hook as an education, research, conference and tourist destination.

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I. PURPOSE OF AND NEED FOR THE ACTION

Significant cultural resources of the "Fort Hancock and Sandy Hook Proving Ground Historic District" (District) have generally deteriorated over the past twenty-five years due to budget constraints. The greatest majority of the historic buildings and cultural features that make up the District are in fair to poor condition and urgently require preservation treatment. The plan for adaptive use of these resources, using the historic leasing authority and other partnership methods, was developed during the general management planning process for Gateway National Recreation Area. This approach is reflected in both the *Final Environmental Statement and General Management Plan for Gateway National Recreation Park* (1979) and *General Management Plan Amendment and Interpretive Prospectus & Development Concept Plan for the Sandy Hook Unit* (1990). As part of the 1979 GMP process, the concept of adaptive use at Fort Hancock was reviewed formally by the public and other interested entities, and compliance was completed. This Environmental Assessment (EA) analyzes only the impacts and effects of physical actions necessary to implement this plan.

The National Park Service (NPS) is proposing a series of actions to implement an adaptive use program. These actions are described and evaluated in this EA under sections titled the "Rehabilitation Alternative." An alternative series of actions are described and evaluated under sections titled the "No Action Alternative." Additional alternatives and additional actions were considered early in the planning process, but subsequently were dismissed from further consideration for reasons that are also described in this document. The environmental impacts and effects of dismissed alternatives and actions are not evaluated in this EA.

This EA analyzes the impacts of these actions on the environment in accordance with the *National Environmental Policy Act of 1969* (NEPA), *Council on Environmental Quality Regulations* (Title 40 Code of Federal Regulations Part 1500 et seq.), the *National Historic Preservation Act of 1966*, as amended 1992 (NHPA), the *Advisory Council on Historic Preservation's Final Rule*, as amended January 11, 2001 (Title 36 Code of Federal Regulations Part 800), *NPS Management Policies 2001*, Director's Order 28 *Cultural Resource Management Guideline* (1994), Director's Order 12, *Conservation Planning, Environmental Impact Analysis and Decision-making* (2001), and other laws and regulations, require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places. The undertakings described in this document are subject to Section 106 of the NHPA. This document was submitted to the New Jersey State Historic Preservation Officer (SHPO) for review and comment.

After publication of the draft Environmental Assessment, President George W. Bush issued Executive Order: Preserve America on March 3, 2003. "...each agency...shall seek partnerships with ...the private sector to promote local economic development and vitality through the use of historic properties in a manner that contributes to the long-term preservation and productive use of those properties. Each agency shall...encourage, support, and foster public-private initiatives and investment in the use, reuse, and rehabilitation of historic properties, to the extent such support is not inconsistent with other provisions of law, the Secretary of the Interior's Standards for Archeology and Historic Preservation, and essential national department and agency mission requirements."

II. BACKGROUND

A. PROJECT SETTING

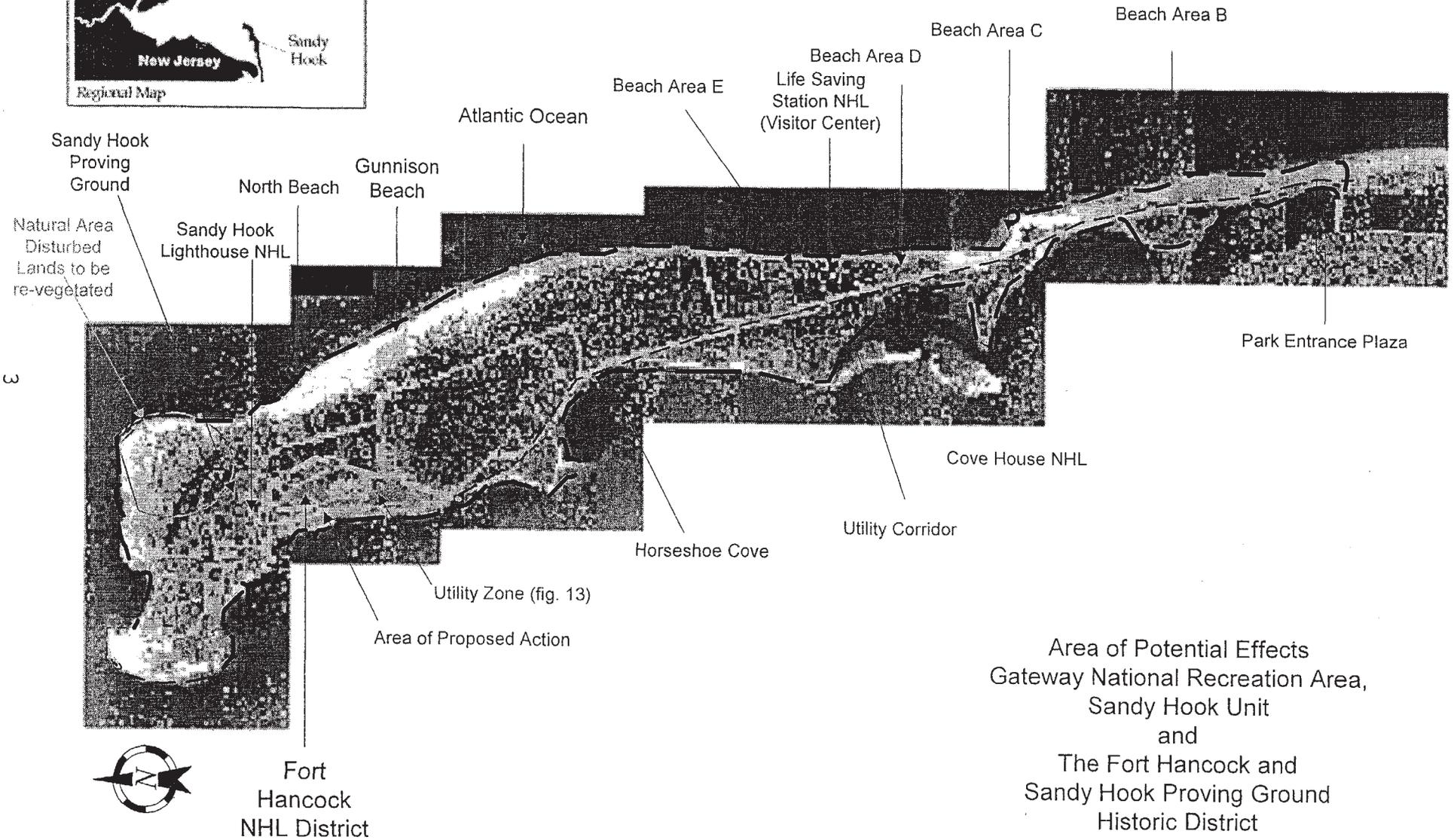
Established in 1972 as part of the Gateway National Recreation Area, the Sandy Hook Unit (the park) is a peninsula, approximately 1,700 acres in size, that extends north from coastal New Jersey into the confluence of Raritan Bay, Sandy Hook Bay, Lower New York Bay, and the Atlantic Ocean (Figure 1). The park lies at the northern end of New Jersey's barrier island system. Approximately twelve miles of ocean and bay shoreline ring the park, which varies in width from less than one-tenth mile to approximately one mile.

Situated adjacent to one of the most densely developed urban areas in the United States, the park preserves one of the relatively undisturbed barrier island ecosystems in New Jersey, and supports multiple historic sites and natural habitats. The entire park is a National Historic Landmark. Over 200 historic structures remain standing in the park with approximately 120 of these located within the Fort Hancock Area. Current tenants in Fort Hancock include the National Oceanic and Atmospheric Administration, New Jersey Marine Sciences Consortium, Brookdale Community College, and the Marine Academy of Science and Technology. The U.S. Coast Guard maintains an installation at the northern tip of the Sandy Hook peninsula, immediately adjacent to the park, which houses approximately 300 military personnel and dependents. In addition to cultural and natural resources, the park provides recreational facilities, including opportunities for swimming, sun-bathing, picnicking, bird-watching, beach-combing, surfing, hiking, and fishing. More than two million people visit the park every year.

B. RELATIONSHIP TO OTHER PLANS AND PROJECTS

The park currently is managed under the *Final Environmental Statement\General Management Plan (1979)(GMP)*, and the *General Management Plan Amendment\Interpretive Prospectus and Development Concept Plan (1990)(GMP-AMEND)*. Among other actions, the 1979 Plan specified that "development at Sandy Hook would be focused at the Fort Hancock Gateway Village" and five beach centers (NPS 1979). The 1979 Plan further specified that "Gateway Village would be designed to preserve the significant aspects of the fort's historic character" and that "most historic features would be adaptively restored – maintaining their historic appearance – as the core facilities of the village." The term "village" was used deliberately to signal a concentration of intensive uses, including "staying in a hostel; attending or participating in cultural and educational events, lectures, shows, exhibits, and festivals; dancing; singing; swimming; playing indoor sports; eating; gardening; studying; doing research; and so on."

The 1979 GMP included Fort Hancock and the Proving Ground in the "rehabilitation zone," which was intended "to retain the integrity of the historic scene and to provide for adaptive use through rehabilitation of historic structures." The 1990 Amendment to the 1979 Plan clarified adaptive use of Fort Hancock (NPS 1990). The amendment proposed that the rehabilitation zone be managed through a public/private arrangement that would involve one or more lessees and described the process for the park's selection of private sector partners through issuance of a request for proposals. Possible uses within the rehabilitation zone included educational facilities (residential and nonresidential), hostels,



Area of Potential Effects
 Gateway National Recreation Area,
 Sandy Hook Unit
 and
 The Fort Hancock and
 Sandy Hook Proving Ground
 Historic District

National Historic Landmark

Figure 1

research centers, conference/education centers, professional offices, overnight accommodations, and restaurants, among others.

In addition to the amended General Management Plan, a 1997 Strategic Plan was completed for the Gateway National Recreation Area, which specified goals and targets, including those for the Sandy Hook Unit (NPS 1997). These goals include improving visitor satisfaction, improving park facilities, restoring disturbed lands, and improving the condition of cultural and natural resources. Adaptive use of buildings at Fort Hancock and the Proving Ground would further all of those goals.

Over the last five years, the park has conducted research and experimented on a number of topics associated with the adaptive use: signage, pedestrian and vehicle circulation, the cultural landscape, building paint schemes and character defining features. The resulting information has been collected and formulated into several draft plans including the *Fort Hancock Rehabilitation Guidelines* (Part 4, Critical Building Repair Issues is included in Appendix A). Important actions associated with these plans are evaluated in this EA.

Prior to issuance of the Request for Proposals, the *Fort Hancock Rehabilitation Guidelines* (1999), were developed to outline physical changes that would be allowed. Over the last five years, the park has conducted research and experimentation on four topics associated with adaptive use: signage, pedestrian and vehicle circulation, the cultural landscape, and building paint schemes. The information on signage, circulation, and paint schemes has been collected and formulated into three draft plans. The information on cultural landscapes has been collected and formulated into a series of reports and plans. Important actions associated with these plans are evaluated in this EA.

Projects currently in progress at the park include: rehabilitation of two World War II era barracks (Building 119 & 120) for 28 dormitory rooms; upgrade of fire-safety utilities at the Sandy Hook Education Center (Building 102); construction of a multi-use path from the park entrance to Fort Hancock; removal and replacement of underground and aboveground fuel storage tanks throughout the park; and installation of underground electrical and water lines in the Hartshorne Drive corridor.

Recently completed projects include: rehabilitation of the Post Theater (Building 67), and the Firehouse (Building 76), a major upgrade to the park's wastewater treatment facilities in 1996, elevation of a portion of Hartshorne Drive; and rehabilitation of the Sandy Hook Lighthouse, a National Historic Landmark, in 2000. In 2001, rehabilitation was completed for the adaptive use of a Mess Hall (Building 58) as the interim park headquarters. Also rehabilitated is the Hospital Steward's Quarters (Building 20) as the Sandy Hook Bird Observatory by the New Jersey Audubon Society. This partnership was authorized through Cooperative Agreement. Adaptive rehabilitation of the building is complete and this new public educational facility opened in 2002.

Future actions currently being planned for the park include: construction of a sand-slurry pipeline; installation of a natural gas pipeline; construction of a permanent ferry dock at Fort Hancock; rehabilitation of water and other utility systems; development of Fort Hancock Barracks 25 as the park visitor center; and redesign of the park entrance plaza. None of the above projects are prerequisites to the rehabilitation of Fort Hancock and will be pursued regardless of the outcome of the plan.

The sand-slurry pipeline would be used to recycle sand on a recurring schedule from the north of the park where it is accreting to the "critical zone" in the southern portion of the park where it is eroding. This project would maintain sufficient beach width to protect facilities and maintain vehicle access to the park. An EA is being prepared and construction of the sand-slurry pipeline is expected to begin in 2003.

The multi-use path will extend from the park entrance to Fort Hancock in accordance with the park's General Management Plan. The EA has been prepared, a Finding of No Significant Impact has been made and construction has begun. Concurrent with this project would be the installation of the natural gas line. The permanent ferry dock planned for Fort Hancock will provide alternative transportation to the park. Initial scoping for the EA has begun with a target completion date in 2005. Construction is unlikely to begin prior to 2006.

Rehabilitation of the park's water and other utility systems to improve the reliability of water and wastewater systems began in 2002. In 2002, re-roofing and masonry stabilization was completed on Fort Hancock Barracks 25. The adaptive use of the barracks as the park Visitor Center is expected to begin in 2007. A redesign of the park entrance plaza will be coordinated with plans by the State of New Jersey to replace the Highlands Bridge. The State now expects this project to begin 2006.

Another project presently under rehabilitation is the Sandy Hook Keepers Quarters by the Sandy Hook Foundation, the Park's non-profit Friends Group. The building will be adaptively rehabilitated as offices and a public museum operated by the New Jersey Lighthouse Society. The new facility will be completed in 2003.

C. PUBLIC INVOLVEMENT

There has been extensive public involvement in planning for the future of Sandy Hook and specifically on the adaptive use of Fort Hancock. Since 1979, adaptive use of Fort Hancock has been included in both the park's GMP and GMP-Amendment. Although the 1990 amendment was categorically excluded from NEPA consideration, the original GMP involved extensive public participation.

There was significant public notice prior to the issuing of the Request for Proposal (RFP) for the leasing of properties under the historic leasing program. In the fall of 1998, marketing and informational brochures were sent to over 9,000 prospective respondents, including non-profit associations throughout the Northeast and architectural firms in New Jersey and New York City. There were press reports on the program in local and state media that further spread public interest and knowledge of the program. Through these efforts, a mailing list of potential respondents was developed that eventually grew to over 300 names.

The RFP for the historic leasing program was issued on August 6, 1999, and remained open through November 8, 1999. It identified thirty-two buildings available for lease; an additional sixteen buildings potentially were available. Announcement of the program was made through media releases and to direct mailing of those on the RFP mailing list. Three site visits and a pre-submittal conference attended by several hundred interested parties were conducted during the period that the RFP was open.

In response to the RFP, twenty-two proposals were received and evaluated by a panel of senior National Park Service managers who made their recommendations to the National Park Service Northeast Regional Director. In April 2000, a media notice was issued announcing the selection of two of the proposals for negotiation: The American Littoral Society who proposed use of one building on Officers' Row as offices, and the Wassel Realty Group (d.b.a.: Sandy Hook Partners) who proposed a comprehensive development for the remaining properties.

Three workshops concerning vehicle and pedestrian circulation issues at Fort Hancock were conducted in 1999 and 2000. Numerous individuals and some twenty local interest groups attended the workshops, the results of which have been incorporated into this EA.

D. ADAPTIVE USE OF FORT HANCOCK

As noted above, the adaptive use of the District was evaluated for compliance with NEPA, NHPA, and other federal regulations during the planning process as described in the GMP. Therefore, the adaptive use alternative is not again being evaluated in this EA. One of the primary methods used to implement the adaptive use concept is the authority vested in the National Park Service under Section 207 of the National Historic Preservation Act, as amended 1980. Other methods include the implementation of cooperative agreements and special use permits. Section 207 describes the parameters of the federal government's historic leasing program, which is excluded categorically from consideration under NEPA. The Marine Academy of Science and Technology campus and the James J. Howard Marine Laboratory are examples of adaptive use projects already completed in the historic district.

E. ISSUES

The primary issues associated with the actions considered in this EA are:

1. Rehabilitation for new uses of approximately 100 historic buildings (thirty-seven associated with the historic leasing program and sixty-three under Park Service management or through cooperative agreement).
2. Preservation of the historic fabric and character-defining features of all historic buildings in the Fort Hancock District.
3. Rehabilitation of the Fort Hancock cultural landscape and preservation of its character defining features.
4. Provision for a safe and universally accessible park environment for visitors and partners;
5. Preservation of archeological resources.
6. Protection of wildlife habitats and special status species, including natural vegetation, Piping Plover, Osprey, and Wild Wormwood; and
7. Provision for an efficient operational environment necessary for current and new uses.

To address these issues, the Rehabilitation Alternative has been designed to: (1) provide for the needs of new uses; (2 and 3) preserve character-defining features of the historic buildings and landscape; (4) make all buildings and the landscape in general, accessible to all; (5) monitor construction activities to ensure that archeologically important resources are documented and preserved; and (6) avoid,

minimize, and mitigate impacts to natural resources, including special status species, or the greatest extent possible.

F. IMPACT TOPICS

Impact Topics Analyzed in this Document

Impacts of the alternatives on the following topics are presented in this EA: buildings and structures; circulation and parking; cultural landscapes; hazardous materials; water quantity; natural vegetation; threatened and endangered species; sand dune system; socio-economics; and visitor and partner experience.

Impact Topics Dismissed from Further Analysis in this Document

The following impact topics, either would not be affected or would be affected in a negligible fashion by the alternatives evaluated in this EA.

In addition, these topics are not considered to be highly controversial. Therefore, these topics, have been dismissed from further consideration or analysis. Negligible effects are effects that are localized and immeasurable or at the lowest levels of detection in a local or regional context.

Geology and Soils, Including Prime Farmlands

Substrates in the park consist of recent depositions of sand, gravel, silt, clay, and organic material with sand typically dominating soil composition. Soils at the park have high permeability, low capacity to retain water, low shrink-swell potential, and low compressibility. Neither alternative evaluated in this EA would affect geology or properties of soil at the park. According to the New Jersey State Office of the U.S. Department of Agriculture's Natural Resource Conservation Service, no prime and/or unique farmlands are present in the park and, therefore, none would be affected (D. Smart, personal communication).

Air Quality

Although the Rehabilitation Alternative would result in increased weekday traffic in the park, the primary sources of air pollution in the area are the densely concentrated industrial and urban developments and traffic of Essex, Union, Middlesex, and Monmouth Counties, New Jersey, and the greater New York area. Additional miles driven within the vicinity of the park under the Rehabilitation Alternative would not increase traffic miles driven throughout the region and would not measurably affect local or regional air quality.

Wildlife (other than Piping Plovers and Osprey)

While the Rehabilitation Alternative would result in an increase in vehicle trips into the park, this would occur during morning and afternoon weekday commuting hours when Hartshorne Drive is already well traveled and generally free of wildlife, and would not result in increased vehicle/wildlife

encounters. With over one million vehicle trips into the park per year, the number of wildlife struck by vehicles is negligible.

Water Quality

The park completed in 1997 construction of a new treatment plant that purifies wastewater in accordance with standards administered by the New Jersey Department of Environmental Protection. Treated water currently is pumped to retention ponds located approximately one-quarter mile east of Fort Hancock, where the water percolates into a perched, brackish, water table that lies approximately three feet below ground in the Fort Hancock area. Water in the surface aquifer generally flows west-to-east from Sandy Hook Bay to the Atlantic Ocean. Although the plant is permitted to discharge up to 189,000 gallons of treated effluent per day, it currently operates well below capacity with discharges ranging from 60,000 to approximately 110,000 gallons per day.

Although the action alternative evaluated in this EA would irrigate thirty to forty acres with treated wastewater, no surface or subsurface run-off would enter or otherwise affect water quality or salinity in Sandy Hook Bay. In addition, using treated wastewater for irrigation at Fort Hancock would not affect the quality of potable water available to the park or nearby communities, as drinking water is pumped from contained aquifers hundreds of feet below the surface water table, such as the Farrington/Middle Potomac-Raritan-Magothy Aquifer at a depth of over 900 feet.

Flood plains

Much of the park, including Hartshorne Drive and Fort Hancock, lies within the 100-year floodplain, which includes all parkland up to an elevation of 10.8 feet above mean sea level (MSL)(NPS 1994). Within the project area, the average elevation of Fort Hancock is approximately eight feet above MSL and the elevation of Hartshorne Drive varies from approximately four to almost ten feet above MSL.

Although the areas evaluated in this EA are located within the 100-year floodplain, the proposed actions would not reduce the functions or capacity of the floodplain. Therefore, effects on floodplains are excepted from further consideration in accordance with exception V(B)(2)(b) and V(B)(4) of the NPS's July 1, 1993, *Floodplain Management Guideline*, which respectively cover "entrance, access, and internal roads to or within units of the NPS" and "historic or archaeological structures, sites, or artifacts whose location is integral to their significance."

Wetlands

Although wetlands are present in the project area, no actions evaluated in this EA would affect those wetlands.

Traffic

In response to public concerns about possible traffic impacts, the National Park Service commissioned two traffic studies. Existing traffic conditions are described in section IV. Affected Environment and anticipated impacts are described in section V. Environmental Consequences.

III. ALTERNATIVES INCLUDING THE PROPOSED ACTION

A. BACKGROUND TO THE ALTERNATIVES

In order to comply with federal regulations and NPS policies, the park conducted two general management planning processes that culminated in approved plans – the *Final Environmental Statement\General Management Plan (1979)(GMP)*, and the *General Management Plan Amendment \Interpretive Prospectus and Development Concept Plan (1990)(GMP-AMEND)*.

The park currently is managed under the GMP and the GMP-AMEND. As required by NEPA, NHPA, and other regulations and policies, these two planning processes evaluated a proposed action, three alternative actions, and a no action alternative. These five alternatives found in the *Draft Environmental Statement\General Management Plan* were:

- Mix of outdoor and indoor recreation, conservation and environmental protection, and year-round educational, cultural, and recreational programs (proposed action).
- Extensive and diverse recreational opportunities (alternative A).
- Preservation, restoration, and protection of natural and cultural features (alternative B).
- Preservation and protection of local community and neighborhood values (alternative C)
- No action.

One of the primary aspects of the 1979 proposed action was the concept of adaptive use of the Fort Hancock and Proving Ground zones. The GMP specified that “development at Sandy Hook would be focused at the Fort Hancock Gateway Village” and “five” beach centers. The GMP further specified that “Gateway Village would be designed to preserve the significant aspects of the fort’s historic character” and that “most historic features would be adaptively restored – maintaining their historic appearance – as the core facilities of the village.” The term “village ” was used deliberately to signal a concentration of intensive uses, such as “staying in a hostel; attending or participating in cultural and educational events, lectures, shows, exhibits, and festivals; dancing; singing; swimming; playing indoor sports; eating; gardening; studying; doing research; and so on.” The GMP included Fort Hancock and the Proving Ground in the “rehabilitation zone,” which was intended “to retain the integrity of the historic scene and to provide for adaptive use through rehabilitation of historic structures.” The GMP-AMEND clarified adaptive use of Fort Hancock. The amendment proposed that the rehabilitation zone be managed through a public/private arrangement that would involve one or more lessees and described the process for the park’s selection of private sector partners through issuance of a request for proposals.

This EA evaluates two alternatives for implementing the concept of adaptive use at Fort Hancock and the Sandy Hook Proving Ground. It does not re-evaluate any of the five alternatives listed above, nor does it evaluate the park’s historic leasing program, which is excluded categorically from compliance with NEPA and other federal regulations. This EA describes and evaluates actions proposed for the rehabilitation of features that contribute to the park’s National Register properties as defined by the *Secretary of the Interior’s Standards for the Treatment of Historic Properties, 1995* (Secretary’s Standards).

B. DESCRIPTION OF THE NO ACTION ALTERNATIVE

Under this alternative, the NPS would continue to manage the resources of the District according to its policies, standards and guidelines, and within current budgetary constraints. Treatment of the historic resources would be in accordance with the Secretary's Standards. There would be no full-scale implementation of an adaptive use program as described in the GMP.

The National Park Service would continue with its historic building and cultural landscape maintenance program in the District at the park's current annual base funding level of approximately \$235,000. Additional cyclic maintenance and capital improvement projects would be funded on a project-specific basis through the NPS's special, competitive, one-year funding program. The park has received an average annual allocation over the last five years from this one-year program of approximately \$250,000.

Interpretive programs would continue at current levels, with current goals and objectives. The number and type of park partners would continue basically unchanged. Occupation of buildings by existing park partners under existing types of agreements would continue unchanged. The seasonal leasing of eight Officers' Row houses (the other Officers' Row houses do not meet safety codes, due to deterioration) to non-profit organizations would continue for as long as they meet safety codes. These leases require only a minimal maintenance investment in the buildings on the part of the lessees. Within five years certain historic buildings, including the Officers' Club (Building 114) would likely deteriorate to a condition beyond repair.

C. DESCRIPTION OF THE REHABILITATION ALTERNATIVE (PROPOSED ACTION)

Introduction

The Department of the Interior (DOI) and the NPS have responsibility for the natural and cultural resources under their stewardship. The Secretary's Standards provide guidance to stewards prior to and during the planning and implementation of project work. The revised Secretary's Standards consist of four possible treatments for cultural resources: preservation, rehabilitation, restoration, and reconstruction. The decision of a specified treatment for a set of resources normally is made as part of the formal planning process. Rehabilitation was chosen as the specified treatment for the cultural resources associated with the District during the general management planning process in 1979 and 1990. The Secretary's Standards state: "Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values."

General Management Goals

The specific rehabilitation actions associated with the Rehabilitation Alternative are described below. In addition to the goals stated in the GMP, the following goals have been identified for adaptive use and were prescribed in the August 1999 *Request for Proposal for the Leasing of Historic Fort Hancock Properties*:

- Program Goal: Create a year-round community of educational, research and recreational organizations sharing common goals and an appreciation of the District's historic history and unique shoreline setting, and return the District's historic structures and other landscape elements, to the greatest extent practical, to their original use as office and meeting space, transient lodging, and recreation and entertainment facilities.

- Historic Preservation Goal: Ensure the preservation of historic structures and other landscape elements that contribute to the National Historic Landmark District through the selection of compatible adaptive reuses. Establish and carry out appropriate preservation treatments for historic buildings and settings.

- Building Maintenance and Occupation Goal: Provide for the timely occupancy of the District's buildings and grounds, ensure adequate maintenance and preservation, and generate long-term revenues to support the District.

General Description of the Proposed Action

Introduction

As discussed above, rehabilitation was identified in both the park's 1979 General Management Plan and its 1990 GMP Amendment as the treatment for the District. Under the rehabilitation alternative, all treatment actions would conform to the Secretary's Standards. In accordance with the standards, all surviving historic elements that are determined to be contributing to the significance of the Landmark would be repaired and preserved in place. Features that are determined to not contribute to significance, or are deteriorated beyond repair, could be removed. New features necessary for safety and to support the adaptive use could be added. Also, the Secretary's Standards allow for two philosophically different approaches to replacement of severely deteriorated or missing elements, or addition of new elements. These are replacement with accurate replicas, or replacement with elements of contemporary design that are compatible with the historic character of the property.

The National Historic Landmark nomination that created the Fort Hancock and Sandy Hook Proving Ground NHL in 1984 identifies two important and very different stories associated with the cultural resources of the District. The first story is that of the Sandy Hook Proving Ground, where the nation's weaponry was tested from 1874 to 1919. The second is the story of Fort Hancock as a military coastal defense post to protect New York Harbor from 1895 to 1974. This EA presents two different treatment options for the cultural resources of the District. The selection of one of the following options would guide individual treatment decisions and would result in distinctly different appearances of the District. Descriptions of the two options follow, including examples of specific treatment actions that illustrate the difference between the options. Specific treatment actions that are common to both options are in a later section.

Also, there are cultural and natural resources located in the Hartshorne Drive Corridor that would be affected by actions proposed under this alternative. This corridor primarily is located in areas of heavy development, and the proposed actions are primarily installation and upgrade of utilities. For the purposes of this EA, the area of proposed action is divided into three zones: the Proving Ground zone,

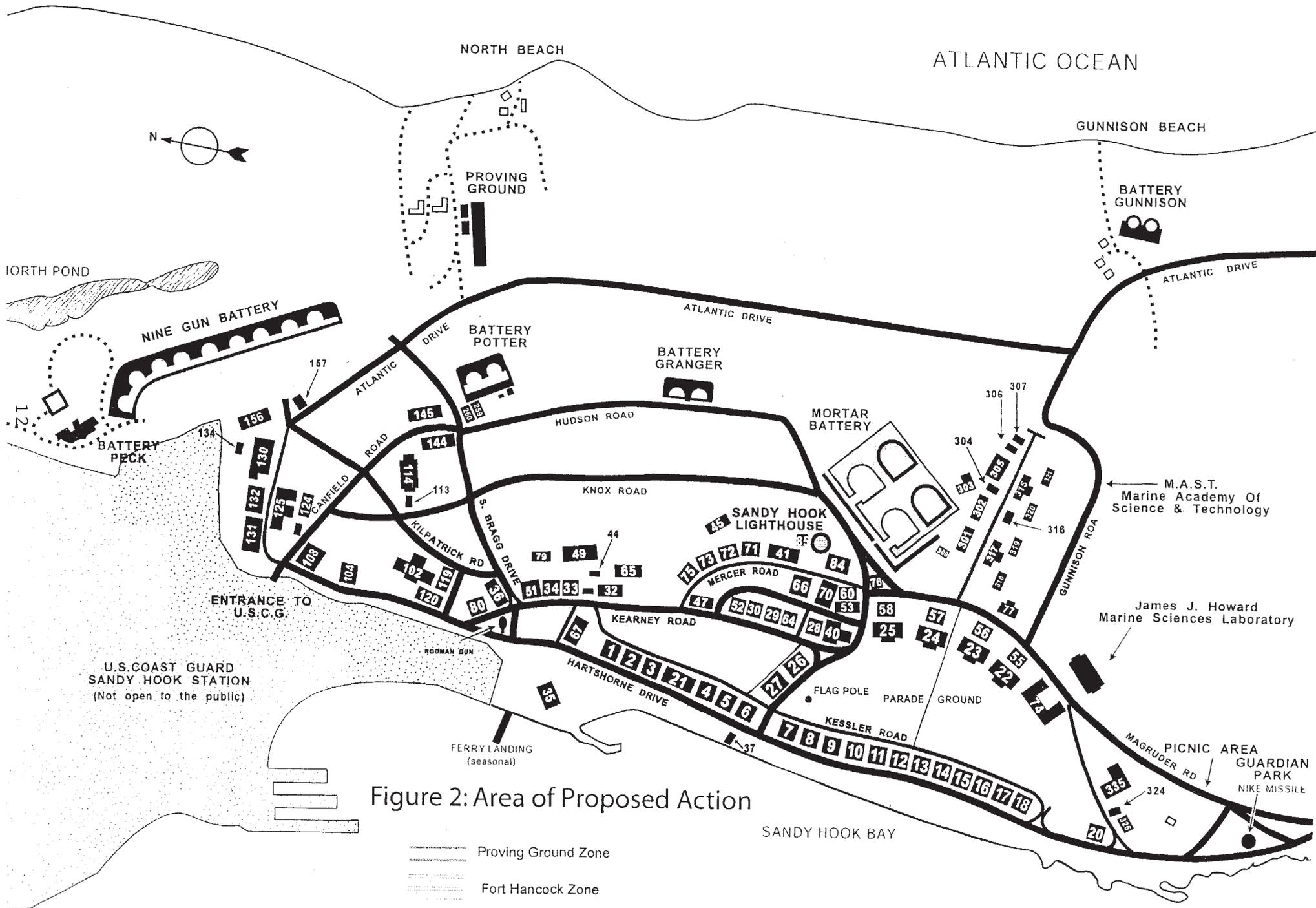


Figure 2: Area of Proposed Action

Proving Ground Zone
 Fort Hancock Zone

the Fort Hancock zone, and the Hartshorne Drive Corridor zone (see Figures 2 and 13). These actions are common to both options and are also discussed in a later section

Option 1

Treatment of cultural resources of Fort Hancock and the Proving Ground would emphasize the continuum of history throughout the period of significance of the entire National Historic Landmark District. No attempt would be made, through treatment actions, to distinguish the Fort Hancock zone from the Proving Ground zone.

The park would focus on protecting, maintaining, and repairing in place important cultural resources that contribute to the Landmark's significance as defined in its National Register nomination. When it is necessary to replace important resources that are missing or deteriorated beyond repair, or to make alterations and additions to assure continued use, the new features would be contemporary in design yet compatible with character-defining features of the District. New features would not attempt to replicate historic features but would be differentiated in a way that does not create a false historical appearance. Features that do not contribute to the Landmark's significance could be selectively removed.

The physical appearance of the site would provide visitors with an experience of how the landscape evolved during the entire period of significance. The interpretive program would be faced with the challenge of facilitating the visitor's understanding of a complex and somewhat disjointed array of historic resources and new landscape elements. Interpretation of the Proving Ground would be particularly challenging since after its 45 year history it was incorporated into Fort Hancock and over the next 55 years lost much of its own characteristic identify.

Option 2

Under this option, there would be an attempt, through treatment actions, to distinguish the Fort Hancock zone from the Proving Ground zone. Treatment of cultural resources in the Fort Hancock zone would emphasize the continuum of history during the years of fort operation from 1895 through 1974. Treatment of cultural resources in the Proving Ground zone, while recognizing that the proving ground became a part of Fort Hancock in 1919 would emphasize the continuum of history during the years of its own operation from 1874 through 1919.

The park again would focus on protecting, maintaining, and repairing in place important cultural resources that contribute to the Landmark's significance. However, when it is necessary to replace important resources that are missing or deteriorated beyond repair, or to make alterations and additions to assure continued use, the new features would replicate historic features present in each zone during its period of greatest significance. A trained eye would be able to differentiate new features from old; however, the overall appearance of the Landmark District would be consistently old. Features that do not contribute to the Landmark's significance could be selectively removed.

The physical appearance of the site would provide visitors with an image and experience of how the two distinct military landscapes looked during their periods of greatest significance. The interpretive program would more easily facilitate the visitor's understanding of those periods, while conveying an

understanding of the continuum of history. Interpretation under this philosophical approach would emphasize the differing characters and identities of Fort Hancock and the Proving Ground during their periods of greatest significance.

Proposed Actions Specific to Option 1

- The yellow paint and late additions on the Officers' Club (Building 114) would remain.
- Alterations to existing or construction of new walkways needed to accommodate adaptive use would be of one consistent contemporary design that is compatible with the character of the District.
- Only one historic street sign is extant. Existing non-historic street signs would remain in place or could be replaced by those with a contemporary design compatible with the character of the District.
- Streetlights deteriorated beyond repair, missing, or non-historic would be replaced with ones of contemporary design compatible with the character of the District. New streetlights required for adaptive uses would be of the same design (see Figures 6 and 7).

Proposed Actions Specific to Option 2

- The yellow paint and late additions on the Officers' Club (Building 114) would be removed to expose the original red brick and to permit the replacement of the original porch. Contemporary and compatible additions to replace lost square footage would be possible.
- Alterations to existing or construction of new walkways needed to accommodate adaptive use would not necessarily be consistent but would match materials and construction methods of surviving nearby walkways.
- Only one historic street sign is extant. Non-historic street signs would be replaced with replicas of the historical style.
- Streetlights deteriorated beyond repair, missing, or non-historic would be replaced with replicas used during the historic period of the Proving Ground and Fort Hancock districts. New streetlights required for adaptive uses would be replicas of historic designs (see Figures 6 and 7).

Where missing and where documentation of historic conditions exists, bollards required to protect fire hydrants and other structures would be reproductions of the historic railroad rail style.

Proposed Actions Common to Both Options:

Under the rehabilitation alternative, 100 historic buildings are located within the District and the rehabilitation zone. They would be considered for rehabilitation and adaptive use (see Table 1 and Figures 2 and 8). A detailed list of the buildings generally under consideration follows. Of the 100 historic buildings in the rehabilitation zone, 37 are slated for historic lease and 19 are used by park partners; the remaining 44 are used by the NPS for a variety of public use, maintenance, administrative, housing and education functions. NPS does not anticipate future changes in partners or to the numbers

of buildings allocated to NPS, partners or leased use. The American Littoral Society will be changing their building agreement from the current park partner permit to historic lease. The NPS anticipates that Brookdale Community College, who partnered with Rutgers University as part of the Sandy Hook Partners proposal, will move into a historic lease building. If in the future, the NPS was to identify a building or buildings that NPS would like to add to the lease, NPS would first complete compliance with the National Environmental Policy Act, Section 106 of the National Historic Preservation Act and the Endangered Species Act. Appendix A contains graphics illustrating typical treatment actions, for those building types currently proposed for rehabilitation and/or change of use.

Lighting installed for walkways, parking lots, security, roadways, and other requirements will be in accordance with *NPS Management Policies* (2001) that strives to preserve natural ambient lightscapes which are natural resources and values that exist in the absence of human caused light. Incorporating designs such as shielding, directional lighting, timing, limiting the height of lights, and using only the intensity needed to assure public safety would minimize any impacts of light to natural areas.

In general, the rehabilitation alternative would include the following actions:

- All rehabilitation work would be completed in compliance with the Secretary's Standards (a copy of the standards are included in Appendix B).
- All existing buildings would be rehabilitated to comply with current accessibility codes. Work would provide for universal accessibility access to the first floor of all buildings. In most locations, access would be provided at grade or by the installation of a code compliant accessible lift.
- All existing buildings would be upgraded to comply with current building codes in accordance with 40 USC Section 619. These include National Electric, Plumbing, and National Fire Protection Association Codes and may include the New Jersey Rehabilitation Sub-code.
- All hazardous materials including lead paint and asbestos will be remediated in accordance with applicable codes and regulations.

Buildings and Structures

•Exterior and interior surviving character-defining features as identified in the "Fort Hancock Rehabilitation Guidelines," and as amended in consultation with the New Jersey State Historic Preservation Office (Appendix A), would be preserved to the greatest degree possible. All character-defining features would be repaired unless the feature is deteriorated beyond repair in which case it would be replaced in kind. In general, the character-defining features include:

Exterior masonry
Exterior wood trim
Exterior metal cornices
Built-in gutters
Exterior porches
Exterior doors and windows (installation of interior storm windows)
Interior millwork and cabinetry
Interior doors
Interior stair assemblies
Interior pressed tin ceilings
Interior fireplace mantels
Configuration of floor plan

•Rehabilitation of the Post Chapel (Building 35), including reconstruction of its steeple. The installation of new utilities within the buildings such as electrical, telecommunications and or air conditioning would be concealed. All fabric would be repaired where required by the installation.

•Construction of a new maintenance building by the NPS would be a garage or shed to store park maintenance vehicles and equipment during the winter season. This would include beach cleaners, trucks, boats, lawn mowers and lifts. Today, most of the equipment valued at \$2.34 million is stored outside exposed to the elements. The building would be located within the park's north maintenance area and constructed by the NPS and used for park operations. The building would be located in proximity to the site of three historic warehouse structures associated with the Sandy Hook Proving Ground that are no longer extant, and would be comparable in size and scale. The location, design, materials and scale of the building would be compatible with adjacent buildings at the National Park Service Maintenance Area in conformance with the Secretary of Interior Standards and in consultation with the State Historic Preservation Office.

•Replacement of a missing historic structure on the site of the former Post Hospital. The hospital building, located along Sandy Hook bay at the south end of the parade ground, was lost to a fire in 1985. This structure is an important element of the cultural landscape because it completes the enclosure of the Parade Ground on the bay side. A replacement structure could, in part, provide an opportunity to construct efficient marine laboratory space associated with the NJDEP salt water supply system. Currently, the NJDEP and NOAA need greater salt water volume and are evaluating expansion of the system. The design of the building would conform to the Secretary of Interior Standards and would be of contemporary design or an accurate reconstruction. The building would be limited to the hospital's 1902 footprint of approximately 23,369 square feet. The objective of the rehabilitation plan is to preserve and protect surviving historic features. Therefore, new construction on the hospital site would only occur after the NPS is assured that rehabilitation of all buildings will be complete in the Area of Proposed Action. Prior to construction, NEPA and NHPA compliance would be undertaken.



Figure 3

Existing Streetlights

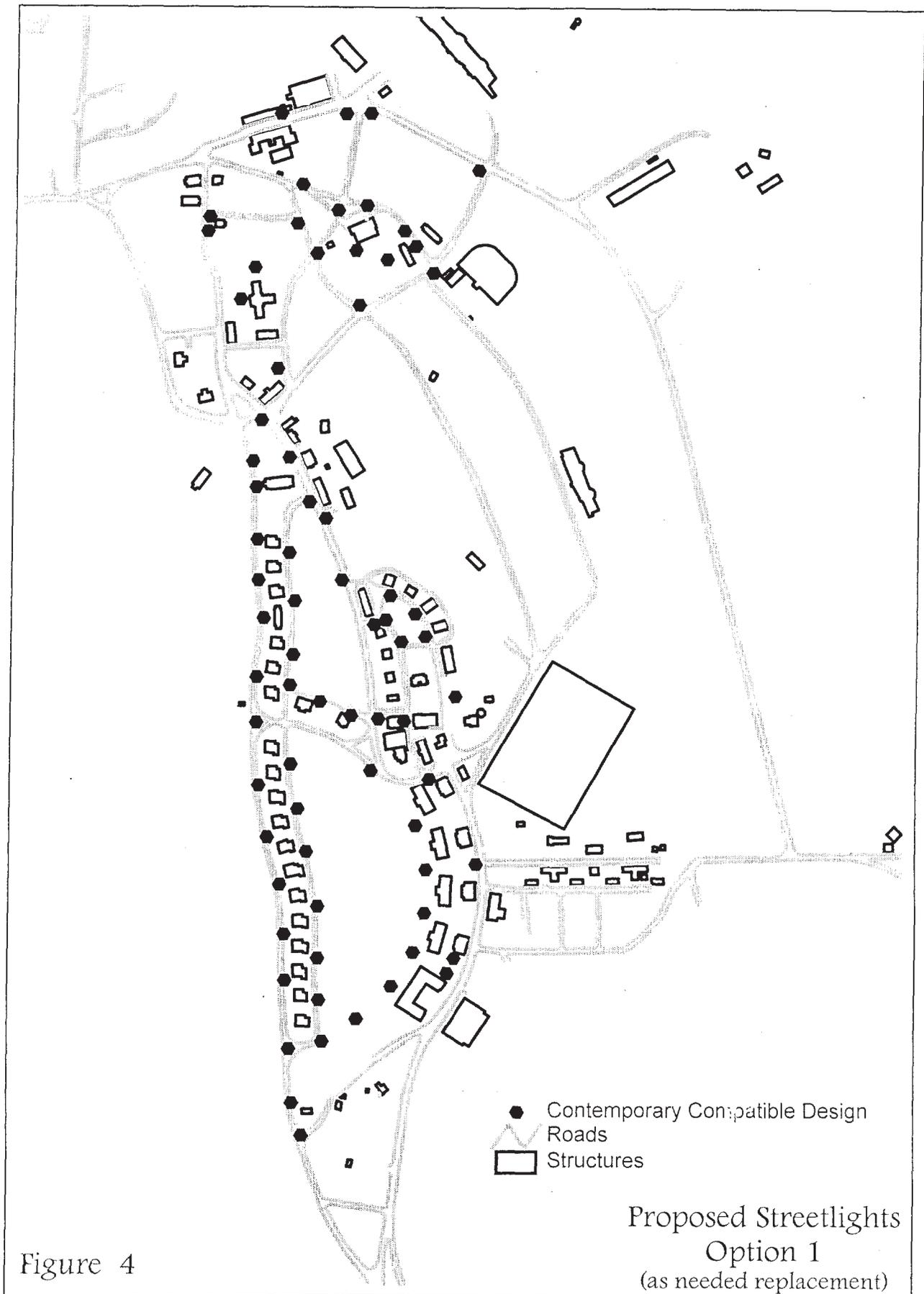


Figure 4

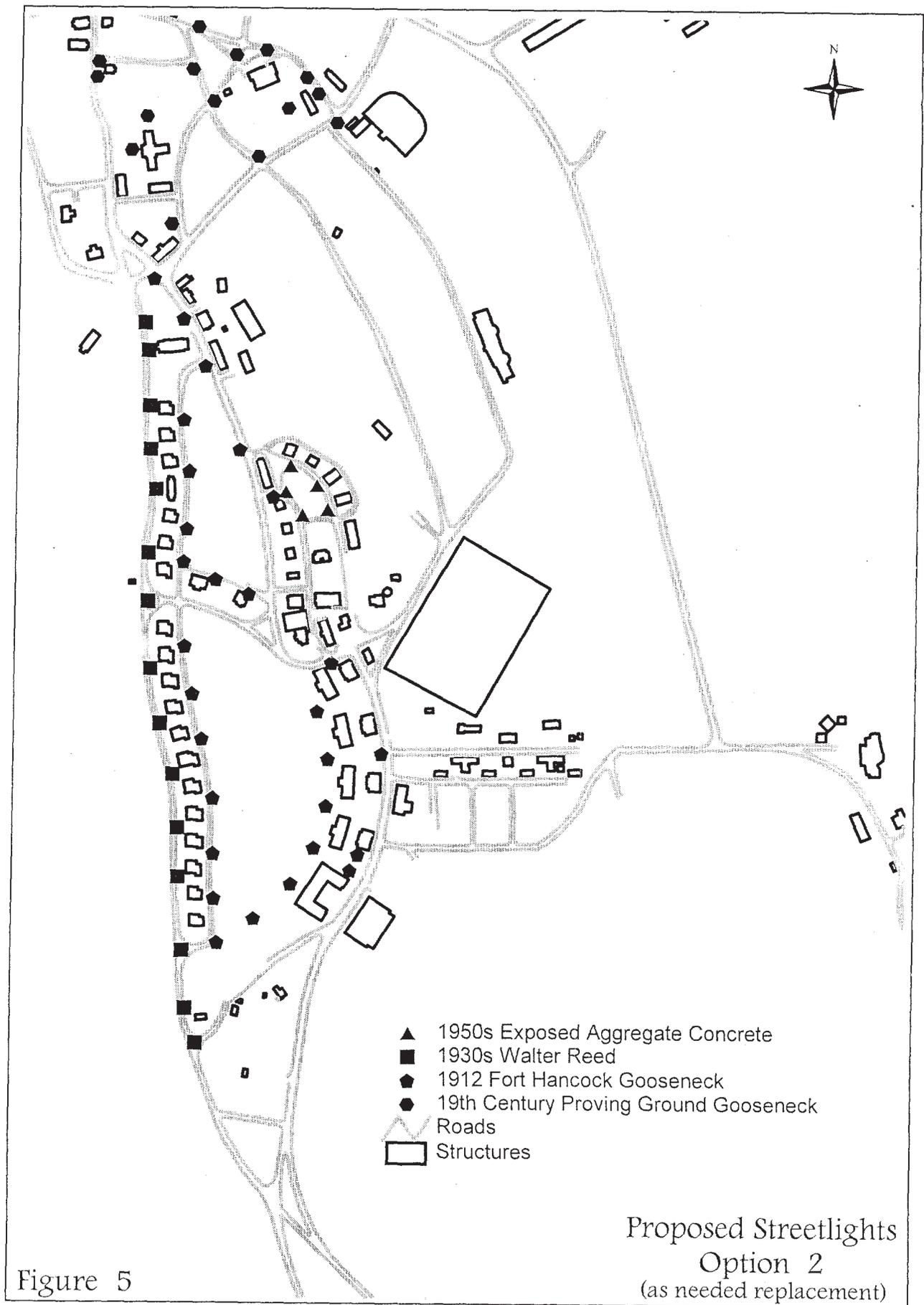


Figure 5

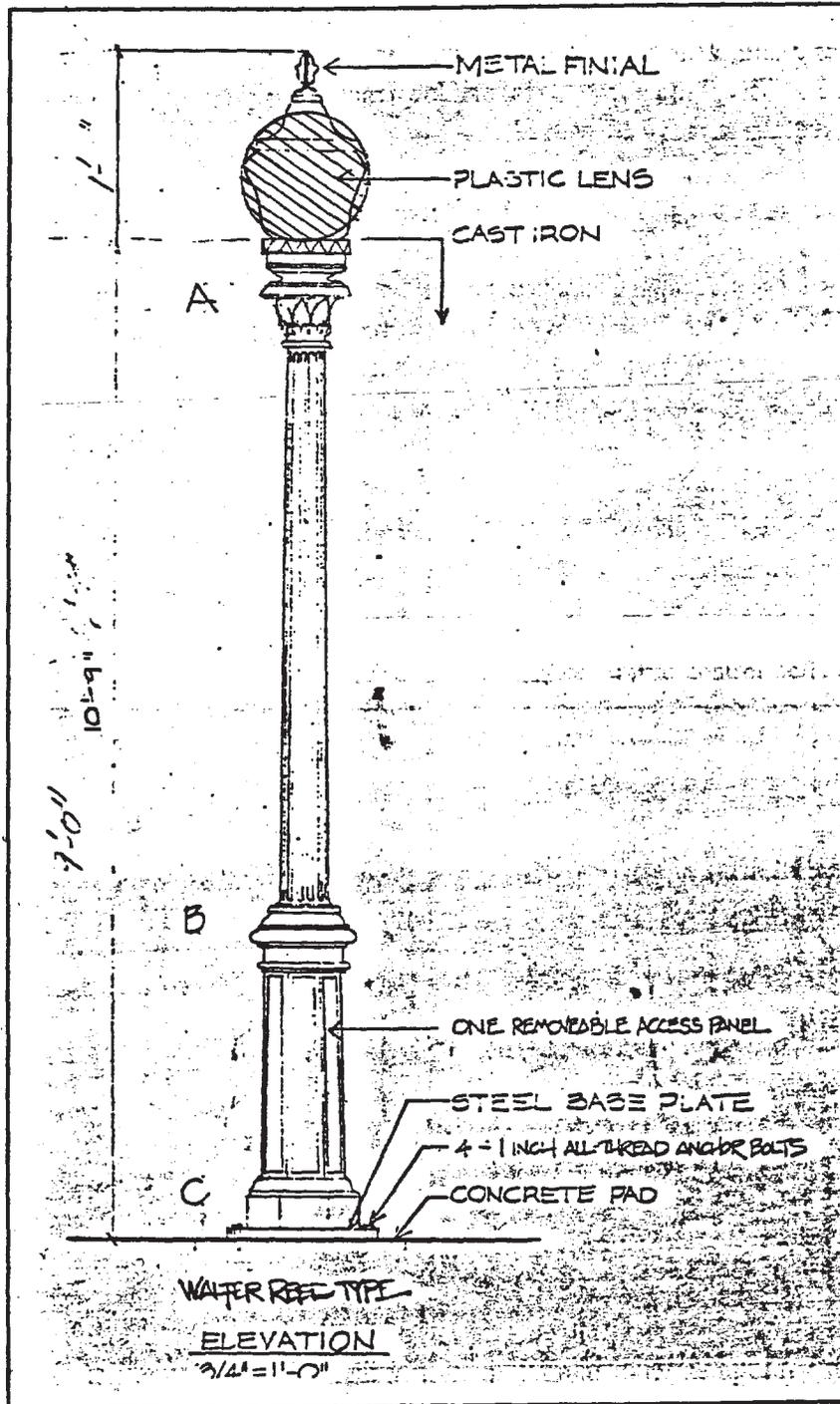


Figure 6

Streetlights Option 2

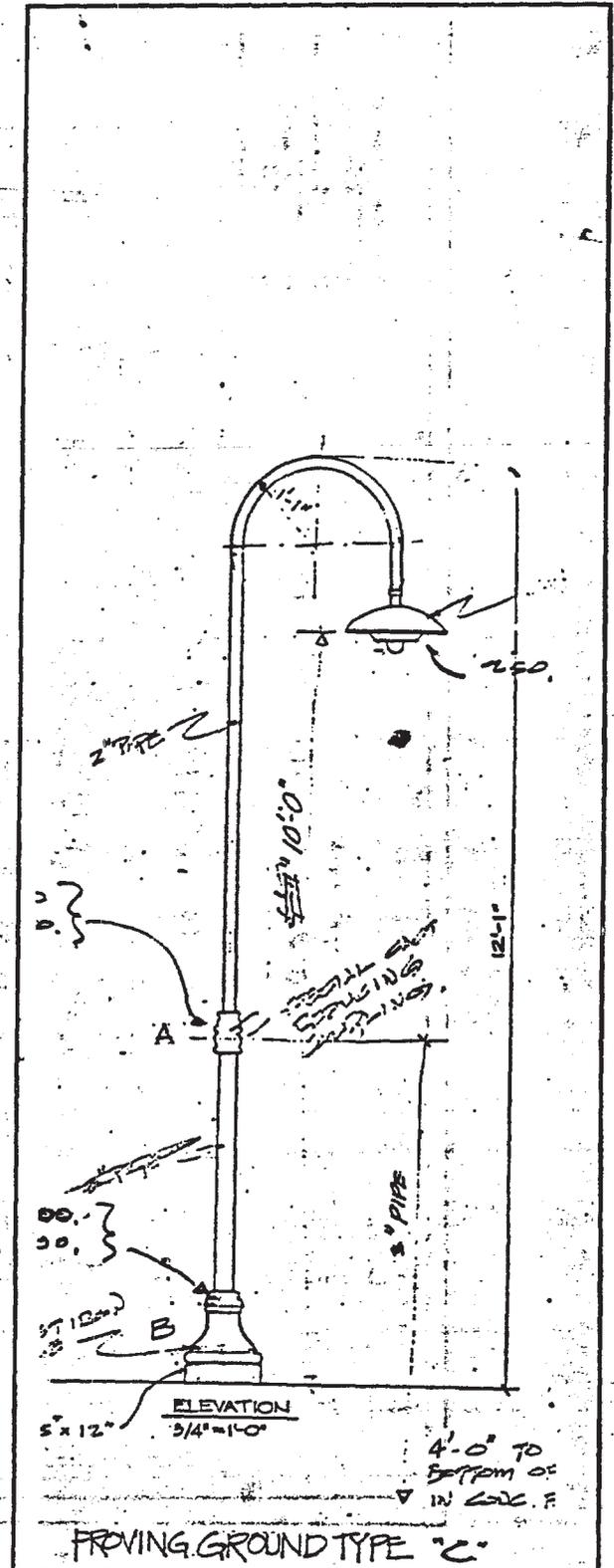
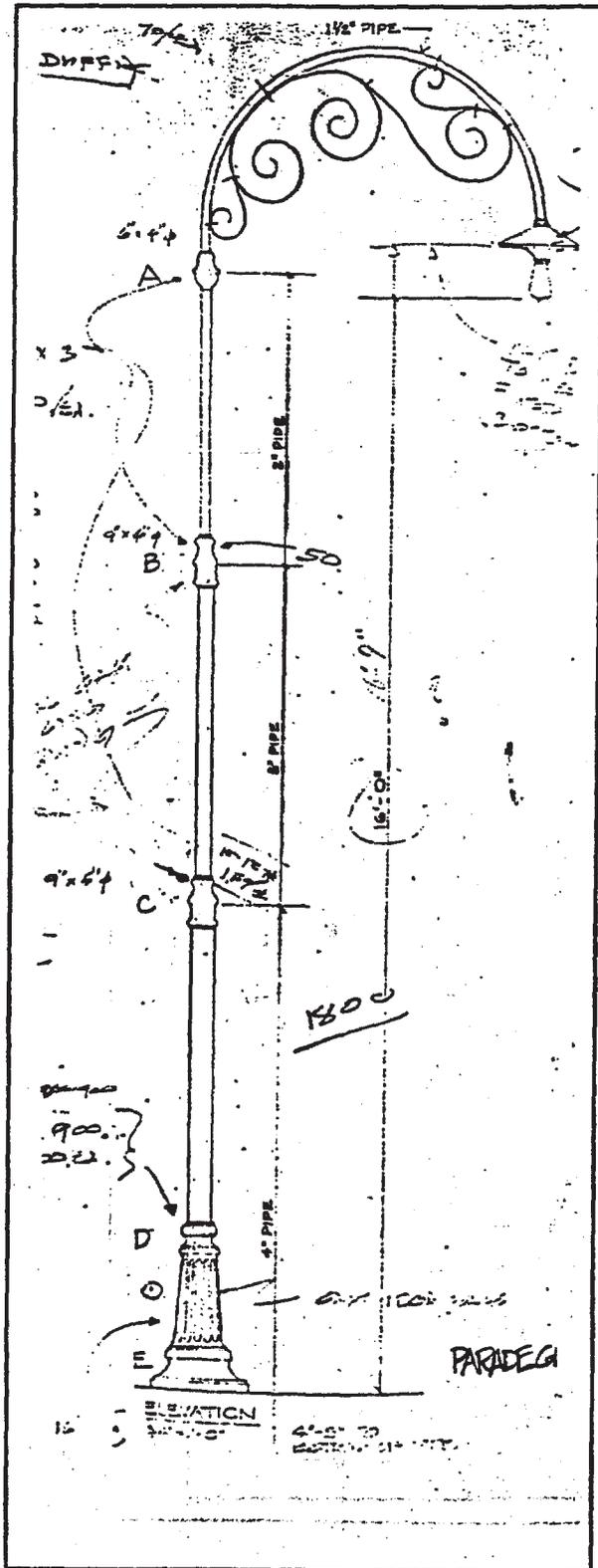


Figure 7

Streetlights Option 2

Table 1
EXISTING BUILDINGS included in the REHABILITATION ALTERNATIVE

Building Name	Bldg #	Date	Historical Use	<i>Present Use</i>	<i>Management</i>	<i>Proposed Use*</i>
Lieutenants Quarters	1	1898	Housing	Museum	NPS	Museum
Lieutenants Quarters	2	1898	Housing	Vacant	Historic Lease	Offices
Lieutenants Quarters	3	1898	Housing	Vacant	Historic Lease	Offices
Lieutenants Quarters	4	1898	Housing	Vacant	Historic Lease	Offices
Lieutenants Quarters	5	1899	Housing	Vacant	Historic Lease	Offices
Lieutenants Quarters	6	1899	Housing	Vacant	Historic Lease	Offices
Lieutenants Quarters	7	1899	Housing	Vacant	Historic Lease	Offices
Lieutenants Quarters	8	1899	Housing	Vacant	Historic Lease	Offices
Captains Quarters	9	1899	Housing	Vacant	Historic Lease	Offices
Captains Quarters	10	1899	Housing	Vacant	Historic Lease	Offices
Captains Quarters	11	1899	Housing	Vacant	Historic Lease	Offices
Commander's Quarters	12	1899	Housing	Vacant	Historic Lease	Hospitality
Captains Quarters	13	1899	Housing	Vacant	Historic Lease	Hospitality
Captains Quarters	14	1899	Housing	Vacant	Historic Lease	Hospitality
Captains Quarters	15	1899	Housing	Vacant	Historic Lease	Hospitality
Lieutenants Quarters	16	1899	Housing	Vacant	Historic Lease	Offices
Lieutenants Quarters	17	1899	Housing	Vacant	Historic Lease	Offices
Lieutenants Quarters	18	1899	Housing	Park Partner	Historic Lease	Park Partner
Hospital Steward Quarters	20	1899	Housing	Education Partnership	Cooperative Agreement	Education Partnership
2-Family Officers Quarters	21	1939	Housing	NPS Housing	Historic Lease	Offices
Enlisted Barracks	22	1899	Housing	Education Partnership	Cooperative Agreement	Education Partnership
Enlisted Barracks	23	1899	Housing	Vacant	Historic Lease	Offices /Meetin
Enlisted Barracks	24	1898	Housing	Vacant	Historic Lease	Cafeteria /Meeti
Enlisted Barracks	25	1898	Housing	Vacant	NPS	Visitor Center /Museum
Post Headquarters	26	1899	Headquarters	Offices	Historic Lease	Offices
Bachelor Officers Quarters	27	1899	Housing	Vacant	Historic Lease	Offices
Post Guardhouse	28	1899	Post Jail	Museum	NPS	Museum
NCO Quarters	29	1899	Housing	NPS Housing	NPS	NPS Housing
NCO Quarters	30	1898	Housing	NPS Housing	NPS	NPS Housing
Quartermaster Storehouse	32	1898	Warehouse	NPS Operations	NPS	NPS Operation
Bakery	33	1898	Bakery	Vacant	Historic Lease	Kitchen

Fire Station Office	34	1899	Office/ Dormitory	NPS Operations	NPS	NPS Operation
Chapel/Auditorium	35	1941	Chapel	Reception / Events	Historic Lease Shared Use	Reception / Event
Mule Stables	36	1899	Stable	Vacant	Historic Lease	Café/Bar
Pump House	37	1928	Pump Station	Pump Station	NPS	Pump Station
YMCA / Gymnasium	40	1903/ 1941	YMCA/Gym	Gym/U.S. Post Office	Historic Lease	YMCA Recreati
Post Office	41	1941	Post Office	NPS Housing	NPS	NPS Housing
Quartermaster Latrine	44	1899	Latrine	Vacant	NPS	NPS Operation
Shell Warehouse	45	1921	Warehouse	NPS Operations	NPS	NPS Operation
Commissary	47	1900	Storehouse	NPS Operations	NPS	NPS Operation
Warehouse	49	1942	Warehouse	NPS Operations	NPS	NPS Operation
Fire House #1	51	1905	Firehouse	NPS Operations	NPS	NPS Operation
NCO Quarters	52	1905	Housing	NPS Housing	NPS	NPS Housing
Post Exchange	53	1905	Exchange/ Offices	Education Partnership	Cooperative Agreement	Education Partnership
Mess Hall	55	1905	Kitchen/ Dining	Vacant	Historic Lease	Offices
Mess Hall	56	1905	Kitchen/ Dining	Vacant	Historic Lease	Offices
Mess Hall	57	1905	Kitchen/ Dining	Vacant	Historic Lease	Offices
Mess Hall	58	1905	Kitchen/ Dining	NPS Operations	NPS	NPS Operation
Gas Station	60	1936	Gas Station	Vacant	Historic Lease	Post Office
NCO Quarters	64	1907	Housing	NPS Housing	NPS	NPS Housing
Storehouse	65	1905	Storehouse	NPS Operations	NPS	NPS Operation
NCO Quarters	66	1908	Housing	NPS Housing	NPS	NPS Housing
Post Theater	67	1933	Theater	Theater/ Meeting	Historic Lease Shared Use	Theater/ Meeting
Post Exchange/Gym	70	1909	P.X./Gym	Storage	Historic Lease	YMCA/ Recreation
NCO Quarters	71	1909	Housing	NPS Housing	NPS	NPS Housing
NCO Quarters	72	1909	Housing	NPS Housing	NPS	NPS Housing
NCO Quarters	73	1909	Housing	NPS Housing	NPS	NPS Housing
Enlisted Barracks	74	1909	Housing	State Offices	State of NJ	State Offices
NCO Quarters	75	1910	Housing	NPS Housing	NPS	NPS Housing
Fire House #2	76	1910	Fire House	NPS Operations	NPS	NPS Operation
Laundry	77	1940 1941	Laundry	Educational Partnership	Cooperative Agreement	Educational Partnership
Oil and Paint Storehouse	79	1918	Storehouse	Storage	Historic Lease	Commissary

2-Family NCO Quarters	80	1910	Housing	Vacant	Historic Lease	Offices
Lighthouse Keepers Quarters	84	1883	Housing	Education Partnership	Cooperative Agreement	Education Partnership
Barn	85	1910	Barn/Garage	Museum	NPS	Museum
Proving Ground Barracks	102	1909	Barracks	Education Center	NPS	Education Cent
NCO Quarters	104	1894	Housing	NPS Operations	NPS	NPS Operation
NCO Quarters	108	1905	Housing	NPS Operations	NPS	NPS Operation
Laundry	113	1905	Laundry	Vacant	NPS	NPS Operation
Officers Club	114	1878	Housing	Vacant	Historic Lease	Hospitality
WWII Barracks	119	1941	Barracks	Vacant	NPS	NPS/Partner Housing
WWII Barracks	120	1941	Barracks	Vacant	NPS	NPS/Partner Housing
Power Plant	124	1907	Power Plant	Storage	Historic Lease	Office/Labs
Motor Shop	125	1907	Motor Shop	NPS Storage	Historic Lease	Office/Labs
Proving Ground Storehouse	130	1907	Maintenance Shops	NPS Operations	NPS	NPS Operation
Proving Ground Shelter House	131	1907	Maintenance Shops	NPS Operations	NPS	NPS Operation
Proving Ground Paint Shop	132	1907	Maintenance Shops	NPS Operations	NPS	NPS Operation
Proving Ground Storehouse	134	1907	Maintenance Shops	NPS Operations	NPS	NPS Operation
Officers Quarters	144	1939	Housing	NPS Housing	NPS	NPS Housing
Officers Quarters	145	1939	Housing	NPS Housing	NPS	NPS Housing
Warehouse	156	1942	Warehouse	NPS Operation	NPS	NPS Operation
Laundry and Latrine	157	1967	Latrine	Restroom	NPS	Restroom
Latrine	300	1940	Latrine	Vacant	NPS	Restroom
Officers Mess	301	1940/ 941	Kitchen/ Dining	Educational Partnership	Cooperative Agreement	Educational Partnership
Camp Headquarters	302	1940/ 1941	Offices	Educational Partnership	Cooperative Agreement	Educational Partnership
Storehouse	303	1940/ 941	Storehouse	Educational Partnership	Cooperative Agreement	Educational Partnership
Officers Latrine	304	1940/ 941	Latrine	Educational Partnership	Cooperative Agreement	Educational Partnership
Dispensary	305	1940/ 941	Dispensary	Educational Partnership	Cooperative Agreement	Educational Partnership
Sewage Pump Station	306	1940	Pump Station	Vacant	NPS	NPS Operations
Sewage Pump Station	307	1940	Pump Station	Vacant	NPS	NPS Operation

Mess Hall	315	19401 941	Kitchen/ Dining	Educational Partnership	Cooperative Agreement	Educational Partnership
Post Exchange	316	19401 941	Exchange	Educational Partnership	Cooperative Agreement	Educational Partnership
Mess Hall	317	19401 941	Kitchen/ Dining	Educational Partnership	Cooperative Agreement	Educational Partnership
Dispensary	318	19401 941	Dispensary	Educational Partnership	Cooperative Agreement	Educational Partnership
Post Exchange	319	19401 941	Exchange	Educational Partnership	Cooperative Agreement	Educational Partnership
Enlisted Men's Latrine	320	19401 941	Latrine	Educational Partnership	Cooperative Agreement	Educational Partnership
Enlisted Men's Latrine	321	19401 941	Latrine	Educational Partnership	Cooperative Agreement	Educational Partnership
Power Plant	324	1941	Power Plant	Restroom	NPS	Restroom
NCO Quarters	335	1898	Housing	Day Care Center	Cooperative Agreement	Day Care Cente
Morgue	326	1905	Morgue	Restroom	NPS	Restroom

* Actual uses of buildings may vary within the proposed mix and ratio of uses

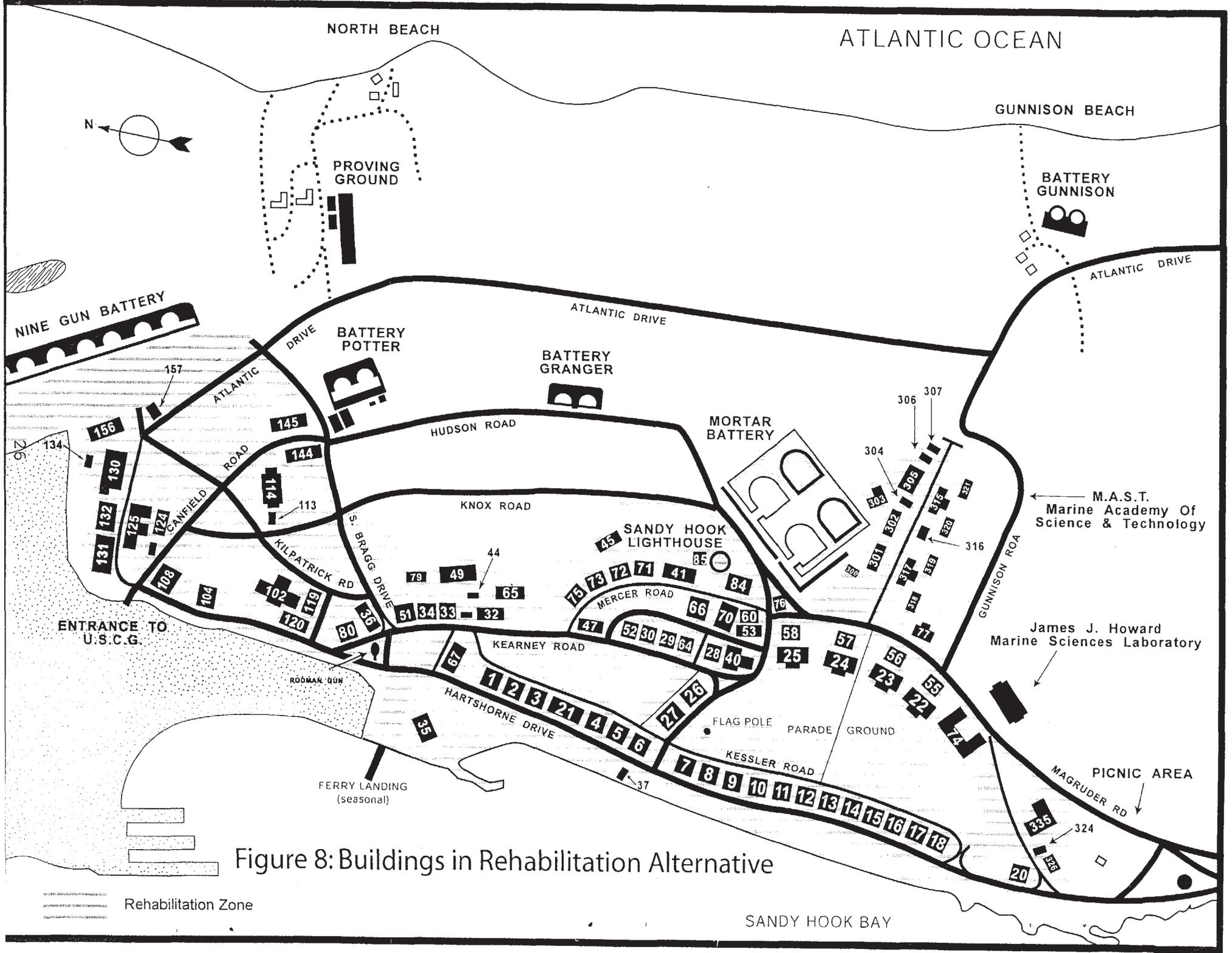


Figure 8: Buildings in Rehabilitation Alternative

Rehabilitation Zone

SANDY HOOK BAY

Circulation and Parking

The 1979 General Management Plan (GMP) committed to implementing no proposals “that would increase automobile use at Sandy Hook on summer weekends.” The GMP further commits to “no overall increase in the number of parking places provided at the developed operating areas of Gateway National Recreation Area.”

The visitor use projections that were the basis for the parking needs assessment in the General Management Plan specifically excluded the Fort Hancock Gateway Village. The plan however, recognized that the ultimate development of the Gateway Village would result in a significant increase in weekday visitor use at Fort Hancock. The 1990 GMP Amendment for Sandy Hook set the number of beach parking spaces at 4,300. It also identified the need for an additional 100 auto and 5 bus parking spaces (5 bus spaces equals 10 auto spaces) at Fort Hancock to accommodate the park Visitor Center that would be relocated to the fort area. However, neither the GMP nor the Amendment quantified existing or proposed limits on parking in Fort Hancock.

A physical inventory conducted in 1999 counted 4218 parking spaces at beach and bayside developed areas and 708 spaces in Fort Hancock for a park-wide total of 4926 parking spaces on Sandy Hook. This plan proposes to maintain the number of spaces that existed in 1999 and to add the 110 automobile spaces identified as needed for the Fort Hancock visitor center in the 1990 GMP Amendment.

Fort Hancock currently has 708 parking spaces. The adaptive use program requires 665 additional parking spaces in Fort Hancock that will result in a new Fort Hancock total of 1378 parking spaces. In order to maintain the approved park-wide level within Sandy Hook, 665 spaces will be removed from parking area K and elsewhere and relocated to Fort Hancock.

All new or expanding parking areas would be located on previously disturbed land and parking area K would be returned to nature. So as not to unfairly penalize the beach going public, 665 of the 1378 Fort Hancock spaces would be made available to beach goers on weekends. Fishing access and other recreation would continue to be permitted at existing beach and bay lots.

“Building Owners and Managers Association.” (BOMA) standards indicate a need for 2105 parking spaces based on the total number of square feet used by current tenants plus new tenants and existing park operation. The existing 708 plus the proposed 665 total number of 1378 parking spaces proposed for Fort Hancock would be 85% of the BOMA industry standard (the correct number is 85%, this was previously published as 65% which was incorrect).

The following table summarizes parking space numbers in the Park:

	Existing (in 1999)	Proposed
Beach & Bayside Developed Areas	4218	3658
Fort Hancock Area	708	1378
Total	4926	5036

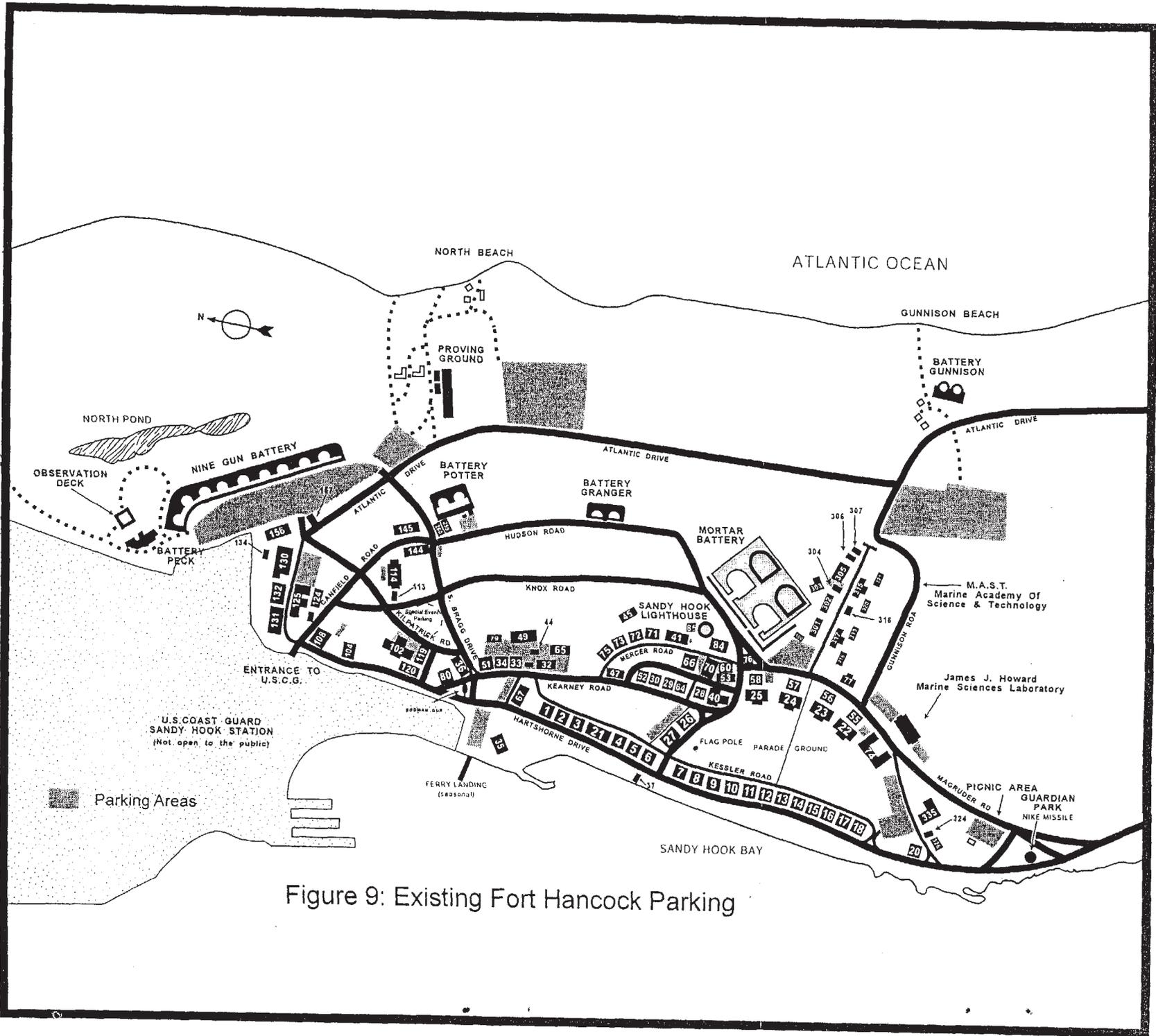


Figure 9: Existing Fort Hancock Parking

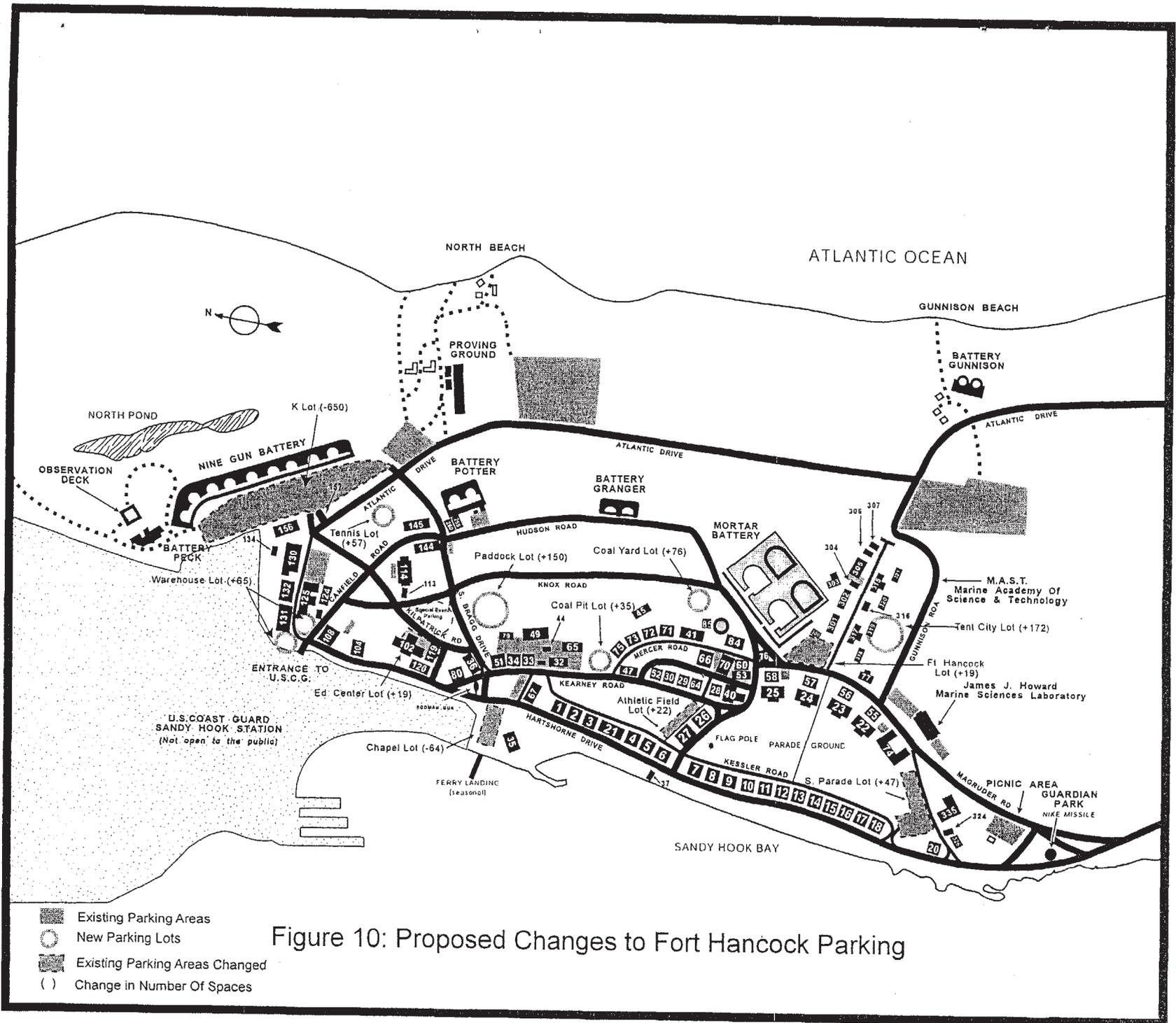


Figure 10: Proposed Changes to Fort Hancock Parking

-  Existing Parking Areas
-  New Parking Lots
-  Existing Parking Areas Changed
-  Change in Number Of Spaces

At present there are eighteen parking lots dispersed throughout Fort Hancock. Six of these eighteen would be redesigned to increase capacity and accommodate new uses. Six new lots would be constructed for a total of twenty-four dispersed parking lots (see Figure 9). Generally, parking for buildings will be located in the parking area(s) closest to the building.

Parking Area K will be restored as an area of successional grassland that, in connection with areas to the north and east, will create a cohesive and significant natural zone of high value ecological habitat.

Alternatives that would widen roadways and allow on street parking or construct a large central parking lot with shuttle bus service were considered but rejected. It was determined that the alternative to provide for parking dispersed around the perimeter of the historic district was the only one that would meet the needs of current and prospective tenants and visitors.

Gateway is also developing a park-wide system of ferry docks to provide alternative and emergency access. The dock at Sandy Hook may be operational by 2006 and it is expected that the improved ferry service will provide additional alternative access for beach-goers and other park visitors without an increase in traffic congestion or pollution within Sandy Hook. Neither the ferry service nor the facility would be used for commuters.

Additional actions related to parking and circulation would include:

- All new and redesigned lots would be constructed to prevent pollution from petroleum product runoff through the use of best practice drainage structures or porous pavement. (NJAC 7:7E-8.7, NJAC 7:8)
- All buildings would have adjacent, universally accessible parking spaces.
- On-street parking would not be allowed, nor would any streets be widened to accommodate any increase in vehicle circulation.
- Street, parking lot and walkway lights would be installed where needed for safety.
- The intersection of Kearney Road and South Bragg Drive would be reconfigured for safety. The island would be removed, and South Bragg Drive at Building 36 would be shifted to the south.
- Buses would use the Fort Hancock Lot, the South Parade Ground Lot, and the Chapel Lot for drop-off; and would then move to the south end of Knox Road, North Beach or Gunnison Beach lots for parking and staging.
- Crosswalks between buildings and parking lots would be improved for safety.
- Existing historic walkways would be maintained. Additional walkways to accommodate new circulation patterns created by the adaptive use activities will be added where needed for safety. These will be primarily to connect new parking areas with existing walkways.

Cultural Landscape

Vegetation

Primary proposed actions for the cultural landscape are as follows:

- Approximately 150 street trees that once existed throughout the Fort Hancock and Proving Ground zones and are now missing would be replanted. A planting plan that identifies specific locations and species will be developed based on the *Historic Landscape Assessment for Fort Hancock* (NPS 1994) and in accordance with the *Guidelines for the Treatment of Cultural Landscapes* (NPS 1996).(see Figure 11)
- Turf and foundation plantings may be irrigated using tertiary treated wastewater from the park's treatment plant.
- Turf management and ornamental plantings would include drought resistant species where appropriate to the cultural landscape, in order to reduce reliance on irrigation, pest control, and fertilizer.
- Turf management may include using a combination of weed control and fertilizer in accordance with applicable laws, regulations, and procedures.
- Foundation plantings would be located in close proximity to historically residential buildings. "Island" planting beds between buildings would not be permitted.
- Buildings that were historically service oriented would not have any foundation plantings.
- The height of foundation plantings at the front of Officers' Row Buildings 1-21 would remain at or below the level of the porch floor. Plantings at the sides, corners, and rear may be slightly higher.
- Foundation plantings around other residential buildings with porches could be slightly higher than the height of the bottom of the front door. Plants would be chosen and maintained to be in scale with the building.
- The planting of ornamental annuals and perennials at residences as foundation material was a cultural tradition at Fort Hancock. This practice could continue with only limited restrictions.
- Plant materials used for foundation plantings and utility screening at residences would be chosen from a palette that conforms to current NPS policy for cultural landscape management (see Appendix D).
- Historically, climbing vines, probably *Hedera*, or possibly *Parthenocissus*, existed on many Officers' Row buildings. These could be replaced in a way that would not cause future deterioration of the masonry.

Note: Historic tree locations determined from 1941 Army landscape plan and aerial photos.

- Existing Historic Tree
- ▲ Missing Historic Trees
- ▭ Structures
- Roads

Historic
Tree Replacement
Fort Hancock and
Proving Ground Zones

Figure 11

Small Scale Features

Primary proposed actions for small-scale features are as follows:

- Planting boxes may be installed on the porch railings at Buildings 1-21. The maximum size of these boxes would be 3 feet x 1 foot x 1 foot.
- New utility boxes would not be located in open-spaces between buildings; rather, they would be located very close to buildings. Whenever possible, utility boxes existing in the middle of open spaces between buildings would be relocated to less intrusive locations close to buildings.
- All dumpsters and trash cans would be located at the rear of buildings, and may be screened using shrubs from the foundation plant palette or other suitable material that is compatible in appearance and character with existing character-defining landscape features.
- The flagpole in front of Building 102 would be removed as a non-historic intrusion. Bollards required by new uses to block vehicles, delineate roadways, and to guide pedestrians would meet the highway specifications and reflect the historical character of those that existed in large numbers on Barracks' Row, of which two are extant.
- The non-historic and incompatible 4" x 6" wood bollards at the South Parade Ground parking lot would be removed as part of the design of the South Parade Ground Lot.
- Rehabilitation of the tennis court adjacent to the Officers Club (Building 114).
- Missing displays of military guns and equipment from earlier eras that are determined to be character defining features of the landscape may be returned.
- Existing historic manhole covers would be preserved and repaired. Covers required for new uses would be differentiated from the historic covers, but would be compatible with the historical character of the district.

Signage

- The park would implement a comprehensive sign system for the purpose of providing information to the visitor about the functions or occupants of all buildings in the area of proposed actions. These functions and occupants include the National Park Service, leasing program tenants, and other park partners. This sign system, required to accommodate new adaptive uses, would be a new landscape feature of the district; it does not have historical antecedents. The system would provide a uniformity of design throughout the district, would limit proliferation of signs, and would provide a design scheme that is compatible with the historic character and identity of an Army post.
- The basic design elements of the system would be as follows:
 - frames to be wood, 4 x 4 inches, with chamfer cut ends, painted white
 - backing to be plywood
 - background color to be white
 - text and logo would meet the needs of the building occupant
 - four sizes, dependent on the size of the building
 - two signs per building, one each at front and rear
 - evening operations may illuminate one sign using a simple spotlight in the ground
- For details, see Figure 12.
- For locations of the signs, see Figure 13.

- Directional signs would not be permitted except under special conditions. If a historic leasing program or other partner strongly think a permanent directional sign is warranted, the partner may request such a sign under a waiver process.
- Regulatory signs to define travel and parking would be permitted with special approval of the park, and would follow standards of "Manual on Uniform Traffic Control Devices" and the "Americans with Disabilities Act."
- Temporary, short-term signs for special events and partner identification would be permitted with special approval of the park.
- Long-term portable signs would be permitted with special approval of the park.
- The historic system of identifying buildings, a small numbered plaque on the exterior corner of buildings, would remain. Missing numbers would be replaced with historical replicas.

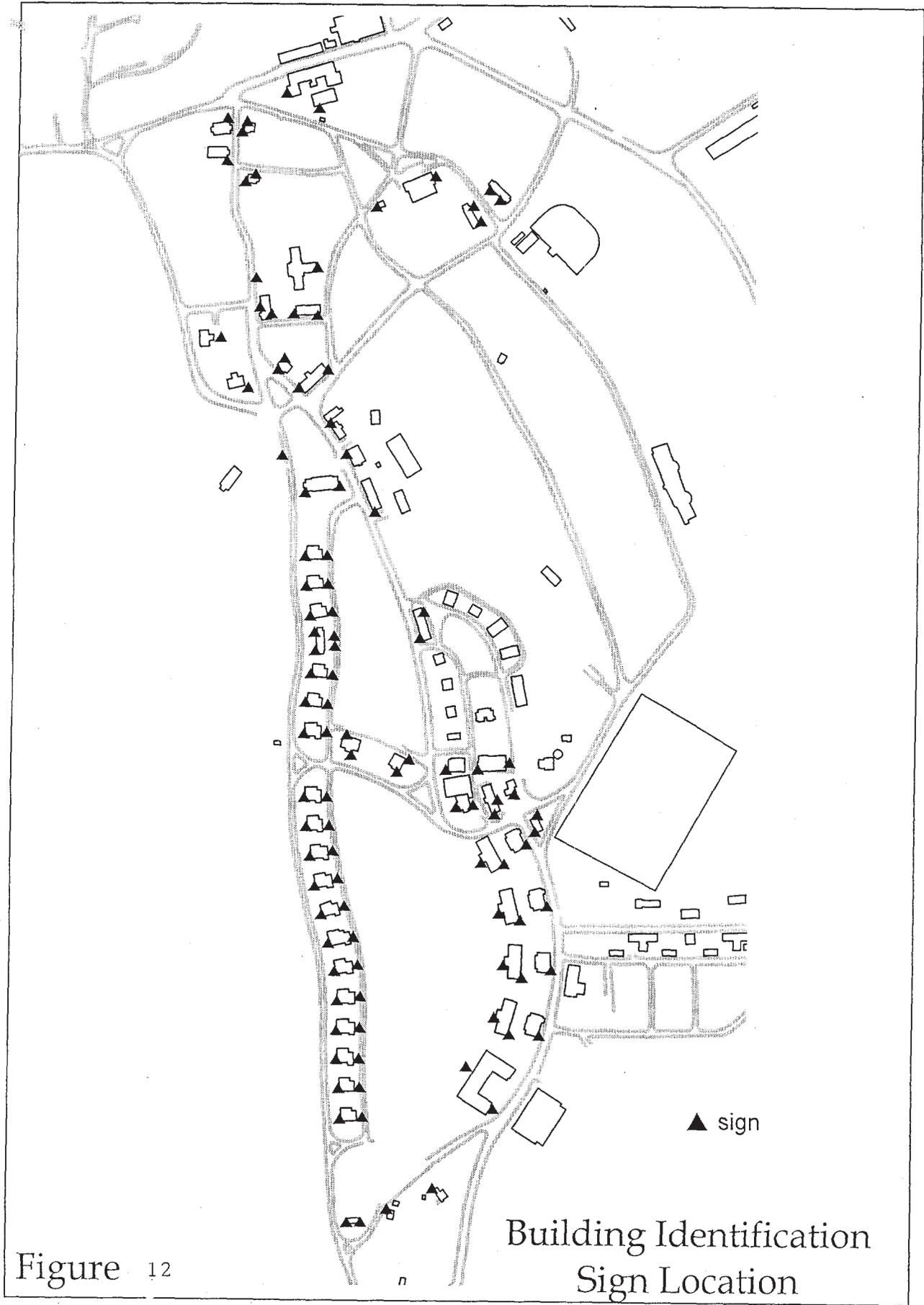
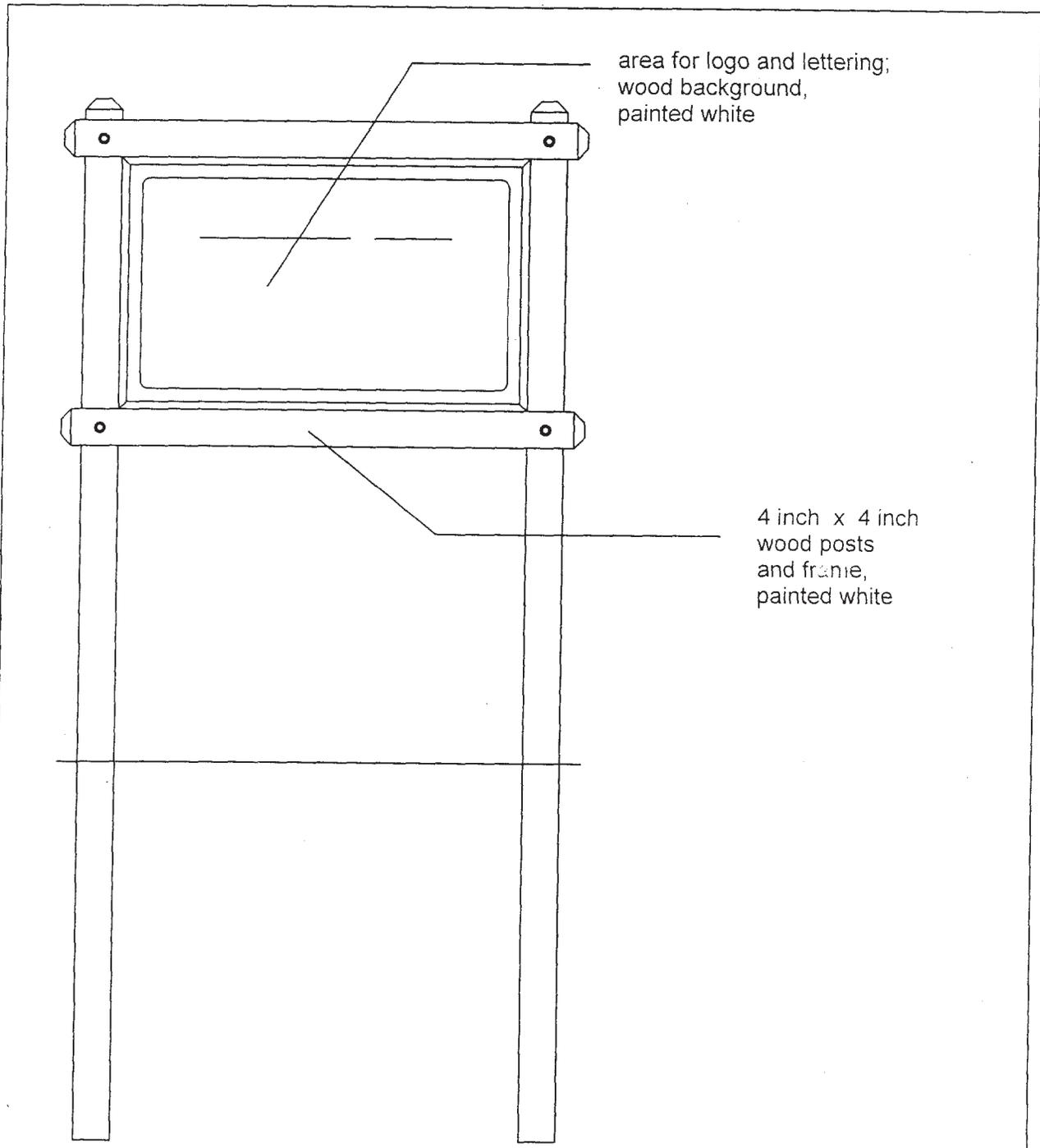


Figure 12



Note: three proposed sign sizes are approximate :
2 feet by 9 feet
1 foot 6 inches by 3 feet three inches
1 foot by 2 feet

Figure 13

Typical Building Identification Sign

Utilities

Electrical Utilities

In order to provide adequate and reliable electrical service to Fort Hancock, existing overhead lines would be placed underground. Installation of approximately 14,000 feet of underground electrical and telecommunications conduit (primary/secondary loop) in the southern section of the park would upgrade the electric service (See Figure 14). These feeds would be installed in conduit and laid in a trench 36 inches deep by 36 inches wide. The majority of the trench would be located in the northbound shoulder of the Hartshorne Drive Corridor zone. For approximately 2000 feet, where the trench would impact dunes at the side of the roadway, it may be located under the roadway asphalt. These conduits would originate at the main transformer pad at the southern end of the peninsula, and extend north to the Fort Hancock zone (see Figures 14 and 15). The trench would be dug within twelve feet of the edge of the roadway, and as close to the roadway as possible. Approximately 3500 feet of electrical conduit currently exists in this zone of the park.

- All required modifications to upgrade the electrical and telecommunications service in the District would use existing utility corridors. A preliminary review indicates that existing transformers serving buildings throughout the Fort may be sufficient for the proposed adaptive uses. However, a more thorough examination would be needed to check transformers for proper line size and service load needs.

Communications Utilities

- Fiber optic cables would be installed the entire length of the peninsula in the same trench as the new electric lines. The trench would be 36" wide and 36" deep, would originate in the vicinity of the Route 36 overpass, and would terminate within Fort Hancock. These new cables would extend to each building using existing utility corridors. Approximately 3500 feet of telecommunications conduit currently exists in the Hartshorne Drive Corridor.

Utility Service Entry into Buildings

- Utility lines near buildings would be brought into buildings by placing the utility lines in existing conduit; by installing new conduit in existing utility corridors at existing entrance locations; or by using sub-surface directional drilling.

Water and Wastewater

All rehabilitation activities will employ the best water conservation technology available. Upgrades to the potable water system now underway will increase water volume and pressure needed for sprinkler systems and firefighting. Increased consumption of water resulting from the rehabilitation of buildings would fall well within available capacity and NJDEP permitted primary and secondary source levels. The NPS currently operates under a NJDEP allocation permit that allows withdraw of 91 million gallons per year from the aquifer. NJDEP, USGS, and the NPS monitor the NPS well for salt-water intrusion and all regulated contaminants.

Further analysis of water use and waste water treatment has led NPS to conclude that the estimate used in the February 2002 EA of 75 gallons of water per day (gpd) for each additional Fort Hancock worker was an over estimate. For example, water use at the American Littoral Society offices averages 16.25 gpd with historic fixtures. Rehabilitation with low flow fixtures should significantly reduce that amount.

NPS has obtained the following estimates through the U.S. Environmental Protection Agency from Water Management Incorporated (WMI). WMI designs and implements water efficiency programs for multi-unit residential properties, public housing authorities, federal and state facilities, military complexes, hotel industrial commercial and institutional properties. WMI indicate that the average office uses 8-20 gpd per employee; if the employee eats a meal at a conventional sit down food service facility, add an additional 8-10 gpd. Assuming a very high use scenario of 30 gpd and an anticipated influx of 800 additional people per day, Sandy Hook water production and waste water treatment would increase 24,000 gpd. The existing summer demand for waste water treatment is approximately 110,000 gpd (winter average is approximately 60,000 gpd). The sewer plant can accommodate this increase under its current permit to treat 189,000 gallons per day. The design capacity of the plant is 280,000 gallons per day.

A contract that is underway, and scheduled to be completed in 2003, will reline manholes and sewer lines to reduce ground water infiltration, which has placed a significant burden on the plant. Daily water out – water in measurements show that ground water infiltration following a rain can add as much as 40,000 – 100,000 gpd into the system. This work, coupled with the low flow code requirements and park service policy of requiring low flow fixtures, will significantly reduce flows to the sewer plant.

Each of the eight percolation ponds is of sufficient capacity to handle the maximum design flow of 280,000 gallons per day from the sewer plant. The ponds are located in one of the higher elevations of the park and are surrounded by approximately 3.5 feet concrete containment walls. If a storm were to flood the ponds, the entire Fort Hancock area as well as large portions of surrounding coastal communities would be underwater.

Effluent from the sewer plant is discharged to the percolation ponds. They provide additional filtering before the effluent is recharged to groundwater. As far the additional plant flows affecting ocean water quality, we are required to test and comply with all NJDEP regulations. The current limit for ocean bathing is 200 fecal coliforms per 100 milliliters of water, while the maximum plant effluent limit is 4 fecal coliforms per 100 ml.

Natural Gas

•A natural gas pipeline would be installed. Because the alignment of this gas line will follow the alignment of the Sandy Hook Multi-use Pathway (construction beginning summer 2003), compliance with federal regulations and NPS policies for this proposed gas line has been completed as part of the Pathway EA.

Renewable Energy and Sustainable Design

Interest in promoting a sustainable design particularly in energy utilities has led to the research in future development of renewable sources of producing energy. Engineering studies for the redevelopment of Fort Hancock will incorporate investigations for supplementing electric power through the use of photovoltaics (solar collection).

Project Schedule

Actions proposed for the Rehabilitation Alternative would commence upon completion of compliance with federal regulations and NPS policies, and upon execution of legal agreements for the historic leasing program. The actions would be implemented over a five-year period.

D. PROPOSED ACTIONS CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

As noted above, this EA evaluates two alternatives. The Action alternative describes proposals for implementing the concept of adaptive use at Fort Hancock and the Sandy Hook Proving Ground. The No Action alternative establishes a basis for comparison and describes a continuation of the status quo. The Action alternative does not re-evaluate any of the five alternatives that were evaluated in the 1979 DEIS/GMP, nor does it evaluate the park's historic leasing program, which is excluded categorically from compliance with NEPA and other federal regulations. This EA describes and evaluates actions proposed for the rehabilitation (as defined by the Secretary's Standards) of features that contribute to the status of the park's National Register properties.

The following rehabilitation actions were considered for incorporation into the Rehabilitation Alternative for the adaptive use of the Fort Hancock historic district, but were eliminated from further consideration for the reasons described below.

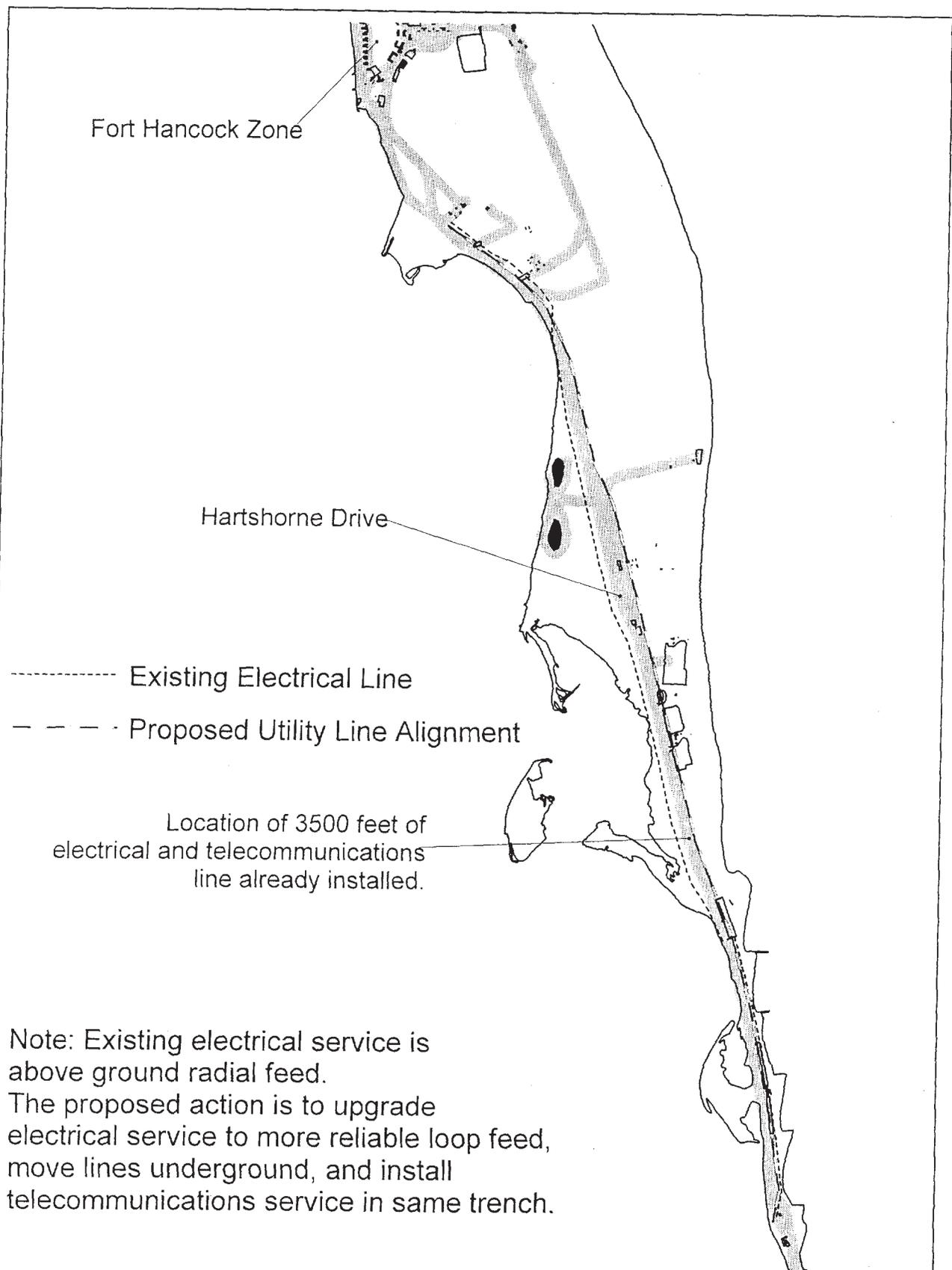
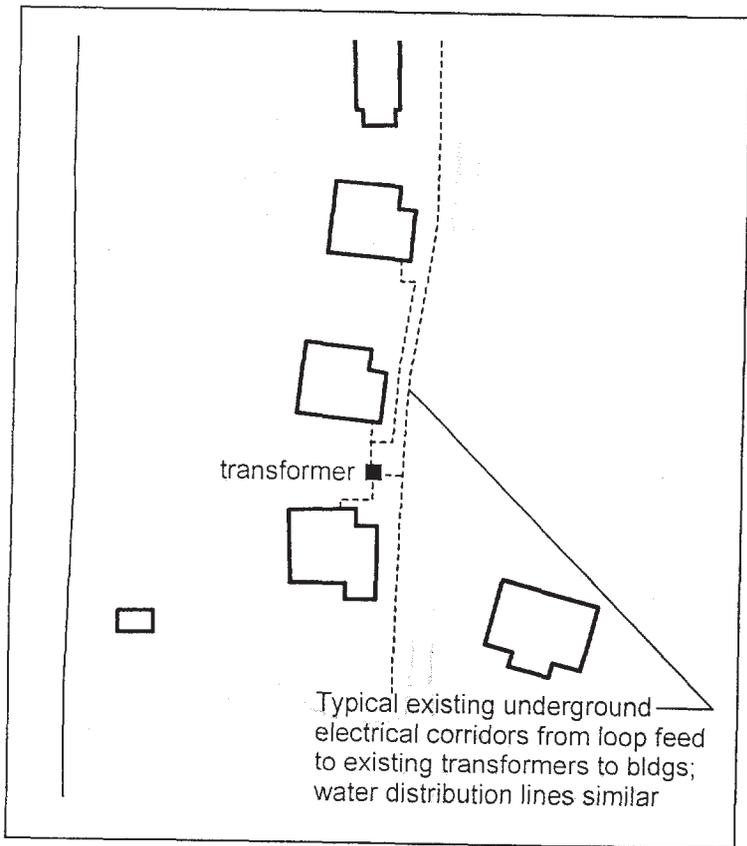


Figure 14

Existing and Proposed Utilities
Hartshorne Drive Corridor Zone

Note: The proposed action is to upgrade existing electrical and water lines as necessary, using existing underground locations, and install telecommunication lines in these same existing locations.

Existing Underground
Electrical Loop Feed System
to be Upgraded



Existing and Proposed Utilities Fort Hancock and Proving Ground Zones

Figure 15

Circulation – Street--widening and on-street parking

Careful surveys and experiments were conducted to see if widening some streets and providing on-street parking spaces could satisfy the parking needs of the adaptive use program. These actions were rejected for two primary reasons:(1) widening certain streets, such as Kessler Drive and Hudson Road, would have a major adverse impact on the historic character of Fort Hancock's road system that could not be mitigated, and (2) parking several hundred cars on Fort Hancock's roads would have a major adverse impact on the visual quality of the park and the historical character of the cultural landscape.

Circulation – Intercept lot with shuttle

This action would eliminate vehicle traffic, including park staff, tenants, and partners, but not visitors, from the district. It would require a new ± 1400 space parking lot located outside the district, and require the use of a shuttle bus for transportation. This system would not meet the needs of park operations, nor would it accommodate the needs of existing partners or new adaptive uses.

Signage – Commercial style signs

A system to meet the needs of the historic leasing program that was more commercial in nature and with less uniformity was considered, but was eliminated because it would not be compatible with the historical character and identity of an Army post.

IV. AFFECTED ENVIRONMENT

A. CULTURAL RESOURCES

National Register Properties

As described in the National Register of Historic Places inventory nomination form, the Fort Hancock and Sandy Hook Proving Ground Historic District is bounded by the Route 36 bridge to the south, the Atlantic Ocean to the east, Sandy Hook Bay to the west and Lower New York Harbor to the north. With the exception of Skeleton Hill Island, and South Island, the entire Sandy Hook peninsula, including Ft. Hancock, the Proving Ground, the Coast Guard Station, the Nike Missile site and the Hartshorne Drive Corridor, are in the District. The District is included on the *Secretary of the Interior's List of Most Threatened National Historic Landmarks* (sixty landmarks are on the list).

In addition to the District, there are three other properties in the park listed on the National Register: The Sandy Hook Lighthouse (landmark status), the Spermaceti Cove Life-Saving Station, and the Cove House Historic District.

There are 228 items listed on the NPS List of Classified Structures, most of which contribute to the National Register properties. The area of proposed action includes 100 buildings, as well as a number of other structures and landscape elements. Two cultural landscape assessments, dating from 1994 and 1999, conclude that the area retains a high level of historical integrity.

Components of the District

Archeology

Years of archeological evaluation, testing in response to various construction projects, and unexpected finds during construction and park maintenance operations have established that the archeological record of Sandy Hook is highly varied in terms of its cultural association, location, nearness to ground surface, degree of preservation, and significance.

Two factors are important when considering the potential for archeological sites in the area of proposed actions. One is the effect of geomorphological history on this dynamic barrier island. Sandy Hook grew northward from the 16th through the 20th centuries. In 1764, the tip of the Hook was only 500 feet north of the lighthouse. Since there was no Native American Presence on Sandy Hook after 1754, no Native American sites of any period should be present above sea level anywhere north of the 1764 limits of Sandy Hook.

The second factor affecting archeological resources is the extensive earth moving accomplished to create, out of rolling sand dunes, the level areas now occupied by the Sandy Hook Proving Ground and Fort Hancock National Historic District. Earth moving and other construction activities undertaken by the 19th and early 20th century military in the process of creating and operating facilities for which the landmark district was created, caused extensive damage to, and burial of, earlier historic and prehistoric sites. The degree of effects on earlier sites ranged from obliteration, through simple exposure and minor disturbance, to unintentional, but protective burial.

Archeological evidence of the military activities conducted since the mid-19th century are to be found virtually everywhere within the core leasing area. These include building foundations, privy and cistern pits, trash deposits, railroad beds, traces of fence lines and walks, landscape plantings, the ground contour and the very topsoil on the site today. Some archeological evidences are not old (e.g. foundations of mid-20th century structures removed by the military in their last years or more recently by the NPS), yet their historical record is incomplete or not fully researched.

Traces of earlier sites also lie within the same area. Many represent activities quite different from those for which the Landmark District was nominated. The most intact found to date are the 18th and 19th century remains associated with the Sandy Hook Lighthouse, including foundations and middens that contain debris reflecting the function of the lighthouse, the domestic activities of the operators and families, and the military occupations during the Revolutionary War and the War of 1812. No other intact early sites have been found within the core leasing area, but traces, by way of artifacts, have been found of two prehistoric sites and of military occupation during the War of 1812. Additional evidence may yet be found of Native American land use (not much north of the Lighthouse), shipwrecks (buried and near and below sea level), additional early Lighthouse and Life Saving service operations (including burials) and the British military occupation during the Revolutionary War. One can also postulate a variety of other small sites relating to privateers, fisherman and travelers, among others.

Sandy Hook's long history as an army weapon's testing site and as a coastal defense site has left a legacy that includes threats to public safety from unexploded ordnance (UXO). These are

archeological artifacts that reflect experiments and common practices of the Sandy Hook Proving Ground and of the defensive works erected on Sandy Hook. The Department of Defense (DOD) has conducted surveys to detect and remove UXO from public areas. Additional UXO likely remain on Sandy Hook, however all of Fort Hancock and most of the project area lies outside the weapon's testing zone.

Buildings and Structures

Currently, the park has plans for the rehabilitation and treatment of approximately thirty-seven of the 100 buildings located within the area of proposed action through leasing (see Table 1).

The majority of the buildings under consideration for adaptive use are located in the Fort Hancock zone. With few exceptions these buildings were constructed in the Colonial Revival style using buff colored brick with white mortar joints. Most of these buildings date from the 1898-1910 period and were constructed to meet a variety of needs: housing, administration, supply, recreation, etc. The newest structures, including the Chapel, were constructed by 1941 in preparation for World War II.

Almost all of the buildings in Fort Hancock remain intact and retain their original fabric and many character-defining features. Alterations to the buildings have been few and include the following:

- Replacement of the original slate roofs with asbestos shingles.
- The addition of garages to most of the Officers' Row houses around 1941.
- Small additions to the bakery building, the gas station, firehouse and others buildings.
- The enclosure of some porches on the residential buildings as illustrated on the two-family Officers' housing, Building 21.

The Chapel has undergone extensive alteration. In its current configuration many of the character-defining features are missing. The building is devoid of a steeple, the exterior walls are covered in asbestos siding, and asbestos shingles replaced the original roof. Information about each building type being considered under a lease agreement may be found in Appendix A. The information includes: name, number, date of construction, a brief description of the building, and a list of the character defining features. The list of character defining features was taken from the *Fort Hancock Rehabilitation Guidelines*, prepared in March 1999 by the NPS and jointly amended by the New Jersey State Historic Preservation Officer during a site walk-through in January of 2001.

Three buildings under consideration for adaptive use are located within the Proving Ground zone and built prior to 1919. These structures, built of red brick, are in sharp contrast to the yellow brick Colonial Revival style buildings of Fort Hancock. The oldest of these structures is the Second Empire style Officers' Quarters, Building 114, which was painted yellow when it became the Officers' Club. In addition to the color change, the Officers' Club has undergone the greatest number of alterations. These alterations include the removal of a porch and the construction of four additions, several of which may have styles incompatible with the original Second Empire style of the building. Despite these changes, the Officers' Club retains individual integrity, and contributes to the overall integrity of the District.

The red brick warehouses of the Proving Ground (Buildings 124 and 125) have been slightly altered since the end of the period of significance. While they are in need of repair, in particular the slate roof on Building 125, the windows are in place and the original forms are intact. In some locations remnants of the early railroad system in the form of tracks remain.

Cultural Landscape

The long history of military association and maritime use has created a cultural landscape that encompasses most of the Sandy Hook peninsula. The Cultural Landscape of Fort Hancock is highly developed. Character defining vegetation features (as identified in *Fort Hancock Rehabilitation Guidelines*, 1999) include over 100 extant historic shade trees along road edges, foundation plantings and personalized garden space confined to within four feet of buildings.

Other character defining features include streetlights, concrete and bluestone walkways. Other landscape features include bollards, signs, utility boxes, and militaria. There are also historic views and vistas along the Parade Ground, the Athletic Field, and the Sandy Hook Bay.

The Cultural Landscape along the proposed utility corridor has been impacted by construction of recreational facilities such as beach centers and parking lots. This is particularly true in the southern portion of Sandy Hook.

Circulation

Roads and walkways in the Fort Hancock and Proving Ground zones have changed little since the end of World War II, and are important contributing elements to the historic district. Character-defining features still extant from both the pre-and post-World War II periods include: alignment, width, bluestone curbing, manhole covers, drain covers, and blue-stone and brick paving materials.

Approximately 708 parking spaces exist in the area of proposed actions. Only a few buildings have adjacent universally accessible parking spaces. There is no on-street parking. Some parking lot surfaces are non-porous, and some are porous. The zone around Buildings 53 and 60 currently consists of parking and roadway. When nearby Building 25 becomes the Visitor Center current safety measures to protect visitors would be inadequate.

Traffic congestion is not a problem in the Fort Hancock and Proving Ground zones. Some walkways are deteriorated and need repair or replacement. Historic bluestone walkways exist on Officers' Row; historic brick walkways exist on Barracks' Row and Sergeants' Row. The Hartshorne Corridor zone has been altered extensively since the Army left in 1974. The major impact was the construction of new beach recreation centers, and upgrading of parking lots to serve them. Other alterations include the widening and repaving of Hartshorne Drive, improvements to bayside erosion control structures, and the installation of underground utilities along the road.

The level of historical integrity in the Fort Hancock and Proving Ground zones is high. The integrity of the Hartshorne Drive Corridor zone is low.

B. NATURAL RESOURCES

Hazardous Materials

Two separate surveys have been completed to review lead content in various locations throughout the park. The first survey, completed in 1988, examined the lead content in soils surrounding six buildings and a playground area. Rutgers University's Soil Department completed the testing. Findings and recommendations indicate that lead content in the soils exceeded allowable levels. Recommendations did not include removal of the soils but did include keeping down dust and keeping children away from the areas.

The second survey, completed in 1993, included lead testing of interior materials in eight residential buildings. In each case x-ray fluorescence testing was completed on multiple building fabric elements. In each building the testing report indicated that dangerous levels of lead were present on some material. No recommendations for abatement or encapsulation were attached to the report.

Water Quantity

The park currently receives its main water supply from a well drilled into the Farrington/Middle Potomac-Raritan-Magothy Aquifer over 900 feet deep. Raw water is pumped into a 400,000-gallon tank before it is treated and transferred to a 350,000-gallon storage tank located at the northern end of the park on Coast Guard property. The park maintains a back-up tank for potable water that stores up to 250,000 gallons. In accordance with requirements of the New Jersey Department of Environmental Protection (NJDEP), the park completed in 2001, construction of a water line that connects to the New Jersey American Water Company and is capable of meeting the park's water needs in case of a primary source failure. Water usage at the park ranges from an average of 60,000 gallons per day during winter to an average of 110,000 gallons per day during summer.

Following usage, wastewater is returned to a treatment plant located near the Gunnison Beach Center. Separated sludge is filtered through a lined pond that supports a dense stand of common reed underlain with sand. Filtered effluent is returned to the plant for further treatment before being discharged into retention basins located immediately south of the Gunnison Beach Parking Lot. Although the plant treats and discharges approximately 60,000 gallons of water per day during winter and 110,000 gallons of water per day in summer, the plant is authorized by the NJDEP to discharge up to 189,000 gallons of treated effluent each day with a maximum treatment capacity of approximately 289,000 gallons of wastewater per day. Rainwater in the developed area of Fort Hancock currently drains from hardened surfaces into storm drains or to the adjacent soils. The soils are quite porous and quickly absorb the rainwater, recharging the surface aquifers. Some water is lost to street drains that empty into Sandy Hook Bay.

Natural Vegetation

Numerous developed areas throughout the park have been abandoned over the years and have been colonized by successional vegetation dominated by grasses and invasive species. Common species in successional areas include a variety of annual and perennial grasses e.g., Little Bluestem (*Andropogon*

scoparius), herbs e.g., Bouncing Bet (*Saponaria* sp.), Queen Ann 's Lace (*Daucus carota*), Spotted Knapweed (*Centaurea maculosa*), Mugwort (*Artemisia vulgaris*), Seaside Goldenrod (*Solidago sempervirnes*), and Chicory (*Cichorium intybus*), vines e.g., Honeysuckle (*Lonicera* sp.), woody shrubs e.g., Winged Sumac (*Rhus copallina*), Poison Ivy (*Toxicodendron radicans*), Blackberry (*Rubus allegheniensis*), and Eastern Red Cedar (*Juniperus virginiana*), and trees e.g., Black Locust (*Robinia pseudoacacia*), Tree of Heaven (*Ailanthus altissima*), Black Cherry (*Prunus serotina*), and Hackberry (*Celtis occidentalis*).

Natural grasslands at the park are dominated by native grasses, including Switch Grass (*Panicum amarium*), Panic Grass (*Panicum virgatum*), and Cord Grass (*Spartina* sp.). These grasslands and shrub thickets are used by a variety of wildlife including migratory birds, insects, and small mammals. Sandy Hook is an important stopover site on the Atlantic flyway. The availability of this type habitat at the northern end of Sandy Hook is important to a variety of migratory birds in both spring and fall.

Although most actions under the Rehabilitation Alternative would be undertaken in areas of maintained lawn, several successional areas would be affected by proposed actions. These areas include:

- The Coal Pit Lot, which supports several of the species listed above. This area currently is used by the park as a place to dump organic matter, such as tree branches, grass cuttings, shrub debris, collected from other areas of the park.
- The Fort Hancock Lot, which supports a dense understory of Mugwort, Honeysuckle, and Bayberry (*Myrica pensylvanicus*) and an overstory of Ailanthus and Hackberry trees at this site are fairly large but estimated to be 25 years old or less.
- The South Parade Ground Lot, which is dominated by annual grasses, Chicory, Spotted Knapweed, and Plantain (*Heliconia carebaea*) (no shrubs are present at this site, which is covered in large part by degraded pavement). This area is used for special event overflow parking.
- The Tennis Court Lot, which is dominated by Little Bluestem, Rose (*Rosa* sp.), Poison Ivy, Wild Wormwood (*Artemisia campestris*), Winged Sumac, Black Locust, and several large Hackberry trees.
- The Warehouses Lot, which is dominated by grasses and Mugwort with a few small, scattered Cedars. This area is part of the heavily used maintenance operations yard.
- The Coal Yard Lot, which is covered by a thick layer of coal dust, supports sparse Little Bluestem, Poison Ivy, and Bayberry, as well as scattered Cedar, Winged Sumac, and Black Cherry.

Threatened and Endangered Species

According to the U.S. Fish and Wildlife Service (see Appendix E), the New Jersey Natural Heritage Program's Internet site, conversations with New Jersey Department of Environmental Protection personnel (D.Jenkins and D.Snyder), and NPS knowledge of resources in the park, several species of concern to the federal and state governments are present in or near the project area. These include the state-threatened Osprey (*Pandion haliaetus*) and state-rare Wild Wormwood (*Artemisia campestris caudata*) the federally threatened and state endangered Piping Plover (*Charadrius melodus*), the federally threatened and state-endangered Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis*), federally threatened and state-endangered Seabeach Amaranth (*Amaranthus pumilus*), and state-endangered Coast Flatsedge (*Cyperus polystachyos texensis*).

Northeastern Beach Tiger Beetles and Seabeach Amaranth inhabit beach areas between mid-tide and fore-dunes at the park. The tiger beetle is restricted to the northernmost beaches in the park where it was reintroduced in 1994. Piping Plovers have nested within 200 feet of Hartshorne Drive near Parking Area C as recently as 2001. Typically, they arrive at the park in late spring and begin their southern migration in late summer. Coast Flatsedge is a wetland plant that typically inhabits dune swales and/or brackish areas in the park (Natural Resources Conservation Service, 1999; D.Snyder, personal communication); it is unlikely to inhabit maintained lawns or other upland areas. No *Cyperus* were observed during a November 2000 survey by NPS staff (C.Davis) along Hartshorne Drive south of the Ranger Station.

Osprey

Although unlisted by the Federal government, the Osprey is listed as threatened by the State of New Jersey.

The Osprey is a medium-sized bird of prey approximately 24 inches long with a wingspan up to 72 inches. Ospreys are typically brown above with white under parts and white heads with dark brown lines through the eyes and along the sides of the face. In flight, Ospreys are easily distinguished from other birds of prey by a pronounced bend at the "wrist" of the wings. Osprey live and nest in close proximity to large bodies of water including lakes, rivers, oceans, and bays, where they feed exclusively on fish. Although Ospreys breed in North America as far north as Alaska and Newfoundland, they winter in southern areas ranging from the Gulf Coast and California in the U.S. south to Argentina (National Geographic, 1999; W.A. Niering, 1985). Ospreys typically arrive at the park in mid-March, where they build bulky nests or renovate the remains of nests used in previous breeding seasons. At the park, several nesting platforms have been constructed by NPS staff and successfully used, including platforms at Horseshoe and Spermaceti Coves. In addition, Ospreys at the park nest in large trees and snags and have been sighted nesting atop the chimneys of unoccupied homes at Fort Hancock. Osprey begin leaving the park for southern, winter grounds in mid-August with most birds having left by early September.

Ospreys have successfully fledged numerous offspring in the park and regularly nest on a constructed platform at Spermaceti Cove approximately 360 feet west of Hartshorne Drive. Ospreys also have nested atop chimneys on Buildings 13 and 14 on Officers' Row and atop the Officers' Club (Building 114). During the 2001 breeding season, five pairs of birds successfully fledged seven young.

Wild Wormwood

Although unlisted by both the Federal and State governments, Wild Wormwood is considered rare by the State of New Jersey.

Wild Wormwood is a biennial plant that grows to a height of 1-4 feet with stems rising singly from a taproot (Natural Resources Conservation Service, 2000). This species does not exhibit the typical sagebrush odor that is common to most *Artemisia* species. The leaves of Wild Wormwood are multiple compound and less divided as they ascend the stems. Wild Wormwood supports an

inflorescence of numerous small heads in an elongate but narrow panicle with dry, smooth, broadly cylindrical achenes, and typically flowers in August and September.

Although Wild Wormwood is widely distributed throughout the United States and is found in many states east of the Rocky Mountains, it is relatively uncommon in New Jersey where it is ranked as an "S2" species in the New Jersey Natural Heritage Database. An S2 ranking indicates the species is "very rare" and usually has been documented at less than 20 locations with many individuals at a few locations. Although uncommon throughout much of New Jersey, Wild Wormwood is common throughout the park and frequently inhabits disturbed roadsides and non-maintained fields that do not support a heavy over-story of trees or shrubs. A survey conducted by NPS staff (J.McArthur and C.Davis) on November 19, 2000 discovered Wild Wormwood at or adjacent to four areas proposed as potential parking lots under the Rehabilitation Alternative. Although plants were not actively flowering at the time of the survey, remnant inflorescences were present on stems and the leaves of first-year plants remained obviously light green. Visual coverage surveys included 100 percent of proposed parking areas.

The largest populations of Wild Wormwood were observed at the Coal Yard, where approximately 100 plants were observed within a sandy area surrounding a large oak east of Building 71. In addition, a population of several hundred plants was discovered in the coal yard east of the existing access road outside of the proposed parking area. Although a large number of Wild Wormwood plants were observed in disturbed, sandy areas in the Coal Yard, no plants of this species were observed in areas covered by dense coal chips and debris. The second largest population of Wild Wormwood, consisting of approximately 50 individuals, was observed throughout unmaintained (i.e., unmowed) areas around the abandoned tennis court east of the Officers' Club (Building 114). Plants were most abundant on the northern edge of the site under a sparse canopy of hawthorn. Although eight additional plants were discovered scattered throughout a large area west of Building 132, no Wild Wormwood was present in the maintained area proposed as a potential parking lot.

Piping Plover

The Piping Plover is a small, stocky, sand colored bird which breeds on coastal beaches from Newfoundland Canada to North Carolina. They typically arrive at the park in late spring and begin their southern migration in late summer. Adult Piping Plover population on Sandy Hook has increased dramatically from 9 pairs in 1986 to 43 pairs in 1995. Productivity has ranged from a low of .36 in 1997 to a high of 1.94 in 1994. During the 2000 breeding season, productivity was 1.76 with 29 pairs producing 51 chicks. The Rehabilitation alternative includes the installation of utilities along Hartshorne Drive. Piping Plovers have nested within 200 feet of Hartshorne Drive near Parking Area C as recently as 2001. During the 2001 breeding season, thirty-one pairs of birds successfully fledged forty-nine young.

C. SOCIOECONOMICS (Monmouth County Region)

Located forty-seven miles south of Manhattan, Monmouth County comprises 665 square miles along central New Jersey's coastline. Its strategic location along the coast and between New York City and

Philadelphia makes Monmouth County an attractive location for businesses and residents. In 1997, *Money Magazine* rated Monmouth County as the third best place in the nation in which to live.

Population

The County's population has increased 7.8% over the last decade. Indeed, with a total population of over 600,000 and a working population of over 300,000, Monmouth County ranks among the fastest growing counties in the State.

Employment

The region maintains a strong agricultural foundation, while having developed its business and industry; with personal incomes rising 40% between 1990 and 1997. Monmouth County is home to several large corporations including AT & T, Lucent Technologies, Prudential Property & Casualty, and Meridian Health Care Systems.

State and Regional Statistics

The New Jersey Commerce & Economic Growth Commission provided the statistics that follow herein.

- New Jersey has led the Mid-Atlantic Region in employment growth for the years 1993-1998.

New Jersey -2.2%

New York -1.3%

Pennsylvania -1.6%

- New Jersey leads the Mid-Atlantic Region in its annual Gross State Product %.

New Jersey -7.2%

New York -6.3%

Pennsylvania -6.0%

- The Population Growth Rate from 1990 projected through 2010 show New Jersey far outpacing its neighbors.

New Jersey -11.0%

New York -3.0%

Pennsylvania -4.5%

- New Jersey has the second highest per capita income in the nation (Median Household Income for 1995).

New Jersey -\$43,924

New York -\$33,028

Pennsylvania -\$34,524

- Personal Income Growth and Average Disposable Income is higher in New Jersey than in New York or Pennsylvania.

- At \$35,000, New Jersey's Gross State Product per capita is the highest in the Mid-Atlantic Region and is significantly higher than the United States average of nearly \$29,000.

- Since September 1999, the unemployment rate in New Jersey has dropped from 4.6% to 3.8%.

- New Jersey Urban Consumers have increased 3.2% from last year, and New Jersey Urban Wage Earners and Clericals have increased 3.3%.

Indeed, New Jersey and, in particular, Monmouth County, represent one of the fastest growing and stable economic areas in the United States. The following tables, provided by the United States Department of Labor Statistics, show State and County economic figures for the last several months. Indeed, New Jersey and, in particular, Monmouth County, represent one of the fastest growing and

stable economic areas in the United States. The following tables, provided by the United States Department of Labor Statistics, show State and County economic figures for the last several months.

NEW JERSEY	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00
Labor Force Data						
Civilian Labor Force	4246.1	4240.2	4225.6	4224.6	4243.5	4222.9
Employment	4083.6	4078.2	4080	4067.4	4074.3	4061
Unemployment	162.5	162	145.7	157.2	169.3	161.9
Unemployment Rate	3.8	3.8	3.4	3.7	4	3.8
Nonfarm Wage and Salary Employment						
Total	3923.3	3934.9	3932.9	3920.4	3918.9	3933.5
12 month % change - total	1.8	1.9	1.8	1.3	1.2	1.4
Mining	2.1	2.1	2.1	2	2	2.1
12 month % change - Mining	5	0	0	0	-4.8	0
Construction	143.1	144.1	144.6	145.1	145.4	146.6
12 month % change Construction	4.5	5.2	5.5	5.5	5.8	6.5
-						
Manufacturing	462.8	462.6	462.4	460.4	458.9	456.2
12 month % change Manufacturing	-1.3	-1	-0.9	-1.3	-1.2	-1.8
-						
Transportation and Public Utilities	265.3	263.7	263.5	262	256.9	261.8
12 month % change - Transportation & Pub. Utilities	0.6	0.3	0	-0.4	-2.5	-0.6
Trade (wholesale and retail)	926.6	926.5	925.2	924.5	926.3	928.2
12 month % change - Trade	2.7	2.5	2.2	1.9	2	2
Finance, Insurance, Real Estate	260.9	261.2	260.8	261.3	261.9	262.7
12 month % change Finance, Ins., Real Estate	1.8	2	1.8	1.8	1.8	1.9
-						
Services	1283.4	1287.2	1291.8	1292.1	1297.5	1299.3
12 month % change - Services	2.2	2.1	2.2	2	2.3	2.3
Government (Fed., State, Local)	579.1	587.5	582.5	573	570	576.6
12 month % change - Government	1.6	3	2.2	0.4	0.1	0.8

MONMOUTH-OCEAN NJ	May-00	Jun-00	Jul-00	Aug-00	Sep-00
Labor Force Data					
Civilian Labor Force	526.6	542.4	548.8	543.5	522.6
Employment	508.9	524.7	527.6	524.6	505.4
Unemployment Rate	17.6	17.7	21.2	18.9	17.2
	3.4	3.3	3.9	3.5	3.3
Non-farm Wage and Salary Employment					
Total	384	395.7	395.7	393.2	385.1
12 month % change - Total	1.7	1.7	1.1	0.8	1.2
Construction and Mining	19.4	20	20.3	20.2	20.4
12 month % change	3.2	3.1	2.5	3.6	4.6
- Construction, Mining					
Manufacturing	20	20.2	19.9	19.8	19.7
12 month % change	-1.5	-1.5	-2.5	-2.5	-1.5
- Manufacturing					
Transportation and Public Utilities	19.8	19.8	18.9	18.1	19.7
12 month % change - Transportation & Pub. Utilities	-0.5	-0.5	-0.5	-4.2	0
Trade (wholesale and retail)	102.9	107.3	109	108.9	105.8
12 month % change - Trade	1.4	1.7	1.7	1.2	1.5
Finance, Insurance, Real Estate	18.7	19.1	19.4	19.3	18.7
12 month % change	0.5	0.5	1	1.6	0.5
- Finance, Ins., Real Estate					
Services	136.6	141.6	143.8	143.4	137.9
12 month % change - Services	2	2.5	1.9	1.9	1.5
Government (Fed., State, Local)	66.6	67.7	64.4	63.5	62.9
12 month % change - Government	3.4	1.5	-0.3	-0.9	0
Consumer Price Index: New York-Northeastern NJ-Long Island-NY-NJ-CT					
CPI-U All items 12 month % change	3	2.9	3.2	3.1	3.5
CPI-W All items 12 month % change	3.2	3.2	3.4	3.1	3.5

The following table, taken from the U. S. Census Bureau, provides a breakdown of the overall population in New Jersey, some informative facts on home ownership, and basic business information.

NEW JERSEY

People Quick Facts

	<i>New Jersey</i>	<i>USA</i>
Population, 1999 estimate	8,143,413	272,690,813
Population percent change, 1990-1999 estimate	5.10%	9.60%
Male population, 1998 estimate	3,930,865	132,046,334
Female population, 1998 estimate	4,184,146	138,252,190
Population under 18 years old, 1998 estimate	24.50%	25.80%
Population 65 years old and over, 1998 estimate	13.60%	12.70%
White population, 1998	79.50%	82.50%
Black population, 1998	14.60%	12.70%
Asian or Pacific Islander population, 1998	5.60%	3.90%
American Indian, Eskimo, or Aleut population, 1998	0.30%	0.90%
Hispanic population, 1998	12.40%	11.20%
White non-Hispanic population, 1998	68.80%	72.30%
High School graduates, persons 25 years and over, 1990	76.70%	75.20%
College graduates, persons 25 years and over, 1990	24.90%	20.30%
Homeownership rate, 1990	64.90%	64.20%
Single family homes, number 1990	1,871,958	65,761,652
Households, 1990	2,794,316	91,993,582
Persons per household, 1990	2.71	2.63
Family households, 1990	2,037,787	65,049,428
Median household money income, 1995 model based	\$44,345	\$34,076
Persons below poverty, percent, 1995 model based	8.70%	13.80%
Children below poverty, percent, 1995 model based	12.60%	20.80%

Business Quick Facts

	<i>New Jersey</i>	<i>USA</i>
Private nonfarm establishments, 1997	229,349	6,894,869
Private nonfarm employment, 1997	3,300,923	105,299,123
Manufacturers shipments, 1997 (\$1000)	97,060,800	3,842,061,405
Retail Sales, 1997 (\$1000)	79,914,892	2,460,886,012
Retail Sales per capita 1997	\$9,922	\$9,190
Minority-owned firms, 1992	64,074	1,965,565
Women-owned firms, 1992	164,798	5,888,883
Building Permits, 1999	31,976	1,663,533

Federal funds and grants, 1998 (\$1000)	1998 (\$1000)	40,372,551	1,471,379,124
Local government employment-full-time equivalent, 1997		298,363	10,227,429

Geography Quick Facts

	<i>New Jersey</i>	<i>USA</i>
Land area, 1990 (square miles)	7,419	3,536,278
Persons per square mile 1999	1,097.70	77.1

Demographic Overview

Northern Monmouth County has a workforce of 63.9% between the ages of 18 and 64 years old, with 24.9% under 17 years and 11.1% over 65 years. The projected population growth rate for Northern Monmouth is 3.8% between 1995 and 2010. It is estimated that 42.9% of Northern Monmouth residents commute at least one-half hour or more to work. These figures and the tables below are from the U.S. Census Bureau, as provided by the Northern Monmouth Chamber of Commerce.

Population 1990:	162,268	1996: 166,810	% change:	2.80
Land Area:	78 square miles	Population per square mile 1996:		2131
Housing Units 1995:	60112	Housing Units per square mile:		768
Persons employed 1995:	84101	Per Capita Income 1989:		\$24,500

Commuting

Method

Drives alone	73.20%
Carpooled	11.10%
Bus or Trolley bus	4.70%
Railroad	4.50%
Ferryboat	0.30%
Walks to Work	2.30%
Works at home	3.10%
Other means	0.90%

Time Spent Commuting

Under 15 minutes	28.30%
15 to 29 minutes	25.70%
30 to 59 minutes	26.10%
60 to 89 minutes	11.60%
90 or more minutes	5.20%

Works at home 3.10%

Education (persons 25 years and over)

Less than 9th grade	5.80%
9 th to 12 th grad, no diploma	12.80%
High School grad. (incl. Equiv.)	32.00%
Some College, No Degree	18.10%
Associate Degree	6.20%
Bachelor's Degree	15.60%
Grad. Or Prof. Degree	9.60%

Occupation (age 16+)

Managerial/Professional	32.00%
Executive, Admin. Managerial, Professional	16.50%
Professional	15.50%
Tech., Sales Admin. Support	34.80%
Technicians & related support	3.90%
Sales	13.40%
Admin. Support (incl. Clerical)	17.40%
Service	10.80%
Farming, Forestry, and Fishing	0.90%
Precision Prod., Craft & repair	10.90%
Op., Fabricators & Laborers	10.50%

Housing

Monmouth County is ranked one of the top places to live in the Northeast. Monmouth boasts 53 towns, 27 miles of Atlantic coastline, and a residential growth rate that is nearly double that of the State average. In 1998, Monmouth County authorized over 3100 new, privately owned residential housing units for construction. The Rehabilitation Alternative does not allow for residential use, so there is no impact to the housing market for the area.

The following table illustrates the median housing values in Monmouth County in 1999.

MEDIAN HOUSING VALUES-1999

Monmouth County Average **\$180,400**

Aberdeen	157,700	Long Branch	149,100
Allenhurst	350,000	Manalapan	220,300
Allentown	150,400	Manasquan	184,900
Asbury Park	102,900	Marlboro	245,200
Atlantic Highlands	172,800	Matawan	182,200
Avon-by-the-Sea	247,200	Middletown	187,700
Belmar	166,600	Millstone	252,400
Bradley Beach	156,800	Monmouth Beach	248,900
Brielle	243,400	Neptune	136,800
Colts Neck	369,800	Neptune City	124,200
Deal	493,000	Ocean	189,300
Eatontown	166,700	Oceanport	196,600
Englishtown	125,800	Red Bank	155,400
Fair Haven	221,900	Roosevelt	133,800
Farmingdale	155,700	Rumson	349,700
Freehold Borough	137,600	Sea Bright	198,200
Freehold Township	204,500	Sea Girt	415,600
Hazlet	164,600	Shrewsbury Boro	196,900
Highlands	131,600	Shrewsbury Twp.	87,000
Holmdel	347,300	South Belmar	129,100
Howell	158,300	Spring Lake	412,000
Interlaken	275,000	Spring Lake Hgts.	187,700
Keansburg	112,100	Tinton Falls	167,400
Keyport	133,000	Union Beach	124,600
Little Silver	237,600	Upper Freehold	202,200
Loch Arbour	275,000	Wall	190,800
		West Long Branch	196,500

Traffic

The only access link connecting Sandy Hook to the regional highway network is State Route 36. The highway meanders along a portion of the New Jersey's northeast shoreline between Long Branch to the south and Keyport to the north. It provides several coastal communities with access to the Garden State Parkway at Exit 105 to the south and 117 to the north. The Route 36 alignment includes a Bascule (draw) Bridge, which provides a vital link across the Shrewsbury River between the mainland (Highlands) and recreational/residential/commercial developments on the peninsula. About two miles south of the Highlands Bridge, Route 36 intersects with County Road 520, which crosses the Shrewsbury River at the Sea Bright – Rumson Bridge.

The Route 36 Highlands Bridge opened to traffic in 1933. The bridge is functionally obsolete; its equipment is unreliable and is scheduled for replacement by the State of New Jersey with Federal funding beginning in 2006. A number of bridge replacement alternatives have been evaluated and the State's Initially Recommended Alternative is replacement with a 65' high fixed span bridge.

Six intersections in the Route 36 corridor generally represent the Level of Service (LOS) for the entire route. Level of Service describes operating conditions at intersections based on the average delay per vehicle in seconds. Conditions are represented by letters ranging from "A" for unrestricted free-flow through "F" for congested conditions. The six representative intersections are:

- Broad Street in Keyport
- Main Street in Middletown
- First Avenue in Atlantic Highlands
- Navesink Avenue in Highlands
- Miller Street in Highlands
- Route 520 in Sea Bright

Currently, during the weekday morning peak hour, traffic on Route 36 traveling in both directions operates at LOS D or better. NJ Department of Transportation considers LOS D or better to be an acceptable level of service. The highest congestion levels generally occur along the left-turn lanes of the local streets where almost all movements operate at LOS D or worse.

During the weekday PM peak hour, eastbound traffic on Route 36 operates at LOS D or better. In the westbound direction, traffic operates at LOS C or better. Traffic operations on the cross streets are more congested. Traffic along several approaches including the northbound and southbound approaches at Broad Street, at Main Street and at First Avenue operate near or at capacity. Congested conditions are also experienced along the left-turn lanes at the southbound approach to Navesink Avenue and the northbound approach of Route 36 at Route 520.

Weekend traffic conditions are more congested along the cross streets where LOS D or worse is experienced. The longest delays are found at Broad Street, Main Street, and First Avenue where LOS F conditions occur in the peak hour.

Ferries provide an alternate means of transportation to Manhattan for many local area commuters. Over the last five years, weekend ferry service has been offered directly to Fort Hancock from New York City carrying an average of 5,000 visitors each year. During the summer of 2003, "park and sail" service will be provided to the park from the Belford Ferry Terminal on a demonstration basis. This service is intended to alleviate traffic congestion throughout the summer but especially on the 6 to 9 peak summer days when beach parking lots at Sandy Hook are filled.

New Jersey Transit bus lines serve the local communities with stops in both Sea Bright and Highlands. Neither of the two existing lines make stops within the park. If bus service was expanded in the area, traffic congestion along Route 36 would be further alleviated.

D. VISITOR AND PARTNER EXPERIENCE

Between 2.2 and 2.5 million people a year visit Sandy Hook; approximately 500,000 of those tour Fort Hancock. Perhaps 80% of these visitors experience the fort on their own, either by driving or strolling around the grounds. Unlike the rest of Sandy Hook, which is busiest during the summer beach season, visitation in the Fort Hancock area is more evenly divided throughout the spring, summer and fall. The National Park Service operates a number of sites open for touring on weekends through much of the year including the Fort Hancock Museum (also open daily in summer), the Sandy Hook Lighthouse, History House and Battery Potter. Over 50,000 visitors per year tour these National Park Service staffed sites.

The Park's General Management Plan calls for relocating the primary Sandy Hook Visitor Center from the Spermaceti Cove Life-Saving Station, three miles south of Fort Hancock, to Building 25 in Fort Hancock. Architectural evaluation and exhibit planning began in 2002.

The National Park Service now has cooperative type agreements or special use permits with a variety of environmental and educational organizations for approximately twenty historic Fort Hancock buildings. Some Fort Hancock partners provide educational services or public programming. These include Brookdale Community College, the Marine Academy of Science and Technology (MAST) High School and the NJ Marine Sciences Consortium. The focus of all these organizations is on education. MAST is a Monmouth County magnet high school with a full time enrollment of 230 students interested in marine study. Brookdale offers undergraduate oceanography classes throughout the year. The Brookdale Ocean Institute and the NJ Marine Sciences Consortium offer daytime programs on environmental topics for visiting school groups in ages K through 12. In total, over 30,000 students attend these programs. Other Fort Hancock partner groups are involved with marine or coastal research and protection. These include the Howard Marine Fisheries Laboratory, the American Littoral Society and Clean Ocean Action. The NJ Audubon Society recently rehabilitated a historic quarters along Officers' Row as the Sandy Hook Bird Observatory. The Sandy Hook Foundation, in cooperation with the NJ Lighthouse Society, is rehabilitating the Sandy Hook Keepers' Quarters as offices and a public museum on New Jersey Lighthouses that is expected to open in Spring 2004. None of the buildings used by these partners are included in the proposed historic leasing program.

Since the early 1980s the National Park Service has offered a number of Officers' Row houses for summer seasonal rental to non-profit organizations. The intent of the program was to utilize these historic structures to provide low cost public recreational opportunities until the time when the buildings could be rehabilitated. Each year the buildings along Officers' Row were inspected and those that could safely accommodate public use were offered for the season.

When the program began in the early 1980s sixteen Officers' Row buildings were offered, but over the years increased deterioration has resulted in the removal of a number of buildings from the program. In summer 2000, eight buildings were offered for summer rental and used by approximately 6000 visitors. In anticipation of the historic leasing program, the program was not offered in summer 2001.

E. UTILITIES

Ocean storms interrupt electrical power to the district multiple times per year. Currently, the southern section of the park is served by an overhead, single-feed, radial connection from a transformer at the south end of the peninsula. When a short-circuit occurs in this radial system, power is out to large segments of the park. A more reliable and preferred system is a primary/secondary loop.

A primary/secondary loop system exists in the northern (Fort Hancock) section because of upgrades over the last twenty-five years. An important feature of the existing system is a "service entrance" at each building. This means that underground service line corridors exist throughout the district that connect all buildings, including utility facilities (see Figure 14). A potable water production and distribution system exists, providing service to all buildings. Water pressure is adequate for current use, however a project is underway to upgrade waterflow for better sprinkler and fire protection. No natural gas or advanced telecommunications utility service exists. Telephone service originates at a receiving dish on US Coast Guard property, and then runs south the length of the peninsula.

A sustainable design for clean and efficient power systems will be incorporated in the plan. Electrical components for end user fixtures such as light controls and all related operating equipment will be designed for energy management and control systems.

V. ENVIRONMENTAL CONSEQUENCES

The National Environmental Policy Act (NEPA) requires that environmental documents disclose the environmental impacts of the proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. This section analyzes the environmental impacts of the two alternatives on cultural resources, natural resources, socio-economics, and visitor and partner experience. These analyses provide the basis for comparing the effects of the alternatives. The NEPA requires consideration of context, intensity and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate for impacts. For an illustration of the "area of potential effects," see Figure 1.

A. METHODOLOGY

The following definitions were used to evaluate the context, duration, intensity, and cumulative nature of impacts associated with project alternatives:

Context is the setting within which an impact is analyzed, such as society as a whole, the affected region, the affected interests, and/or a locality. In this EA, the intensity of impacts generally are evaluated within a local (i.e., Fort Hancock area) context, while the intensity of the contribution of impacts to cumulative effects are analyzed in a park-wide or regional context.

Duration is a measure of the time period over which the effects of an impact persist. The duration of an impact may be:

Short-term – the impacts last less than three years; or

Long-term – the impacts last three years or longer.

Cumulative Impact is the impact on the environment that results from the incremental (i.e., additive) impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of who undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts analyzed in this EA consider the effects of the No Action and Rehabilitation Alternatives incrementally with past, current, and future actions.

Intensity is a measure of the severity of an impact. The assessment of impacts on cultural resources and historic properties was made in accordance with regulations of the Advisory Council on Historic Preservation (36 CFR 800) implementing Section 106 of the National Historic Preservation Act. Following a determination of the areas of potential effect, cultural resources were identified within these areas that are either listed in or eligible for listing in the National Register of Historic Places.

An assessment was made of the nature and extent of effects on cultural resources anticipated from implementing proposed undertakings. Cultural resources can be affected by actions that alter in any way the attributes that qualify the resources for inclusion in the National Register. Adverse effects can result when the integrity of a resource's significant characteristics is diminished. Consideration was given to the effects anticipated at the time and place of the undertaking and to indirect effects with potential to occur at a later time and distance. To provide consistency with requirements of NEPA, the effects on cultural resources are also described in terminology intended to convey the duration, intensity and beneficial/adverse nature of potential impacts. The intensity of impacts on cultural resources is defined as follows:

Negligible –The impact is barely perceptible and not measurable. The undertaking does not appreciably diminish significant character-defining attributes of historic properties (including the informational potential of archeological resources).

Minor –The impact is perceptible and measurable. The effects remain localized and confined to a single element contributing to the significance of a larger national register property/district, or archeological site(s) with low to moderate data potential.

Moderate –The impact is sufficient to alter character-defining features of historic properties, generally involving a single or small group of contributing elements, or archeological site(s) with moderate to high data potential.

Major –The impact results in a substantial and highly noticeable change in character- defining features of historic properties, generally involving a large group of contributing elements and/or individually significant property, or archeological site(s) with high to exceptional data potential.

The following definitions were used to determine the intensity of impacts on natural resources, socio-economics, and visitor and partner experience:

Negligible –The impact is localized and at the lower levels of detection.

Minor –The impact is localized and slight but detectable.

Moderate –The impact is readily apparent and appreciable.

Major –The impact is severely adverse and highly noticeable.

B. EFFECTS OF THE NO ACTION ALTERNATIVE

Impacts on Cultural Resources

The following sections describe the effects of the No Action Alternative on cultural resources, including effects on individual components of the district (archeology, buildings and structures, circulation and cultural landscape); and on the National Historic Landmark District as a whole.

Impacts on Archeology

There would be no direct impacts to below ground resources, which are somewhat protected from disturbance and deterioration. Because there are no proposed actions that threaten resources under this alternative, there also would be no mitigation measures taken that might protect any aboveground resources that are not protected in situ. Weather, the unintentional actions of visitors unaware of the cultural value of the resource, and vandalism would continue to impact these types of artifacts (for example, the remnant foundation of an historic structure).

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected and continue to affect the archeological resources of the District. Disturbance has occurred continuously throughout the pre-historic and historic periods at Sandy Hook. This practice slowed considerably when the resources came under the management of NPS, an entity whose mission includes their protection. This mission also includes the acquisition of knowledge about these resources that is valuable to American society. Archeological testing programs have been conducted over the past twenty-five years in response to various park development projects and other park operations. Ground disturbance has continued, but so has the acquisition of knowledge. Archeology slowly has produced information about pre-historic and historic human activity.

Mitigation

No mitigation for below ground resources. The park will continue to its efforts to protect aboveground resources from the affects of weather, inadvertent damage by visitors, and vandalism. It will continue its on-going program of survey and information acquisition.

Conclusions

The No Action Alternative would have a long-term, negligible impact on existing archeological resources.

Impacts on Buildings and Structures

The effects of a minimal maintenance program on and inadequate use of each individual building would become more visible as more and more significant fabric is lost. Masonry and exterior woodwork would continue to deteriorate, water intrusion into interiors would increase, thus exacerbating the deterioration of interior character-defining features, and the affects of extreme heat and cold inevitably would exact a severe toll. Structural failure of several buildings, including the Officers' Club, would be expected within five years.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected and continue to affect the buildings in the area of proposed action. These actions include:

Restoration of the Lighthouse: The restoration of this National Historic Landmark was completed in 2000. The tour of the lighthouse brings people into the park and into Fort Hancock. The restoration of the lighthouse and the planned rehabilitation of the Keeper's Quarters make a positive contribution to the integrity of the District.

- Rehabilitation of the Theater: The partial restoration of theater and its upgrade to meet accessibility codes contribute positively to the integrity of the District.

- Rehabilitation of Buildings 25, 58, 76, 119 and 120: Completed in 2001, Mess Hall Building 58 was rehabilitated for use as offices. Firehouse 76 and Barracks 119 were completed and are in use.

Rehabilitation of Barracks Buildings 25 and 120 are in progress. These projects contribute positively to the District by restoring historic fabric and finding a new use for currently vacant buildings.

- Benign neglect: Funding for maintenance and rehabilitation of buildings at Fort Hancock has not kept pace with the needs of the buildings. As a result, the practice of benign neglect has resulted in the loss of some historic fabric, including the loss of specific elements such as cornices, porch railings, slate roofs and other details. Funding for repair and maintenance of under utilized and/or vacant buildings is limited. The current lack of funding and the practice of not repairing significant fabric would result in the continued degradation of the integrity and condition of these historic resources.

Mitigation

Given the level of park operations funding, no significant mitigation is possible. Prior to the loss of any additional character-defining features, NPS would document the buildings in the District to the standards of the Department of the Interior's Historic American Buildings Survey\Historic American Engineering Record.

Conclusions

The No Action Alternative would have a major, long-term, impact on the historic buildings in the Fort Hancock and Proving Ground National Historic District. The continued loss of significant, character-defining features is guaranteed. The deterioration of the buildings would result in a substantial and highly noticeable change in character-defining features of a large group of elements that contribute to a larger property.

Impacts on Circulation

Under the No Action Alternative, there would be impacts on historic walkways. Brick and bluestone walkways would continue to crack and heave from the freeze/thaw cycle, resulting in a hazardous walking surface and, eventually, in a loss of historic fabric.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected and continue to affect walkways in the park. Both brick and bluestone walkways have cracked and heaved from lack of cyclic repair and replacement, and continue to do so today. Small sections of walkways were removed in the past. The No Action Alternative would contribute to the trend of impacts on historic walkways.

Mitigation

Given the level of park operations funding, no mitigation is possible.

Conclusions

This alternative would have minor, long-term impacts on walkways. The degradation of the walkways would be both perceptible and measurable, would remain localized, and would affect a single element that contributes to a larger property.

Impacts on Cultural Landscapes

Under the No Action alternative, there would be no changes to the cultural landscape.

Cumulative Effects

The past and current practice of not replacing lost historic trees would continue. Existing streetlights and utility boxes would be replaced and walkways repaired on an as needed basis. This would result in the continuing degradation of the condition and integrity of the cultural landscape.

Mitigation

There will be no impairment of park cultural landscape resources.

Conclusions

The No Action alternative would have a minor long-term impact on the cultural landscape.

Conclusions Concerning Aggregated Impacts of the No Action Alternative on the Cultural Resources of the National Historic Landmark Property

As indicated by the evaluations of affects on individual and specific elements contributing to the District described in the sections above, the No Action Alternative would have a major, long-term impact on the National Historic Landmark property. The overall environmental consequence of the alternative would affect both historical integrity and physical condition. There would be a substantial and highly noticeable change in character-defining features that involves a large group of elements that contribute to the significance of the property. Consideration of the National Register "aspects of integrity" support this perspective.

Consequences of actions would degrade the overall **design** of the district. As buildings and trees are lost, spatial relationships between major features would become disrupted. Visual rhythms stemming from the loss of circulation features and ornamental vegetation planting patterns, would cease to flow. Principle and important common open-spaces, delineated by the alignment and layout of buildings and trees, would lose their form. Important views to and from buildings, and across open-spaces, would be lost; as would vistas down roads and between rows of trees.

As the historic buildings and walkways deteriorate, distinctive **materials**, such as yellow brick masonry and bluestone slabs, would be lost.

Evidence of **workmanship** would be lost as character-defining architectural features deteriorate and are not repaired.

The sense of the historical period of significance, the **feeling** of the place, would dissolve slowly under the No Action Alternative. As more historic circulation, building, and cultural landscape features deteriorate and are lost, so too would the military feeling of the landscape. After some number of years of continued deterioration, the physical features of the National Historic Landmark would not remain sufficiently intact for the property to convey its **association** with significant historic events.

Impacts on Natural Resources

The following section describes the effects of the No Action Alternative on natural resources, including air quality, water quantity, wetlands, shrub-lands, sand dunes, and wildlife.

Impacts on Hazardous Materials

Under this alternative, lead paint on interior and exterior surfaces of unoccupied and irregularly occupied buildings would not be contained through the practice of cyclic maintenance. Levels of maintenance have the greatest affect on lead containment. When repainting occurs at regular intervals,

lead paint is contained, and therefore does not become a hazardous substance. When paint is not maintained, it deteriorates and the lead may leach into soils and air.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected and continue to affect hazardous materials in the park. Cyclic painting of unoccupied and irregularly occupied buildings has not occurred over the last twenty-five years.

Mitigation

The lead testing completed to date appears to have been in response to concerns surrounding residential buildings and children. Young children are the segment of the population at the highest risk for lead poisoning. All residential structures should be tested and recommendations for encapsulation and/or abatement made based on current New Jersey state laws. Given the park's current level of funding, no other mitigation is possible.

Conclusions

The proposed No Action Alternative would have minor, long-term impact on hazardous materials (lead paint) in the park. The current level of maintenance would allow the remaining lead paint to deteriorate.

Impacts on Water Quantity

Under the No Action Alternative, there would be no change in the quantity of water used or the quantity of wastewater produced at the park. Park residents and visitors would continue to use approximately 60,000 gallons of water per day in winter and approximately 110,000 gallons of water per day during the summer. An equivalent amount of wastewater would continue to be treated and discharged into existing ponds immediately south of the Gunnison Parking Lot.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected water quantity at the park. Decades ago, the Army constructed the existing water storage and distribution system and maintained it until the NPS took over the park property in 1974. Since designation of the Sandy Hook Unit, park staff have maintained the system, although the quantity of water required to support current residents is far less than the amount needed to support the fully staffed military installation at its peak occupation in the 1940s. In addition to maintenance of the existing distribution system, the NPS constructed a new wastewater plant that treats water to near drinking water standards.

Hardened surfaces affecting water runoff have been created and removed by both military and NPS activities over the years. In addition, structures have been removed increasing surface area for rainwater to percolate.

The No Action Alternative would not contribute to cumulative actions affecting the quantity of water used or effluent produced at the park.

Mitigation

No mitigation is proposed, as no additional impact to water quantity would occur under the No Action Alternative.

Conclusions

The No Action Alternative would not affect the quantity of water or effluent produced at the park.

Impacts on Natural Vegetation

Under the No Action Alternative, natural vegetation would not be affected. Approximately five acres of unmaintained grassland and approximately forty acres of maintained lawn would persist in the Fort Hancock area at their present locations.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected shrub-lands at the park. Since development of a military reservation at the park in the 1800s, the Army has constructed and deconstructed numerous buildings and undertaken a variety of ground-disturbing activities. Evidence of such activities is particularly apparent at Fort Hancock in areas that once supported numerous barracks and a coal yard east of the Athletic Field. However, the natural vegetation on similar areas that once were maintained as lawn or that supported structures has been allowed to succeed, and can be found adjacent to Parking Lot K. These areas exist throughout the park, including several surrounding the North Maintenance yard.

In addition to Army actions, the NPS has undertaken projects that have cleared land temporarily at the park. For instance, an area several acres in size located along the bayside coastline north of Spermaceti Cove was used as a temporary staging area many years ago. Although the area remains disturbed and a network of unpaved roads is visible at the site, a variety of grasses dominated by common reed have colonized the area, as well as sparsely distributed woody species, such as cedars and poison ivy.

The No Action Alternative would not contribute to cumulative actions that have affected successional grasslands at the park.

Mitigation

No mitigation is proposed, as no additional impacts to successional grasslands would occur under the No Action Alternative.

Conclusions

The No Action Alternative would not affect successional grasslands.

Impacts on Osprey

Under the No Action Alternative, Ospreys would not be affected. Birds would continue to nest in established locations throughout the park and may re-establish nesting sites atop buildings within the District.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected Ospreys at the park. Construction of military facilities affected Osprey by reducing the historic extent of maritime forest at the park, resulting in the loss of potential nesting sites in larger trees and snags. In addition, noise and activities associated with military activities and park visitation affect Osprey nesting patterns and behavior. Since the park's designation in 1972, the NPS has constructed thirteen artificial platforms throughout the park to encourage Osprey nesting and enhance breeding success. Over the years however, several of those nesting platforms have deteriorated and seven platforms currently need repair.

At least one future project planned at the park could affect Osprey near the project area. Depending on placement and timing, noise and activity associated with construction of the multi-use path from the park's entrance to Fort Hancock could disrupt Osprey nesting and rearing activities.

The No Action Alternative would not contribute to cumulative actions that have affected Ospreys at the park.

Mitigation

No mitigation is proposed, as no additional impacts to Ospreys would occur under the No Action Alternative.

Conclusions

The No Action Alternative would not affect Ospreys.

Impacts on Wild Wormwood

Under the No Action Alternative, Wild Wormwood would not be affected. Plants would continue to persist within established areas in the project area and may extend their range further within unmaintained sites in the Fort Hancock area.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected Wild Wormwood at the park. Wild Wormwood is a disturbance-adapted species that readily colonizes disturbed areas that do not support a dense woody overstory. Throughout the decades, a variety of activities conducted by the Army and the NPS have created a habitat suitable for supporting this species. Such activities include temporary construction and disturbance along roadsides and in developed areas that subsequently are permitted to convert to successional or unmaintained grasslands. Such areas are common throughout the park, including areas adjacent to Hartshorne Drive and the North Maintenance Area. Although ground-disturbing activities create a habitat suitable to support Wild Wormwood, such actions also have destroyed existing plants and affected populations throughout the park.

The No Action Alternative would not contribute to cumulative actions that have affected Wild Wormwood at the park.

Mitigation

No mitigation is proposed, as no additional impacts to Wild Wormwood would occur under the No Action Alternative.

Conclusions

The No Action Alternative would not affect Wild Wormwood.

Impacts on Piping Plover

Under the No Action Alternative, Piping Plovers would not be affected. Plovers would continue to nest on park beaches without the affects of a possible increase in visitation.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected Piping Plover at Sandy Hook. Natural beach dynamics and replenishment projects have resulted in changes to nesting habitat. Management activities by park staff including monitoring, fencing, signing, staffing nest areas, and predator control have all had effects on the success of nesting Piping Plover. Various construction projects including beach center developments have required mitigation measures to avoid affects to Piping Plover.

The No Action Alternative would not contribute to cumulative actions that have affected Piping Plovers at the park.

Mitigation

No mitigation is proposed, as no additional impacts to Piping Plover would occur under the No Action Alternative.

Conclusions

The No Action Alternative would not affect Piping Plover.

Impacts on Socio-economics

There would be no impacts on the socio-economics in the Monmouth County region, including positive impacts. Under the No Action Alternative, there would be no temporary increase in construction jobs to the region, no new permanent jobs created, and no increase in retail customers spending dollars with local businesses.

Additionally, there could be other economic factors triggered by allowing the facilities of the region's premier attraction, Sandy Hook, to deteriorate. This alternative would result in the historic structures falling into disrepair, which could cause the park to lose revenue – revenue that is needed to repair and maintain other facilities within the park. The erosion of the services and facilities in the park would directly affect visitation to Sandy Hook, and tourism dollars to the region.

Cumulative Effects

Tourism is one of the most important socio-economic engines of the New Jersey shore, including Monmouth County. Since its establishment in 1972, the park has been a substantial contributor to this engine.

Mitigation

No mitigation is proposed.

Conclusions

The No Action Alternative would have long-term, minor impacts on the socio-economics of the Monmouth County region.

Impacts on Traffic

Under the No Action Alternative, impacts on local traffic from reuse of Fort Hancock would be negligible. Analysis of traffic impacts for this alternative includes all future planned development projects of record in the area plus background growth but not the Fort Hancock rehabilitation proposal. The results show that LOS for Route 36 approaches would decline to D at several locations, including at Broad Street (westbound direction, weekday, AM peak hour), at Main Street (westbound direction, weekday AM peak hour), and at Route 520 (northbound and southbound directions, weekday AM peak hour). LOS would decline from D to E along Route 36 eastbound approach to Broad Street during the PM peak hour. LOS at local street approaches would also decline.

Cumulative Effects

A variety of past, present and reasonably foreseeable actions have affected and continue to affect traffic on the local highway network. Continued generalized growth in the area as well as development projects in the Route 36 corridor previously approved by the county will lead to a continued deterioration in the Level of Service of representative intersections along the highway. Without rehabilitation Fort Hancock would not contribute to this condition.

Mitigation

The No Action Alternative would have minimal affect on traffic and therefore no mitigation would be necessary or proposed.

Conclusions

The combination of ordinary background traffic growth and additional traffic generated by private residential/commercial developments in the area will cause the LOS along Route 36 to decline to an unacceptable level at some intersections unless physical improvements to the roadways are made.

Impacts on Visitor and Partner Experience

Under the No Action Alternative the present level of visitor activity may decline slightly, with only limited changes in the present use of buildings. As the aesthetic appeal and "sense of place" of the District, which stem from its historic buildings and other important landscape features (such as historic trees), gradually continue to deteriorate, so will the experience of visitors who come for recreational and educational benefits.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected the visitor and partner experience at the park. The proposed relocation of the Visitor Center to Fort Hancock and the ongoing development of public museums by the Sandy Hook Foundation and the New Jersey Audubon Society would increase visitor awareness and activity in the fort complex. The Visitor Center in particular would provide a focal point for individual and group visitation.

Under the No Action alternative the Officers' Row summer leasing program would continue, but the number of buildings offered would continue to decline because of deteriorating conditions. It is likely that within five years no buildings would be available. The other vacant buildings at Fort Hancock would be unavailable to visitors who would continue to experience them only from the exterior, and the continuing deterioration of vacant historic structures would have a negative affect on the experience of the casual visitor. The long-term impact of the loss of entire buildings because of deterioration would have a significant impact on visitor enjoyment and understanding of the fort.

Mitigation

Outdoor wayside exhibits around the grounds of the District would be developed that would focus on interior activities and conditions in vacant and empty buildings. This would provide this information and experience to visitors who stroll the grounds.

Limited access to certain vacant buildings would be provided to visitors through controlled tours. Safety would be the primary concern in bringing visitors into these areas.

Conclusions

The No Action alternative would have a long-term moderate impact on the visitor and partner experience.

C. EFFECTS OF THE REHABILITATION ALTERNATIVE

Impacts on Cultural Resources

The following sections describe the effects of the preferred Rehabilitation Alternative on cultural resources, including effects on landscape components of the district such as archeology, buildings and structures, circulation, and the cultural landscape on the National Historic Landmark as a whole.

Impacts on Archeology

The Rehabilitation Alternative would require a number of construction and ground disturbing activities. These would include constructing or enlarging a number of parking lots, constructing two new buildings, minor landscaping modifications, installing new signs, and upgrading underground water, electrical, and telecommunication utilities. Other associated activities, such as watering and fertilizing lawns, increasing the number of people walking over a site, or spreading new topsoil, may impact resources in ways that initially are difficult to detect. Watering may produce moisture changes in the soil resulting in degradation of artifacts. An increased public presence may cause more artifacts to be crushed or removed from a site. Imported topsoil may contain artifacts from other areas that confuse the archeological record of the local site.

Cumulative Effects

Numerous construction activities at Sandy Hook throughout its entire history have degraded archeological resources. Most destructive were those performed by the military from the mid- 19th to mid-20th centuries, when areas were highly impacted to create a functional military establishment. In more recent years, NPS has made numerous facility improvements throughout the District.

Mitigation

Based on previous archeological investigations, disturbance and geomorphological factors already identified, the project area may be classified into three levels of probability for encountering archeological resources. Sections of the project area with high probability would require some surface archeological testing prior to construction and possible monitoring during construction. Moderate probability sections would require monitoring by an archeologist during construction activities involving earth moving. Low probability sections would not require on-site monitoring. However, should construction activity lead to the discovery of cultural resources such as artifacts, features, or ordnance, the park's cultural resource representative or the contracting officer's representative would be notified and action consistent with 36 CFR, 800.12 would be taken.

Conclusions

The Rehabilitation Alternative would have a long-term, minor impact on existing archeological resources. Most proposed actions will be in previously disturbed areas. Past archeological investigations undertaken as part of NPS facility development have contributed to the preservation of artifacts, the formulation of historical concepts, and the acquisition of knowledge about the archeological record. As an integral part of the rehabilitation alternative, pre-construction surveys and monitoring during construction would protect and preserve important resources and our capability to acquire new and valuable knowledge.

Impacts on Buildings and Structures

The Secretary of the Interior's Standards for Rehabilitation require that a "property be placed in a new use that requires minimal change to the defining characteristics of a building." As proposed, many of the buildings included in this alternative would change from an historic residential use to office use. Despite their historic use, some of these structures have been leased by the NPS to not-for-profit agencies to be used as offices during the summer season. While code requirements for the change of use would have an impact on the buildings, compliance with the *Secretary's Standards* for the design of the required alterations and/or new facilities, such as egress stairs, would assure minimal impact on the historical integrity of the structures.

As proposed in the Rehabilitation Alternative, all work required for the proposed adaptive use would be completed in conformance with the *Secretary's Standards*. Implementation of the Standards for Rehabilitation assures the retention of existing character-defining features and historic fabric on and in the buildings.

The effects of the rehabilitation on each individual building would be visible in that the buildings no longer would appear deteriorated, but would be perceived as vibrant and renewed. The effects on the District as a whole would be equally beneficial.

Cumulative Effects

- A variety of past, present, and reasonably foreseeable actions have affected and continue to affect the buildings in the District. These actions include:
 - Rehabilitation of the Lighthouse: The restoration of this National Historic Landmark lighthouse was completed in 2000. The tour of the lighthouse brings people into the park and into Fort Hancock. The restoration of the lighthouse and the planned rehabilitation of the Keeper's Quarters makes a positive contribution to the integrity of the historic resource.
 - Rehabilitation of the Theater: The rehabilitation of the Theater and its upgrade to meet accessibility regulations contributes positively to the condition of the historic resource. Under the Rehabilitation Alternative, the rehabilitation of the Theater would be completed.
 - Rehabilitation of Buildings 25, 58, 76, 119 and 120: Completed in 2001, Mess Hall Building 58 was rehabilitated for use as offices by the NPS. Rehabilitation of Barracks Building 119 and Firehouse 76 are completed while Barracks 25 and 120 are in progress. These projects contribute positively to the District by repairing fabric and finding a new use for the vacant buildings.
 - Benign neglect: Funding for maintenance of vacant buildings at Fort Hancock has not kept pace with the needs of the buildings. As a result, the practice of benign neglect has resulted in the loss of some historic fabric. This loss includes elements such as cornices, porch railings, and slate roofs. The current lack of funding and the practice of not repairing significant fabric would result in the continued degradation of the integrity and condition of these historic resources.

The Rehabilitation Alternative would contribute positively to the cumulative impacts on the buildings in the area of proposed actions. Not only would buildings be rehabilitated and maintained, the NPS would be able to focus their limited funds on their operational buildings.

Mitigation

Although the Rehabilitation Alternative would be executed in conformity with the Secretary's Standards, and thus there would be no impact to these contributing elements of the District, the alternative would include the preparation of existing condition drawings as well as photographic documentation to Historic American Buildings Survey standards, prior to the commencement of work.

Conclusions

Because the Rehabilitation Alternative would be executed in conformity with the Secretary's Standards, there would be no negative impact to these contributing elements of the District. The rehabilitation of approximately thirty-seven of 100 buildings in the area of proposed action would have a major, long-term beneficial effect on this important collection of resources.

Impacts on Circulation

Under the Rehabilitation Alternative, the construction of approximately 665 new parking spaces in the area of proposed action would increase both the number of cars parked and circulating in the area. The new and redesigned lots would introduce minor new circulation patterns into the district, but would not impact any existing, historic circulation patterns or features (This and other impacts on cultural features from minor new circulation patterns are discussed on the following pages).

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected, continue to affect, and in the future may affect circulation in the area of proposed action. Known past actions are: the parking lot at Building 35 was expanded by about 15 spaces in the 1980s; and several thousand square feet of concrete walkway was replaced along roads during the 1980s in conjunction with the repaving of roads. No future actions are foreseen at this time that would result in impacts to circulation.

Effects from past and future actions add very little to the collective, cumulative total that would accrue when added to the effects of actions proposed under the Rehabilitation Alternative.

Mitigation

Because there are no impacts to existing historic circulation patterns or features, no mitigation is proposed. Mitigation for impacts caused by the introduction of minor new circulation patterns associated with new or redesigned parking lots are discussed in following sections.

Conclusions

Conclusions about the consequences of newly constructed and redesigned parking lots are discussed in following sections.

Impacts on the Cultural Landscape

Fort Hancock's cultural landscape successfully conveys a sense of past time and place and has a high degree of integrity when considered as a whole. In compliance with Section 106 of the National Historic Preservation Act, detailed recommendations and plans for mitigating any adverse effect to the Fort Hancock landscape must be provided to the New Jersey State Historic Preservation Office (SHPO) to allow them the opportunity to comment. There has been initial consultation with the SHPO on the development of the *Fort Hancock Rehabilitation Guidelines, 1999* and other cultural landscape proposals.

Cumulative Effects

Under the Rehabilitation Alternative, the replacement of missing historic trees and missing foundation plantings would improve the historical character and identity of the Fort Hancock landscape. The proposed installation of an irrigation system would maintain turf and foundation plantings in a lush, green condition during the entire growing season.

Under this alternative, a Lighting Plan for Fort Hancock would be established and implemented. There have been five or six different types of streetlights that provide a record of the evolution of this feature in the Fort Hancock and Proving Ground zones. Only three types are extant (plus one example of a fourth). This indicates a loss of integrity. Depending on the two options presented for action, the lighting would either mimic historic fixtures or introduce a unified contemporary design. In either case, the overall integrity of the military landscape would be enhanced. Several types of utility features would be required for new adaptive uses at each building, such as electrical boxes, HVAC units, dumpsters, bollards and telecommunications devices. Some of these features would be concealed, and some would intrude on the visual quality of the district.

Since the end of the historical period, many freestanding signs have been installed to identify occupants and functions of buildings, and for roadway regulatory purposes. The implementation of a comprehensive sign system for the district would result in the installation of approximately 100 new signs located near buildings. These would be intrusions in the cultural landscape. The replacement of missing street signs and militaria displays would restore missing historic features.

The relocation of approximately 665 parking spaces from Parking Area K to sites nearer buildings in Fort Hancock would create impacts to land-use and views. Approximately six acres of land would be changed to parking. Currently these lands are mowed turf (Tennis Court Lot, Paddock Lot, Athletic Field Lot, Tent City Lot), hard-packed gravel areas (Warehouses Lot, South Parade Ground Lot), debris (Coal Pit Lot), and vegetated scrub land (Coal Yard Lot, Fort Hancock Lot).

Impacts would consist of the construction of 665 new spaces, including parking surface, borders, ornamental vegetative screenings, lighting, associated walkways, gates, signs, and entrances. Specifics and particulars of these elements would be determined during design development (see Mitigation section).

Depending on its configuration, the construction of the Coal Yard Lot may impact the longest stretch of remaining railroad tracks in the park, and would impact the cultural artifact of the layer of coal dust. A surface suitable for parking would be installed, which would require either the removal of the layer of existing coal dust, or installation of the parking surface on top of the coal dust. Depending on its configuration, the parking surface may cover the railroad tracks, but only if no other alternative exists. Although it is unlikely that all 665 new parking spaces would be occupied at the same time more than a very few times per year, there would be impacts to views and vistas, primarily on weekdays, from additional cars parked in the district. Areas that currently are open-space or vegetated would be occupied by cars and associated parking lots features.

The Post Hospital was destroyed in a fire in 1985. The proposal to construct a new building on the site of Post Hospital would change current land-use, spatial organization, and views. Land-use would change from mowed turf open-space to an occupied building. Spatial organization of the building site would change from a two-dimensional space to a three-dimensional space, with form and mass. The spatial organization of Officers' Row would change from a line of prominent buildings with a void in it, to an uninterrupted line. The current open view from the South Parade Ground Lot would become partially obstructed. The current view of the Officers' Row buildings from the water would become an uninterrupted line of buildings without its current void.

A new maintenance storage facility to serve current and increased NPS needs would be located within the current NPS maintenance area. The location proposed is the historic railroad yard and maintenance facility for the Proving Ground and Fort. Over a half-dozen maintenance warehouses and other structures have been lost in this area over the years. The new building would be compatible in scale and location of the missing warehouses.

Mitigation

No mitigation is proposed for the impact on the character of the area from the irrigation of turf.

Utility boxes: New boxes would be concealed within buildings where possible, or would be located in close proximity to buildings, rather than in open spaces between buildings or near roads. These exterior boxes would be screened from view where such screening would prove to be less intrusive than the boxes without screening.

Signs: Signs would be located in close proximity to buildings, rather than in open-spaces between buildings, or near roads.

Railroad tracks: The surface of the lot would be designed around the tracks so there is no impact, and the layer of coal dust currently covering the tracks would be removed to expose the tracks; or, the parking lot would encompass the tracks, the tracks would be exposed, and the design of the lot would use the tracks as part of the parking surface, leaving them extant and exposed. The impact from the addition of 665 parking spaces would be mitigated by locating all the spaces (with the exceptions of the expansion of the Athletic Field Lot) outside of the primary areas of the Parade Ground, the Athletic Field, and the Bay Frontage.

Impacts from the expansion of the Athletic Field Lot would be mitigated through careful design so as to encroach into the Athletic Field as little as possible. The new Coal Pit parking lot would be located in a depression so that cars are less visible from surrounding areas.

The South Parade Ground parking lot will be screened from the Parade Ground using appropriate screening mechanism.

Impacts on the visual quality of the District from the presence of cars parked in the other lots would be mitigated as much as possible by configuring the lots around existing trees, using appropriate landscape screening mechanisms, and possibly using geo-tech grass pavers to preserve the maintained turf look of overflow parking areas. Impacts from elements associated with parking lots, such as lights and gates, would be chosen with great care in an effort to minimize intrusions in the scene.

The removal of Parking Area K would eliminate parking in this area and improve the view from the Officers' Club and Proving Ground of Nine-Gun Battery.

Conclusion

The proposed action of replacement of missing historic trees and foundation plantings at prominent locations within the Fort Hancock and Proving Ground zones would have a long-term, major, positive effect on this cultural landscape component. The impacts of the actions would result in a substantial and highly noticeable positive change in character-defining features involving a large group of contributing elements.

The installation of a turf irrigation system would have a long-term, minor impact on the character of the District by hydrating areas that historically would be brown during dry periods. The result would be perceptible and measurable, but temporary.

The installation of new features (signs, bollards, utility boxes) would affect the integrity aspect of "setting" and would have a long-term, moderate, negative impact.

The introduction of new street signs and militaria displays would be perceptible and measurable; and would constitute the restoration of a small group of historic features into the historic scene. The proposed actions also would have a long-term, moderate, positive effect.

The new sign and lighting plans would introduce prominent new "design" aspects into the district. There would be both positive and adverse impacts on the historical integrity of this landscape component.

The introduction of approximately 665 parking spaces in the district would have a long-term, moderate impact on these landscape components.

The District suffered the loss of an important feature when the Post Hospital burned down in 1985, creating a large void in the spatial organization of the buildings. When an entire important landscape feature is missing, the landscape's historic character is diminished.

The Secretary's Standards and guidelines recommend replacement of such a feature as the preferred course of action.

The proposed replacement of the Post Hospital would fill the void created when the building burned down in 1985. If adequate historical documentation exists, the replacement of the building based on the documentation is appropriate. Otherwise, the design of the new building would differentiate it from the original, yet would be compatible with the design of other district buildings and with the character of the district as a whole.

The proposed maintenance storage facility would be similar in scale to the missing historic warehouses. The specific of location and design of the building within the NPS maintenance area would be determined through consultation with the SHPO to meet Secretary of Interior standards.

Conclusions Concerning Aggregated Impacts of the Rehabilitation Alternative on the Cultural Resources of the National Historic Landmark Property

All rehabilitation actions would be executed in accordance with the Secretary of the Interior's Standards for Rehabilitation. The collective consequence of the Rehabilitation Alternative on the physical condition of the landmark property would be long-term, major and positive. There would be a substantial and highly noticeable change in the group of elements that contribute to the significance of the historic district. There would be major improvements to the condition of buildings and ornamental vegetation; there would be minor improvements to utilities and small-scale features. This proposal for adaptive use would reverse a long-standing trend in the maintenance of the property that has led to a deterioration of the physical condition of resources.

The evaluations of effects on individual and specific elements contributing to the property, described in the sections above, indicate that there would be positive impacts on some elements and components of the cultural landscape, and negative impacts on others. The overall environmental consequence of the actions proposed under the Rehabilitation Alternative is that the sense of historical character and identity of the National Historic Landmark property would be improved, and maintained into the foreseeable future. The positive effects would heavily outweigh the negative effects.

The evaluation of integrity sometimes is a subjective judgment. For the purpose of guiding this overall evaluation, and for the purpose of aggregating adverse and positive effects to obtain a sense of the net overall consequence of the alternative, actions having the greatest adverse and positive effects are presented below, for comparison.

Positive

- Repair/replacement of the character-defining features of historic buildings, and the general improvement in the condition of the buildings
- Increased cyclic maintenance of historic buildings
- Replacement of missing historic trees and missing foundation plantings of buildings
- Increased cyclic maintenance of ornamental vegetation
- Selective removal of non-historic small-scale features and replacement of missing historic elements, such as streetlights, militaria displays, and street signs
- Re-establishment of lost spatial organization through the replacement of an important historic structure, and the replacement of missing historic trees

Negative

- Construction of 665 parking spaces to the area of proposed actions, construction of several new parking lots, and the redesign of several existing lots
- Unavoidable impacts to buildings necessary to meet building safety codes and universal accessibility regulations
- Installation of utility boxes near buildings
- Installation of traffic control bollards
- Installation of identification signs at buildings

Integrity is the ability of a property to convey its significance. The actions listed above as having positive effects, would be of greater consequence on the property's ability to convey its significance as a military post, than would the actions having negative effects. The positive effects would result in a major, long-term, substantial, and highly noticeable improvement to character-defining features, involving a large group of contributing elements. Consideration of the National Register "aspects of integrity" support this perspective. The **location** of affected elements would be the historic location for all actions. Few, if any, of the results would impede the visitor's ability to understand why the property was created or why some event occurred.

Consequences of actions would not significantly degrade the overall **design** of the district. Spatial relationships between major features would be retained. Visual rhythms stemming from vehicle and pedestrian circulation features, and ornamental vegetation planting patterns, would remain unaffected. Principle and important common open-spaces, delineated by the alignment and layout of buildings and trees, would remain open. Important views to and from buildings, and across open spaces, would not be obstructed, while vistas down roads and between tree allees would be improved. Alterations to the original architectural design of buildings would be required to accommodate new uses; but because interior and exterior motifs would be retained, and there would be no major structural alterations, the overall and collective architectural design of the district would continue to convey its historical identity and character.

There would be no adverse impacts to the **setting** of the historic district. Because of the unusual geographical characteristics of the property (99% surrounded by ocean\bay), and for purposes of this EA, two levels of setting are considered. The first and local setting is the Sandy Hook peninsula. The second and regional setting is the maritime environment of Sandy Hook and Raritan Bays, the Atlantic Ocean, the shorelines of New York City, and the shoreline of Monmouth County. The overall character of the place in which the property played its historical role would not be changed. The way the property is situated in its surroundings, and its relationship to surrounding features and open-space would not be changed; nor would the basic physical conditions under which the property was built. The character of the Sandy Hook peninsula would not be changed.

There would be minimal change to **materials** and finishes, and construction techniques would be preserved. Where possible, the materials used for replacement of deteriorated or missing features would match the old. Alterations and new additions would not destroy historic materials, and the materials used in new work would be differentiated from, yet compatible with, old materials. The choice of new materials would reflect the preferences of the US Army Quartermaster Corps, which created the property.

Evidence of **workmanship** contained in character-defining features would be preserved during repair and replacement procedures. Evidence of existing workmanship would not be reduced significantly. Materials used in new work may be different but compatible with old materials.

The overall expression of the historic sense of the period of significance, the **feeling** of the place, would be enhanced by actions taken under the Rehabilitation Alternative. The consequences on the aspect of feeling from positive effects (replacement of numerous missing historic features) would outweigh the consequences from negative effects (more cars parked, new signs, new architectural

elements). Collectively, the proposed actions would stimulate and foster the emotional aspect of the visitor experience, the sense visitors have of the Fort Hancock zone as the administrative center of an army coastal defenses post, and the feeling of the Proving Ground Zone as the first and sole United States heavy weapons testing center for forty-five years.

The physical features of the National Historic Landmark remain sufficiently intact for the property to convey its **association** with significant historic events and would remain so after the execution of the actions proposed under this alternative. Once again, the positive effects would outweigh the negative effects, for a net increase in historical integrity.

Impacts on Natural Resources

The following sections describe the effects of actions on natural resources, including water quantity, wetlands, shrub-lands, and wildlife.

Impacts on Hazardous Materials

The proposed actions would stop the deterioration of lead paint in buildings by encapsulating it in new paint.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected and would continue to affect lead paint situations in the park. Lack of maintenance has the greatest effect on lead containment. When paint is maintained, i.e. repainting occurs at regular intervals, lead paint is contained and therefore not a hazardous substance. When paint is not maintained, lead paint deteriorates and may leech into soils and the air.

Mitigation

The lead testing completed to date appears to have been in response to concerns surrounding residential buildings and children. Young children are the segment of the population at the highest risk for lead poisoning. The proposed new uses, primarily office use and secondary education, should minimize the number of young children on site.

Conclusions

The proposed Rehabilitation Alternative would have moderate, long-term beneficial effects on hazardous materials, in particular lead paint. The rehabilitation of buildings would encapsulate deteriorating lead paint, thus eliminating their threat to the environment and the park resident population.

Impacts on Water Quantity

Under the Rehabilitation Alternative, approximately 1,200 persons eventually would occupy buildings and office space at the park. This figure represents an increase of 800 people to the existing 400 people

who currently work at Fort Hancock. Based on a standard value used to estimate the quantity of water needed for each person per day a typical student user of 30 gpd in the Rehabilitation Alternative would result in usage of approximately 24,000 additional gallons of water per day with an equivalent amount of effluent being discharged from the treatment plant.

Parking lots that are used on a daily basis would be constructed with impervious material and would incorporate the best filtration or separation technology to catch pollutants. Parking that is used less frequently, or identified as overflow, may be constructed of porous material to allow seepage of rainwater through the soils, allowing contaminants to be filtered before recharging the ground water table. There would be no direct drainage (point source) discharges of parking lot runoff into Sandy Hook Bay.

Cumulative Effects

As described above under "Impacts of the No Action Alternative on Water Quantity," a variety of human actions have affected and continue to affect such resources at the park. The existing water storage and distribution system was constructed by the Army and continues to be maintained by the NPS. In addition to maintaining the water distribution system, the NPS recently constructed a new plant that treats wastewater to produce high-quality effluent.

The Rehabilitation Alternative would contribute a minor, long-term, neutral component to cumulative actions affecting the quantity of water used and effluent produced at the park; and a negligible, long term, component to actions affecting the quantity of water recharged into the surface aquifer.

Mitigation

As part of the adaptive use program, building occupants would install water-saving equipment, including low-flow toilets, at all possible locations. In addition, the NPS proposes to modify its effluent discharge permit in accordance with the New Jersey Department of Environmental Protection regulations in order to irrigate areas within the District with tertiary-treated wastewater that meets near-drinking water standards.

Parking lots will be designed to insure maximum water recharge either through permeable surfaces or drainage basins that allow for maximum water percolation.

Conclusions

The Rehabilitation Alternative would have a moderate, long-term, neutral effect on the quantity of water used and effluent produced at the park. On high-use summer days, the quantity of wastewater being treated at the park's plant could approach the maximum discharge allowed under the park's current discharge permit. On most days, however, the quantity of wastewater produced at the park would be much less than the amount allowed under the discharge permit.

Installation of water-saving devices would maintain the quantity of effluent produced on high-use days to levels allowed under the park's permit.

Impacts on Natural Vegetation

Under the Rehabilitation Alternative, construction and re-design of parking lots would affect approximately six acres of land, some of which is successional vegetation. For evaluative purposes, the ecological value of this land is categorized as high, medium, or low, based on existing conditions.

Definitions of these categories are:

HIGH: Land with a high natural resource value would be land with little or no previous disturbance, or which has had a significant period of time to show recovery (50 +years). Soils would be undisturbed and typical of a barrier beach environment. The parcel would not be fragmented and would be adjacent or continuous with other high quality, undisturbed land. Vegetation would be diverse with a minimum of non-native species and able to support a variety of wildlife. Parcels of high value may also represent unique or important habitat types such as maritime holly forest or natural beach.

MODERATE: Parcels ranked as moderate in value show some recovery of natural resources on disturbed soils. These soils contain a mix of topsoil, fine gravel and sand. The soils support a variety of vegetation including un-mowed turf, mixed grasslands, and other insects, small mammals, and snakes to exist. The variety of vegetation types allows wildlife species such as butterflies and other insects, small mammals, and snakes to exist. The vegetation wildlife they support provides food and cover for migrating birds. The parcel may be fragmented however they generally provide a buffer between areas of development or recreation use and natural areas.

LOW: Low valued parcels show little sign of natural recovery from previous use or disturbance. The soils are highly disturbed and include gravel, sand, and small construction rubble. The vegetation is either sparse or is maintained as mowed turf. Non-native vegetation is common. The areas of sparse or mono-culture vegetation supports few species of wildlife. The parcels are generally isolated and exist between areas of current development. Even if restored to a natural state their value may remain minimal.

All of the proposed new or re-designed parking sites are on lands previously disturbed, which at one time supported structures, parking, recreation, or other activities associated with day to day operation of the Fort. Of the six acres, 4.5 acres are considered to be of low value, 1.5 are of moderate value, and 0 acres are of high value. The impact would be the destruction of from 50% to 100% of the existing vegetation on these acres.

Cumulative Effects

As described above under "Impacts of the No Action Alternative on Shrub-lands," a variety of human actions have affected and continue to affect such resources at the park. Construction and destruction of buildings have created open spaces throughout the park that, in some areas, have been invaded by grasses and woody vegetation. In other locations, vegetation has been cleared or disturbed by temporary activities, and grasses and other early-phase successional species also have colonized these areas.

Approximately ten acres of successional vegetation persist in the Fort Hancock area. In addition, many other patches of natural vegetation have been created throughout the park following the discontinuance of temporary activities (e.g., project staging) or the discontinuance of maintenance activities previously conducted by the Army. Other projects, however, such as construction of the US Coast Guard Housing area and the construction of the North Beach Center parking lot have reduced successional grasslands and shrub thickets in the northern portion of the park.

The Rehabilitation Alternative would contribute a minor, short-term impact on natural vegetation at the park.

Mitigation

To mitigate loss of natural vegetation from construction and redesign of parking lots at Fort Hancock, all auto parking spaces would be removed from K lot and the six acre area restored to natural vegetation of high ecological value. Parking lots would be designed to impact as little native vegetation as possible.

Conclusions

The Rehabilitation Alternative would have a moderate, long-term impact on successional grasslands in the area of proposed action. Loss of six acres of vegetation and habitat would be more than offset by revegetation of K lot. Because the restored area would be contiguous with the existing natural zone extending north and east from Nine Gun Battery to the tip of the Hook, the quality and scale of the habitat would be greatly enhanced.

Impacts on Osprey

Under the Rehabilitation Alternative, historic nesting sites would be removed from atop buildings in the District, which potentially would displace Ospreys that previously nested on the sites. No active nests would be disturbed or removed during building renovations. In recent years, several pairs of Osprey have nested on Fort Hancock buildings, including one pair that nested atop Building 13 on Officers' Row in 2001.

Cumulative Effects

As described above under "Impacts of the No Action Alternative on Osprey," a variety of human actions have affected and continue to affect such resources at the park. Historic nesting sites in natural communities have been eliminated by actions that affected maritime forest and other large trees at the park. However, the NPS has constructed thirteen artificial nesting platforms at the park, several of which are used regularly by nesting Osprey. The NPS continues to repair several platforms each year. The Rehabilitation Alternative would contribute a minor, long-term, beneficial component to cumulative actions that have affected Osprey in the park by enhancing nesting opportunities at six or more locations.

Mitigation

In accordance with the park's Osprey Management Plan (NPS, 2000) and conversations between the NPS and the New Jersey Department of Environmental Protection (D. Jenkins), at least four nesting platforms would be repaired and at least two nesting platforms would be constructed prior to initiating any proposed actions. Proposed repair sites include three platforms along the interior of the park south of Atlantic Drive and another platform in the marsh north of Spermaceti Cove. New platforms would be constructed at two of the following four sites prior to project implementation: (1) North Pond (constructed 2002), (2) Old Trailer Park (constructed 2002), (3) near Hartshorne Drive east of Arrow Beach, and (4) South Island. Platforms and other nesting sites would be monitored each year to determine nesting success and results would be provided to the New Jersey Department of Environmental Protection.

Conclusions

The Rehabilitation Alternative would have a minor, short-term, impact but a moderate, long-term, beneficial effect on Ospreys in the park. Although Osprey would be displaced from historic nests atop buildings in Fort Hancock, repair of existing platforms and construction of additional nesting sites in relatively undisturbed areas of the park would provide enhanced nesting opportunities.

Impacts on Wild Wormwood

Under the Rehabilitation Alternative, a total of approximately 1.2 acres of habitat suitable for supporting Wild Wormwood may be converted to parking areas. Eight individual plants were observed at Warehouses Lot, approximately fifty individuals observed at the Tennis Court Lot, and approximately 100 individuals observed in the Coal Yard Lot. Overall, approximately 160 Wild Wormwood plants may be destroyed under the Rehabilitation Alternative.

Cumulative Effects

As described above under "Impacts of the No Action Alternative on Wild Wormwood," a variety of human actions have affected and continue to affect such resources at the park.

Although habitat suitable to support this species has been created throughout the park, a variety of construction and ground-disturbing activities may be affecting its numbers.

The Rehabilitation Alternative would contribute a negligible, short-term, component to cumulative actions affecting Wild Wormwood at the park by eliminating approximately 160 individual plants. However, these 160 plants represent a slight fraction of the total population of Wild Wormwood at the park, and the Rehabilitation Alternative would not affect the viability of the park's population.

Mitigation

Mitigation will consist of some combination of the following methods: collect seeds in the fall of 2003, and sow in protected areas including K lot; transplant existing plants into protected areas; and design parking lots to avoid impacting plants.

Conclusions

This plant is common in the park, and is neither federally or state listed as threatened or endangered. It is uncommon in the state, and the State of New Jersey identifies it as a Species of Special Concern. Because the plant is common in the park, and thrives in disturbed areas such as the sides of roads and parking areas, this alternative is not likely to adversely impact the population in the park.

Impacts on Piping Plover

Under the Rehabilitation Alternative, construction of utilities in the Hartshorne Drive Corridor would occur within fifty yards of known plover nest sites. The adaptive use program of the Fort Hancock area could have the potential to change visitor levels and patterns that could affect nesting Piping Plover.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions have affected Piping Plover at Sandy Hook. Natural beach dynamics and replenishment projects have resulted in changes to nesting Habitat. Management activities by park staff, including monitoring, fencing, signing, staffing nest areas, and predator control, all have had affects on the success of nesting Piping Plover. Various construction projects, including beach center development, have required mitigation measures to avoid affects on Piping Plover.

The adaptive use of Fort Hancock and the Proving Ground could increase or change existing visitor use patterns in the northern portion of the park. Visitor increases could result from ferry users and from overnight guests. Increased awareness and interest in the historic district could result in visitor use increases throughout the park.

The Rehabilitation Alternative may contribute a minor, long-term impact to Piping Plovers by increasing the number of visitors to the park.

Mitigation

The relocation of parking from K lot to Fort Hancock would place visitor concentrations farther away from the tip of the Hook, the most productive nesting area of the park. Ferry users would be dispersed throughout the park via a shuttle bus, and would not have a detectable impact on any particular beach. To avoid impacts, construction of underground utilities in the southern Hartshorne Drive area would not occur during the piping plover nesting season. The NPS would follow all recommendations of the U.S. Fish and Wildlife Service letter of February 7, 2001 (see Appendix E). These conservation measures would also benefit other bird species, particularly nesting shore birds.

Conclusions

The Rehabilitation Alternative will have a minor, long-term impact to Piping Plovers by increasing the number of visitors to the park. Relocation of parking from K lot and restoration of natural vegetation to

the area could significantly enhance the quality and productivity of plover habitat at the tip of the Hook.

Impacts on Socio-economics

The Rehabilitation Alternative would not affect population growth of northern Monmouth County, as the proposed activities would rely largely on the existing local workforce. The mixture of educational institutions, non-profit organizations, office space, and support services would pose no additional burden on the population of the surrounding communities.

The adaptive use programs would not impact existing park users. Most adaptive use activities would be at full capacity during the weekdays, when most other park use is at a minimum. As there is minimal planned retail use, there would not be a new population of retail customers. There would be a modest number of additional visitors to the Fort Hancock area for sightseeing and to avail themselves of the new activities and rehabilitated facilities.

The Rehabilitation Alternative would create facilities that retain their historic character, all within a beautiful, park-like setting. The location would attract marine science and other educational institutions. The Rehabilitation Alternative would benefit both the park and the surrounding area. It is estimated that about 1,200 people a day would work or study at Fort Hancock under this alternative, not including the Coast Guard operation. Additional jobs would be created to support these new activities. There would be an increase to the labor force in the local area of approximately 0.8%. More people working in the local area would result in more money being spent within the local area. More people would dine in local restaurants, more people would shop in local stores, and more people would visit the other area resources. Assuming that the Monmouth County commuter average of 42.9% could be applied to the 1,200 people slated to work at Fort Hancock, that would amount to 515 potential retail customers added to the surrounding area. With the average consumer expending \$5103 in retail sales per year, that would result in an additional \$2.6 million dollars spent locally.

The park would benefit economically through a reimbursement for the support infrastructure it provides to the adaptive use programs (for example, the historic leasing program). This reimbursement would provide for increased quality of services to all park visitors. During the anticipated five-year construction phase, there would be a benefit to the local workforce. Analysis of construction operations illustrates a strong reliance on local labor, contractors and businesses, particularly in light of current market activity in the State of New Jersey. The individual projects that make up the rehabilitation proposal range in size from \$300,000 to almost \$6,000,000, with a total, combined budget range of between \$52 million and \$65 million dollars. (These figures represent the estimated costs of rehabilitating the 36 structures in the Sandy Hook Partners proposal only, and do not include upgrades to utilities and information technology.)

Given the number of buildings, their size, and primary construction materials, the construction approach would use smaller, local general contractors. Work typically would be awarded by individual building, or groups of buildings. The NPS anticipates that a local general contractor would be capable of renovating several buildings concurrently or in sequence, as the buildings become available for renovation. Local suppliers would be utilized for most building materials.

Conclusions

The Rehabilitation Alternative would enhance local socio-economic conditions by (1) providing additional employment within the local commuting area; (2) providing additional patronage of local businesses and attractions; (3) providing education and high-tech facilities that are in great demand in the area; and (4) rehabilitating and maintaining a National Historic Landmark that serves as a significant tourist destination and contributes to the New Jersey shore tourism industry.

Impacts of Traffic

The rehabilitation alternative will have effects on local area traffic. (Continue from page E-2 and 3 in TIS)

To obtain future conditions, a background rate of growth was applied to 2002 data. Information was obtained from Monmouth County Planning Department regarding approved additional developments that could add to the traffic volumes. Trip generation rates were obtained for these projects and added to the future volume projections. The Fort Hancock Rehabilitation was translated into expected generated trips and those volumes were added to the highway network as well. Finally, traffic under the future build condition was compared to the no-build condition to estimate the project impact on traffic at the studied intersections.

The latest Version of the Highway Capacity Manual was used to analyze intersections performance. A traffic queuing model, specifically developed for the Highlands Bridge Feasibility Analysis for NJDOT, was used to analyze delays at the Highlands Bridge.

Impacts to Intersections

With respect to the six representative intersections, the analysis indicated that the Route 36 approaches at five of the six intersections (excluding the Broad Street Keyport location) currently operate under conditions where traffic demand is less than intersection capacity. At those intersections, the additional volume generated by the project would not significantly increase delays.

Seventeen miles from Fort Hancock, the Broad Street intersection in Keyport presently operates on weekdays to or near capacity both in the westbound directions (AM peak hour) and in the eastbound direction (PM peak hour). The traffic expected to be generated by existing approved planned development projects affecting the corridor (100 vehicles) coupled with increased Fort Hancock Rehabilitation Project traffic (80 vehicles) is expected to result in a further increase in congestion (LOS F) at only one location, that is, along the eastbound approach of Route 36 at Broad Street during the summer weekday PM peak hour. Even without the Fort Hancock project, the intersection is expected to operate poorly in the future. The additional traffic contributed by Fort Hancock represents a small proportion, only 2.7 percent, of the total traffic (about 3000 vehicles eastbound in the summer weekday PM peak hour) anticipated at this location in 2008. For the purposes of this study, application of transit and ferry service would not generate enough diversion to reduce the 80 trips because of the dispersed development patterns throughout the region.

The proposed project is not expected to generate significant impacts along the study corridor on weekends. After project implementation, LOS D or better would be maintained along all eastbound and westbound approaches of Route 36 and along the northbound and southbound approaches of Route 36 at Route 520.

Bridge Impacts

Should a new movable bridge be constructed over the Shrewsbury River, traffic waiting at the bridge would experience some increase in delay. Average vehicle delay on a bascule bridge with a 55-foot vertical clearance would increase by about 20 seconds. If the existing bridge is replaced with a fixed bridge, the current NJDOT plan, then traffic delays at the bridge site would be eliminated.

Local Street Diversion

The study also concluded that there would not be a significant diversion of traffic off of the Route 36 corridor and onto local streets because of the proposed project. Since Route 36 intersection performance will not significantly deteriorate, there will be no reason for vehicles to divert to local roadways. Projections of newly generated trips from local streets range from less than one to five percent increase in peak hour traffic which retains an acceptable LOS.

Cumulative Effects

A variety of past, present and reasonably foreseeable actions have affected traffic in the local area. Continued population growth in the county and new residential and commercial construction will increase traffic on local roads. Replacement of the Route 36 Highlands Bridge will reduce or eliminate summer traffic backups near the entrance to the park. Increases in ferry use and extension of existing bus transit routes will have a mitigating effect on traffic growth.

Additional traffic generated by the Fort Hancock project along with other growth factors will cause the Level of Service along route 36 to deteriorate to below an acceptable level on the eastbound approach at one intersection 17 miles away from the project in the summer weekday PM peak hour.

Mitigation

The NPS continues to implement a number of traffic management improvements to address congestion on Route 36, the only roadway access to the national park:

NPS continues to actively participate in a collaborative of 13 state and local agencies to implement a Traffic Management and Agency Coordination Plan.

NPS has implemented an electronic parking management system to predict in advance when parking lots will fill.

NPS adheres to an advance notification protocol.

NPS has with, federal funds acquired variable message signs to notify motorists of park closure and other recreational alternatives.

NPS will install in the Highlands a Traveler Information Radio System to complement municipal systems currently providing tourist traffic information.

NPS has for 6 years provided for ferry access to the park from numerous departure points in the metropolitan area.

Beginning in the summer of 2002, a second ferry operator provides access to the park from additional points in the metropolitan area.

NPS and a ferry operator will institute a pilot Park & Sail operation on weekends from the county ferry terminal at Belford.

NPS will invest over \$3M to construct a new permanent year-round ferry dock at Fort Hancock.

NPS actively supports and has assisted the NJDOT in planning for replacement of the outdated Route 36 Highlands/Sea Bright Bridge.

NJDOT has informed NPS in a letter dated February 27, 2003 (see appendix E) that for substantive and technical reasons no mitigation of traffic impacts would be required.

Conclusions

The Rehabilitation Alternative will have minor short-term impacts on traffic using the local highway network. Future network improvements proposed for inclusion in the regional Transportation Improvement Plan will in the long-term reduce or eliminate declines in the Level of Service along Route 36. Replacement of the Route 36 Highlands Bridge will significantly reduce traffic backups near the entrance to the park.

Impacts on Visitor and Partner Experience

Under the Rehabilitation Alternative the present level of visitor activity may increase slightly. The Officers' Row summer leasing program would be discontinued. Some buildings would not be open to the public.

Cumulative Effects

A variety of past, present, and reasonably foreseeable actions would affect the visitor and partner experience at the park. The proposed relocation of the park Visitor Center to Fort Hancock and the ongoing development of public museums by the Sandy Hook Foundation and the New Jersey Audubon Society would increase visitor awareness and activity in the area of proposed action. The Visitor Center in particular would provide a focal point for individual and group visitation.

Under the Rehabilitation Alternative the Officers' Row summer leasing program would be discontinued. Visitors who previously utilized the Officers' Row rental program can avail themselves of the NPS Sandy Hook Education Center rental.

The rehabilitation and preservation of these buildings would improve the visitor's enjoyment and understanding of the Fort. Visitors would gain access to the inside of a number of buildings that currently are closed, including those that would house such public functions as restaurants, recreation

facilities and overnight lodging. Both visitors and year around partners would benefit from the new facilities and services that adaptive use would provide.

Mitigation

Outdoor wayside exhibits around the grounds of the Fort would be developed for the public that would describe the interiors of buildings not accessible to the public. Public spaces in individual buildings would feature exhibits or displays on historic and architectural subjects related the building and to Fort Hancock. Occasionally, tours or open houses of certain representative buildings not normally open to visitors would be offered. The removal of parking area K will require visitors who wish to walk to the tip of Sandy Hook to walk an additional two tenths of a mile (one way).

Conclusions

The Rehabilitation Alternative would have a long-term, moderate positive impact on the visitor and partner experience.

VI. CONSULTATION AND COORDINATION

The following agencies were contacted and/or consulted during preparation of this EA:

U.S. Fish and Wildlife Service, New Jersey Field Office (USFWS). The NPS informally consulted the Endangered Species Division (Annette Scherer) on endangered and threatened species, and the Wetlands Branch (Tom McDowell) on wetland issues. An April 11, 2000, a letter received from USFWS specified that the Piping Plover was the only species of federal concern in the project area and described methods to ensure that the proposed action is not likely to adversely affect that species. The NPS obtained additional information concerning endangered species in the project area from the USFWS's internet site at '<http://endangered.fws.gov/statl-r5.html>' and a variety of other Internet sites, including sites posted by the USFWS, U.S. Geological Survey's Biological Resources Division, and the New York Department of Environmental Conservation. The NPS has submitted a copy of this EA to the USFWS and requested concurrence with the NPS's determination that the proposed action is not likely to adversely affect the Piping Plover.

New Jersey Office of Historic Preservation (NJSHPO). The NPS met with representatives from NJSHPO (Dan Saunders and Kurt Leisure) on two separate occasions. The first meeting, held in December of 2000 at NPS offices at Sandy Hook, introduced the Rehabilitation Alternative to NJSHPO. At the request of NJSHPO, a second meeting was held on January 8 and 9, 2001, that took the form of a walk-through of the existing buildings, and a walk around the cultural landscape. *The Fort Hancock Rehabilitation Guidelines* list of character-defining features for each building was reviewed and amended as necessary. The amended list of character-defining features is included in Appendix A.

Advisory Council on Historic Preservation (ACHP). NPS informally contacted the ACHP to introduce the Rehabilitation Alternative to the Council. A representative of the Council, Martha Katlin, attended the site walkthrough with NJSHPO on January 8 and 9, 2001. Attendance by ACHP was informal and not considered a formal review by the Council.

New Jersey Department of Environmental Protection, Land Use Regulation

(NJDEP/LUR). The NPS contacted the NJDEP/LUR to discuss wetlands issues and compliance with the Coastal Zone Management Act, as well as state laws and regulations.

While evaluating a different project at the park, representatives from the NJDEP/LUR met with NPS personnel on April 14, 2000, to identify jurisdictional wetlands in the project area. The NPS obtained additional information, including New Jersey's Coastal Zone Management Plan, from NJDEP/LUR's Internet site at '<http://www.state.nj.us/dep/landuse/coast/coast.html>'. The park has submitted a copy of this EA and requested concurrence with the NPS's determination that the proposed action is consistent with New Jersey's Coastal Zone Management in accordance with the Coastal Zone Management Act.

New Jersey Department of Environmental Protection, Division of Water Quality, Bureau of Point Source Permitting (NJDEP/DWQ). The NPS contacted the NJDEP Bureau of Point Source Permitting, (Jim Grob) concerning the use of treated water to irrigate turf in the area of proposed action. NJDEP representative noted that they are encouraging such use under appropriate circumstances. NJDEP representative sent NPS a document titled "Technical Manual for Reclaimed Water for Beneficial Reuse."

New Jersey Division of Fish, Game, and Wildlife (NJDFGW). The NPS contacted the Endangered and Non-game Species Program (Dave Jenkins) on endangered and threatened species issues of concern to the state. According to their representative, the only species of state concern in the project area are the threatened Osprey and endangered Piping Plover. In addition, the NJDFGW provided methods to ensure the proposed action is not likely to adversely affect Osprey. The NPS has submitted a copy of this EA to the NJDFGW for review and comment.

VII. COMPLIANCE FRAMEWORK

The following laws and associated regulations provided direction for the design of alternatives, the analysis of impacts, and the formulation of mitigation/avoidance measures:

National Environmental Policy Act of 1969 (NEPA)(Title 42 U.S. Code Sections 4321 to 4370 [42 USC 4321-4370]). The purposes of NEPA include encouraging "harmony between [humans] and their environment and promote efforts which would prevent or eliminate damage to the environment...and stimulate the health and welfare of [humanity]". The purposes of NEPA are accomplished by evaluating the effects of federal actions. The results of these evaluations are presented to the public, federal agencies, and public officials in document format (e.g., environmental assessments and environmental impact statements) for consideration prior to taking official action or making official decisions. Implementing regulations for the NEPA are contained in Part 1500 to 1515 of Title 40 of the U.S. Code of Federal Regulations (40 CFR 1500-1515).

Clean Water Act of 1972,as amended (CWA)(33 USC 1251-1387). The purposes of the CWA are to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters". To enact this goal, the U.S. Army Corps of Engineers (Corps) has been charged with evaluating federal actions that result in potential degradation of waters of the U.S. and issuing permits for actions consistent with the CWA. The U.S. Environmental Protection Agency also has responsibility for oversight and review of permits and actions which affect waters of the U.S. Implementing regulations describing the Corps' CWA program are contained in 33 CFR 320-330. Neither the No Action Alternative nor the proposed action would affect wetlands or other waters of the U.S. and no Corps permit is required.

Coastal Zone Management Act of 1972 (CZMA)(16 USC 1451-1464). The CZMA presents a congressional declaration to "preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations". The CZMA also encourages "states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone". In accordance with the CZMA, the State of New Jersey has adopted state laws and regulations, including a Coastal Zone Management Plan, that is administered by the New Jersey Department of Environmental Protection (NJDEP). All actions proposed by federal, state, and local agencies must be consistent or compatible with the Coastal Zone Management Plan, as determined by the NJDEP. The NPS has requested concurrence from the NJDEP that the proposed action is consistent with the New Jersey Coastal Zone Management Plan.

Endangered Species Act of 1973, as amended (ESA)(16 USC 1531-1544). The purposes of the ESA include providing "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved". According to the ESA, "all Federal departments and agencies shall seek to conserve endangered species and threatened species" and "[e]ach Federal agency shall...insure that any action authorized, funded, or carried out by such agency...is not likely to jeopardize the continued existence of any endangered species or threatened species". The U.S. Fish and Wildlife Service (non-marine species) and the National Marine Fisheries Service (marine species, including anadromous fish and marine mammals) administer the ESA. The effects of any agency action that may affect endangered, threatened, or proposed species must be evaluated in consultation with either the USFWS or NMFS, as appropriate. Implementing regulations which describe procedures for interagency cooperation to determine the effects of actions on endangered, threatened, or proposed species are contained in 50 CFR 402.

Cultural Resources Regulations and Policies. The National Park Service is mandated to preserve and protect its cultural resources through the Organic Act of 1916 (USC title 16) and such specific legislation as the Antiquities Act of 1906 (16 USC 431), the National Historic Preservation Act of 1966, as amended (16 USC 470), the National Environmental Policy Act of 1969, as amended (42 USC 4321,4331,4332), the Archeological Resources Protection Act of 1979 (16 USC 470), and the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001). In addition, the management of cultural resources is guided by the Advisory Council on Historic Preservation's implementing regulations regarding "Protection of Historic Properties" ((36 CFR 800), the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (1995) and *Guidelines for the Treatment of Cultural Landscapes* (1996), Chapter V of the National Park Service's *Management Policies* (1988), and the National Park Service's *Cultural Resources Management Guideline* (DO-28,1998).

Section 106 of the National Historic Preservation Act requires that federal agencies having direct or indirect jurisdiction over undertakings consider the effect of those undertakings on resources either listed in or eligible for listing in the National Register of Historic Places. It also requires that the Advisory Council on Historic Preservation, state/territorial/tribal historic preservation officer(s), and other concerned parties be provided an opportunity to comment.

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IX. LIST OF PREPARERS

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Mary Rasa	Museum Curator	National Park Service Gateway National Recreation Area Sandy Hook Unit Fort Hancock, NJ
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X.APPENDICES

Appendix A

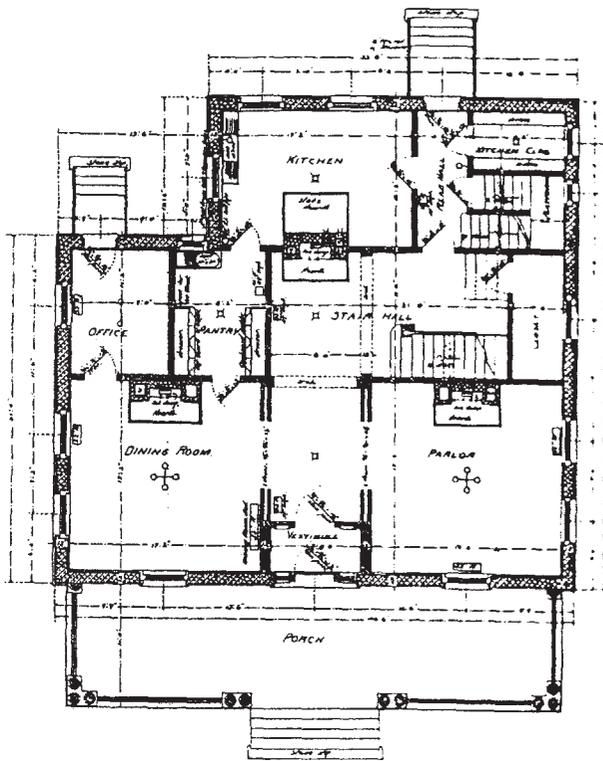
**Typical Floorplans for the
Rehabilitation of Buildings,
List of Character-defining Features,
and
Critical Building Repair Issues**



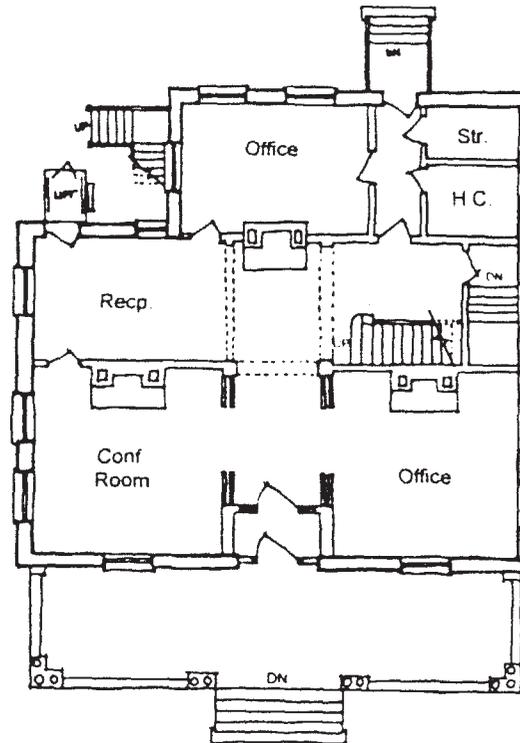
Lieutenant's Quarters

First Floor

Constructed: 1898-1899
 Building type: Masonry
 Gross Floor Area: ranges from 7,420sf to 10,044sf



Existing Conditions



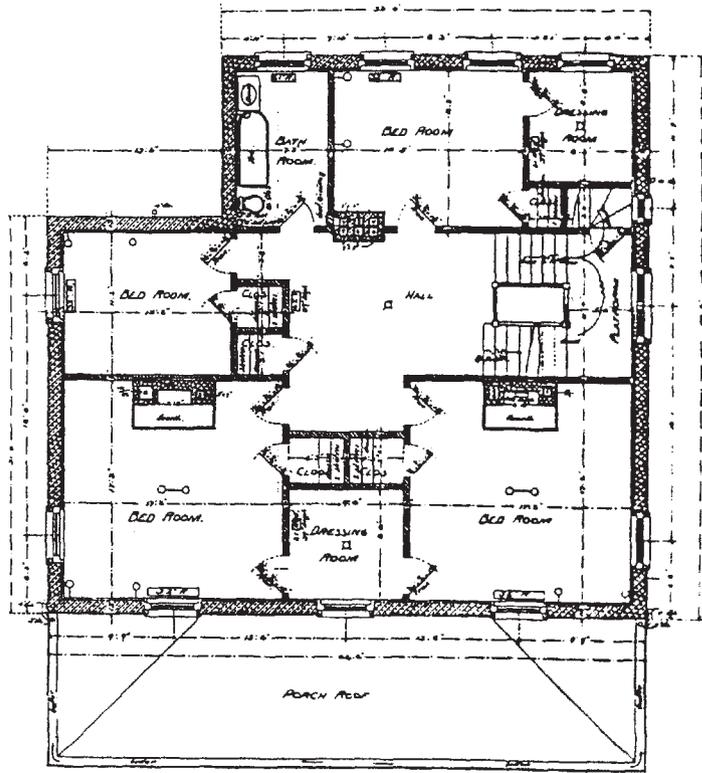
Proposed Alterations



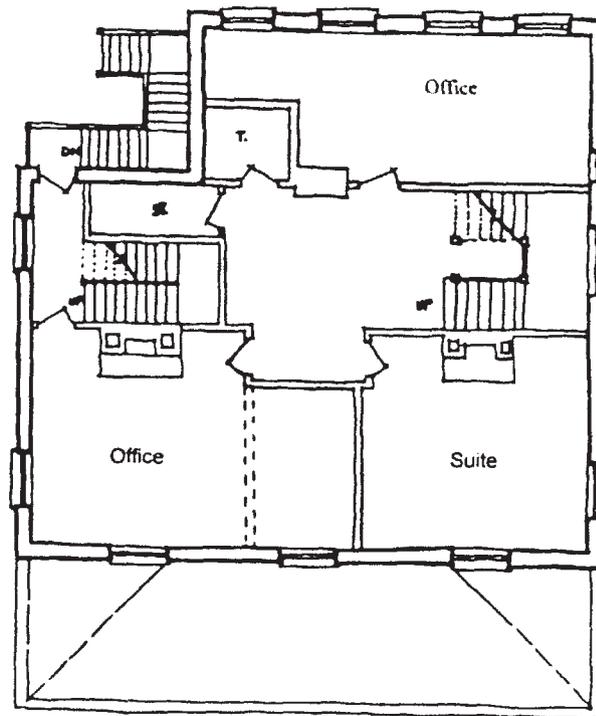
Lieutenant's Quarters

Second Floor

Constructed: 1898-1899
 Building type: Masonry
 Gross Floor Area: ranges from 7,420sf to 10,044sf



Existing Conditions



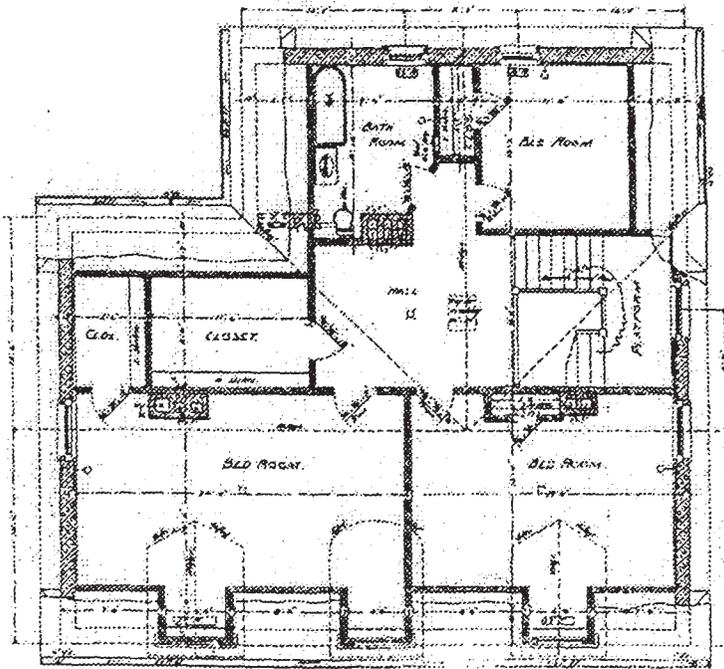
Proposed Alterations



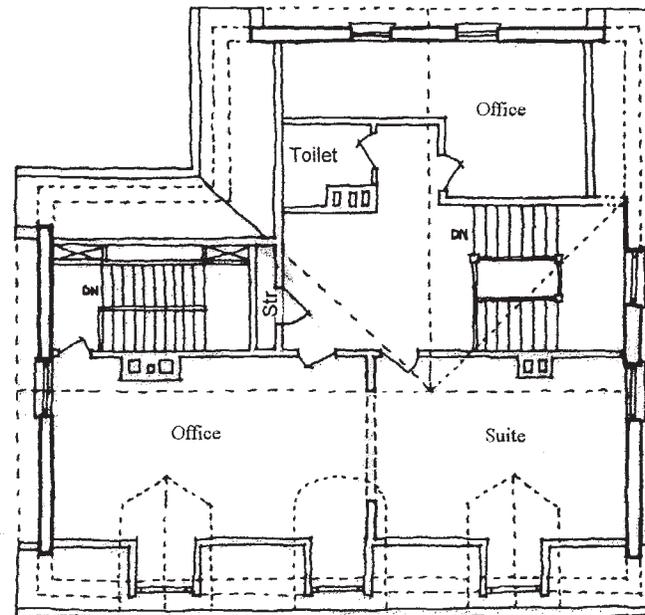
Lieutenant's Quarters

Third Floor

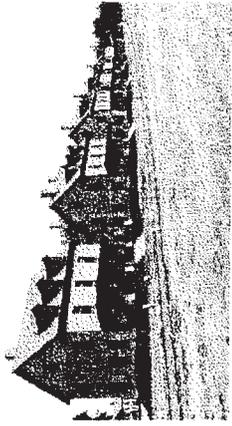
Constructed: 1898-1899
 Building type: Masonry
 Gross Floor Area: ranges from 7,420s to 10,044sq



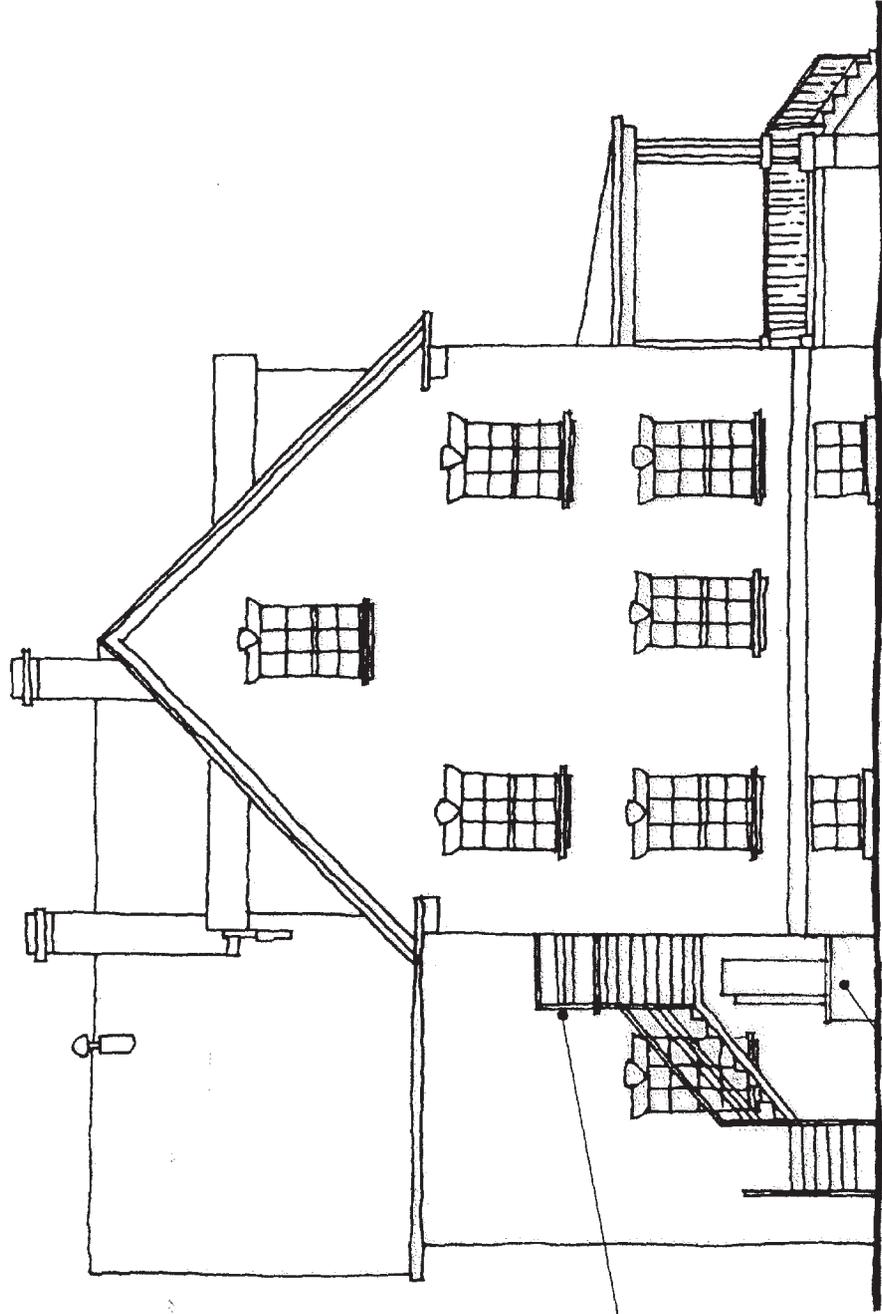
Existing Conditions



Proposed Alterations



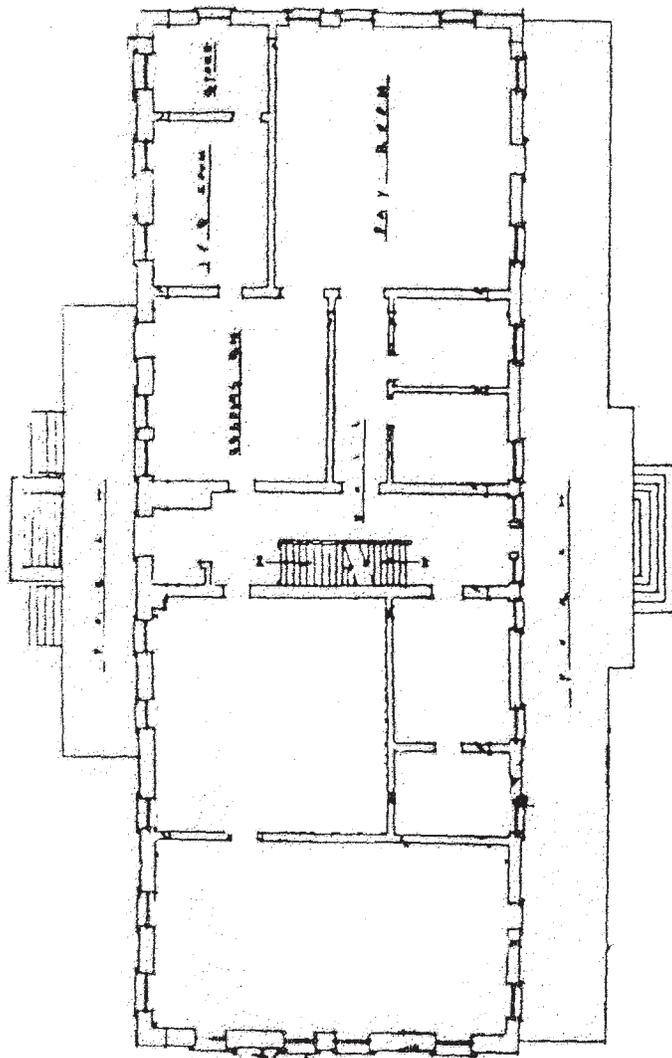
Lieutenant's Quarters



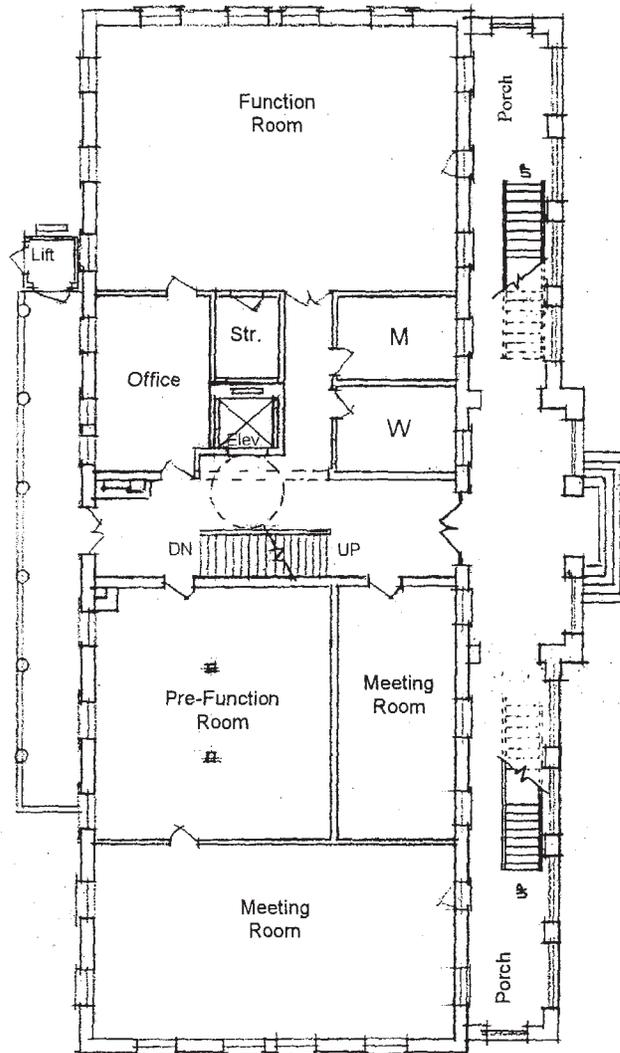
Egress
Stair

H.C. Lift

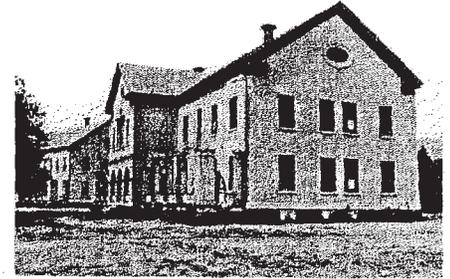
North Elevation



Existing Conditions



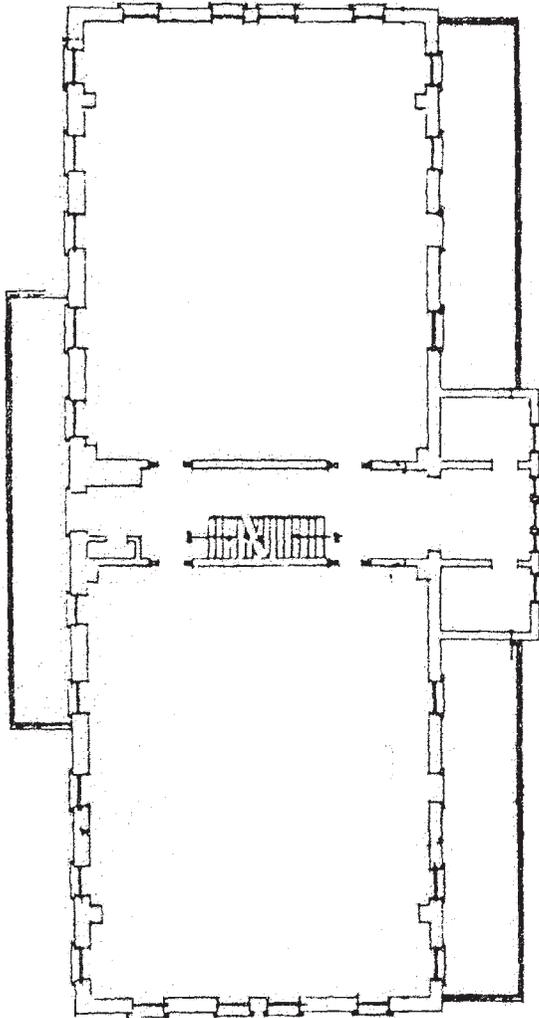
Proposed Alterations



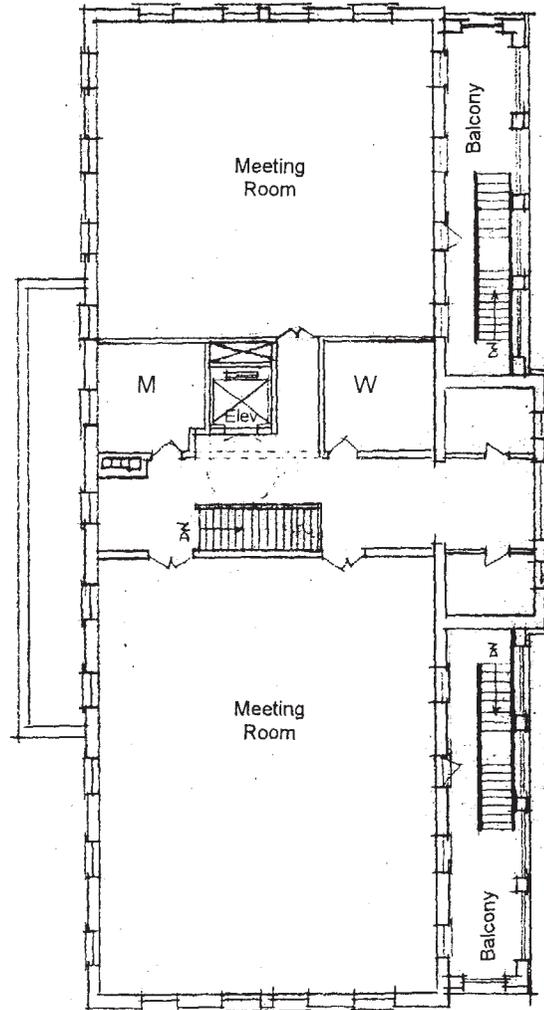
**Barracks
Buildings 23 and 24**

First Floor
Scheme A
Exterior Egress Stair

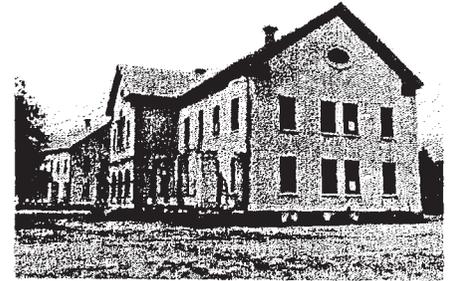
Constructed:	1899
Building type:	Masonry
Gross Floor Area:	17,116sf



Existing Conditions



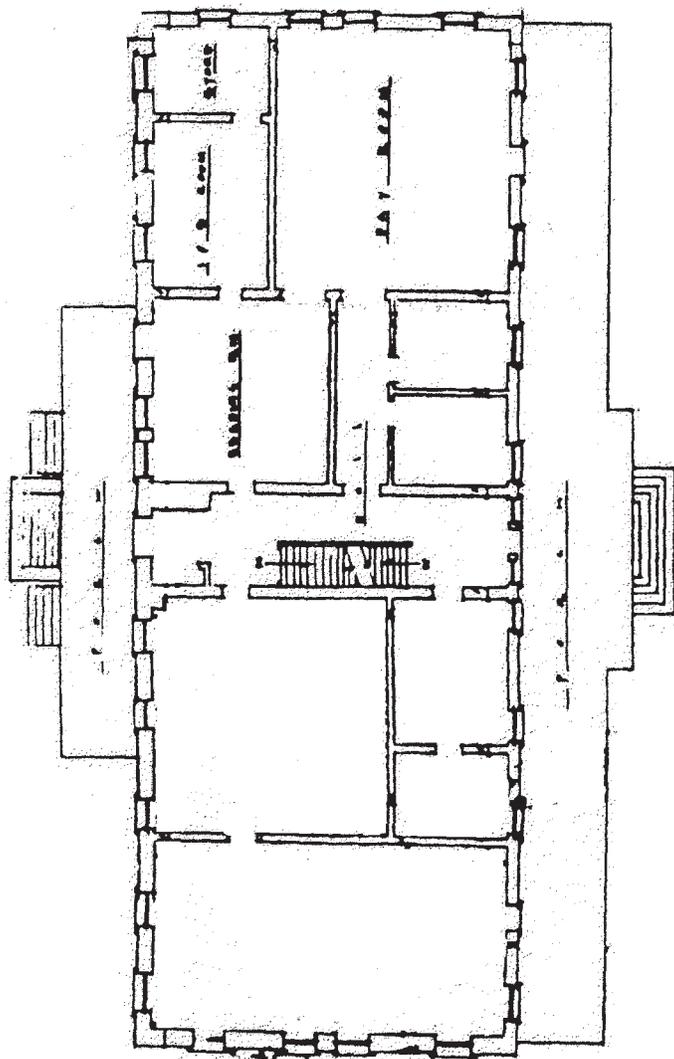
Proposed Alterations



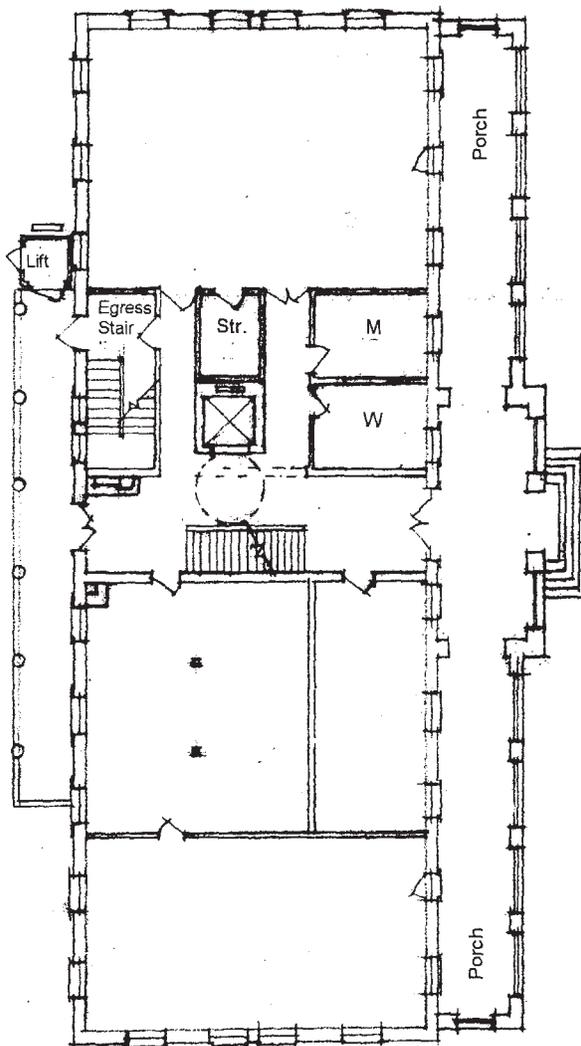
Barracks
Buildings 23 and 24

Second Floor
Scheme A
Exterior Egress Stair

Constructed:	1899
Building type:	Masonry
Gross Floor Area:	17,116sf



Existing Conditions



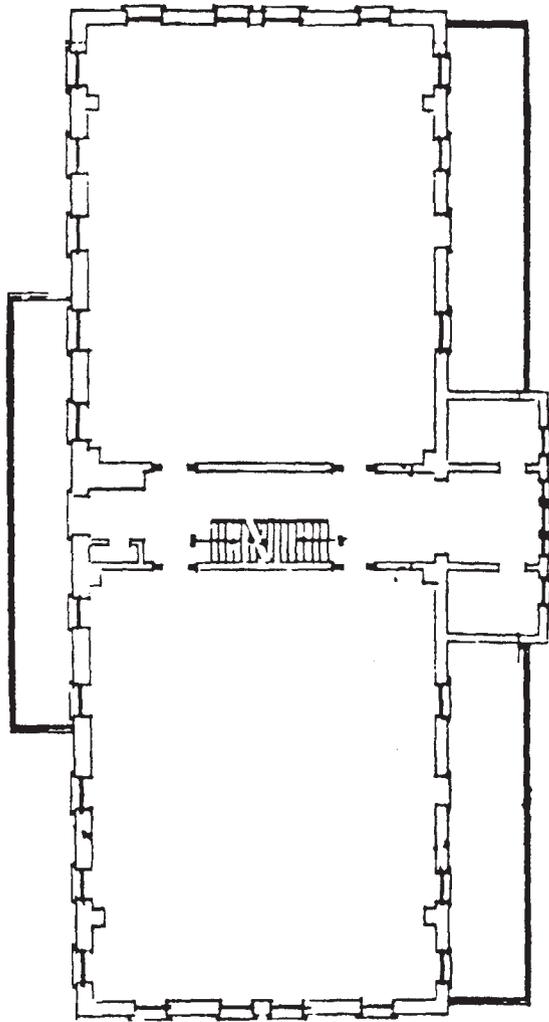
Proposed Alterations



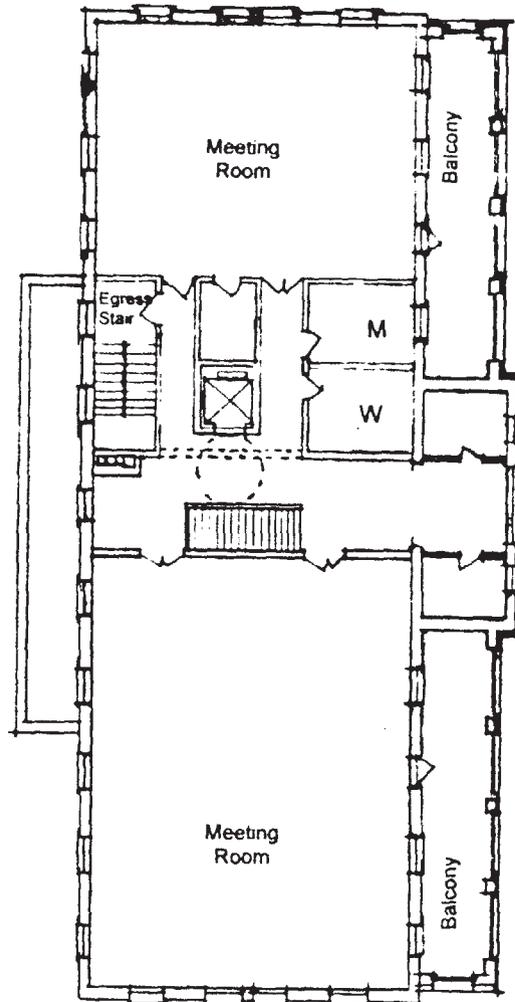
Barracks
Buildings 23 and 24

First Floor
Scheme B
Interior Egress Stair

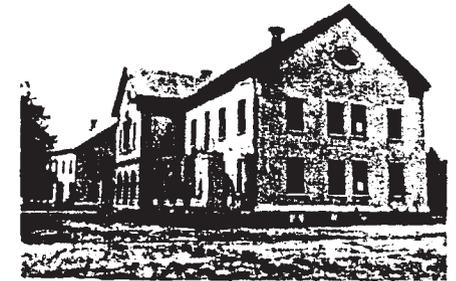
Constructed:	1899
Building type:	Masonry
Gross Floor Area:	17,116sf



Existing Conditions



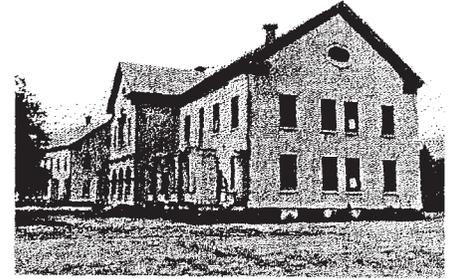
Proposed Alterations



Barracks
Buildings 23 and 24

Second Floor
Scheme B
Interior Egress Stair

Constructed:	1899
Building type:	Masonry
Gross Floor Area:	17,116sf



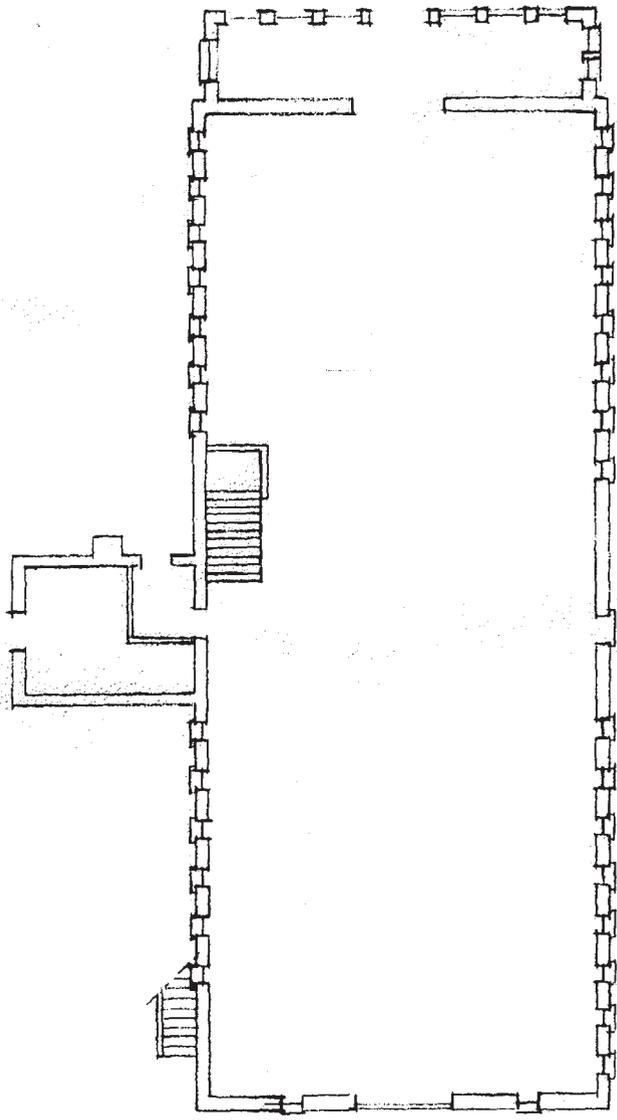
Barracks
Buildings 23 and 24

Scheme A
West Elevation

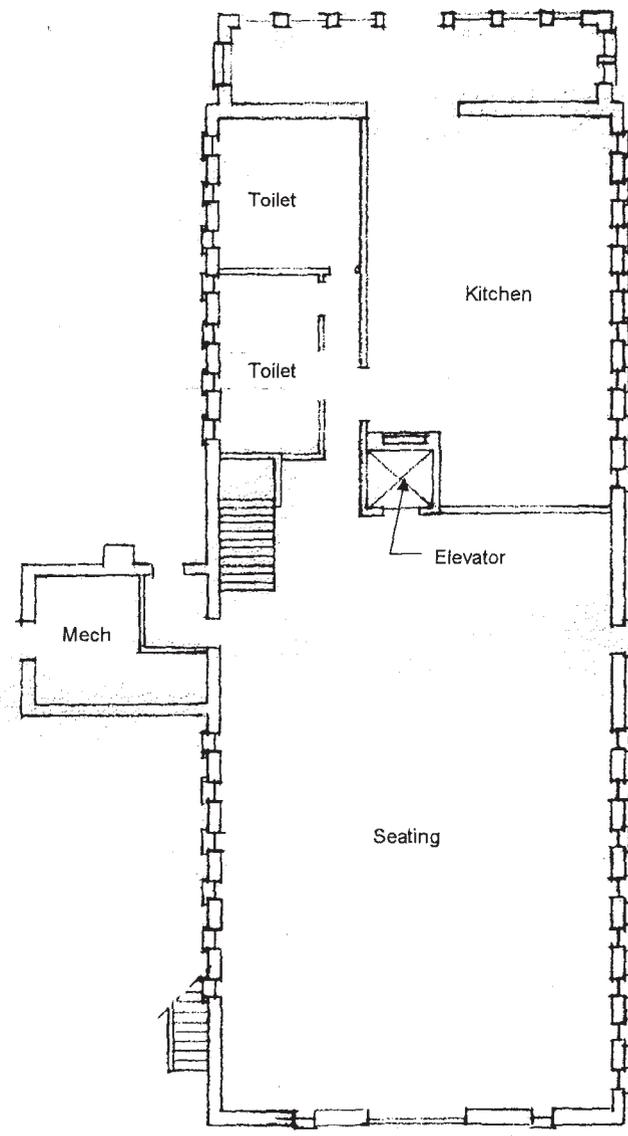
Constructed:	1899
Building type:	Masonry
Gross Floor Area:	17,116sf



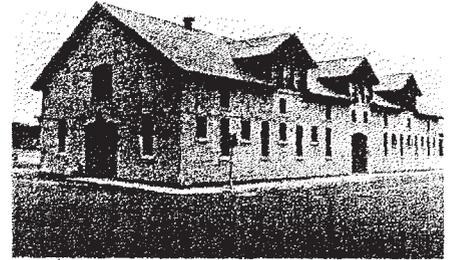
Proposed Elevation
viewed from Parade Grounds



Existing Conditions



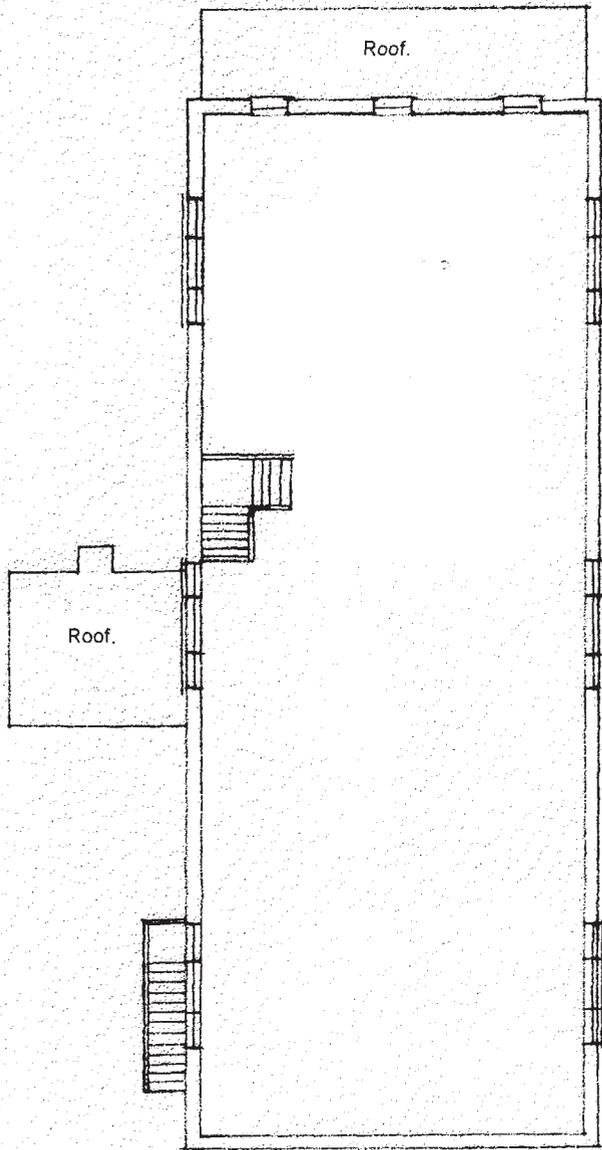
Proposed Conditions



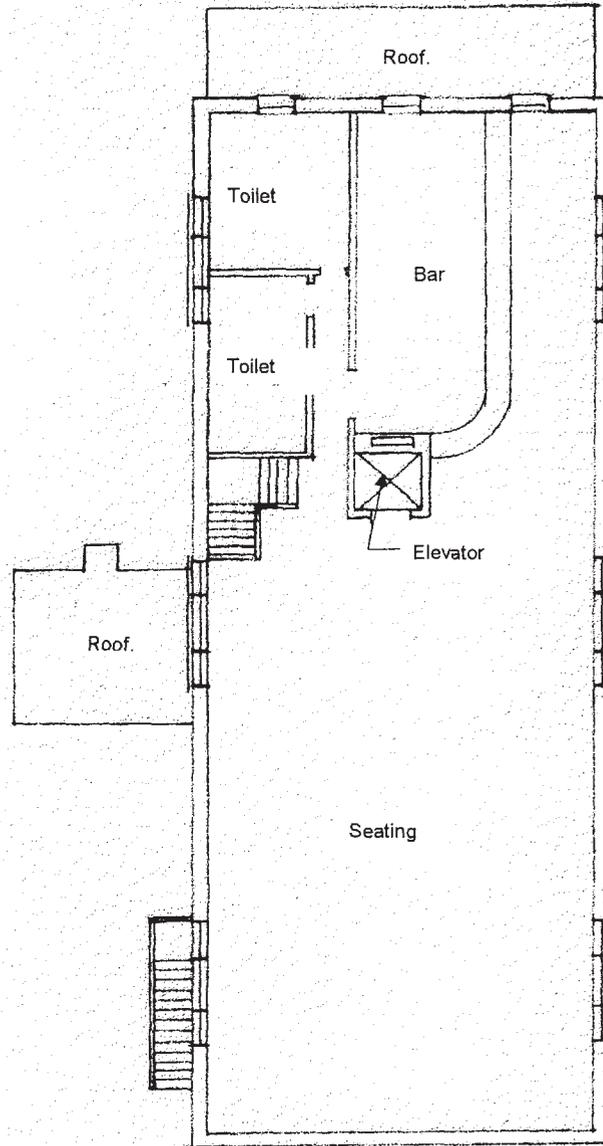
Mule Barn
Building 36

First Floor

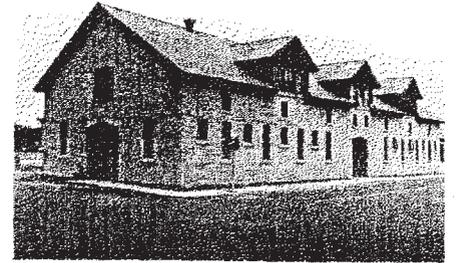
Constructed:	1899
Building Type:	Masonry
Gross Floor Area:	7629 sf



Existing Conditions



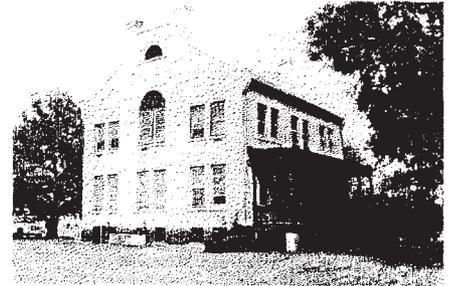
Proposed Conditions



Mule Barn
Building 36

Second Floor

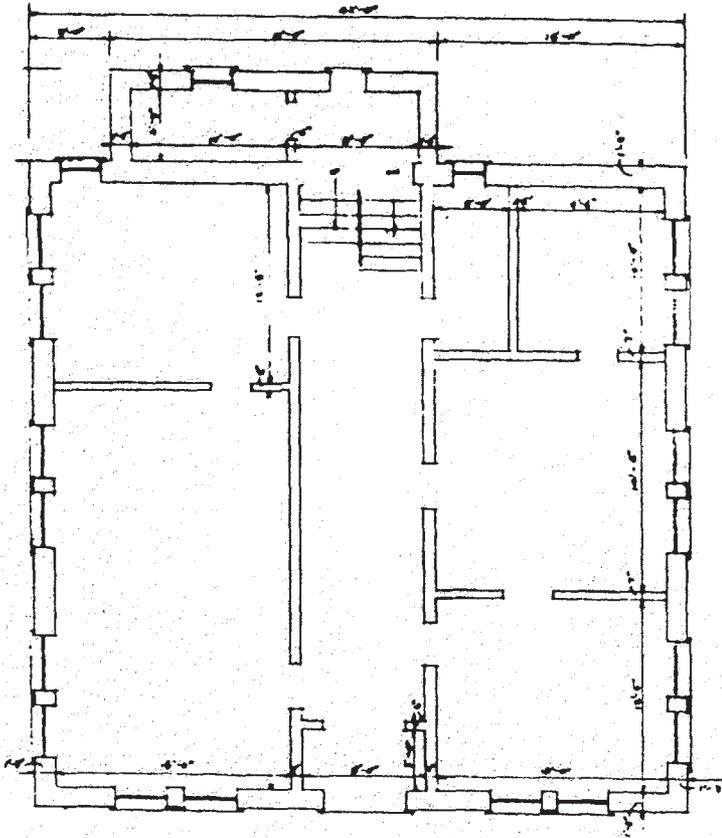
Constructed:	1899
Building Type:	Masonry
Gross Floor Area:	7629 sf



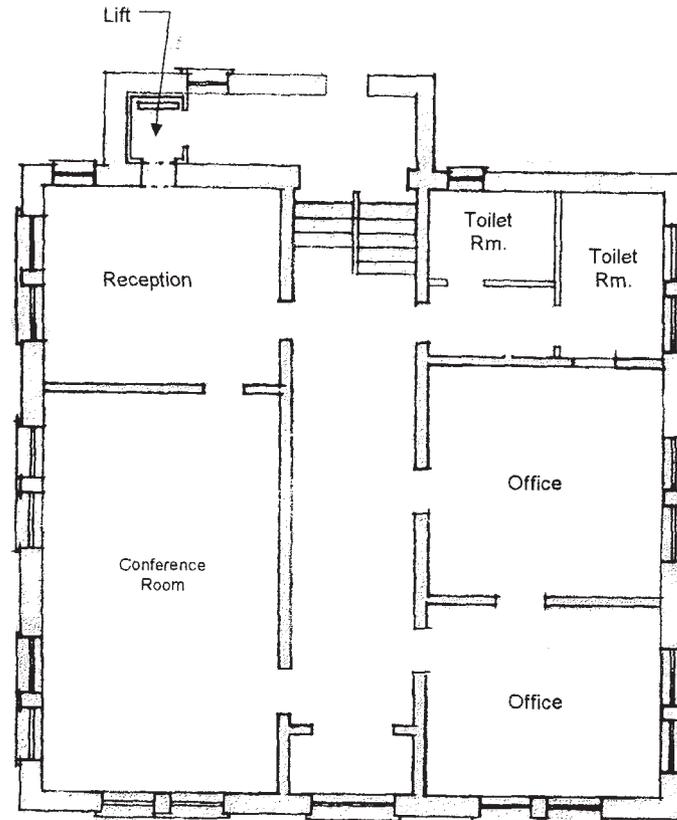
Post Headquarters
Building 26

First Floor

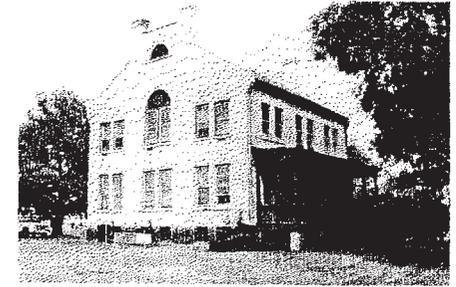
Constructed: 1899
Building Type: Masonry
Gross Floor Area: 5390 sf



Existing Conditions



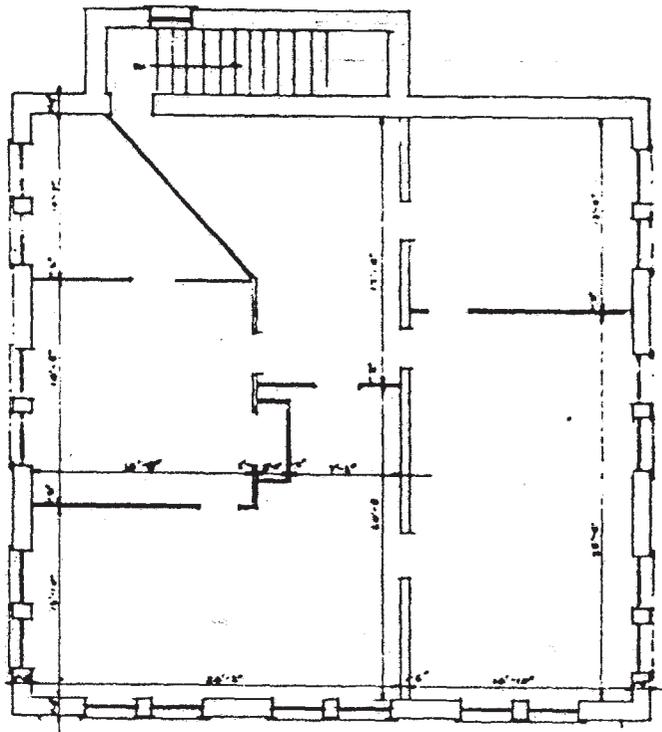
Proposed Alterations



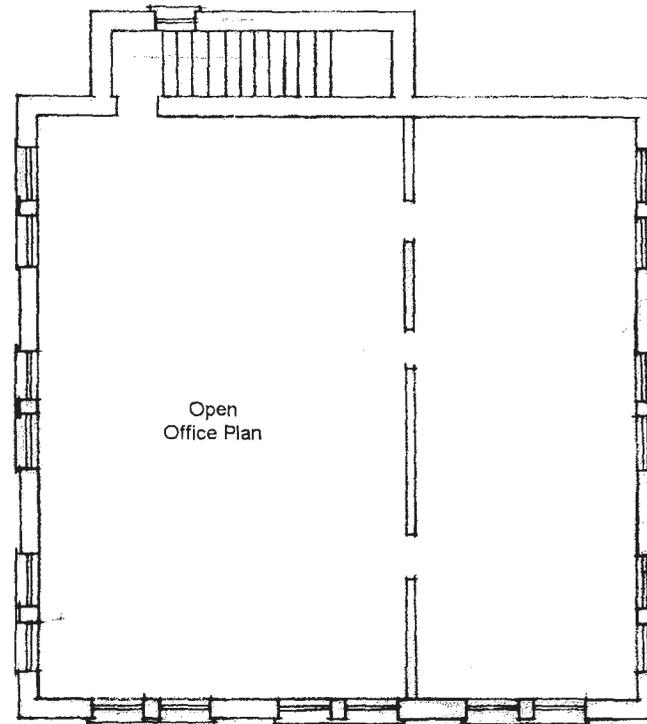
Post Headquarters
Building 26

Second Floor

Constructed: 1899
Building Type: Masonry
Gross Floor Area: 5390 sf



Existing Conditions



Proposed Alterations

CHARACTER-DEFINING FEATURES

**Lieutenant's Quarters: Buildings 2,3,4,5,6,7,8,16,17; Captain's Quarters: Buildings 9,10,11,13,14,15;
Commanding Officer's Quarters: Building 12**



Constructed: 1898-1899
Building Type: Masonry
Gross Floor Area: Ranges from 7420SF–10,044 SF
Number of stories: Two stories, basement and finished attic

Special Considerations

Constructed in buff colored brick, these buildings were originally designed to house officers stationed at Ft. Hancock. For many years a number of these buildings were leased in the summer to non-profit agencies for a variety of uses.

The Officer's Quarters exhibit some of the most developed architectural details found at Sandy Hook, and as such, these buildings warrant special attention. The high level of design and the restrained use of Colonial Revival detailing which characterize most of the Fort Hancock buildings are especially refined in these residences. Because they are essentially uniform in appearance, and are located side-by-side changes that significantly alter the appearance of one building will have an adverse effect on the entire row. A standardized design for new features such as ADA compliant access should be repeated for each

Character-Defining Features

Interior

- Configuration of floor plans
- Stair hall, railings, banisters, and stair assembly on first and second floors. Open main stairwell
- Fireplaces on first and second floors
- Wood floors
- Millwork and cabinetry original to the residence, including baseboards, door and window trim, wood doors and picture mouldings
- Wood wainscot in bathrooms [#11 & 12]
- Pressed tin ceilings
- Radiators

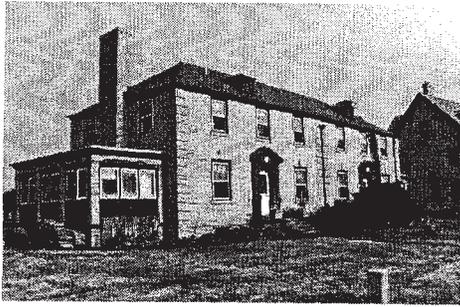
Exterior

- Brick and stone walls, stone sills and banding
- Open front porches, including columns, pedestals, railings, and decorative trim
- Wood windows, wood doors
- Roof form, including dormers, rake returns
- Decorative sheet metal eave and rake trim
- Wood gutters

Landscape Characteristics

- Placement of shade trees confined to edges of roads
- Variable foundation planting in front of bayside porch
- Personalized gardening space confined to within 4 feet of building
- "Island" garden beds not used
- Concrete front walkway/Bluestone walkways
- Lighting fixtures placed at edges of roads
- Unobstructed views from porches to the bay

Officer's Quarters: Buildings 21



Constructed: 1939
Building Type: Masonry
Gross Floor Area: 5715 SF
Number of Stories: Two stories and basement

Special Considerations

Residence 21 is an anomaly in Officers' Row, because it was not constructed in the initial 1898-1899 building campaign, but was added in 1939. It is stylistically unrelated to its neighbors, and is a duplex rather than a single residence. This gap in the Row was originally left to allow views between a small lighthouse, which stood on the west side of Hartshorne Drive, and Sandy Hook Light.

The enclosed side porches on both units are in poor condition, and were constructed using incompatible materials and design.

Character-Defining Features

Interior

- Millwork, including mantelpiece and built-in cabinets
- Stair case assembly, including railing
- Transoms over interior doors

Exterior

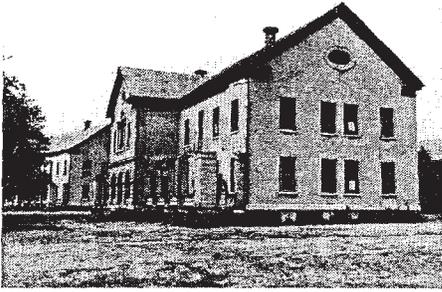
- Horizontal brick volume with minimal detailing, pronounced brick quoins
- Stone window sills
- Large classical door surrounds in wood
- Front stoop with decorative metal railing
- Hipped roof with slate shingles, no overhang, and small dormers on front

Landscape Characteristics

- (same as for Officers' Row)

CHARACTER-DEFINING FEATURES

Barracks: Buildings 23 and 24



Constructed: 1899
Building Type: Masonry
Gross Floor Area: 17,116 SF
Number of stories: Two story, basement and finished attic

Special Considerations

Constructed to house men in dormitory style, the Barracks Buildings have been vacant for many years. These buildings are exceptionally fine examples of the use of Colonial Revival architecture for military uses, and show a greater level of finish and detail than is usually found at an army base. Particularly noteworthy is the use of terra cotta elements, used to greatest effect on the Palladian windows centered on the projecting central bay. Two sections of two-story porch framed this central bay, which unfortunately are no longer standing. The bottom story of the porches was supported by square brick piers or pilasters (still standing), with simple Doric columns on the second story. The balustraded railings were cast iron.

In 1989, the deteriorated two-story front porches were removed from the barracks because they posed a safety hazard. The brick piers were capped and stabilized. Building 23 has lost most of the integrity of its interior due to fire and water damage. Rake returns have been boxed out in wood in several locations. Rake returns should be replaced with new metal returns compatible with the decorative metal rake detailing.

Character-Defining Features

Interior (These pertain to Building 24 only)

- Staircases, railings banisters
- Pressed tin ceilings
- Cast iron columns
- Wood recessed-panel doors, some with divided light transoms above
- Wood trim around original doors, especially trim including dentilated cap molding
- Chair rail, wood wainscoting in stair hall
- Original plan configuration, especially open barracks on second floor
- Decorative cast iron radiators

Exterior [These pertain to buildings 23 and 24 unless noted otherwise]

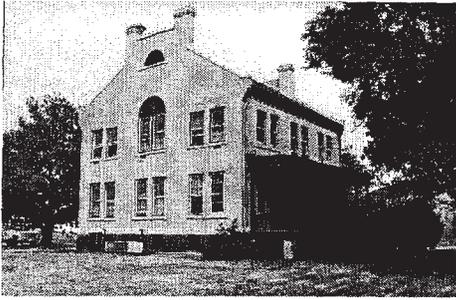
- Brick and stone walls, stone sills and banding
- Wood windows
- Main entry door (for Building 24 only)
- Secondary doors with 28-light fixed glass
- Roof form, including decorative sheet metal eaves and rake trim
- Central entrance bay, with three open arches forming an open "loggia"
- Rusticated brick banding at main entry
- Terra cotta details in central Palladian window and elliptical window in gable ends
- Limestone steps cascading from central arched opening
- Cast iron balustrades in railings
- Roof top ventilators
- Porches.

Landscape Characteristics

- Simplified and uniform foundation plantings from building to building.
- Geometric arrangement of concrete sidewalks.
- Curved brick walkway on west façade of barracks.
- Plantings located at perimeter of quadrangles between mess halls rather than in center.

CHARACTER-DEFINING FEATURES

Post Headquarters, Building 26



Constructed: 1899
Building Type: Masonry
Gross Floor Area: 5390 SF
Number of stories: Two stories, basement

Special Considerations

Designed to house offices for Fort Hancock, until recently the building was used for the NPS offices.

Constructed in the predominant buff colored brick, the building is located in a prominent location at the north end of the Parade Grounds.

Alterations including installations of hung ceilings and new gypsum partitions were installed to accommodate the NPS offices. These alterations hide some original finishes including pressed tin ceilings.

Character-Defining Features

Interior

- Original wood doors, door and window trim, where remaining
- Stair and railing
- Pressed tin ceiling on first floor

Exterior

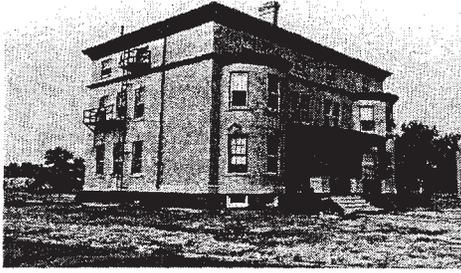
- Brick and stone walls, stone sills and banding
- Gable end walls with distinctive double chimneys, corbelled projections, terracotta cap
- Wood windows, especially the half-round windows in the gable end walls and the lunette windows at the attic story
- Front door, including fanlight and sidelights
- Roof form
- Front porch, including columns, railings and trim is a later alteration. Retain or reconstruct original porch with balustrade
- Slate roof

Landscape Characteristics

- Landscape characteristics similar to that of Officers' Row Residences
- Landscape plantings limited to perimeter of building foundation

CHARACTER-DEFINING FEATURES

Bachelor Officer's Quarters: Building 27



Constructed: 1899
Building Type: Masonry
Gross Floor Area: 10,303 SF
Number of stories: Three stories, basement

Special Considerations

Once a grand building sited at the north end of the parade ground, this buff colored brick building is now in need of restoration. The exterior brick is failing; cracks and missing bricks are evident. The interior has been altered with little of the original plan or details remaining. The building is currently vacant.

Character-Defining Features

Interior

- Stair rail and banister
- Some original millwork, such as mantelpieces and built-in cabinets in dining room and pantry
- First floor plan that can be seen through the alterations should be restored.
- First floor paneled doors
- Radiators

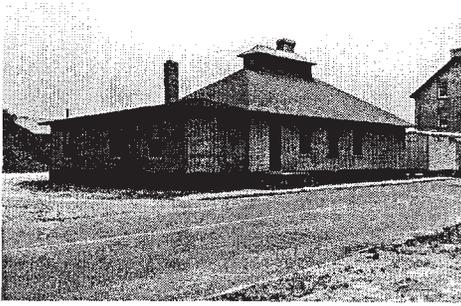
Exterior

- Brick and stonewalls, stone sills and banding
- Round bay windows
- Wood windows, wood doors, front lights and sidelights
- Decorative sheet metal eave and rake trim
- Front porch, including columns, railings and trim is a later alteration. The existing porch should be retained or original porch with balustrade reconstructed.

Landscape Characteristics

- (Same as for Building 26)

Bakery: Building 33



Constructed: 1898
Building Type: Masonry
Gross Floor Area: 2740 SF
Number of stories: One story

Special Considerations

The one story buff colored brick building was designed and used as a bakery for the post. Today the building is vacant. Portions of the original bread ovens still remain in place on the interior, including the front face of the oven made of glazed brick with steel doors. Despite the deteriorated state of most of the oven, portions of the oven should be retained.

Character-Defining Features

Interior

- Wood beaded-board ceilings, where extant
- Light wells leading to clerestory on roof
- Glazed brick oven, remaining in part
- Unadorned utilitarian finishes

Exterior

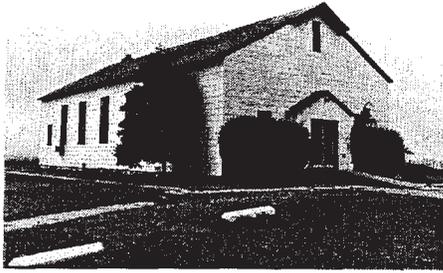
- Brick and stonewalls, stone sills and banding
- Wood windows, wood doors
- Roof form, including cupola
- Decorative rafter tails

Landscape Characteristics

- Landscape characteristics typical of all service buildings on site
- Ornamental landscape plantings not used—groundcover only

CHARACTER-DEFINING FEATURES

Post Chapel: Building 35



Constructed: 1941
Building Type: Wood Frame
Gross Floor Area: 3277 SF
Number of stories: One story

Special Considerations

Constructed in wood with lapped siding, the exterior of the Chapel is much different today than from the early days of its use. The original wood siding has been covered with cement asbestos siding. The steeple was removed in 1975 to alleviate structural problems. Each of these original features should be restored.

On the interior the entrance hall leads to the main room, which is a one-story space open to the roof trusses above. A raised platform is located at the west end. Wood paneling and "church" type light fixtures adorn the space. The NPS has used the building for lectures, meetings and events.

Character-Defining Features

Interior

- Wood trusses and exposed wood roof decking
- Stage/Altar with arched proscenium opening
- Hardwood floors
- Pine wainscoting in auditorium
- Balcony/choir loft (closed in at a later date)

Exterior

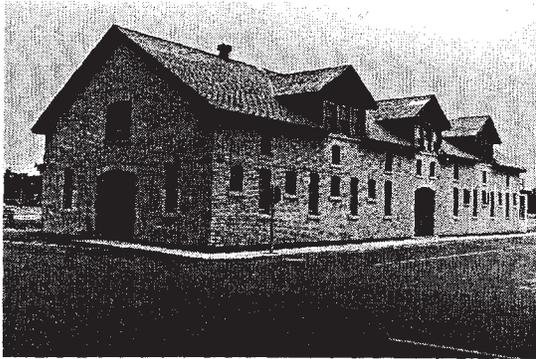
- Overall building volume
- Tall wood windows with amber glass

Landscape Characteristics

- Landscape plantings at perimeter of building foundation and following walkways

CHARACTER-DEFINING FEATURES

Mule Barn: Building 36



Constructed: 1899
Building Type: Masonry
Gross Floor Area: 7629 SF
Number of stories: Two stories

Special Considerations

The Mule Barn is highly distinctive and expresses its original function in its design. Constructed in the predominant buff colored brick the building served as a stable for many years. In 1940's the Army used the building for many purposes including a barracks, NCO club and a mess hall. It was during this period that the dormers were added. After the army left Fort Hancock the Mule Barn was used by NJ Department of Corrections as a youth facility workshop. The NPS returned the building to its original use and again used the building as a stable. Currently the building is vacant.

The ground floor has been modified to such an extent that most original finishes and features are missing. There

Character-Defining Features

Interior

- Finishes on second floor are the only historical materials remaining
- Plaster walls and ceiling with softwood strip flooring
- Wood columns
- Wood stairs and stair railing

Exterior

- Brick and stonewalls, stone sills and banding
- Small window openings with arched lintels set deeply into walls; wood windows
- Roof form with rake returns, also including dormers, sided with wood clapboard
- Roof top ventilators

Landscape Characteristics

Landscape characteristics typical of all service oriented buildings on site

- Ornamental landscape plantings not used—grass or groundcover only

YMCA and Gymnasium: Building 40



Constructed: 1901/1942
Building Type: Masonry
Gross Floor Area: 18,890 SF
Number of stories: Two stories, basement and finished attic

Special Considerations

Funded in part by a donation from the YMCA, the building was designed to house reading, recreation and correspondence rooms. Its location on a site overlooking the parade ground just north of the Barracks buildings was the cause of many debates and a delay in its construction. The first and second floors of the interior bear little resemblance to the original design. The third floor however, retains much if not all of the original fabric.

The gymnasium addition was constructed in 1942 to the north of the main building. Its two story interior space with an elevated seating area remains intact. The gymnasium remains in use today.

Character-Defining Features

Interior

- Some original window trim remains in older section (1901)
- Gymnasium wood trusses supporting roof, with exposed wood decking
- Glazed block lower wall section
- Gallery with metal pipe rail
- Terrazzo floor
- 3rd floor plan
- Stair and railing in 1901 section

Exterior

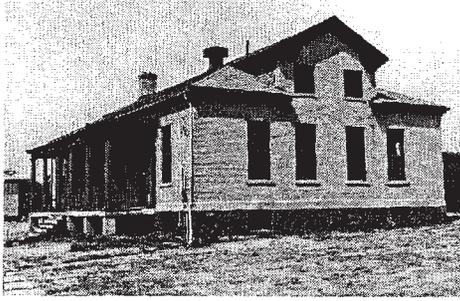
- Brick and stonewalls, stone sills and banding
- Entrance door with lunette transom, and adjoining arched windows
- Roof form, including dormers, and wood entablature with built-in gutters
- Front porch, including columns, railings and trim
- Large double-hung gym windows
- Metal railing at entry porch

Landscape Characteristics

- Landscape plantings limited to perimeter of building foundation
- Foundation planting facing street required—typical to that of barracks/mess halls

CHARACTER-DEFINING FEATURES

Mess Halls: Buildings 56, 57



Constructed: 1905
Building Type: Masonry
Gross Floor Area: 6676 SF
Number of stories: One story, basement and unfinished attic

Special Considerations

The Mess Halls were added six years after the barracks were constructed, after it was found that the mess halls and kitchens originally included within the barracks were too small. Architecturally, they pick up on the Palladian references found in the Barracks and are seamlessly integrated into the earlier building complex. Yet their scaled back detailing make it clear they are subservient structures. The spaces created between the Mess Halls and Barracks are well defined and have a comfortable human scale.

The exteriors of the buildings are in generally good condition. The rear porch on Building 57 should be rebuilt. The buildings are currently vacant.

Character-Defining Features

Interior

- Pressed tin ceilings, where extant
- Wood trim around doors and windows in all public rooms
- Original base moulding and chair rail where present
- Decorative radiators

Exterior

- Brick and stonewalls, stone sills and banding
- Wood windows
- Main entry doors with divided light transom
- Secondary door with 28-light window
- Roof form, including dormers, rake returns
- Decorative sheet metal eave and rake trim
- Front and rear porches including columns, railings and trim
- Roof top ventilators

Landscape Characteristics

- Simplified and uniform foundation plantings from building to building
- Geometric arrangement of concrete sidewalks
- Curved brick walkway on west façade of barracks
- Plantings located at perimeter of quadrangles between mess halls rather than in center
- Stone areaways
- Stone walkways

CHARACTER-DEFINING FEATURES

Gas Station: Building 60



Constructed: 1936 and 1939
Building Type: Masonry
Gross Floor Area: 1325 SF
Number of stories: One story

Special Considerations

Located east of the Post Exchange, Building 53 was constructed to replace an earlier frame structure. In 1939, a yellow brick two bay addition was constructed. The building is currently vacant.

Character-Defining Features

Interior

- Pressed tin ceilings in entrance/office
- Wood window trim
- Operable glass transom over front door
- Painted brick wall finishes
- Light fixtures in garage bays
- Radiators

Exterior

- Brick and stonewalls, stone sills and banding
- Porte-cochere and gas-pump island
- Wood windows, and steel casements (indicating different construction dates)
- Skylights in roof over service bays
- Slate roof
- Design of overhead door infill to reflect original design and use

Landscape Characteristics

- Utilitarian landscape devoid of planting

Post Theater: Building 67



Constructed: 1933
Building Type: Masonry
Gross Floor Area: 6151 SF
Number of stories: One story

Special Considerations

Located on Hartshorne Drive the theatre is still used today for meetings, lectures and for small theatrical productions. In 2000, the NPS completed the restoration of the entrance façade. The inappropriate vestibule was removed, the original entrance canopy repaired and interior ADA upgrades completed. Additional exterior repairs including the repair of the severe rust jacking at the front corners of the building need to be completed. The rehabilitation of the interior finishes and furnishings remain to be completed.

Character-Defining Features

Interior

- Main volume of auditorium with raked seating.
- Curved plaster ceiling with cornice molding.
- Shallow stage with arched proscenium opening
- Lobby including architectural millwork, french doors with mirrored glass, and shallow arched plaster ceiling.
- Decorative radiators
- Retain Reostat equipment and sound system for display only
- Seating and seat backs. Add padding and new covers to seats

Exterior

- Overall building volume
- Corner pilasters with stone or cast-stone capitals
- Arched door and window openings with keystones
- Lunette window in front gable
- Marquee supported by thick chains anchored to building face

Landscape Characteristics

- Minimal decorative landscaping
- Concrete steps at building front

CHARACTER-DEFINING FEATURES

Post Exchange/Gymnasium: Building 70



Constructed: 1909
Building Type: Masonry
Gross Floor Area: 8747 SF
Number of stories: Two stories, including finished basement

Special Considerations

Building 70 is a unique structure at Fort Hancock with a high level of architectural detail. The Craftsman style detailing of the wood members at the porch and roof overhangs is an unusual departure from the Colonial Revival detailing normally found at the Fort. This building also has fine Classical Revival details, especially the tall, arched windows. The shed addition on the rear is not historic. The basement level bowling alley fittings and finishes are from the 1960s, but the bowling alley function is original to the building, which served as the post gymnasium until 1942. Today the building is vacant.

Character-Defining Features

Interior

- Entry hall and 2 rooms on either side of entry retain original features
- Pressed tin ceilings, where they exist
- Window and door trim, including some remaining transoms over doors. Doors are non-historic

Exterior

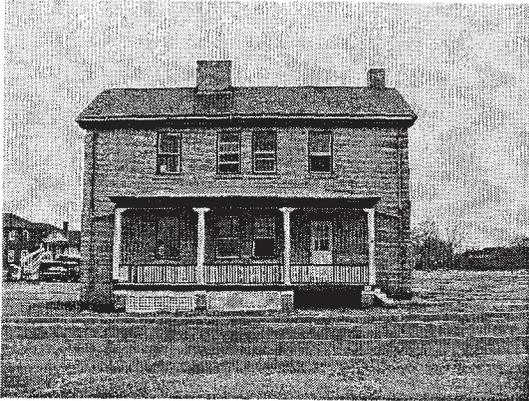
- Brick and stonewalls, stone sills and banding
- Wood windows, especially tall, arched windows with raised panels below
- Roof form, including dormers
- Decorative rafter tails on porch, main roof and dormers
- Front porch, including brackets and decorative framing
- Railings at porch are original pipe and bulb rail
- Roof top ventilators

Landscape Characteristics

- Landscape plantings limited to perimeter of building foundation
- Foundation planting facing street required—typical to that of barracks/mess halls

CHARACTER-DEFINING FEATURES

Two Family NCO Quarters: Building 80



Constructed: 1911
Building Type: Masonry
Gross Floor Area: 2,342
Number of Stories: Two stories

Special Considerations

Constructed in buff colored brick by the Army, this two-family house has been used by the Army, the Coast Guard and the NPS for housing. Currently the building is vacant. Alterations to the interior have been numerous and little original fabric remains. The exterior is in good condition; alterations to the porches have been completed.

Character Defining Features

Interior

- Retains some baseboard (wood)
- Original window trim
- Some original door trim
- Original stair and banister
- Radiators

Exterior

- Brick walls and stone sills.
- Wood windows and doors.
- Porches

Landscape Characteristics

- Landscape planting limited to perimeter of building foundation.
- Foundation planting facing street required.

Officer's Club: Building 114



Constructed: 1878
Building Type: Wood Frame
Gross Floor Area: 23,616 SF
Number of stories: Three stories and basement

Special Considerations

One of the oldest buildings on Sandy Hook, the Officers' Club also is one of the most architecturally distinct, designed in the Second Empire style. The building was originally red brick and was later painted yellow to match Fort Hancock. The additions on the east side include a bar and a dining room, added in the 1940s. Although these additions are stylistically incompatible with the buildings exterior and have a negative impact on the exterior of this 1870's structure, the interior of these additions add to the character of the club. Vacant for some time, the building is seriously deteriorated, every attempt should be made to retain interior character defining features; these interiors are perhaps the finest at Fort Hancock.

Character-Defining Features

Interior

- First floor plan
- Pressed tin ceilings
- Wood panel doors, french doors, and sliding pocket doors
- Wood wall paneling, plaster cornice molding on first floor
- Wood window and door trim
- Wood flooring on first floor, in diagonal strip parquetry
- Grand staircase with wood railings, banisters and newel posts
- Mantels and fireplace surrounds
- Decorative radiators
- Tall ceilings on the first floor.

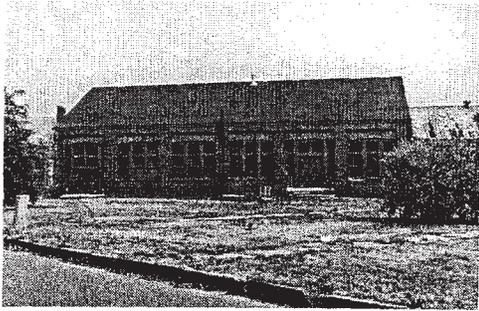
Exterior

- Brick and stone walls, stone sills and banding. Stone window lintels with brackets
- Wood windows, especially bay window over front door and curved bay window on second floor west wall
- Wood doors
- Mansard roof form, including curved top dormers, and decorative trim
- Wide eave with decorative brackets
- Wrapping front porch with porte-cochere, including columns, railings and trim
- Tall, thin proportions of windows and porch columns

Landscape Characteristics

- Informal landscape of grass and trees in outlying yard
- Garden-like placement of trees within open lawn rather than confined to edges of road
- Central concrete walk to front door flanked by ornamental shrubs
- Placement of ornamental shrubs confined to edges of walks or perimeter of building
- Shepherd's crook lighting standards typical of the historic Proving Ground area
- Concrete barbecue terrace and barbecue pit

Instruction Building/Warehouse: Building 124



Constructed: 1880
Building Type: Masonry
Gross Floor Area: 3845 SF
Number of stories: One story

Special Considerations

This one story, red brick industrial building was constructed for the Proving Ground. The slate roof was removed and replaced with asphalt shingles by the NPS. The two level interior has wonderful light filled spaces. The southeast room has a terrazzo floor and white glazed brick walls. The building is currently used by the NPS for storage.

Character-Defining Features

Interior

- In west area, open ceilings with exposed wood roof decking and steel trusses
- For east area, dropped ceiling
- Glazed white brick in southeast corner
- Terrazzo floor

Exterior

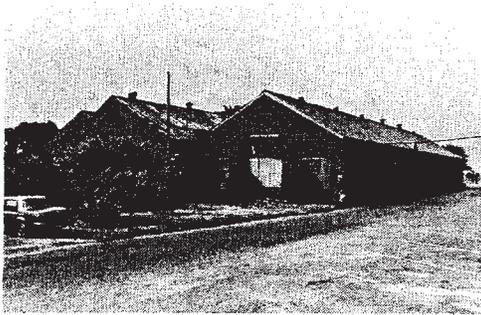
- Simple long building form
- Simple roof form without overhanging eaves
- Specialized brick work; corbels, pilaster, and low arches over windows, especially at gable ends
- Wood divided-light windows, stacked units
- Wood doors with X-bracing and vertical grooved boards

Landscape Characteristics

- Landscape characteristics typical of all service buildings on site
- Ornamental landscape plantings not used—grass or groundcovers only

CHARACTER-DEFINING FEATURES

Motor Shop: Building 125



Constructed: 1907
Building Type: Masonry
Gross Floor Area: 11,694 SF
Number of stories: One story

Special Considerations

Constructed in red brick, this building for the Proving Ground has a wonderful second story rectangular space with remnants of its earlier industrial use still intact. The overhead steel trusses and gantries remain. The building has some of the few remaining sections of railroad track still at Fort Hancock. The addition at the southeast corner is in poor condition, its east wall and roof is beginning to collapse. The building is currently used for vehicle storage by the NPS.

Character-Defining Features

Interior

- Big open interior volumes
- Overhead steel gantries and trusses
- Steel rail sections embedded in floors

Exterior

- Long building forms in parallel arrangement
- Specialized brick work; corbels, pilasters, and low arches over windows, especially at gable ends
- Large doors
- Wood divided-light windows, stacked units
- Simple roof form without overhanging eaves
- Slate roof
- Roof top ventilators

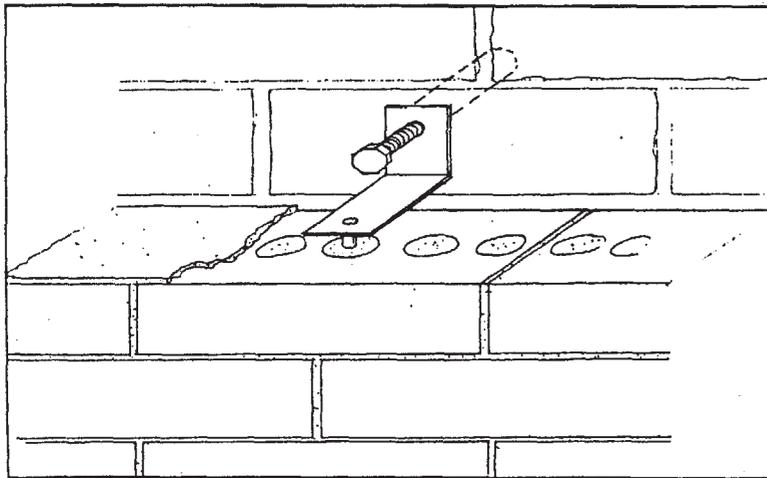
Landscape Characteristics

- Landscape characteristics typical of all service buildings on site
- Ornamental landscape plantings not used—grass or groundcovers only

Based on past experience, there are certain building repair issues that are frequently found at Fort Hancock. What follows is a set of general repair strategies for some of the most common building deficiencies found at Fort Hancock:

BRICK, STONE AND MORTAR

Fort Hancock and the Warehouse area of the Proving Ground Warehouses contain different types of masonry, and different types of deterioration. For the brick Warehouse buildings, the deterioration of mortar joints must be corrected by raking the joints to remove the old mortar and then repointing the joints with new mortar. For buildings of this age, it is usually necessary to use a soft, lime-based mortar. Repointing with modern cement mortars will cause more damage than it will correct, because it is extremely hard and the brick is comparatively soft. For Fort Hancock's buff brick buildings, the brick is extremely hard, so repointing can be done with a harder mortar. However, the thin "butter joints" will necessitate hand raking and repointing. Stone foundations walls may also require repointing to repair failed masonry joints. As in any repointing project, the type of mortar must be compatible with the existing mortar and the stone.



Detail of brick anchor used to repair walls at Officer's Row.

Efflorescence, or the white residue seen on the face of the brick, is evidence of mortar deterioration or salts leeching out of the mortar and brick. This problem is usually caused by water damage to the brick wall. Correcting the source of the water infiltration, either at the coping or parapet, or at a leaking roof, is frequently the first step in repairing the problem. If it is a result of the mortar washing out of the joints, repointing is the solution.

An unusual problem has existed in the past at Fort Hancock related to the buff brick. This brick is a veneer layer, and in some cases is detached from the back-up brick, and is bowing out. The veneer layer is not attached to the back-up brick layer using any anchors to tie the two together, but instead, the buff brick sits on horizontal shelves created in the back-up wall. In 1992, the NPS corrected the problem in the most severe cases on Officer's Row by taking down the walls where the veneer brick had become detached, and rebuilt the buff brick wall using a brick anchor which tied it to the back-up wall.

LINTEL REPLACEMENT

Steel lintels and other structural pieces embedded in brick walls are prone to "rust jacking", a situation where water infiltrates the brick wall, and corrodes the steel. The swelling that is caused by the corrosion jacks the bricks out of alignment, which then further breaks up mortar joints and allows more water to enter the wall cavity. Where this has happened, it is often necessary to remove both the bricks and the corroded lintel. Replacement of new steel lintels is best done using stainless steel or, if that is not feasible, regular steel that has a sturdy rust-proof, water repellent coating.



East wall of Building 10, which was rebuilt using new anchoring system, new brick and replacement steel in lintels.

ROOF REPLACEMENT

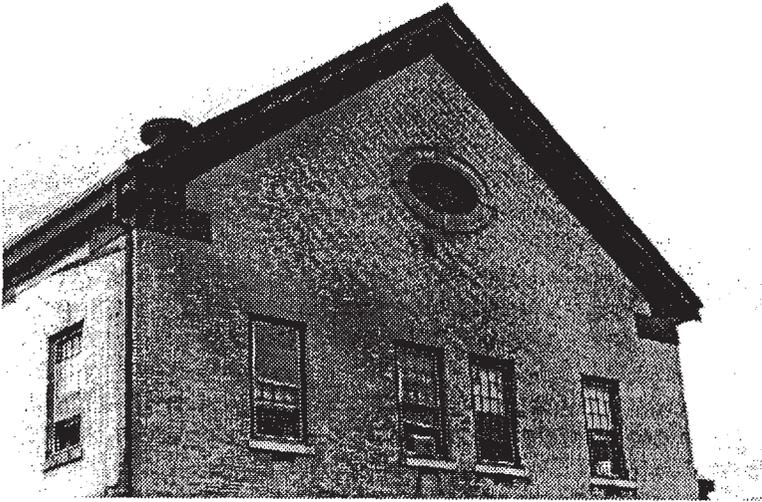
There is a mixture of slate and asphalt roof shingles, and standing seam sheet metal roofs in the Fort Hancock Historic District. Some roofs, in part or total, may need to be replaced. Retention of the historic roofs is an NPS goal, and every reasonable effort should be made to repair rather than replace a historic roofing material. If replacement is the only option for a roof, care should be given to select substitute materials that are compatible with historic materials. In the case of selecting asphalt roof shingles, Park management has selected a type and color shingle to be used by lessees. This information will be provided by the park.

GUTTERS AND DOWNSPOUTS

Gutters and downspouts are the first defense against water damage, and their repair and maintenance should be a priority. Most of the original gutters and downspouts are copper, and whenever possible, they should be repaired in place. Corroded areas should be patched, and damaged sections replaced. Substitution with aluminum sections will not, in most cases, be acceptable, because this modern gutter and downspout materials are different sizes and profiles. Substitutions using improperly sized gutter is evident at the Barracks, and on many of the Officer's Row houses.

BUILT-IN GUTTERS AND FLASHING

Flashing materials should also match the existing materials, which in most cases are copper. This includes valley and chimney flashing. Many of the built-in gutters at roof eaves that were original to the Fort Hancock buildings have been covered over, (especially on Officer's Row and the Barracks) and surface mounted metal gutters have been added. Reconstructing the absent built-in gutter, following the original appearance, is the preferred course of action. Retaining the surface mounted gutter may be acceptable in some cases. However, installation of a new surface mounted gutter will require custom fabrication to fill the space and provide adequate drainage.



Roof rakes and gutters require attention on many Fort Hancock buildings.

TRIM AND MOLDING

Applied wood and metal trim and moldings must be replaced in damaged sections. At Fort Hancock, the characteristic formed metal rake and eave moldings on the major Parade Ground buildings are important to preserve. In cases where the majority of the sheet metal moldings are extant, repairs and insertion of missing components is the correct procedure. Where the moldings are missing entirely, substitute materials may be used, if they adequately replicate the historic molding. Rake returns, which have been modified from their original appearance, should be restored using the historic molding.

CHIMNEYS

Chimneys will be retained in most cases. To do so will require repointing, and sometimes rebuilding failed sections of brick. Exceptions to this will be addressed on an as-needed basis. Usually, the chimneys will be capped.

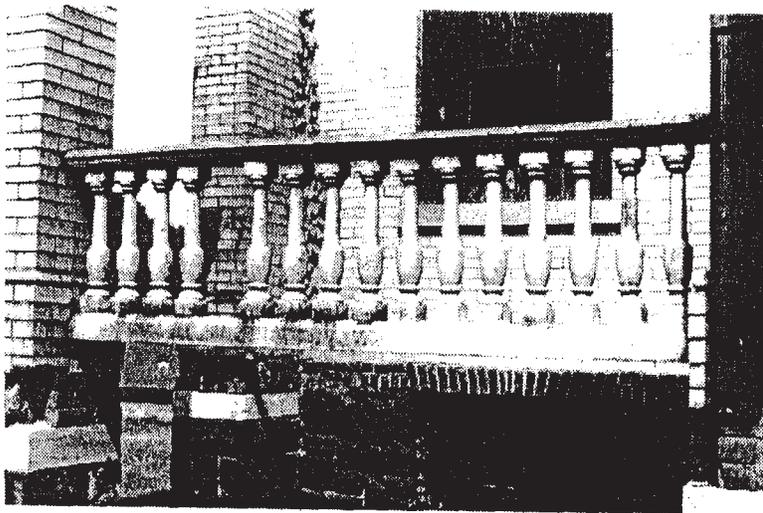
WINDOWS AND DOORS

The historic wood windows and doors on buildings in the Fort Hancock Historic District are important character-defining features and should be retained. This includes front door assemblies composed of fixed glass elements like fan lights, transoms, and side lights. In most cases, repairs can be made on these doors and windows to make them operational and serviceable. In cases where windows are missing or in extremely bad condition, new windows are permitted, as long as they match the historic window in size and appearance. True divided-light windows are required. Double paned glass is permitted in new windows, but windows will have to match the mullion and muntin sizes of the historic window sash. Storm windows may be added to improve energy efficiency, but the storm window unit must be mounted on the inside of the window, facing the building interior. Window screens can also be included in the storm window assembly. Storm doors are permitted as long as they are sufficiently compatible with the rest of the building. The NPS will provide product information for approved types.

PORCHES

Porches are prevalent in all areas of the Fort Hancock Historic District and are a character-defining feature. Their repair and maintenance should be factored in to any rehabilitation proposal. Because the porches contain so much architectural detail, in the form of columns, railings, and balustrades, loss of any of these pieces would have a negative impact on the buildings. Repairing in place, and selective replacement of damaged elements, are preferred to replacement of entire components. Wood consolidation and dutchman patching are recommended procedures to correct damaged wood. Substitute materials may be used to replace damaged elements as long as they match the original in size, profile and detail. For example, many of the railings are made up of cast iron balustrades, which would be very expensive to replace. A modern replacement balustrade may be cast from the original, thereby copying its size and shape.

Enclosing open porches may be allowed in certain areas of the park. For Officer's Row enclosing porches with insect screen is the only allowable enclosure. Frame work to support screen must sit behind columns & railings and designed to be as inconspicuous as possible.



Cast iron balustrades still exist on some barracks' porches.

In the case of Residence 21 on Officer's Row, which is not one of the original 19th century officer's residences, building has enclosed side porches which are currently enclosed using incompatible materials. These enclosures may be replaced with a more compatible enclosing system.

The NPS removed the two story porches on the Fort Hancock Barracks buildings in the late 1980's because they had become a safety hazard. Rear porches were also removed. Photographs were taken prior to their removal, and certain components were salvaged and stored, which can be used as models for new components. It is the desire of the NPS to have the porches rebuilt. Replicating the original porch is desirable, although modifications may be necessary in order to incorporate emergency egress stairs from the second floors. Substitute materials may be used, if the design is copied from the original components.

PAINT COLORS

The NPS has recently completed an analysis of historic paint colors. Lessees will be required to follow the Paint Color Guidelines which will be provided upon request. Paint colors are based on readily available paint brands.

LEAD PAINT

It is safe to assume that whenever paint stripping, scraping or sanding is planned, that the paint being removed contains lead. This is true for paint chips that have already fallen off. Therefore, cleanup of the interiors and the preparation for repainting must be done in accordance with EPA and OSHA procedures for handling lead-containing materials. The lead paint must be abated by a licensed abatement contractor, the dust, chips and residue properly contained, and the waste disposed of at a licensed disposal facility.

GARAGES ON OFFICER'S ROW

Although these structures are in poor condition, they should be retained. Replacing steel lintels is necessary in many cases, as well as roof replacement. Replacement of missing wood doors is necessary in many cases. New garage doors must conform to the type of door on Building 12 or another compatible design as approved by the Park.

CEMENT ASBESTOS SIDING

Many of the frame structures on Sandy Hook have been totally or partially re-sided using cement asbestos siding. This siding was installed over horizontal board siding. The NPS requires that the siding be removed, in order to return the buildings to their historical appearance. This is especially necessary if the asbestos siding is damaged, or if rehabilitation plans call for large areas of disruption or cutting of this siding. This removal must be done by a licensed hazardous waste demolition firm.

ELECTRICAL, PLUMBING, AND TELEPHONE

Most of the buildings' mechanical systems will require upgrading to bring them into code compliance and serviceable operation, and to meet the needs of the new user groups. Removal is preferred over abandonment in place. Placement of exterior components, such as electric service panels, must be submitted to the NPS for review, in order to minimize their visibility.

HEATING, VENTILATION AND AIR CONDITIONING

In general, the buildings that are currently unoccupied no longer have operable heating systems. Buried fuel tanks have mostly been removed. Hot water radiators and the supply and return piping are usually intact in each building, but they are often in deteriorated condition. Repairing and reusing the existing radiator system should be considered as an option, but in most cases, furnaces and boilers must be replaced. New energy efficient heating systems may be considered. Fuel tanks must be located in the basements with the mechanical equipment, wherever that is possible. Above-ground storage tanks are not permitted except in special cases.

Window air-conditioners are not permitted. Central air-conditioning is preferred by the NPS. The location of interior ductwork and piping shall be designed in such a way as to avoid destroying character-defining features within the building's interior. Exterior equipment, such as condenser units, should be unobtrusively located close to the building.

ADDITIONAL INFORMATION

The National Park Service's Preservation Assistance Division publishes two technical resources which will provide lessees with additional information on building repairs. These are *Preservation Briefs* and *Preservation Tech Notes*; both publications contain case studies and technical information on how to treat historic materials and solve common problems with historic building systems and materials. The NPS staff at Sandy Hook can provide information on obtaining these publications. In addition, they will provide a technical manual to prospective lessees specific to the Fort Hancock Historic District, which will include recommended products, treatments, materials and color schemes which are pre-approved for use at Fort Hancock.

Appendix B

**Secretary of the Interior's
Standards for the Treatment of Historic Properties:
Standards for Rehabilitation**

Standards for Rehabilitation

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural or architectural values.

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to property that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity or deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Appendix C

Inventory of Existing Parking Spaces at Sandy Hook

**INVENTORY OF EXISTING PARKING SPACES
AT SANDY HOOK
(December 1999)**

PARKING AREA or BUILDING LOCATION	NUMBER OF SPACES	NOTES
BEACH & BAYSIDE PARKING:		
Beach Area B	337	Public use
Beach Area C	297	Public use
Beach Area D	703	Public use
Visitor Center (Spermaceti Cove)	25	Public use
Beach Area E	744	Public use
Ranger Station	12	Public use
Nike Launch Site	30	Public use
Fishing Beach	25	Public use
Horseshoe Cove	34	Public use
Group Campground	20	Public use
Gunnison Beach	787	Public use
North Beach	341	Public use
Proving Grounds/North Beach	165	Public use
Nine Gun Field	650	Public use
NPS Fee Collection Operations	15	NPS operations
NPS Ranger Station Operations	13	NPS operations
NPS Maintenance Operations	8	NPS operations
NPS Residences outside Ft Hancock (Buildings 33, 340 & 600)	12	NPS operations
BEACH & BAYSIDE TOTAL:	4218	4170 Public; 48 NPS operations

PARKING AREA or BUILDING LOCATION	NUMBER OF SPACES	NOTES
FORT HANCOCK PARKING:		
Guardian Park	27	Public use
South Parade Ground	38	Public use
Fort Hancock	90	Public use
Brookdale/Lighthouse Area	40	Public use
Mast Campus	35	Coop partner use
Howard Marine Lab	92	Coop partner use
NJ Marine Sciences Consortium	3	Coop partner use
Officers Row	49	Public use
Mess Hall (B57)	6	Public use
Mess Hall (B58)	6	Public use
Post Headquarters/Athletic Field	25	Public use
Post Theater	28	Public use
Post Chapel/Auditorium	68	Public use
Officers Club	7	Public use
Education Center	30	Public use
South Bragg Garden	8	Public use
Battery Potter	17	Public use
NPS Visitor Protection Operations	30	NPS operations
NPS Fire Department Operations	24	NPS operations
NPS Maintenance Operations	20	NPS operations
NPS Administration (Bldg.104 & 108)	13	NPS operations
NPS Fort Hancock Residences (Buildings 29, 30, 41, 52, 64, 66, 71, 72, 73, 75, 144 & 145)	52	NPS operations
FORT HANCOCK TOTAL:	708	568 public (includes 130 partner use); 139 NPS operations
BEACH & BAYSIDE TOTAL:	4218	4170 Public; 48 NPS operations
SANDY HOOK TOTAL:	4926	4738 public use; 187 NPS operations

Appendix D

Guidelines for the Replacement of Historic Trees and Building Foundation Plantings

Guidelines for the Replacement of Historic Trees and Foundation Plantings

The replacement of missing historic trees and shrubs would follow these guidelines:

- Plants must be a desirable part of the landscape, contributing either to historic character or to adaptive use.
- Plants must be known to have existed in the area of proposed actions during the period of historical significance, or plants must be known to have been used commonly in the local or regional area during the period of significance.
- The distribution of these plants in the park must be controllable and pose no threat to the native vegetation of surrounding natural zones.
- Additional guidelines for the replacement of plant materials include the following:
- The overall effect of a planting design would be guided by historic designs in terms of form, size, and distribution of individual plants. Some deviation from these historic designs is permitted, if required by adaptive use.
- No plant material would be on the NPS or State of New Jersey lists of disruptive pests.
- Plant material would be known to succeed in the harsh seashore environment of Sandy Hook.
- Materials would be low maintenance.
- Replacement of non-historic trees is not permitted.
- Missing historic trees would be replaced in-kind (with some exceptions), and in their historic location.
- This replacement program would be phased, based on funding availability, and would follow the direction specified in the park's specimen tree preservation maintenance guide. In summary, missing trees would be replaced in the following priority order: specimen trees (defined as trees with the highest level of value based on historical associations with other landscape features, aesthetic qualities, or unusualness); the allee along Hartshorne Drive; around the flagpole; the allee along Canfield Drive between Kearny Road and South Bragg Drive; around the perimeter of the Parade Ground; around the perimeter of the Athletic Field; those removed due to senescence or safety hazard.
- *Populus alba* would NOT be replaced in-kind. It would be replaced by a combination of: *Celtis laevigata* "All Seasons", *Celtis laevigata x occidentalis* "Magnifica", *Platanus x acerifolia* "Columbia" or "Liberty", *Ulmus Americana* "Valley Forge" or "Homestead", *Acer pseudoplatanus*.
- Less than half of the original *Pinus nigras* around the flagpole still exist; and those that do suffer from diplodia. Missing *nigras* would be replaced in-kind. When these are well established, the remaining diseased *nigras* would be replaced.
- *Acer platanoides* would not be replaced in-kind. It would be replaced with *Acer rubrum*.
- The palette of plant materials for foundation planting is in preparation, and would reflect the criteria above.

Appendix E

Correspondence with Cooperating Agencies



United States Department of the Interior

FISH AND WILDLIFE SERVICE



IN REPLY REFER TO:

ES-00/627

Ecological Services
927 North Main Street (Bldg. D1)
Pleasantville, New Jersey 08232

Tel: 609-646-9310
FAX: 609-646-0352

February 7, 2001

Mr. Russel J. Wilson, Superintendent
National Park Service
Gateway National Recreation Area
Sandy Hook Unit
P.O. Box 530
Fort Hancock, New Jersey 07732

FEB 09 2001

Dear Mr. Wilson:

This letter responds to your December 4, 2000 request to the U.S. Fish and Wildlife Service (Service) for information regarding federally listed threatened and endangered species in the vicinity the Fort Hancock National Historic District at the Gateway National Recreation Area, Sandy Hook Unit, Monmouth County, New Jersey. The National Park Service (NPS) proposes a project to implement a leasing program for the adaptive reuse of historic structures within the Fort Hancock and Proving Ground Historic Landmarks. Adaptive reuses would be undertaken within existing buildings and will attract an estimated 1,200 additional visitors to the park on an average weekday. The project also includes improvements to existing parking lots, the addition of several small parking lots among the Fort Hancock buildings, and the installation of fiber-optic telecommunication and gas lines from the park entrance to Fort Hancock. In addition, future NPS adaptive reuse plans include construction of a replacement structure at the site of the Fort Hancock historic hospital. Your December 4, 2000 correspondence did not provide the referenced attachments. On January 26 and 30, 2001, maps showing the general vicinity of the project area were provided to the Service via facsimile; however, the maps do not provide specific or detailed information regarding the proposed project.

AUTHORITY

This response is provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species and does not address all Service concerns for fish and wildlife resources. These comments do not preclude separate review and comments by the Service as afforded by the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*), if any permits are required from the U.S. Army Corps of Engineers pursuant to the Clean Water Act of 1977 (33 U.S.C. 1344 *et seq.*), nor do they preclude comments on any forthcoming environmental documents pursuant to the National Environmental Policy Act of 1969 as amended (83 Stat. 852; 42 U.S.C. 4321 *et seq.*).

FEDERALLY LISTED SPECIES

Piping Plover

Documented nesting sites of the piping plover (*Charadrius melodus*), a federally listed threatened species, occur in the vicinity of the Fort Hancock project area and along the proposed fiber-optic telecommunication and gas line route running from the park entrance to Fort Hancock. Piping plovers are small territorial shorebirds that nest on sandy beaches above the high-tide line on mainland coastal beaches, sand flats, and barrier island coastal beaches. Nest sites are typically located on gently sloping foredunes, blowout areas behind primary dunes, washover areas cut into or between dunes, ends of sandspits, and on sites with deposits of suitable dredged or pumped sand. Although piping plovers normally nest on high-energy, ocean beaches, they are known to nest on lower-energy, bay beaches.

Piping plovers feed primarily on marine macroinvertebrates such as marine worms, fly larvae, beetles, and crustaceans. Feeding areas include intertidal portions of ocean beaches, ocean washover areas, mudflats, sandflats, wrack lines (organic ocean material left by high tide), shorelines of coastal ponds, lagoons, and salt marshes.

It appears that construction activities related to adaptive reuse of historic structures, and parking lot improvements within Fort Hancock will not occur within or directly adjacent to piping plover nesting areas. However, construction activities associated with the proposed fiber-optic telecommunication and gas lines may occur within 100 meters of piping plover nesting areas. Such activities could disturb nesting birds and interfere with nest establishment or incubation, resulting in nest abandonment or decreased productivity. Therefore, to avoid impacts to nesting piping plovers, the Service recommends that no project construction activities occur within 100 meters of piping plover nesting habitat during the piping plover breeding season (April 1 to August 15).

The NPS anticipates that the proposed project will increase visitor use at the Sandy Hook Unit. In accordance with Section 7(a)(2) of the Endangered Species Act, an assessment of potential direct, indirect, and cumulative impacts is required for all federal actions that may affect listed species. Therefore, if the anticipated increase in visitor use will occur in or near areas occupied by nesting piping plovers, or will result in indirect or cumulative impacts to the species, an assessment of potential impacts will be required to ensure that increased visitor use will not adversely affect piping plover nesting at the Sandy Hook Unit.

Northeastern Beach Tiger Beetle

In coordination with the National Park Service, the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) has been successfully reintroduced to its historic habitat at Sandy Hook, specifically within North Beach. Northeastern beach tiger beetles inhabit sandy ocean beaches, and, although they may be distributed from the intertidal zone to the dunes depending on life stage, are most often located along the intertidal zone and lower beach just above the mean high tide line. Adults prey and scavenge on amphipods, flies, and other beach arthropods along the water's edge. Eggs are deposited in the mid- to above-high tide drift zone. Larval beetles occur in a relatively narrow band of the upper intertidal to high drift zone, taking nearly two years to develop from eggs to adults. Larvae dig vertical burrows in the sand and wait at the burrow mouth to capture passing prey, primarily small amphipods. The primary threat to the northeastern beach tiger beetle is habitat disturbance and destruction from development, beach stabilization activities, and recreational beach uses including pedestrian and vehicle traffic, all of which affect the larvae. Other threats include spills of oil or other contaminants, pesticide use, natural or human-induced beach erosion, and natural factors such as predation and storms.

According to the information provided, no construction activities are proposed within beach areas; therefore, the Service does not anticipate any adverse impacts to the northeastern beach tiger beetle from proposed construction activities related to adaptive reuse of historic structures, parking lot improvements within Fort Hancock, or associated with the proposed fiber-optic telecommunication and gas lines. However, as with the piping plover, if the anticipated increase in visitor use from the proposed project will result in an increase in visitor use in or near areas occupied by the northeastern beach tiger beetle, an assessment of potential direct, indirect, and cumulative impacts will be required to ensure that increased visitor use will not adversely affect the species.

Seabeach Amaranth

Several occurrences of seabeach amaranth (*Amaranthus pumilus*), a federally listed (threatened) plant, were recently documented at the Sandy Hook Unit. The seabeach amaranth is an annual plant, endemic to Atlantic coastal beaches, primarily occurring on overwash flats at the accreting ends of barrier beach islands and lower foredunes of non-eroding beaches. The species occasionally establishes small temporary populations in other habitats, including bayside beaches, blowouts in foredunes, and sand and shell material placed as beach replenishment or dredge spoil. The seabeach amaranth appears to be intolerant of competition and does not occur on well-vegetated sites. Threats to the seabeach amaranth include construction of beach stabilization structures, beach erosion and tidal inundation, beach grooming, and destruction by off-road vehicles.

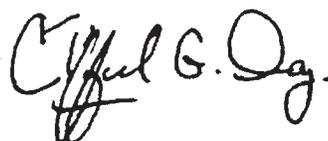
The information provided indicates that no construction activities are proposed within beach areas; therefore, the Service does not anticipate any direct adverse impacts to seabeach amaranth from proposed construction activities related to adaptive reuse of historic structures, parking lot improvements within Fort Hancock, or associated with the proposed fiber-optic telecommunication and gas lines. However, if the anticipated increase in visitor use from the

proposed project will result in an increase in visitor use in or near areas with occurrence of seabeach amaranth, an assessment of potential direct, indirect, and cumulative impacts will be required to ensure that increased visitor use will not adversely affect the species.

If work is proposed within piping plover nesting areas during the nesting season or if increased public use is anticipated that would adversely affect the piping plover, northeastern beach tiger beetle, or seabeach amaranth, formal consultation pursuant to Section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA) will be required.

Other than the aforementioned species and an occasional transient bald eagle (*Haliaeetus leucocephalus*) or roseate tern (*Sterna dougallii*), no other federally listed or proposed threatened or endangered flora or fauna are known to occur within the vicinity of the project area. Please contact Annette Scherer of my staff at (609) 646-9310, ext. 34 if you have any questions or require further assistance regarding threatened or endangered species.

Sincerely,

A handwritten signature in black ink that reads "Clifford G. Day". The signature is written in a cursive style with a large initial "C" and a long horizontal stroke at the end.

Clifford G. Day
Supervisor



James E. McGreevey
Governor

State of New Jersey

Department of Environmental Protection

Bradley M. Camp
Commissioner

Office of Coastal Planning & Program Coordination

PO Box 418

Trenton, NJ 08625-0418

Phone 609-292-2662

Fax 609-292-4608

lschmidt@dep.state.nj.us

May 15, 2002

Superintendent
Sandy Hook Unit
Gateway National Recreation Area
PO Box 530
Fort Hancock, NJ 07732

RE: **EA Comments - Adaptive Use of Fort Hancock and Sandy Hook
Proving Ground Historic District**

Dear Superintendent:

The Office of Coastal Planning and Program Coordination of the New Jersey Department of Environmental Protection (NJDEP) has completed its review of the Environmental Assessment (EA) for the Adaptive Use of Fort Hancock and the Sandy Hook Proving Ground Historic District. We offer the following comments for your consideration regarding cultural resources, natural resources, consistency with the Rules on Coastal Zone Management of New Jersey and environmental assessment review coordination.

CULTURAL RESOURCES

The NJDEP's Historic Preservation Office (HPO) has been working with the National Park Service (NPS) to ensure the preservation of the historic fabric and character of Fort Hancock and the Sandy Hook Proving Ground District. The HPO fully endorses the proposed action of the EA, the rehabilitation alternative.

The buildings and structures of Fort Hancock and the Sandy Hook Proving Ground Historic District (Sandy Hook District) are nationally significant, and have been designated a National Historic Landmark (one of only 53 National Historic Landmarks in New Jersey). The historic character of Fort Hancock is largely defined by grouping of buildings that define the edge of the parade grounds. As a group, the buildings of Fort Hancock create a unique sense of place. To lose some individual buildings, will not only be the loss of the particular building, but will endanger the character of the whole.

The HPO concurs that the No Action alternative will result in the loss of significant elements of the Sandy Hook District. Under the No Action alternative there will be continued loss of building fabric which will adversely effect this National Historic Landmark. The HPO knows that the NPS will, as it has done, try to stem the flow of deterioration. The HPO also knows that despite their best efforts, that deterioration will continue. The missing porches, and the elaborate tin cornices which have been replaced with flat boards, are harbingers of the No Action future. The NPS will continue, to lose buildings, and eventually the sense of Fort Hancock and the Proving Ground that exists today. Buildings, such as the Officers Club, which is already in partial structural failure, will not last long if no action is taken.

In the field of historic preservation it is well known that the presence of people is essential to the efficient preservation of buildings. People living and working in buildings see what is going wrong before it becomes visible on the outside of the building. As a result, small problems are fixed before they become large problems, which substantially lowers the cost of repairs. Moreover, the ongoing use of a building creates an immediate need to make repairs, rather than putting them somewhere on a long list of maintenance needs.

A public private partnership is the only available vehicle to save this National Historic Landmark. Public money is not, and in the judgement of the HPO, will not be available to undertake the necessary rehabilitation. Even with a private developer rehabilitating 36 of the historic buildings, the NPS will find it challenging to keep up with the restoration and rehabilitation needs of the other 164 buildings and structures of the Sandy Hook District. In evaluating any such public private partnership it is essential to be sure that the interests of the public (as protected by the NPS) and the private interest are a good fit. There must be shared goals and understandings to ensure that the needs of the private partner do not conflict with protecting our natural and environmental heritage.

The NPS has done extensive pre-lease preparation, as reflected in the *Fort Hancock Rehabilitation Guidelines*, the *Sandy Hook Historic Structures Paint Plan*, the *Fort Hancock Sign Plan*, and the *Cultural Landscape Report Volume 3, Statement of Management Philosophy*. All of these documents define, and then control and limit how the site will be developed, and ultimately determine what it will be like to be in the Fort Hancock and the Proving Ground when the project is complete. The developer understands and is bound by these documents. Moreover, the preservation of the historic and natural resource is the developers concern. Without the historic character and significance of the buildings, the natural uniqueness of the Sandy Hook, the buildings of Fort Hancock are simple a very hard to get to, and expensive to rehabilitate and operate, set of buildings. It is in the developers interest to preserve the natural and historic resources of Sandy Hook.

The Rehabilitation Alternative includes two options. Both rehabilitation options require conformance with the Standards of Rehabilitation of the Secretary of the Interior. The second option will be more challenging to execute. Some buildings, such as the Officer's Club which was originally part of the Proving Ground and later part of Fort Hancock, will be difficult to restore to the Proving Ground era because of changes that occurred to the building during the Fort Hancock era period of significance. For example, to justify restoration of the missing porch one would need to show that the porch and the Fort Hancock era additions existed at the same time. If the Officer's Club is returned to its red brick appearance to visually link it to the Proving Ground, it will be left with the yellow brick rear addition from its Fort Hancock period.

In general terms, the rehabilitation of buildings described in Appendix A is appropriate. Final review of the rehabilitation of individual buildings can only be made on a case by case basis when detailed information about the remaining historic fabric of each building is submitted. As currently proposed, the information will be submitted as part of the developers application for the Historic Preservation Tax Incentives.

Please contact Dan Saunders (609-633-2397) of the HPO if you have any questions regarding the above comments.

NATURAL RESOURCES

The NJDEP's Division of Fish and Wildlife (DFW) and their Endangered and Non-Game Species Program (ENSP) Bureau concerns are directed to the following specific impact areas.

Piping Plovers

The DFW and their ENSP Bureau look forward to the continuing work with the NPS with this specie. The timing restrictions of 4/1 - 8/15 with a 100 yard buffer from nesting habitat will continue where appropriate.

Ospreys

The DFW and their ENSP Bureau look forward to the continuing work with the NPS with this specie. The timing restriction of 4/1 - 7/30 with a 1000 foot buffer (where appropriate) from nesting sites will continue.

Least Terns

The DFW and their ENSP Bureau will continue to work with this specie and address their concerns with the proposed sand-slurry pipeline. The specie has a timing restriction of 4/15 - 8/31 and it may be extended in large nesting colonies with a 100 yard buffer from nesting habitat where appropriate.

The Re-Vegetation Plan

The DFW recommends that the planting recommendations in the attached "Landscaping for Birds on NJ's Barrier Islands" and "Gardening for Butterflies" be followed.

Please contact Don Wilkinson (856-785-0455) of the DFW if you have any questions regarding the above comments.

CONSISTENCY WITH THE RULES ON COASTAL ZONE MANAGEMENT OF NEW JERSEY

The NJDEP's Land Use Regulation Program will comment separately to the NPS regarding consistency with the Rules on Coastal Zone Management of New Jersey.

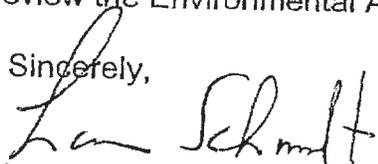
ENVIRONMENTAL ASSESSMENT REVIEW COORDINATION

The EA notes that separate environmental assessments are being prepared for the following future actions currently being planned for the park: the sand-slurry pipeline, the multi-use path and the permanent ferry dock at Fort Hancock. The Office of Coastal Planning and Program Coordination coordinates departmental review of environmental documents prepared pursuant to the National Environmental Policy Act (NEPA). Please forward six copies of the above noted EA's directly to our Office to ensure timely, comprehensive Department review comments.

Please contact Ken Koschek (609-292-2662) of the Office of Coastal Planning and Program Coordination if you have any questions regarding the above comment.

Thank you for the opportunity to review the Environmental Assessment.

Sincerely,



Lawrence Schmidt
Director
Office of Coastal Planning
& Program Coordination

Attachments

C: Dan Saunders, NJDEP
Don Wilkinson, NJDEP
Kurt Kalb, NJDEP
Ken Koschek, NJDEP



State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

Division of Fish, Game and Wildlife

2201 Route 631

Woodbine, NJ 08270

Robert McDowell, Director

Visit our website: www.state.nj.us/dep/fgw

29 January, 2001

Mr. Russel J. Wilson
Sandy Hook Unit
Gateway National Recreation Area
PO Box 530
Fort Hancock, NJ 07732

RE: Plan for Osprey nesting at Fort Hancock district

Dear Mr. Wilson:

I have reviewed your plan, dated December 20, 2000, to maintain osprey nesting during and after rehabilitation of buildings at Fort Hancock. I understand the specific terms to be these:

1. Repair of five existing (but unused) nest structures (P3, P6, P7, P9, P11);
2. Installation of four new nest structures, at locations sufficiently distant from regular human use;
3. Adaptation of utility poles where suitable, once the poles are abandoned for their current use;
4. Removal of existing nest materials from chimneys (C15, C16, C17) before April 1, 2001 *or* after August 15, 2001 (i.e., no nest removals or disturbance during the nesting season).

Your plan should be successful in accommodating and improving osprey nesting and nest success on Sandy Hook, and is acceptable to us.

The height of the nest relative to surrounding vegetation and distance from human use areas are the main factors influencing osprey use of new nests. If you like, you may consult with us when you select specific locations for new nests; my number is (609) 628-2103, and email is KClark@nwip.net. I appreciate the opportunity to review this plan.

Sincerely,

Kathleen E. Clark
Principal Zoologist
Endangered and Nongame Species Program



State of New Jersey

Department of Environmental Protection

Land Use Regulation Program

P. O. Box 439, Trenton, NJ 08625-0439

Fax # (609) 777-3656

www.state.nj.us/dep/landuse

James E. McGreevey
Governor

Bradley M. Campbell
Commissioner

Russel J. Wilson
Superintendent
United States Department of the Interior
National Park Service
Gateway National Recreation Area
Sandy Hook Unit
PO Box 530
Fort Hancock, New Jersey 07732

JUL 1 2003

JUN 25 2003

RE: Federal Consistency Determination
LURP Program File No.: 1300-02-0004.1 (CDT 030001)
Applicant: United States Department of the Interior, National Park Service
Location: Fort Hancock and Sandy Hook Proving Ground
Sandy Hook, Monmouth County, New Jersey

Dear Mr. Wilson:

The New Jersey Department of Environmental Protection, Land Use Regulation Program, acting under Section 307 of the Federal Coastal Zone Management Act (P.L. 92-583) as amended, and Water Quality Certification, as required by Section 401 of the Federal Clean Water Act (33 USC 1251 et seq.) has reviewed the information submitted for a Federal Consistency determination, dated March 31, 2003. Please be advised that the Program has determined that the proposed project is consistent with New Jersey's Rules on Coastal Zone Management N.J.A.C. 7:7E-1.1 et seq., as amended to March 3, 2003, with the implementation of conditions listed below.

The applicant, the National Park Service (NPS), proposes the rehabilitation and reuse of 37 structures within existing footprints and the construction of approximately 665 additional parking spaces at the park. The NPS is offering the long-term lease of these buildings to private entities/organizations for use as office/conference space, educational facilities (i.e., classrooms, laboratories, etc.) and lodging (i.e., bed & breakfast facilities), in exchange for the building rehabilitation and fair market return. The 665 new parking spaces will be constructed through the redesign and expansion of six (6) existing parking lots and the construction of six (6) new lots on previously disturbed land dispersed around the perimeter of the fort. Additional improvements include the replanting of 150 trees, landscaping, new walkways, lighting and site furnishings.

The project is discussed in a report entitled "Environmental Assessment Adaptive Use of Fort Hancock and the Sandy Hook Proving Ground Historic District", prepared by the National Park Service, in association with Sandy Hook Partners, LLC, dated February 2002. Traffic information is discussed in another report entitled "Gateway Village Rehabilitation Project Fort Hancock and the Sandy Hook Proving Ground Monmouth County, NJ Traffic Impact Study", prepared by JE/Sverdruf & Parcel Consultants, Inc., dated March 24, 2003.

Pursuant to 15 CFR 930.44, the Program reserves the right to object and request remedial action if this proposal is conducted in a manner, or is having an effect on, the coastal zone that is substantially different than originally proposed.

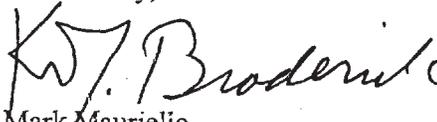
The issuance of this Federal Consistency Determination is contingent upon compliance with the conditions as they are listed below.

Administrative Conditions:

- 1) The National Park Service shall coordinate with the NJDEP Division of Fish & Wildlife, Endangered Species Program in order to, if necessary, conduct appropriate site surveys of the building rehabilitation and parking lot reconfiguration/construction areas to determine what conditions are required in order to secure the Piping plover and Least tern species long-term utilization of the region. This includes the imposition of appropriate timing restrictions and other appropriate measures as stipulated by the above agency.
- 2) In order to protect the Piping plover species, any proposed grading or construction activities within Piping plover habitat are prohibited between April 1 and July 30 of each year, and a 1,000 foot buffer must be maintained from the nesting habitat where appropriate.
- 3) In order to protect the Least tern species, any proposed grading or construction activities within Least tern habitat are prohibited between April 15 and August 15 of each year, and a 100 yard buffer must be maintained from the nesting habitat where appropriate.
- 4) If the position of a survey marker or monument can not be protected, the applicant shall coordinate with the New Jersey Geodetic Control Survey (NJGCS) at least 60 days prior to disturbance to relocate the geodetic control marker to an appropriate location prior to construction.
- 5) The National Park Service shall continue to coordinate with the New Jersey Department of Transportation and local agencies to implement a Traffic Management and Agency Coordination Plan and to provide additional mitigation for anticipated and future traffic impacts resulting from development at the park.

Thank you for your attention to and cooperation with New Jersey's Coastal Zone Management Program. If you have any questions with regard to this determination, please do not hesitate to contact Colleen Keller, at the above address or at 609-984-0288.

Sincerely,


So Mark Mauriello
Director, Land Use Regulation Program

c: Office of Coastal Planning and Program Coordination



State of New Jersey

James E. McGreevey
Governor

Department of Environmental Protection
Division of Parks & Forestry, Historic Preservation Office
PO Box 404, Trenton, NJ 08625
TEL: (609) 292-2023 FAX: (609) 984-0578
www.state.nj.us/dep/hpo

Bradley M. Campbell
Commissioner

MAY 9 2003

May 6, 2003
HPO-E2003-23 PROD
03-1447

Billy G. Garrett
Acting General Superintendent
Gateway National Recreation Area
Headquarters Building 69
Floyd Bennett Field
Brooklyn, NY 11234

Dear: Mr. Garrett:

In accordance with 36 CFR Part 800: Protection of Historic Properties, as published on December 12, 2000, in the *Federal Register* 65(239):77725-77739, I am providing **Consultation Comments** for the following proposed undertaking:

**Monmouth County, Middletown Township
Sandy Hook – Fort Hancock and the Sandy Hook Proving Ground Historic District
Adaptive Use of Fort Hancock – Traffic Study
National Park Service
United States Department of the Interior**

800.4 Identifying Historic Properties

Fort Hancock and Sandy Hook Proving Ground Historic District is listed on the National Register of Historic Places as a National Historic Landmark. The Route 36 Highlands Bridge was identified as eligible for listing on the National Register on 7/19/91.

800.5 Applying the Criteria of Adverse Effect

The Traffic Impact Study clearly shows that the traffic impacts from the Gateway Village Rehabilitation Project will have **no adverse effect** on Fort Hancock and Sandy Hook Proving Ground.

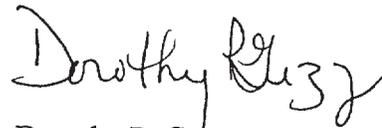
Additional Comments

The "no-build" option for the Gateway Village Rehabilitation Project, which implies the gradual loss of the historic buildings of Fort Hancock, would have an adverse effect on this National Historic Landmark.

The Section 106 Review process for the proposed replacement of the Route 36 Highlands Bridge has been initiated by FhWA. We anticipate a finding of adverse effect for a bridge replacement with Section 106 concluded through a Memorandum of Agreement that spells out measures to reduce and mitigate the adverse effects.

Thank you again for having provided this opportunity for consultation and comment. If you have any questions, please contact Dan Saunders at (609) 633-2397, staff reviewer for this project

Sincerely,



Dorothy P. Guzzo
Deputy State Historic
Preservation Officer

DPG/DS

C: Richard Wells
Kathy Foppes
Lou Venuto



State of New Jersey

DEPARTMENT OF TRANSPORTATION
1035 Parkway Avenue
PO Box 600
Trenton, New Jersey 08625-0600

James E. McGreevey
Governor

Jack Lettiere
Acting Commissioner

February 27, 2003

Mr. Russel Wilson
Superintendent
National Park Service – Sandy Hook Unit
P.O. Box 530
Fort Hancock, New Jersey 07732

MAR 3 2003

Re: Gateway Village Rehabilitation Project at
Fort Hancock and the Sandy Hook Proving Ground
Monmouth County
Traffic Study for Draft Environmental Assessment

Dear Mr. Wilson:

This is in reference to the Traffic Study for the Draft Environmental Assessment (EA) submitted by your office for the New Jersey Department of Transportation's (NJDOT) review. As advised by our Bureau of Major Access Permit, the current NJDOT Access Code does not require the National Park Service to mitigate the problem on Route 36 at Broad Street based on the following reasons:

1. The access from Route 36 to Fort Hancock at Sandy Hook is via a **street**, not a **driveway**. While we might require traffic study and highway mitigation for increased volumes on a **driveway**, under the Access Code, there are no such requirements for **streets**. Accordingly, the NJDOT has no authority, under the Access Code, to regulate and require mitigation for increased traffic associated with **street** access to Fort Hancock.
2. The traffic impact is approximately 17 miles away from the site of the increased development, as practical matter, mitigation by the National Park Service is not required.

If you have any questions, please call Atul Shah at 530-2475.

Sincerely yours,

Steve Lavelle
Program Manager
NJDOT

AS:JP

Enclosure

cc: Atul Shah
Howard Zahn

National Park Service

The National Park Service is a bureau of the Department of the Interior. We preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. We also cooperate with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

