

Environmental Assessment
for Development
of Beach Centers at Gunnison and North Beaches

Sandy Hook Unit
GATEWAY

National Recreation Area • New Jersey



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for Development
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January 1993

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INTRODUCTION AND BACKGROUND

In 1979 a General Management Plan (GMP) was completed by the National Park Service for Gateway National Recreation Area which included recommendations for the Sandy Hook Unit of the park. The purpose of that plan was to direct management of the national recreation area in fulfilling the purpose and objectives of the area as defined in the enabling legislation and in previous planning efforts. It was designed to provide for the balanced preservation and development of park lands within Gateway so that significant natural and cultural features were adequately protected. The GMP identified numerous recreational resources to be developed for a variety of uses by the visiting public. An Environmental Impact Statement (EIS) was completed for this document, which included a statement of alternatives, impact evaluation, and public/agency review and comment of the proposals considered.

In January, 1990, an amendment to the GMP for Gateway National Recreation Area was completed which evaluated and updated the planning, design, and management strategies for the Sandy Hook Unit. Proposals generated through this planning effort identified and updated the resource management issues and visitor use programs for the park. The plan assessed the status of park resources; evaluated the visitor needs; and it determined the best locations for major park functions and activities. Appropriate development actions were recommended which would meet the needs of the visiting public while ensuring compatibility with the management objectives for the park. The amendment provided for both immediate and long-ranged development actions to satisfy current operational deficiencies and the projected future needs in support of operations. The proposals generated during this planning effort supported and reinforced those concepts and recommendations as proposed for this Unit of Gateway National Recreation Area in the approved GMP. Through this process, refinements were made to clarify the levels and types of appropriate development and anticipated visitor experiences at Sandy Hook. This included a reduction in the proposed facility development to lessen resource impacts. Proposed actions that were not assessed as a part of the Gateway GMP were evaluated in that amendment.

During fiscal year 1992, funding became available to implement some of the development proposals at Sandy Hook as proposed in these planning documents. This specifically included the proposed development of the visitor support centers at the Gunnison Beach and North Beach areas of the park. Compliance with the National Environmental Policy Act (NEPA) for these projects was completed as a part of the 1979 GMP for Gateway National Recreation Area which included an Environmental Impact Statement. However, since these development actions are presently being considered for implementation, further analysis of the environmental impacts and benefits to the visiting public is required as a part of this

planning effort. In addition, greater information is now currently available on the resource base and visitor needs which merits further analysis. Therefore, an Environmental Assessment is being prepared for the proposed actions at these two locations at Sandy Hook (North Beach and Gunnison Beach) to address the issues, evaluate the alternatives, and involve the various agencies and the public in the review process for these actions.

In December 1992, an intense winter storm struck the Northeast causing extensive damage along the New Jersey coastline. High waves driven by high winds overwashed Sandy Hook, taking considerable amounts of sand from the ocean beaches, and undermining structures and parking areas. In the south portion of Sandy Hook, the waves deposited sand behind the seawalls on the park entrance road, restricting access to the park, part of the primary dune was washed away. The beach facility structures at North Beach were damaged and had to be demolished, and the concessions trailer at Gunnison Beach was destroyed. These structures were removed, however they were to be removed during construction of the beach centers.

PURPOSE AND NEED

The National Park Service proposes to initiate construction projects that would accomplish some of the development objectives, in support of visitor use facilities, as identified in the park's General Management Plan and its amendment, for the Gunnison Beach and North Beach areas of the Sandy Hook Unit at Gateway NRA. The actions proposed would include the reconstruction of the existing beach centers, reconfiguration and surfacing of visitor parking areas, realignment of access routes, development of bicycle trails, and the restoration of previously impacted natural areas including a dune system. The purpose for the proposed action is to improve visitor services through the replacement of existing facilities which currently do not meet the needs nor expectations of the visiting public and the management objectives for the park.

The need for the improved visitor service facilities and associated infrastructure was identified in the 1979 General Management Plan/Final Environmental Statement for Gateway National Recreation Area (GMP/EIS). That plan proposed improvements to the facilities at Gunnison and North Beach areas of the Sandy Hook Unit. Recognizing the significance of the natural, historic, and archaeological resources of the park, the sites selected for these development actions were chosen to minimize impacts to the park resources by utilizing sites which were previously disturbed. Facilities to be developed would replace existing structures in approximately the same location in support of visitor services. The proposed development actions included the construction of the beach centers and appropriate parking facilities with associated

overflow parking area designations for use during peak visitation.

Traffic circulation was proposed to be along the main roadway with secondary roads providing access to the various developed areas where parking would be provided. The plan proposed realignment of the roadway along an existing road past the Coast Guard housing area and into new parking areas serving the beach complex. A bicycle trail was proposed that paralleled the main road as far north as the Nike radar site where a separate route would be established along Atlantic Drive. It was recommended that Atlantic Drive be closed to motorized vehicles. This was envisioned to provide a more peaceful route into the North Beach area and would promote bicycle use throughout the park.

An amendment to the GMP for Sandy Hook was completed in 1990. This plan updated and revised the actions recommended in the GMP to reflect current and future needs for the management and visitor use of the park. It recommended the construction of the two beach centers with full visitor services provided at Gunnison and North Beach. This differed from the GMP's recommendation at the northern beach center, as the amendment represented a 50 percent reduction in the facility development as proposed for the beach areas. The amendment also recommended the relocation of the beach facilities behind the primary dune and proposed restoration strategies for the dune system, including the use of native plant species to reestablish more natural habitat values. The beaches to the south and north of these two centers would remain undeveloped and managed to provide natural system functions and a positive park experience for the visitors.

Both beach centers would be designed to meet the needs of environmental education center during the off-season which included places for bus parking, restrooms, and space for indoor activities during inclement weather. Parking for visitors at the north beach area was reconfigured to provide better protection for the resource base while accommodating the needs of the visitor. Access to the beach centers and Fort Hancock was proposed to be realigned along existing roadways with construction of a new segment of road to the northern beach area. This realignment and circulation route would enable the closure of a portion of Atlantic Drive south of Gunnison Beach which would permit its conversion into a bicycle trail linking the major recreational, interpretive, and scenic resources of the park.

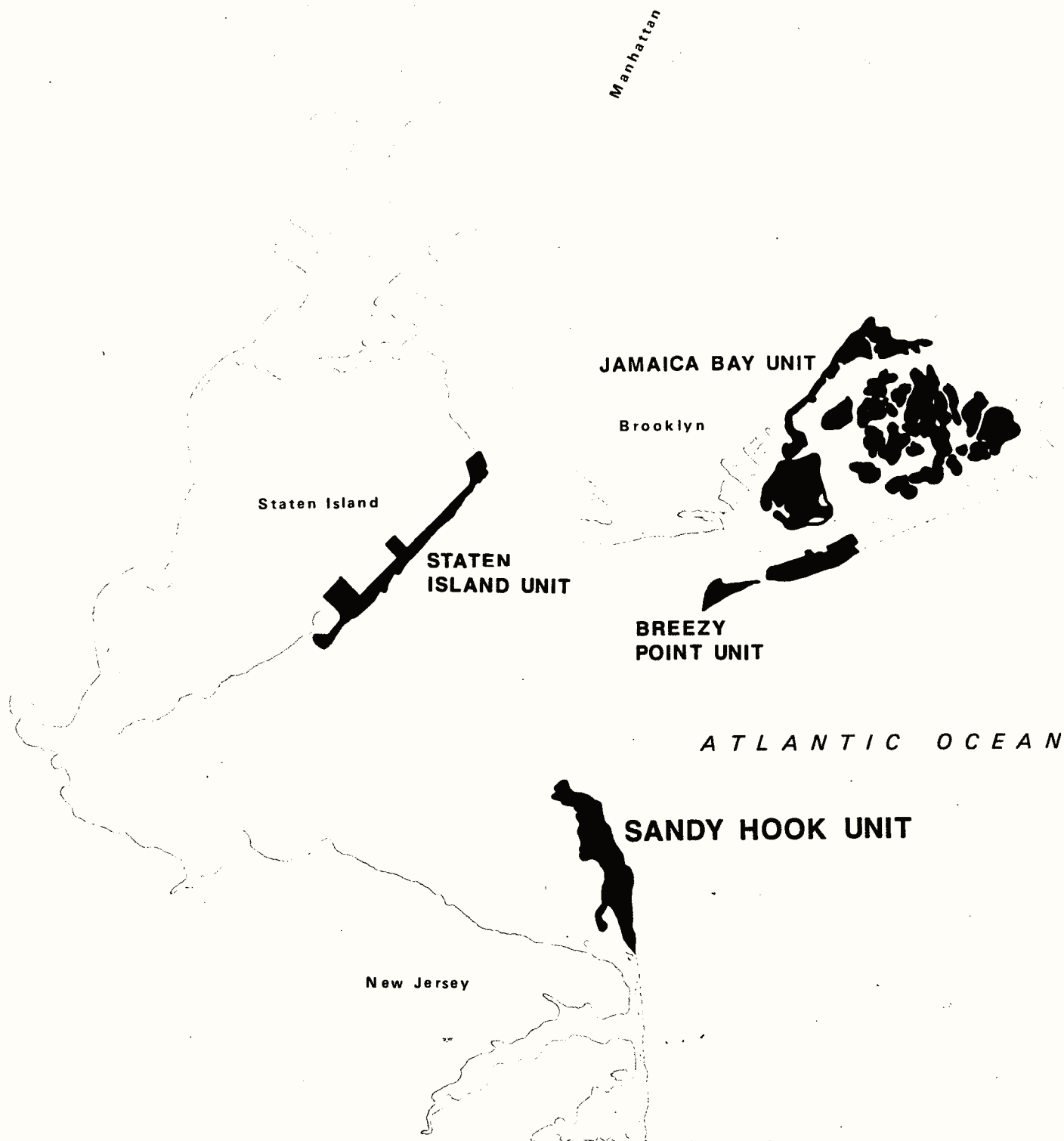
Currently, the National Park Service is planning to upgrade the wastewater treatment plant at Sandy Hook to meet discharge requirements imposed by the Clean Water Act and the New Jersey Water Pollution Control Act. The New Jersey Pollution Discharge Elimination System discharge permit was reactivated in 1991, and major plant reconstruction and groundwater quality monitoring is required to comply with the effluent limits contained in the

permit. This project is not evaluated in this environmental assessment.

The management of Sandy Hook is based on the concept that it will continue to be a major regional recreation destination. The area is used primarily by visitors from adjacent New Jersey areas. The recreation facilities will be improved to serve the current visitation levels, and to encourage use by a broader cross-section of populations in keeping with the management and use objectives as stated in the 1990 Amendment:

- Manage Sandy Hook primarily as a day use area, but expand evening and overnight activities where feasible.
- Provide a variety of beach experiences ranging from casual use on unguarded beaches with no visitor services to active use on guarded beaches with full visitor services.
- Emphasize natural processes in resources management as well as habitat enhancement for significant plant species (the holly forest), shore nesting birds (Piping Plover, least tern, and black skimmer), and other animals; and continue dune stabilization, revegetation, and beach nourishment as needed to allow recreation, interpretation, and education activities to continue.
- Develop mass public transportation by land and water if determined suitable and feasible.

Since the completion of the GMP/EIS and its amendment, several changes and significant resource issues have emerged. These include modifications in the location and size of the proposed parking areas, realignment of the north area roads, the listing of the Piping Plover (Charadrius melodus) as a threatened species under the Endangered Species Act, and the removal of non-historic structures from the northern area of Sandy Hook. Since these development actions are currently being considered for implementation, further analysis of the environmental impacts and benefits to the visiting public is required as a part of this planning effort. The preferred alternative in this environmental assessment parallels with those actions proposed in the 1990 amendment. However, further analysis is needed to adequately address and evaluate the resource issues which could be impacted by these proposed actions and the associated benefits to the public from their implementation.



LOCATION

GATEWAY NATIONAL RECREATION AREA / NEW YORK - NEW JERSEY
UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / AUG 1988 / 646-40242 B

AFFECTED ENVIRONMENT

THE PARK AND ITS ENVIRONMENT

Gateway National Recreation Area was established by an act of Congress in October 1972 (PL 92-595; 85 stat. 1308). The national recreation area was created from a land base that was the property of the state of New Jersey, New York City, various army and navy installations, and private owners. The park's enabling legislation stated that the purpose of the park is to "preserve and protect for the use and enjoyment of present and future generations an area possessing outstanding natural and recreational features".

The Sandy Hook Unit is a sand spit at the northern end of the Atlantic shoreline of New Jersey. It covers 1,674 land acres, including over seven and a half miles of ocean beaches/ sheltered bayside coves and several hundred acres of ecologically significant barrier-beach vegetation. In addition to the beaches, it includes tidal areas, dunes, back-dune areas, "heathlands", ecologically significant holly forests, and the historic facilities and fortifications of the Fort Hancock complex. The U.S. Coast Guard administers properties at the tip of Sandy Hook that are excluded from the park, including properties in the Fort Hancock vicinity and the Sandy Hook lighthouse.

NATURAL RESOURCES

Geomorphic and Coastal Processes

Sandy Hook forms a part of the Atlantic Coast Barrier Island system and is classified as a recurved sand spit. The hook ranges from several hundred feet wide in the south to approximately a mile wide in the north. It is a dynamic environment, directly influenced by the natural processes which continually alter its configuration and natural systems. The narrow southern portion of Sandy Hook is an area of instability due to severe beach erosion.

The North Area beaches are a zone of active beach accretion. Sandy Hook continues to expand to the north, and periodic dredging prevents the continued drift of the hook into shipping channels of Lower New York Bay.

Although major storms cause considerable and costly damage, they are not the primary source of shoreline erosion. Littoral drift is diminished due to the presence of sea walls and jetties south of Sandy Hook. In addition, frequent coastal storms of lesser magnitude continually modify the shoreline, making sand replenishment of South Area beaches a periodic requirement.

To reduce erosion potential, a series of jetties have been constructed on the shoreline at the southern end of the spit. These structures trap northerly moving sand as it is carried by the

current. During this process the natural dynamic behavior of the longshore current is interrupted along the beach front.

Sandy areas, including beaches and dunes, comprise approximately 14 percent of the land base of Sandy Hook. The primary dunes paralleling the ocean beach and interdune areas provide suitable conditions for various stabilizing grasses, herbs, and shrubs. The dunes are considered sensitive resource communities, since they serve to disperse the energy of storm-driven waves, and provide protection for areas behind the dunes. Even minimal visitor use results in the reduction or loss of stabilizing plant species; accelerates erosion of the dunes; and the potential of the dune system to protect the landward areas.

Soils

The soils on Sandy Hook consist of recently deposited accumulations of sand, gravel, silt, clay, and organic sediments. The soil classifications include: 1) shore deposits (composed of sand materials) and 2) outwash materials (composed of sand and gravel materials). Both soil classes have high to very high permeability, low capacity to retain water, and low shrink-swell potential, and compressibility.

Sandy soils and beach areas comprise approximately 14 percent of the land base for Sandy Hook. This includes areas designated as bare sand such as blowouts, dunes, and other disturbed inland areas in the absence of vegetation. The beach area includes exposed sandy areas bordering the ocean or bay.

Vegetation

There are five basic vegetation communities which have been identified for the Sandy Hook Unit of Gateway National Recreation Area. These communities include grassland, marsh, woodland, shrub land, and developed areas. Each community is comprised of vegetation associations which form subelements of the ecosystem.

Grassland. The grassland, composed of beachgrass dune, mixed grassland, and heathland complexes comprises 22 percent of the vegetation at Sandy Hook. Pioneer grassland communities have established themselves in the dune areas providing stabilization for the shifting sands. Some of the most prominent pioneer community plants growing on Sandy Hook dune areas include beach grass, sea rocket, beach heather, seaside goldenrod, virginia creeper, dusty miller, poison ivy and the fragrant bayberry.

The primary dunes paralleling the beach and in some interdunal areas provide suitable conditions for various stabilizing grasses

such as American beach grass (dominant species) and at times mixed with wormwood and seaside goldenrod.

The mixed Grassland is one of the more common resource units within Sandy Hook. It consists of several types of grassland communities. Bluestem, switchgrass, and seaside goldenrod are generally the dominant species; however areas where American beach grass dominates in the absence of dunes are also considered mixed grasslands.

The Heathland community is distinguished from other mixed grasslands because of its fragile nature. Beach heather is dominant, but may be found growing with little bluestem, wormwood, pinweed, bayberry, and American beach grass. "Heatherland" is found only on Sandy Hook and comprises 53 acres (3.2 percent). It is located on the eastern, ocean side of Sandy Hook. This area, dominated by beach heather and several grasses and small shrubs, is fragile and susceptible to destruction by trampling.

Marsh. Surrounding the ponds and marshes are the field-type habitats similar to many island areas of New Jersey. Wildflowers such as Queen Anne's Lace, black-eyed susans, deptford pinks, and bouncing bet grown in abundance among various types of grasses. The wetter marshy areas have a more specific vegetation association and are filled with the tall reed-like grass, phragmites, commonly known as fox-tail. This common marsh grass appears throughout this area. Other plants typical of the fresh water marshy areas are bayberry, willow trees, and poison ivy. Along the pond's banks grow thick stands of sphagnum moss which is unique to Sandy Hook.

Both natural and disturbed reed marshes are present on Sandy Hook. Natural reed marshes exist in areas that do not appear to have been significantly altered by man's activities. The common reed (phragmites) dominates, with low shrubs frequently interspersed. "Hammocks" of trees or shrubs without common reed are scattered in some of the marshes. Natural reed marshes constitute large portions of the marsh acreage at Sandy Hook. Conversely, the disturbed reed marsh is uncommon at Sandy Hook and exists mainly on impacted sites. Common reed dominates the vegetation of this community.

Salt marshes are most common along the bay fringes where waters are calm and include both low and high areas. In some locations, they extend inland among the dunes as far as tidal waters reach. In the low salt marsh the low marsh cordgrass is the dominant species, and the only one below mid-tide level. The upper reaches of low marshes generally have mixed low marsh cordgrass, glasswort, and sea lavender. High salt marshes are dominated by salt-meadow cordgrass and salt hay. Where the high marshes grade into the low marshes, low marsh cordgrass, glasswort, and sea lavender are more common. High salt-marsh areas are in many cases included in the low salt-marsh category due to their limited extent.

Woodland. The woodlands of Sandy Hook comprise 23 percent of the vegetation cover of the park. They are classified into 3 major communities: 1) high thicket, 2) deciduous, and 3) holly forest. The high thicket is generally dominated by short trees (7-15 feet tall) such as hackberry, willow, poplar, black cherry, and tree-of-heaven. The high thicket generally grades into the low thicket on one edge (seaward) and the deciduous forest on the other (landward). It is a relatively small resource unit.

The deciduous forests provides a relatively dense cover of trees over 15 feet tall, including eastern red cedar, American holly, tulip tree, sweet gum, tupelo, elm, and several species of exotics. Many of the species associated with the high thicket community are also common in the deciduous forest.

The holly forest is dominated by American holly which is unique to Sandy Hook in Gateway National Recreation Area. The oldest holly tree in the park is over 300 years in age. Other species such as eastern red cedar, black cherry, hackberry, poplar, bayberry, and beach plum also grow in these forests, but they make up significantly less of the cover. In addition to the hardwood species associated with this community other species such as the prickly pear cactus, poison ivy, beach plums, seaside goldenrod, pepper grass, greenbriar, virginia rose, and winged sumac are found in the holly forest.

Shrub land. Shrub lands at Sandy Hook account for 12 percent of the vegetation cover and are composed of open shrub lands (Grasslands having 10-50 percent cover of trees and tall or short shrubs) and low thickets (woody cover is greater than 50 percent and shrubs 2-7 feet tall growing densely in large or small groupings).

Woody and herbaceous species are more or less evenly distributed in open shrub lands. Short shrubs most commonly make up the woody cover. Herbaceous species are usually the same as those of adjacent grasslands or marshes. The common reed may be extensive. The landscape may be dry or somewhat marshy, natural or disturbed.

In the low thicket the woody cover is greater than 50 percent and shrubs 2-7 feet tall grow densely in large or small groupings. If mixed with grassland species, the thickets may be spaced some distance apart. Bayberry, beach plum, dwarf sumac, and poison ivy are characteristic species, and any one may dominate a low thicket area. Pockets of high thickets, mixed grasslands, forests, or reed marshes may be included.

Developed Area. Disturbed open land comprises 15 percent of the land base at Sandy Hook and it usually contains less than 20 percent cover. Some of the species mentioned in the mixed grassland description are associated with this description. The topography generally appears flattened and may be areas such as abandoned

parking lots, construction sites, etc. Bulbostylis capillaris and bluestem are common. The distinction between disturbed open areas and mixed grasslands recovering from disturbance is only slight.

Another area of disturbance in this classification includes lawn or cultivated planting areas. Lawns are mowed areas composed of planted grasses or of species typical of mixed grasslands. Scattered ornamental trees are also included in this resource unit. Cultivated plantings are woody species lining roads, walks, and old buildings.

Development at Sandy Hook includes over 80 miles of paved roads, hard dirt surfaces and tracks, parking lots, buildings, and foot trails and paths.

Biodiversity. The ecosystem and its interacting variety of plant species, community associations, viable and productive habitat types, and the wildlife species it supports contribute to the diversification of the natural system and the levels of biological species that system can sustain. It is the interaction of both the biological and physical environments which determines the level of this diversity. In order to maximize the productivity of the resource base, consideration must be given to these natural processes and the associated impacts which could result from anthropomorphic changes.

The biological diversity of both plant and animal species at Sandy Hook is directly related to the number of vegetation communities present (which also creates quality habitat types for wildlife species); the preservation of large, relatively undisturbed, contiguous areas of these communities; and development which is concentrated rather than dispersed resulting in less habitat fragmentation and isolation. This diversity can be improved through the elimination of "naturalized" species, such as *Phragmites* (reed grass) and reestablishing appropriate native species in their place which are indicative of the community type which was displaced. Development actions must be evaluated on the merits of species/community interactions and the results of concentrated development zones rather than disjunct development patterns which could create an isolated and fragmented ecosystem.

Biodiversity can be optimized through the adherence to the limitations of prescribed development areas, as defined in the management zones for Sandy Hook in the GMP. The plan proposed to restore and preserve approximately three-fourths of Sandy Hook's land and landlocked water areas by managing them under the strategies defined for Protection and Use-by-Reservation zones. Preserved areas, encompassing all the significant natural resources of the park will be used by relatively few people primarily for educational purposes. The more intense recreational uses will be concentrated at the northern and southern ends of the peninsula on the beaches and in previously disturbed areas that represent about

one-fourth of the land acreage. This management concept, combined with an active resource program for the elimination of exotic/naturalized species and the establishment of appropriate native species in their place, should enable these goals to be obtained.

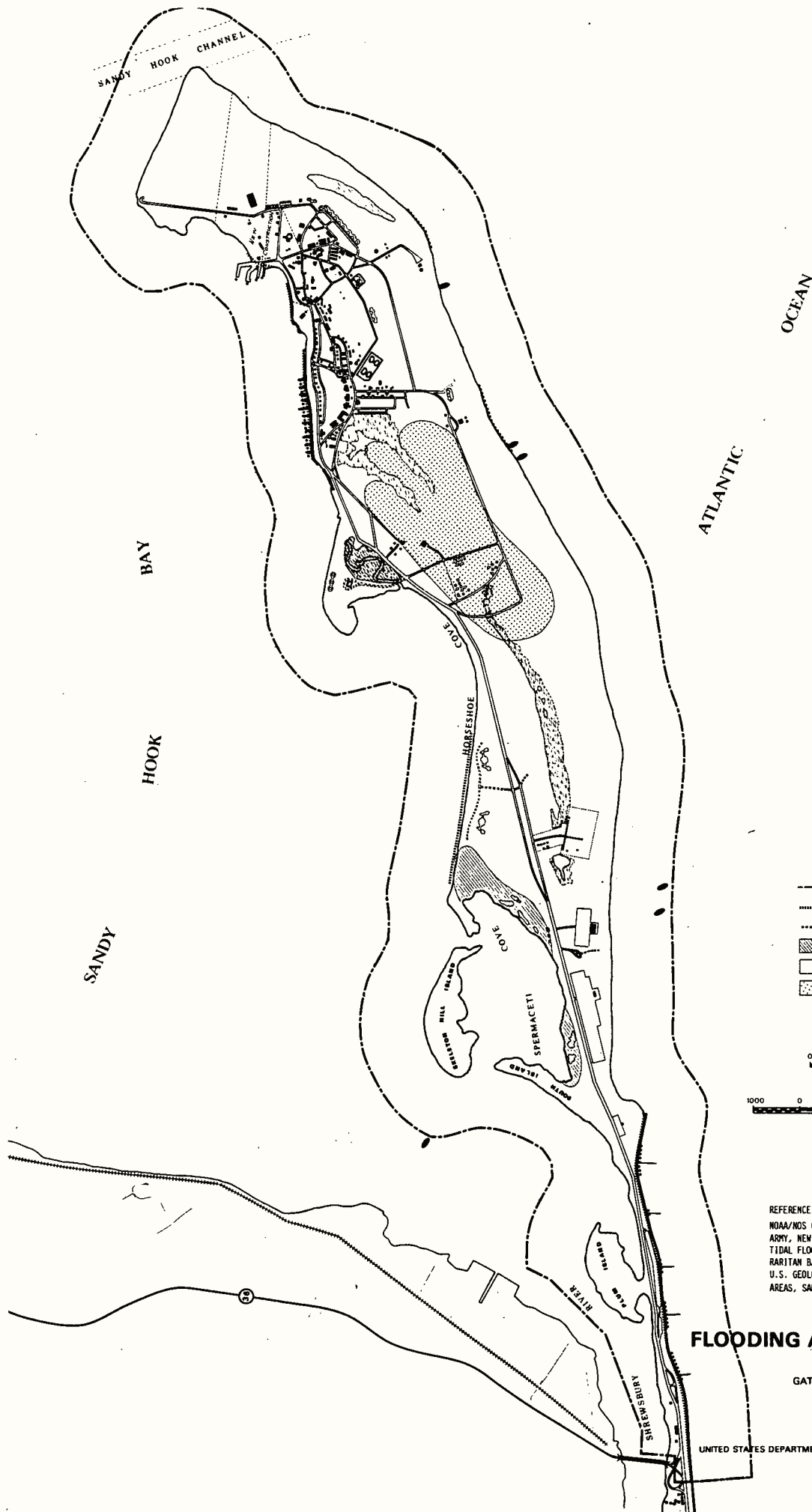
Sensitive Resources. Sandy Hook's heather community is locally unique and highly sensitive to disturbance. Its predominate species is beach heather possessing attributes of a shallow root system, slow growth, and brittle wood.

Forest communities on Sandy Hook are considered sensitive and require sound management policies to ensure impacts do not threaten their integrity. The holly forest on Sandy Hook is considered locally, if not regionally, unique, and is classified as a significant natural resource. Although it is fairly resilient to human use, the holly forest requires special protection from development or intensive recreational activity that would diminish its inherent characteristics and significance. Due to its significance and uniqueness, the holly forest has been designated as a Holly Forest National Natural Landmark. Other forest types in the national recreation area (conifer, deciduous, mixed) are also considered significant because of their ecological rarity within the coastal environment and their scenic and recreational value they possess.

Water Resources

The water resources of Sandy Hook includes 2510 acres of ocean and bay waters, and several fresh water wetlands. Fresh water accumulates in low depressions and contributes to the fresh water lense, which, due to density differentials, lies above the salt water zone. These wet areas provide a surficial indicator for the ground water table. Wetland areas, recognized for their significance, were designated as part of the "Protection Zone" for park management purposes.

Freshwater ponds and marshes are unique and comprise essential habitat for the numerous species which are dependent upon them for their viability. Early in their formation process the present fresh-water ponds functioned as salt lagoons. However, through coastal dynamics they were separated from the ocean by sand accretion. Fresh water deposits accumulated in these depressions and directly contributed to the fresh water lense which, due to density differentials, lies above the salt water zone. These pond areas provide a surficial indicator for the local fresh ground water table. The level of fresh water fluctuates seasonally due to the amount of hydrologic inputs through rainfall events. The fresh ground water table is approximately five feet below mean sea level (MSL) at Sandy Hook.



OCEAN

ATLANTIC



- LEGISLATED BOUNDARY
- BULKHEAD AND SEAWALLS
- GROINS, JETTIES, PIERS
- AREAS FLOODED BY THE SPRING TIDAL FLOOD
- AREAS FLOODED BY 100-YEAR STORM
- NON-FLOOD PRONE
- SHIPWRECK

0 250 500 1000 METERS

1000 0 1000 2000 3000 4000 5000 FEET

NOTE: THE SHORELINE SHOWN
IS THE MHW SHORELINE

REFERENCE:
NOAA/NOS CHART 12328 ED. 12 (1975) DEPARTMENT OF THE
ARMY, NEW YORK DISTRICT, CORPS OF ENGINEERS (1972)
TIDAL FLOOD PLAIN INFORMATION, SANDY HOOK BAY AND
RARITAN BAY SHORE AREAS, MONMOUTH COUNTY, NEW JERSEY.
U.S. GEOLOGICAL SURVEY, 1972, MAP OF FLOOD PRONE
AREAS, SANDY HOOK, N.J., QUADRANGLE.

FLOODING AND MANMADE CHANGES

SANDY HOOK UNIT

GATEWAY NATIONAL RECREATION AREA
NEW YORK / NEW JERSEY

The high and low salt marshes are considered moderately sensitive to human use because they are slow to recover from disturbance. Impacts to this resource component could alter natural species composition and diversity. They are significant to the ecosystem because of nutrient cycling which occurs within estuary communities and the marine and terrestrial life forms which are supported by this environment. Marshes also provide valuable habitat for waterfowl and shorebirds which utilize these areas. In addition, the marshes slow and dissipate storm water surges and provide a source of groundwater recharge.

The quality of waters surrounding Gateway National Recreation Area is determined largely by pollutant inputs such as treated and untreated sewage, SCO's, industrial effluents, ocean dumping of sewage sludge, and toxic waste leachates. The concentrations of these pollutants are controlled by chemical, physical, and biological processes in the marine environment.

Floodplains

The 100-year flood elevation at Sandy Hook has been established at 10.8 feet mean sea level (MSL) and all but the highest landforms are designated within this delineation. The Federal Emergency Management Agency recommends a base elevation of 12 feet MSL for structures to provide protection from potential storm surges.

Damages as the result of tidal flooding, particularly at certain points along the shoreline, have been substantial in the past. The most recent major storm occurred during three days of high tides combined with an offshore Atlantic storm (October 30 to November 1, 1991). Although the storm was positioned several hundred miles off the coast and lacked rainfall contributions, the resulting nine foot tidal surge caused major flooding, overwash on all ocean beaches, ocean to bay breaches, and erosion on the bayside shoreline. The entire North Beach areas, including parking lots and visitor facilities were overwashed and a significant amount of sand was deposited as the surge dissipated.

Wildlife

The diversity and abundance of species present on Sandy Hook represents a variety of natural resource communities and wildlife habitats which are influenced by its coastal setting and environment. Wildlife habitat is provided for by a matrix of resource functions including tidal areas (mud flats, beaches, jetties, and salt marshes), natural intertidal zones, dune systems, estuaries, fresh water ponds, grassland, and woodland communities.

Research conducted by Mekenian (1968) inventoried species presence for the various habitat types found on Sandy Hook.

Mud flats represent areas of habitation for a variety of invertebrates including hard-shell clams, worms, and mollusk species. When these areas are exposed at low tide, shorebirds such as semi-palmated plovers, black-bellied plovers, and spotted sandpipers can be observed.

Natural intertidal beach areas are important habitats for shorebird feeding and tern and gull roosting. These beaches comprise regionally important water bird and shorebird habitats due to the lower visitation levels compared with other New Jersey beaches.

Salt marshes are found on the western side of Sandy Hook. Spartina marshes are the most abundant of the natural intertidal marshes, which are important feeding and nesting areas for clapper rails, wading birds, and several species of waterfowl such as blue herons, egrets, green herons, bitterns, black ducks and mallards. Many invertebrates and insects such as fiddler crabs, ribbed mussels, gastropods, snails, tiny periwinkles, marsh grasshoppers, clams, scallops, and sponges inhabit these wetlands.

Dunes stabilized by beach grasses are common on the eastern and northern sections of Sandy Hook. The extensive dune areas at the northern tip are constantly building as sand is transported as a result of the southern littoral drift. Several nesting sites for colonial bird species are found in these areas.

Back-dune areas contain a variety of vegetation and provide important habitat for various wildlife species. Species which are dependant upon this habitat include the eastern cottontail rabbit, box turtle, and the eastern kingbird.

Fresh water ponds and marshes provide habitat which is important as a link in the food chain of insects and small animals while providing cover and nesting places for ducks and other birds. This community provides habitat for many types of wildlife species. Frequently observed species include red-winged blackbirds, grackles, whip-por-will, mourning dove, mallard or black duck, osprey, goldfinches, warblers, swallows, and eastern painted turtles. Fowlers toads have recently been reintroduced by the park's resource management staff at Sandy Hook. Finally, in the mud along the pond's banks and on the bottom live many specialized types of animal life such as snails, dragonflies and aquatic organisms including mosquito larvae.

Bird species comprise the largest composition of wildlife on Sandy Hook. The park provides important habitat for migrating birds utilizing the Atlantic Flyway. Almost 300 species of birds have been observed, attracted mainly by the variety of habitats present. Species seen include plovers, seagulls, common and least terns,

bobwhite quails, goldfinches, mourning doves, field sparrows, towhees, catbirds, mockingbirds, thrashers, kinglets, warblers, mute swans, brant and Canada geese, cormorants, American widgeons, scaup, goldeneyes, ruddy ducks, buffleheads, mergansers, and oldsquaws.

The forest areas provide significant habitat for woodland bird species such as warblers, sparrows, robin, jays, woodpeckers, chickadees, crows, vireos, woodcocks, and thrushes. Birds of prey also utilize this habitat including the great horned owl, osprey and sparrow hawks. The holly forest offers habitat for mammals such as cotton-tailed rabbits, muskrats, meadow mice, deer mice and reptiles such as the box turtle and diamond-backed terrapin.

Beach flats provide habitats for a variety of invertebrates including clams, worms, and mollusk species, and feeding areas for plovers, gulls, terns, sandpipers, and other shorebirds when the flats are exposed during low tides. The natural intertidal beach areas provide feeding habitats for terns, gulls, and other shorebirds, and waterfowl.

Three bird species, listed by the U.S. Fish and Wildlife Service (FWS) as either threatened or as listed candidate species are found in or adjacent to the project area. This includes the Piping Plover (Charadrius melodus) which was listed as threatened by the U.S. Fish and Wildlife Service. In addition, the Least Tern (Sterna albifrons) and Black Skimmer (Rhynchops nigra) have been listed by the U.S. Fish and Wildlife Service as Category 2 species.

In 1986, the Atlantic Coast population of the Piping Plover was added to the United States List of Endangered and Threatened Wildlife and Plants. Sandy Hook provides excellent nesting habitat for beach-nesting birds including the Piping Plover. It contains one of the few relatively undisturbed sections of beach/dune habitat for the entire New Jersey coast and supports one of the largest populations of breeding Piping Plovers. In 1991, a total of 20 pairs of Piping Plovers nested on National Park Service managed land at Sandy Hook.

The U.S. Fish and Wildlife Service is preparing a proposal to designate critical habitat for the Atlantic Coast Piping Plover population, and has indicated to the National Park Service that between 3.0 and 3.4 miles of Sandy Hook ocean beachfront are being evaluated for possible inclusion in the critical habitat. During the 1990 and 1992 nesting season, 2.7 km of this area was closed to public use above extreme high water of spring tides by now and string fencing with signed posts. Additionally, an approximately 530 m long, 270 m wide section of dredge spoil created during fall 1991 on a previously narrow strip of ocean beach near the southern end of Sandy Hook (the Critical Zone) was closed to public use above this line to protect nesting Piping Plovers, Least Terns, and Common Terns.

While found primarily on beachfronts, Piping Plovers also utilize back dune areas as feeding and resting areas. These areas may also be used as escape cover from predators. Although Piping Plover use of Gunnison and North Beach does not occur, the National Park Service is obligated to protect Plovers and will consult with the U.S. Fish and Wildlife Service in the event that birds nest there.

In 1992 the National Park Service completed an environmental assessment on the Management Plan for the Threatened Piping Plover (*Charadrius melodus*). The plan was in response to the official listing of the Piping Plover as a threatened species, pursuant to the Endangered Species Act of 1973, as amended. The document identified the responsibilities of the National Park Service at the Sandy Hook Unit of Gateway NRA for the protection and preservation of this species. In addition, the document reviewed the existing uses and management practices at the Sandy Hook Unit and provided the record of informal consultation between the National Park Service and the U.S. Fish and Wildlife Service. Management recommendations were formulated on the focus of park management and steps necessary to ensure the continued protection of the Piping Plover at Sandy Hook. In keeping with the procedures of the National Environmental Policy Act, information was reviewed and alternative management actions, including a recommended action and the associated consequences, were discussed. After the analysis of the public review and comment of the draft Piping Plover Plan, the management policy was approved.

Air Quality

Sandy Hook is near one of the most densely populated areas of the northeastern United States. Visitors to the park site must use heavily traveled urban and suburban arterial highways that are frequently congested. Public transportation to the park generally is limited. As a result, most park visitors use private vehicles to get to the park. Often, particularly on hot summer weekends, park traffic can make a significant contribution to this congestion. Continued increases in park visitation utilizing private modes of transport, especially during peak periods, could increase automobile exhaust emissions in an area near the park area.

Automobiles emit carbon monoxide, hydrocarbons, nitrogen oxides, and particulates. Carbon monoxide and hydrocarbon emissions are of particular importance in the regional context because attainment with the National Ambient Air Quality Standards (NAAQS) has not been met on a continuous basis. Because carbon monoxide is mainly a local problem, interest is focused on its ambient concentration level and impacts as related to mobile sources.

CULTURAL RESOURCES

The entire Sandy Hook Unit of Gateway National Recreation Area has been designated a National Historic Landmark, and it is listed as a historic district on the National Register of Historic Places. Sites on Sandy Hook, including Fort Hancock and the Sandy Hook Lighthouse, have been listed separately in addition to the district designation. Because any development activities at Sandy Hook have potential to effect the cultural resources, consultation with the New Jersey Historic Preservation office will be necessary.

The greatest influence on the resources of Sandy Hook resulted from the operations associated with the military. Its strategic location made it an important defense site for Lower New York Bay. During the Revolutionary War, British army and navy forces occupied the spit. Shortly before the Civil War, the U.S. Army began construction of a massive, granite star-shaped fort, however, it was never completed. In the late 1800s, the U.S. Army developed concrete gun emplacements to protect the bay against any foreign incursions, and in October 1895, designated the fortifications and installations on Sandy Hook as Fort Hancock. It was not a traditional walled fortress, but rather, several brick buildings that quartered the soldiers that manned the gun batteries built to protect New York Harbor.

In 1874, the United States selected Sandy Hook for the U.S. Army's first official proving ground for ordnance. Everything from small arms (rifles and pistols) to large 16-inch caliber guns were test-fired on the oceanside beaches and dunes. Weapons tested at Sandy Hook were used in the Spanish-American War and World War I. However, as weapons technology evolved, the firing range proved to be too short for larger, more powerful guns, and in 1919, the proving ground operations were transferred to Aberdeen, Maryland. At that time, the significant role in the development of American military ordnance at Sandy Hook passed into history.

The evolution of weapons and tactics led to changes in the military activities at Sandy Hook. Technological developments eventually rendered the defenses of the harbor area obsolete, and in December 1974, the U.S. Army removed its missile units from Fort Hancock. The National Park Service assumed management and operation of Sandy Hook State Park on December 1973 as part of Gateway National Recreation Area. Fort Hancock and other U.S. Army properties were deactivated on December 31, 1974, and except for the properties of the Coast Guard and the U.S. Army Corps of Engineers, the entire spit became the Sandy Hook Unit of Gateway National Recreation Area.

VISITOR USE

Sandy Hook provides a variety of recreational pursuits for more than 2 million visitors annually. Up to 46,000 visitors may congregate on the beaches during a summer weekend. Facilities support active recreation and undeveloped areas provide an opportunity for park visitors to experience the natural setting and environment of the park. Activities include swimming, sunbathing, picnicking, kite flying, windsurfing, boating, bicycling, jogging, walking, bird-watching, fishing, and other active/passive forms of recreation.

Heaviest visitor use occurs near developments containing beach centers, playing fields, parking, picnic areas, and campsites. These recreation zones occupy the previous state park lands near the neck of the peninsula and the North Beach area of Fort Hancock, where considerable man-made impact on the natural environment has already taken place. The large, undisturbed mid-beach expanse between the two beach development areas will generally be managed so that the natural systems become even more dominant and the roads and rights-of-way that are no longer needed gradually disappear and the area restored to a more natural condition.

Proposals for Sandy Hook aim to protect and enhance the natural environment and the area's historic character, while increasing the opportunities for public use and enjoyment. There should be no conflict, even on the most heavily used summer weekend days, between these two objectives because existing and projected access systems will not deliver more people to Sandy Hook than the carrying capacity of this unit will accommodate.

Facilities

Development and use at Sandy Hook is focused at the Fort Hancock Gateway Village and the beach centers. The majority of visitors concentrate in or near these developed sites. Other areas, although available for designated uses, have only minimal facilities to support low-density dispersed activities.

Existing development at Gunnison Beach includes those structures and parking areas which are supportive of beach visitation. Two trailers currently provide visitor services for the concession operation and public restrooms. There is an outdoor shower area located near the concession operation on the beach. The lack of facilities renders inadequate visitor services in this area. For example, there is no first aid station nor park administrative support permanently located at Gunnison Beach. Parking for 778 cars is provided in an unpaved area at Lot G. Access to the beach is via an elevated boardwalk which crosses the holly forest and a wetland area. Visitors reach the shoreline through paths which cross the primary dune. This unstructured entryway has caused

continued impacts to the fragile dune system in this area of Sandy Hook.

The North Beach area also provides visitor support facilities which are less than ideal for park visitors and administrative purposes. One trailer is located in this area providing a facility for concession operations. In addition, there is an old cinderblock building utilized for park beach operations including first aid, a lifeguard station, and ranger offices. The building contains approximately 2000 square feet. Parking is provided for 355 cars at Parking Lot I which impacts the primary dune and is adjacent to the concession trailer. In addition, Parking Lot J provides 190 spaces for park visitors and Overflow Parking Area K another 600 parking places.

Transportation

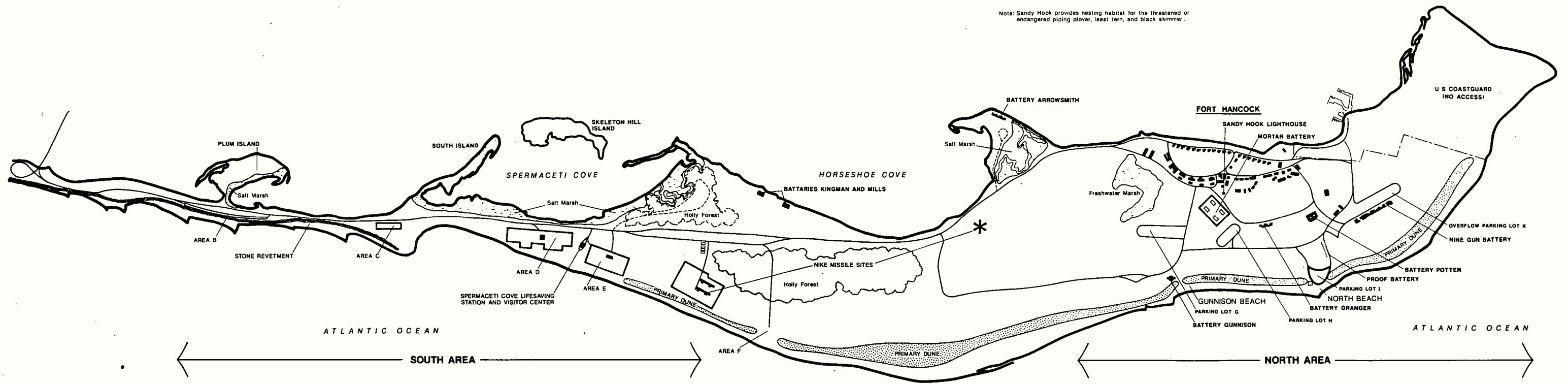
The metropolitan area of New York is served by a complex of road and mass transit networks that crisscross all portions of the region. However, these systems, primarily accommodating weekday-work-travel to and from the metropolitan core, do not adequately serve the park's visitors. Gateway remains relatively inaccessible to large numbers of city residents, especially on public transit. Serious congestion on the major arteries serving Gateway occurs on most summer weekends.

The primary access to Sandy Hook by park visitors is by private automobile. Other modes of transportation include visitors arriving by private boat, bicycle, public-transit, and chartered bus travel. The absence of any direct mass transit (bus, rail, or waterborne) into the park, as well as the auto-dependence of the communities being served by Sandy Hook, account for Sandy Hook's automobile dominated characteristics.

These include:

- creation of bikeways that can be used as impact-free means of travel to and through most areas of Sandy Hook.
- park-n-ride shuttle staging areas along Route 36 and in Atlantic Highlands.
- waterborne transit with departures from inner harbor sites as well as Keyport, Keansburg, and the Amboys. A ferry dock was proposed in the park's GMP for the Fort Hancock area.
- initiate a transportation study to consider ways to improve existing public-transit services, to initiate new services, especially on water, and to adjust access and circulation patterns so as to ease congestion and improve traffic flow.

Circulation for the Sandy Hook Unit is along the main park roadway, with secondary roads providing access to the various developed areas, where parking is available. Motorists going to the North Beach Complex will leave the main road just south of the Fort Hancock Gateway Village and routed east along an existing road past the Coast Guard Housing area.



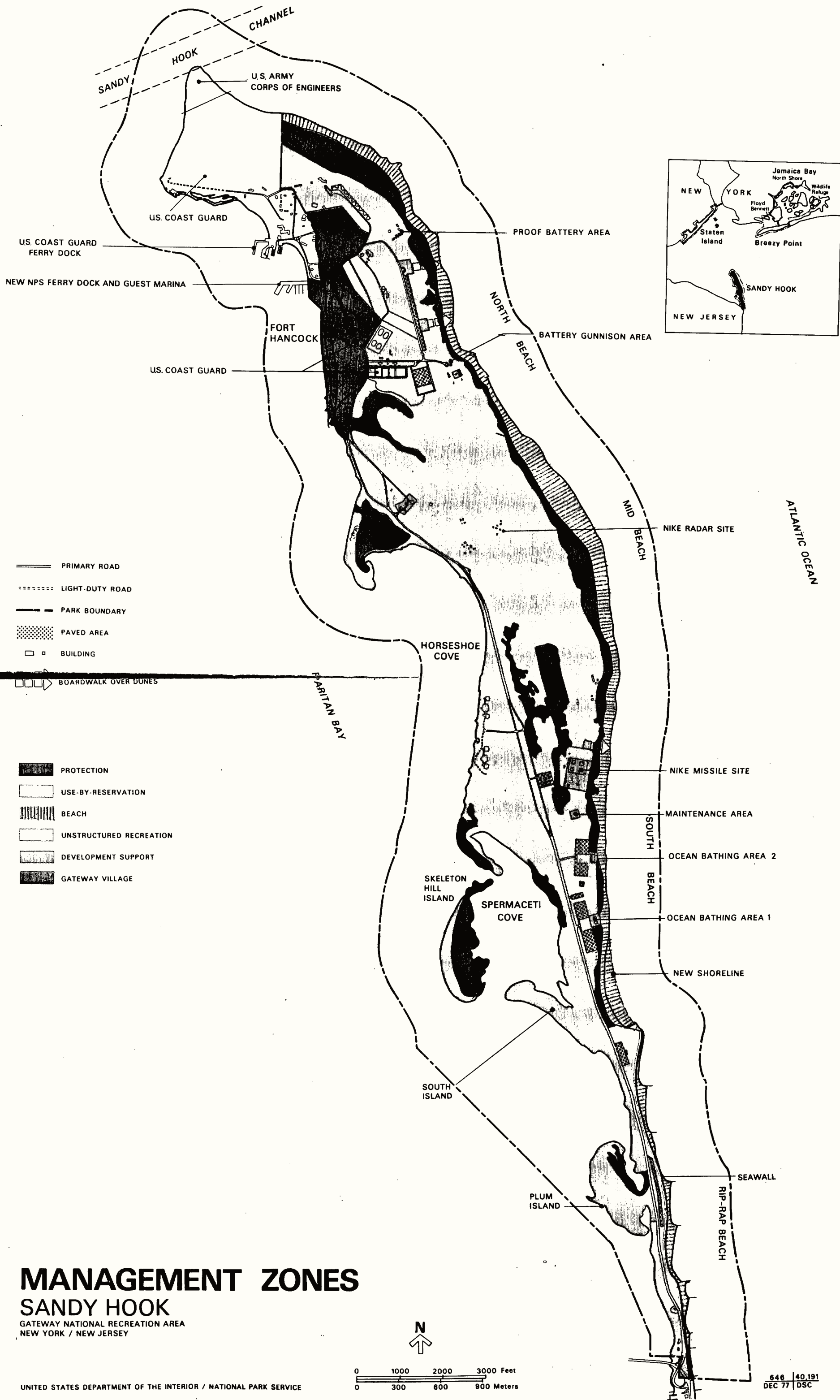
EXISTING CONDITIONS
SANDY HOOK
 GATEWAY NATIONAL RECREATION AREA
 UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE
 DSC/JAN 1990 / 648-40288C

MANAGEMENT ZONING

The General Management Plan, Gateway National Recreation Area established six management zones for all units within the park. These zones prescribed the amounts and kinds of development which could occur at specified areas within each unit. The proposed activities related to the alternatives considered by this environmental assessment are located in three of these zones including the 1) Development Support, 2) Unstructured Recreation, and 3) Use-By-Reservation Zones at Sandy Hook. The intent of management in each of these areas include:

- Development Support: This zone includes those areas where buildings or hard-surfaced parking lots predominate, or where the land is suitable for construction of beach or recreation centers and support facilities. Lands and structures in this zone will be developed and managed to provide all the necessary support services and facilities for active beach use, etc. Areas assigned to this zone include existing developed areas and accessible disturbed uplands with no sensitive or significant natural and historic resources.
- Unstructured Recreation: These areas consist of open grasslands and disturbed or developed lands adjacent to the two beach center complexes, the Fort Hancock Gateway Village, and the southernmost portion of the main access road. They are to be managed as part of the Unstructured Recreation Zone. These lands are to be maintained, landscaped, or developed as necessary to provide settings for specific outdoor uses.
- Use-By-Reservation: These lands include almost all of the forested uplands, both holly and deciduous, the remaining freshwater and high/low salt marshes, most of the low thicket/open shrub land areas, and some associated grasslands. Although roads and trails are a permitted development on these lands, areas removed from access routes will generally be managed to encourage restoration and natural succession.

In addition to these management zones defined in the GMP, the 1990 amendment to that document refined and clarified the levels and types of development, interpretation, and visitor experiences that will be provided at Sandy Hook. These refinements were based on additional resource and visitor use data gathered since the GMP was approved. It should be noted that although the amendment utilized new nomenclature and zoning delineations, the management zones delineated in the GMP remained in effect. The only zone where development would occur from this proposal is in the Coastal Fortification Zone. The purpose of this zone is to instill a sense of Sandy Hook's significance in harbor defense and as a proving ground for military arms development. As stated in the GMP, this entire area is zoned for resource protection, which limits allowable uses.



DESCRIPTION OF ALTERNATIVES

ALTERNATIVE A: NO ACTION

The no-action alternative would halt any replacement of existing park facilities in support of the operations in the North Beach and Gunnison Beach areas of Sandy Hook. This alternative would not provide for the replacement of the trailers along the beach; realignment of the roadway for improved visitor safety/traffic circulation; redesign and relocation of parking areas for park visitors; the development of a bicycle path for the northern portion of Sandy Hook; and the restoration of existing impacts to the primary dune system.

ALTERNATIVE B: PROPOSED PLAN

This alternative would provide the needed facilities and infrastructure to support park operations and provide an enhanced park experience for visitors at Sandy Hook. Actions proposed under this alternative would include the following facilities and developments.

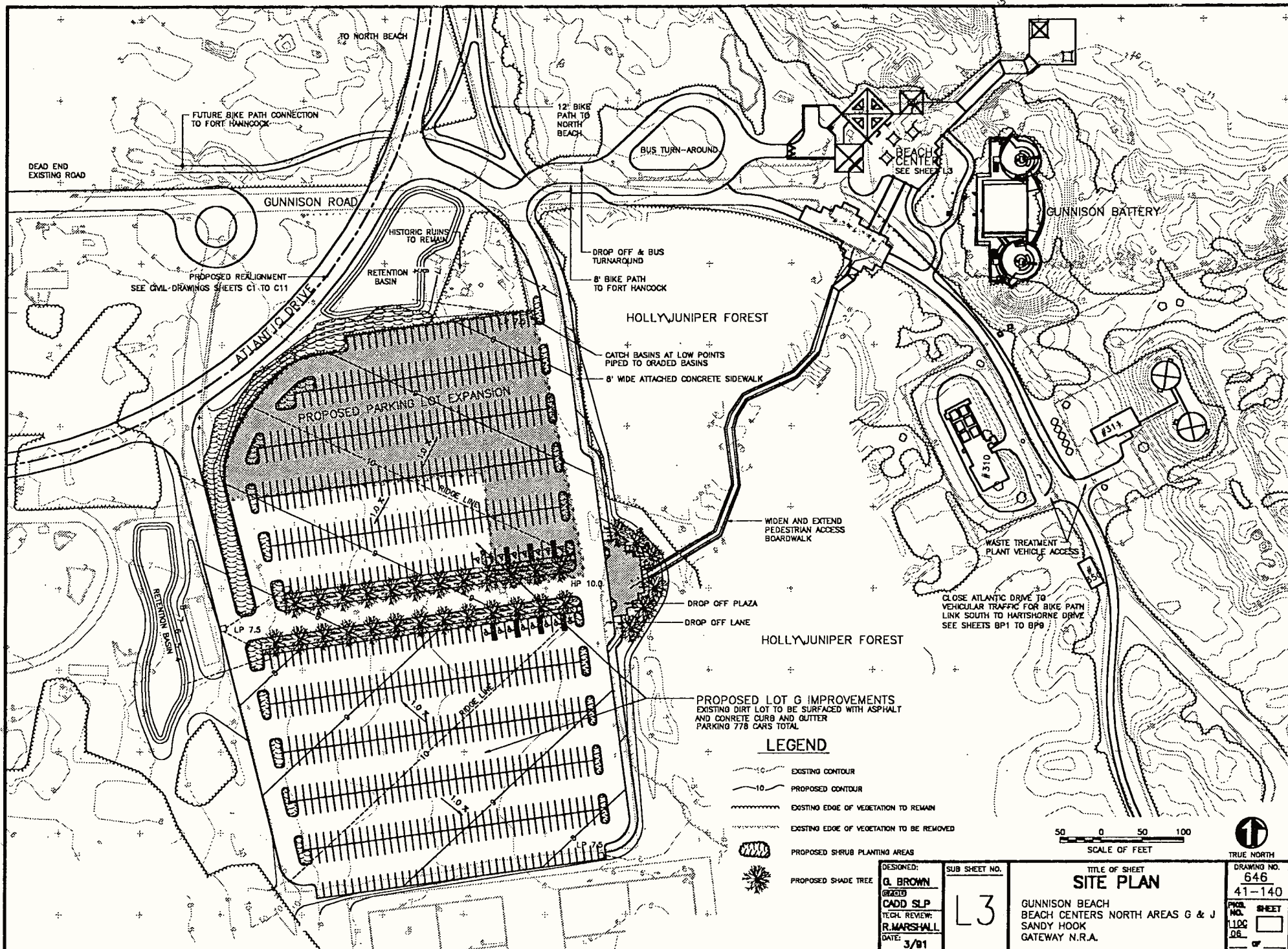
Site Preparation

Prior to initiating construction activity, the area proposed for development would require unexploded ordinance sweeping to ensure the safety of future park visitors and the workers. This action involves clearing the site proposed for development of all vegetation to provide for the operation of detection equipment. This activity is limited to the footprint of the proposed site development.

Gunnison Beach

The Gunnison Beach center would be constructed in the location of the existing beach facility behind the primary dune. A cluster of facilities, covering 0.6 acres would support visitor services, including change rooms and restrooms, lifeguard and first/aid station, concessions, and information and interpretation of Gunnison and Proof Batteries. A paved segment of Atlantic Drive would be retained as a pedestrian access to the beach center, and would be used for service and emergency vehicle access to the beach.

Parking Lot G would accommodate 778 vehicles and would be landscaped and paved, and provided with two entries onto the realigned Atlantic Drive. The main pedestrian walk from the parking area to the beach center would follow the current route utilizing elevated boardwalks and the existing trail. The boardwalk would be widened to provide better handicapped access.



North Beach

Improvements at the North Beach area include the removal of the existing facility, and construction of a new beach center north of its present location to permit reconstruction of the primary dune. A cluster of facilities would be developed for the beach center including change areas/restrooms, first aid station, concession facilities, and public use areas for picnicking and other related activities. A boardwalk ramp and a series of observation decks would be developed on the reconstructed dune for views of the New York skyline, the bay, and the ocean, and for interpretation of the primary dune. The service and emergency vehicle access to the beach center would use the bicycle trail located on the existing road access.

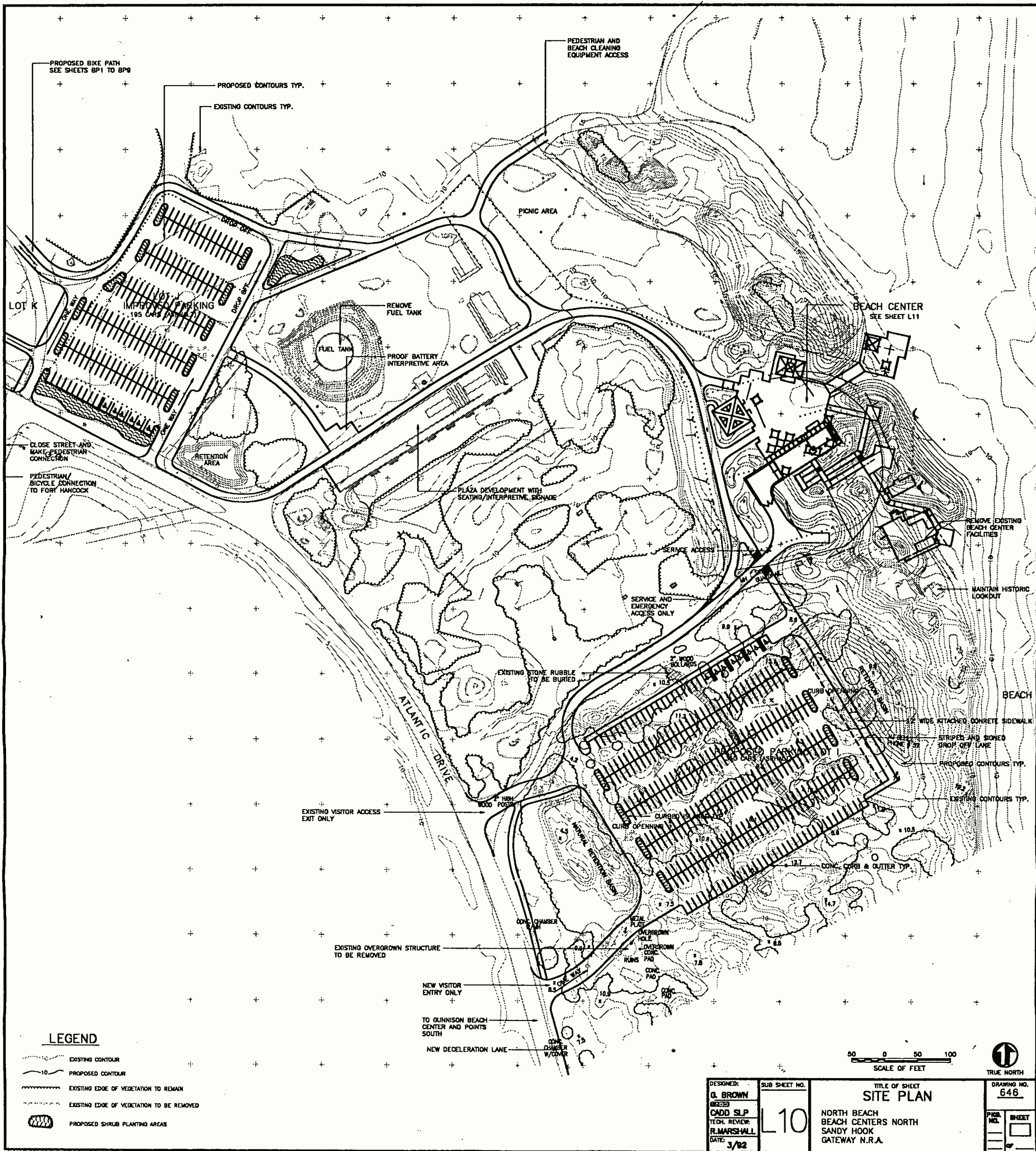
Parking for North Beach would be in three areas: a new parking lot with a 355-vehicle capacity (Lot I) would be constructed south of the new beach center, and west of the main dune; Parking Lot J with a 190-vehicle capacity would be redesigned to improve parking patterns; and Overflow Parking Area K would continue to provide parking for 600 vehicles. Access to parking lots I and J would be from Atlantic Drive, and Lot J would have connector roads to Overflow Area K. Pedestrian access to the beach center would be on a new network of walkways , some of which would also serve as service and emergency vehicle routes.

Atlantic Drive Realignment/Bicycle Trail Development

The GMP prescribed the realignment of North Area roads to direct high volume traffic around Fort Hancock rather than through the fort as it currently exists. Atlantic Drive south of Gunnison Beach would be abandoned, and access to North Area beaches would be on Hartshorne Drive and MacGruder Road. Just north of the National Oceanic and Atmospheric Agency (NOAA) parking area, the road would be realigned to the east between the Coast Guard residential area on the south, and the buildings of the Marine Academy of Science and Technology (MAST) on the north, then the alignment curves to connect with Atlantic Drive. The Gunnison Road from Fort Hancock would be dead-ended with a turn-around.

A bicycle trail would be established in the northern area of Sandy Hook. The trail would begin near the current intersection of Hartshorne Drive and Atlantic Drive. It would use the Atlantic Drive alignment to Gunnison Beach center (conditional on the abandonment of this section of Atlantic Drive). The bicycle trail would fork with the south trail extending to the park entrance, and the north trail alignment being abandoned Atlantic Drive. The trail would continue past the Gunnison Beach center where it would provide access to Fort Hancock via MacGruder Road, or north along Atlantic Drive to the North Beach center. It extends past the center to Parking Lot J and Overflow Area K.

The trail continues along the west edge of the Nine Gun Battery to the trail terminus at the north end of Overflow Area K.



ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER CONSIDERATION

In addition to the actions proposed in the Alternative B, other alternatives were considered during the planning process for the development actions at North and Gunnison Beaches. After a thorough review and evaluation, they were eliminated from further consideration because of the associated impacts on the natural resources, the park operations, and/or the existing park infrastructure. These alternatives were considered.

Develop North Beach and Gunnison Beach as Recommended in the Park GMP

This alternative proposed to concentrate the development actions for intense recreational uses at the northern and southern ends of Sandy Hook. These developments would occur on the beaches and in previously disturbed areas representing approximately one-fourth of the land acreage, including recommendations for the North Beach and Gunnison Beach areas. The development would occur in the Development Support Management Zone. However, the design connected the beach centers with parking areas approximately 2,000 feet in length. This parking area in relatively undisturbed areas, would have caused considerable impact and disruption to the natural resources. Access to the beach would continue to be through unstructured pathways which crossed the primary dune. Visitors would be inclined to cut new pathways across the dune for access to the beach, which would further impact this fragile natural system. Finally, interpretive potential for park visitors would have been significantly less due to the distribution of parking, beach functions, and access.

In addition, this alternative would realign the main access road to the beach centers behind the N.O.A.A. facility to the east of Fort Hancock, resulting in additional impacts to natural resources and requiring new construction in a relatively undisturbed area. It would also have placed road development in or near a fresh water marsh.

Develop Beach Centers in Areas Presently Occupied by these Facilities.

This alternative would represent replacement of functions at their current site locations. This would have caused additional stress on the traffic circulation in the northern part of Sandy Hook. The circulation would have continued to provide less than ideal vehicular access and egress to the site, with additional vehicular and pedestrian conflicts due to the poor circulation patterns. There would be greater impacts to the natural resources because restoration of the primary dune would have been impossible with the siting of the structures at these locations.

ENVIRONMENTAL CONSEQUENCES

IMPACTS OF ALTERNATIVE A: NO ACTION

Natural Resources

Specific natural resource values affected by this alternative would include the following.

Soils and Geology. This alternative would have no impact on the soils or geology of the park.

Coastal Resources. Restoration strategies for the impacted dune area of the park would not be implemented. Structures including trailers, a cinderblock building, and temporary restroom facilities would not be removed from the beach area subjecting them to continued coastal hazards. None of these structures were designed with adequate flood hazard mitigation. Therefore, future storms and tidal surges could pose a potential impact to the resources. This lack of action would cause continued stress on the coastal resources of the area as the dune system has regionally been impacted by past development actions. The opportunity to return an impacted system to a more natural system would be lost. Increased habitat for coastal resource wildlife species would not be possible for this area of the park.

Water Quality. The water quality could be impacted on the short term if coastal flooding destroys the current structures which were not constructed to withstand major storm events. This could produce a short-term elevation of suspended sediments in the marine environment and specific unknown elements, such as heavy metals or hazardous materials (asbestos or lead) could enter the water.

Floodplains/Wetlands. There would be no further impacts to either floodplains or wetland areas, other than those associated with the coastal resource issues discussed above.

Vegetation. Vegetation would continue to be impacted by visitor use of unauthorized pathways and unstructured access to the beach from the parking areas in the North Beach area. Recovery and restoration of the impacted dune areas would not occur. Unstable dune conditions at the beach centers would cause further dune system instability.

Wildlife. Wildlife species composition and aquatic habitats would remain comparatively the same as present conditions. However, if the dune area was not restored, less viable habitat would be available to those species for utilization. This could produce less species abundance for the park and specifically for those residence which utilize dune systems for cover and habitat.

Endangered/Threatened Species. Even though the area proposed for development action is not within the area designated as Piping Plover habitat, the lack of restoration of the dune area could impact that species. Without dune restoration, less cover and protection would be available to the Plover's. This could cause continued disturbance and/or stress for these birds.

Air Quality. There would be no additional effects on air quality if this alternative is implemented.

Cultural Resources

Cultural resources such as ruins or remains of military-related development would continue to exist in their present state. Many resources would continue to deteriorate.

Socioeconomic Environment

The use of federal funds for construction would not be required, however, there would no potential benefit to local or regional economies.

Visitor Use

Visitors would continue to experience overcrowding at the inadequate beach center facilities. The beach centers would continue to deteriorate, creating unsanitary conditions, and effect the visitor's experience. The existing road patterns would continue congested traffic conditions for visitors.

A suitable bicycle trail on Sandy Hook would not be developed, which would increase the potential hazards of bicyclists using park roads and creating significant safety conditions, and decreasing the park experience.

Since this is a No Action alternative, only minimal management actions would be taken to improve inefficient operations and unsatisfactory service at the beach centers. There would be continued congestion of visitor traffic, including bicycle use, on inadequate roads and parking areas.

National Park Service Management

Some of the management actions presented in the GMP would not be implemented. The cost of improving the beach center facilities at North Beach and Gunnison Beach would become increasingly more expensive, as construction costs increase over time.

Continuing existing road alignment patterns with traffic congestion could require an increase in protection personnel to direct traffic flows.

IMPACTS OF ALTERNATIVE B: PROPOSED PLAN

The proposed plan would implement the development actions for the Sandy Hook Unit at Gunnison and North Beach areas as specified in the GMP and its amendment and thereby provide facilities that meet the visiting public's expectations for a unit of the national park system. The specific development activities include the following impacts and mitigation procedures.

Natural Resources

Prior to completing facility design, archeological mitigation, and construction activity, the area proposed for development would require the "sweeping" (or testing) for unexploded ordinance (UXO) to ensure the safety of park visitors and employees. This action involves clearing the site proposed for development of all vegetation to provide for the operation of detection equipment. This activity is limited to the footprint of the proposed site development. Therefore, impacts described for each specific development area would occur prior to construction activity.

Soils and Geology. There would be no further impacts to the soil or geology of the park associated with the development actions proposed. The activities would occur in previously disturbed areas where the soil has been extensively compacted as a result of past construction and visitor use activities (parking of automobiles on gravel/soil surfaces), and the area's general use during its military history.

Vegetation. The proposed development actions at Gunnison Beach and North Beach would have impacts to both existing vegetation communities and previously disturbed sites. Vegetation species in grassland and shrubland communities would be effected. Most of the areas to be impacted were disturbed during the past activities when Sandy Hook was used for military operations. The areas where development actions are proposed contain those vegetation communities which are recovering from this past disturbance. Restoration is proposed as mitigation in areas where existing facilities are to be removed, ie. beach centers and parking. This includes the restoration of the dune system at North Beach which would provide a better quality habitat and opportunity for native species to dominate.

Gunnison Beach

At Gunnison Beach, the beach center and parking area would be located in the footprint of the existing facilities, and would not require the removal of substantial areas of vegetation. The drop-off drive for park visitors and those arriving by bus would require the removal of approximately 0.3 acres of shrub vegetation. The widening of the trail and boardwalk between the parking lot and the beach center would require the removal of 0.06 acres of shrub and wetland vegetation, but would not require the removal of any trees. Species commonly found in this vegetation community which could be impacted include both the woody and herbaceous type. These impacts could effect vegetation species associated with the grassland complex (beach grass, sea rocket, beach heather, seaside goldenrod, Virginia creeper, dusty miller, poison ivy, bayberry, American beach grass, and bluestem) and short shrubs. Impacts to wetland vegetation could affect species such as Queen Anne's Lace, black-eyed susans, or the non-native Phragmites species.

North Beach

The development of new parking Lot I at North Beach would require the removal of 3.1 acres of grasslands interspersed with low thickets of shrubs and trees. This area was disturbed during U.S. Army operations during the period of ordnance testing. In the early 1980s, the NPS modified segments of the area during construction of facilities for North Area beaches. Species which could be impacted by this activity are similar to those described above.

Limited impacts would be expected to occur to non-native, exotic species through the removal of the above ground storage tank located near the proof battery interpretive area. This activity would occur in a previously disturbed area and the impacts would be limited to the actual site and its periphery. Once removed, the area would be restored with native species.

Mitigation for impacts includes modifying the configuration of the North Beach parking lots. Currently, parking is provided in Parking Lot I which is situated near the existing beach center south of the primary dune. This lot would be removed to lessen impacts to the primary dune system. Replacement parking would be developed at the smaller and reconfigured Parking Lot J. Existing Parking Lot I would be replaced by the new Parking Lot I located to the south of the existing road to North Beach in an area disturbed by military operations and construction activity. New Lot I includes the parking capacity reduced in Parking Lot J.

Previously disturbed sites in the North Beach area would be restored to natural conditions utilizing native species. This includes the restoration of 1.6 acres of dune habitat through the

removal of Parking Lot I. In addition, revegetation and restoration at the fuel tank location would reestablish approximately 0.4 acres of native species. Even though these restoration efforts would assist in replacement habitat and vegetation communities at the development sites, there is approximately 1.6 acres net loss to the area available for natural systems functions. However, it should be emphasized, that the majority of the restoration efforts at North Beach would occur in the dune system. This could, through appropriate treatments and resource management strategies, provide a better quality of replacement vegetation community for the ecosystem.

Atlantic Drive Realignment/Bike Path Development

The proposed alignment of the bicycle path at the northern end of Sandy Hook was developed to define the relationship to the North Beach and Gunnison Beach centers and the related road and parking improvements. The Sandy Hook trail could become one of the key segments of the proposed Coastal Heritage Trail. In order to realize this objective, it is proposed that portions of Atlantic Drive be abandoned for vehicular traffic. The existing roadway from the Hartshorne Drive to Gunnison Beach center would be eliminated and the area restored to a natural vegetation community utilizing native species. The area to be reestablished as a natural area totals 3.6 acres in extent. However, the development of the bike trail in this part of the park would commit approximately 1.3 acres along Atlantic Drive and an additional 1.4 acres of grassland/shrub lands (see above for species impacted) to provide an opportunity for an enhanced park experience for the visitor. Even though impacts are expected, there would be a net gain of 0.9 acres of restored area at this site. Vegetation would be reestablished to a natural condition using native species.

The proposed development would result in the commitment of an additional 1.06 acre of previously disturbed land for development purposes. The total of 6.66 acres of previously disturbed land would be type converted for development purposes. However, in the process of implementing these actions, a total of 5.6 acres would be restored to a natural condition and revegetated with native species.

Coastal Resources. The existing facilities at North Beach would be removed and a new beach center complex developed in the existing parking area. This would enable the primary dune to be restored to natural conditions utilizing native species. The placement of facilities at the new beach center would concentrate development in the existing parking area behind the primary dune. The dune system to the north of the site would remain relatively undisturbed to protect the coastal resources including the well established vegetation community which currently exists. Walkways would be

constructed over the dune to lessen impacts associated with unstructured beach access.

The beach center at Gunnison Beach would be located at the site of the existing beach center behind the primary dune. Access to the beach would be provided by a walkway. This would reduce potential impacts to the dune system by unstructured access routes by park visitors.

There would be no significant adverse impacts to the coastal resources from the development of the bicycle trail and the realignment of Atlantic Drive.

Floodplains/Wetlands. The purpose of the North Beach and Gunnison Beach centers is to provide adequate visitor services, such as lifeguard and first aid station, showers, and concession operations for the safety and benefit of the public. Operations centered at the beach center are functionally dependent on the waterfront. Therefore, no options for placement of facilities outside the 100 year floodplain in the project are possible. New structures in the 100 year floodplain would incorporate methods for protecting life and minimizing storm damage. Flood-proofing would be an important design criterion. The park staff would cooperate with municipal and state agencies to develop and annually update the evacuation plan for the Sandy Hook Unit.

There would be impacts on wetlands associated with providing visitor access from the parking area to the beach at Gunnison Beach. Currently, an elevated boardwalk provides the visitor access to the beach. Widening of that boardwalk is required to accommodate visitor usage, including handicapped accessibility to the beach. Impacts could occur from the short-term construction activity and the long-term increased width of the walkway. The boardwalk extension would be part of the existing structure and elevated so as to preserve the integrity of the wetland area. There would be limited loss of wetland species directly under the structure, however there would be no loss of hardwood species in the area. The expansion of the boardwalk over wetland areas would require permits from the New Jersey Department of Environmental Protection.

There would no impacts to the wetland areas associated with the proposed development actions at North Beach (beach centers and parking areas) nor for development of the bicycle trail, or realignment of Atlantic Drive.

Water Quality. There would be no perceived impacts to either the fresh or salt water resources in the North Beach or Gunnison Beach areas of Sandy Hook. Construction and operations of the beach centers, roads, and trails would have minimal, short term effects

on the quality of fresh water areas. National Park Service construction activities would comply with the requirements of Section 404, Federal Water Pollution Control Act, and other applicable federal and state regulations. Developed sites, roads and trails would be designed to allow storm waters to percolate into the soil rather than run off directly into any adjacent wetlands, thus helping to protect water quality.

Wildlife. Activities associated with the construction of the beach centers, parking, walkways, and bicycle routes would disturb wildlife habitat. It is expected that the small mammal population that currently uses this area would be displaced. Even though displacement is expected to occur, the habitat that is used by these individuals should remain comparatively the same in extent because of restoration and protection strategies proposed for the primary dune system.

Mitigative actions would replace about the same area of higher quality habitat compared to the disturbed condition that currently exists. This habitat should remain in a fairly high quality condition because protection measures, such as walkways and fencing, would eliminate the trampling effects which currently exist from unstructured access. Species diversity would not be affected by these proposed activities. In addition, there is a possibility that through the restoration process and dune reestablishment procedures, the additional cover and protection provided by the restored areas might lessen the stress on the Piping Plover population in this vicinity.

Endangered/Threatened Species. The Management Plan for the Threatened Piping Plover (Charadrius melodus), Sandy Hook Unit (1992) delineated the critical nesting habitat for this threatened species just south of the Gunnison Beach center and north of the North Beach center. The construction, operation, and maintenance of the beach centers, realignment of the roads in the North Area, and development of the bicycle trail would not directly impact this sensitive area of the park. However, indirect impacts could occur associated with disturbance by construction activities. Due to the unknown magnitude of these indirect impacts monitoring would be required to detect and mitigate any associated impacts from this proposed development action. The recommended action in the Piping Plover management plan would be in effect including limitation of human activity, maintaining existing protection habitat conditional closure of natural intertidal zone, and implementation of United States Fish and Wildlife Service Management recommendations. Specific measures required by that plan are incorporated into the compliance section of this environmental assessment. In addition, further protection would be provided to this species through the monitoring efforts and stop orders which would be incorporated into the contract for the project.

Air Quality. Construction activities are expected to cause short-term air quality impacts as a result of fugitive dust and diesel emissions generated by heavy-duty construction vehicles during grading and construction activities.

Air resources could be impacted due to the access/egress configuration proposed for the North Beach area's road realignment. The new configuration could lead to greater congestion for park visitors upon departure. The result could produce an increase in the emissions of carbon monoxide (CO), nitrogen oxides (NOX), sulfur oxides (SOX), fine particulates, and reactive organic gases (ROG). Ozone levels could also increase. During periods when air quality parameters approach or reach non-attainment with the National Ambient Air Quality Standards, this incremental increase could be significant.

The National Park Service would continue to work with the New Jersey Department of Transportation, the Monmouth County Planning Commission, and other appropriate agencies in realizing the goal to improve mass transit into the park. In addition, the National Park Service would work cooperatively with other agencies and groups to further alternative transportation access including access by both land and sea.

Cultural Resources

The development of the beach center and Parking Lot G at Gunnison Beach would have no adverse effect on known cultural resources. The proposed development would provide interpretation of Battery Gunnison as it relates to coastal and harbor defense from the late 1800s through the 1960s.

The reconstruction of the primary dune at North Beach would aid in the protection of structures associated with Proof Battery and Fort Hancock from high waves and flooding.

Parking Lot J would be in the impact area where ordnance testing occurred, and the U.S. Army or other qualified agency would sweep the area to locate and remove any UXO. The sweep would be monitored by qualified cultural resource specialists, and the area cleared of UXOs prior to any construction activities.

In the absence of a comprehensive cultural landscape evaluation for Sandy Hook, a cultural resource workshop for Gunnison Beach/North Beach was conducted in 1990. As a result of this meeting, modifications of the size and location of the North Beach parking lots were made to protect and minimize the effects on cultural resources. The historic target embankments (northeast corner of new Lot I), the firing platform (entrance road to new Lot I), the storage area of the target/velocity screens, the Proof Battery, the gun barrel and munitions storage area, and the Sandy Hook gun

battery are significant historic resources that have been identified, and appropriate mitigation strategies developed. The munitions testings at Proof Battery would be interpreted.

Socioeconomic Environment

The improvement of concessioner facilities at the two beach centers would improve local and regional economies in the form of employee salaries, and the purchase of supplies.

The closure and abandonment of Atlantic Drive south of Gunnison Beach would divert all visitor traffic to North Area beaches onto Hartshorne Drive and Macgruder Road. This would increase the amount of traffic passing the NOAA facilities along Macgruder Road, and could cause congestion between visitor and NOAA traffic. This situation would occur mainly during peak visitor use periods. However, conflicts in vehicular usage between these two groups should be minimized due to the weekend nature of peak visitor use days and the weekday usage of the NOAA facility by employees and guests.

Access to the northern beach centers for maintenance, patrol, concessions, and emergency vehicles could be delayed because of traffic congestion at a time period when these services would be needed the most.

The new alignment of the access road to North Area beaches would locate the road closer to the Coast Guard mobile home housing area, and most of the visitor traffic to North Area beaches would pass near the area. This would have a short term effect. The transfer of this property from the Coast Guard to the NPS would occur in February 1995. The mobile home housing area would be removed, and the area allowed to revegetate.

Gunnison Way from Fort Hancock to Gunnison Beach provides access to park ranger facilities and the Marine Academy of Science and Technology, and the proposed dead-ending of this road would remove the visitor traffic from the road.

Visitor Use

The proposed parking allocation would increase parking at Sandy Hook by a total of 23 spaces. Current parking available in the North Beach and Gunnison Beach areas totals 1900 spaces.

Design of the new beach centers facilities would be consistent with the previously approved design guidelines for the Sandy Hook Unit. The design intent is to create a comfortable "beach" style ambiance for the visitor. The conflicts that exist between pedestrian and

vehicular circulation would be resolved in the proposed designs, and a safer and higher quality visitor experience would result.

The new facilities would be designed to meet all appropriate accessibility standards to allow participation for all user groups. The improved beach center areas would allow the visitor coming to Sandy Hook for only recreational purposes to be exposed to the interpretation of environmental and cultural resources, and would allow for a more diversified visitor experience. At North Beach, the integration of the boardwalk into the reconstruction of the primary dune would allow interpretation of the relationships of the dune and vegetation.

Access roads to the beach areas would be realigned to facilitate improved traffic flows and safety. The changes would occur at the Hartshorne Drive intersection near the former Nike missile site, the MacGruder Road intersection with Atlantic Drive, the realignment of Atlantic Drive (north edge of Gunnison Beach parking area), the termination of Gunnison Way, the termination of Atlantic Drive at Gunnison Beach center, and the abandonment of Atlantic Drive from Gunnison Beach south to the Hartshorne Drive intersection.

The development of the bicycle trail which removes bicyclists from beach access roads would reduce the potential of automobile/bicycle accidents and traffic congestion

National Park Service Management

Actions described in this EA are consistent with the direction set forth in the GMP/ES (8/79) and the amendment (1/90) for Sandy Hook, except for an adjustment of the location of the bicycle trail at North Beach, reduction of the sizes of Parking Lots G and J, and development of new Lot I. In order to protect the remains of harbor defenses and other cultural resources, the sizes of Lots G and J were reduced, and new Lot I replaces the lost parking capacity.

The proposed development will occur in management zones identified in the GMP as Development Support, Use-By-Reservation, and Unstructured Recreation. The design concept supports development sensitive to the natural environmental setting, while providing support facilities for the visiting public. In order to accomplish these management objectives the site design for these developments would occur in areas other than Development Support zones. Specifically this includes limited development in the Use-By-Reservation and Unstructured Recreation zones for Sandy Hook. The impacts to the natural and cultural resources in would be much less than if the original plans were adhered to for this proposed action. In addition, all lands to be impacted by this proposal have all been previously disturbed by past operations and do not

represent the significant natural resources of the Sandy Hook Unit.

The proposed development would replace two trailers and a 2000 square foot cinderblock building with two beach centers providing for more adequate visitor use facilities. The design of the new beach centers and the associated walkways and picnic areas would be more conducive to the natural setting providing for a more appropriate park experience for the visitor. These new facilities would be clustered to direct visitor use thereby reducing the potential for unstructured access to the beach which causes continued stress on the beach ecosystem. This centralization of visitor activities would occur in areas which have been previously disturbed. This would enable the park to accomplish some of its management objectives while enabling the undisturbed areas of Sandy Hook to maintain their ecological integrity. Concentration of development areas, as proposed, would also cause less habitat fragmentation and isolation. Greater core habitat areas could continue to be preserved without further encroachment by development actions. Exclusion of development in these large natural areas which remain would improve the quality of habitat as the naturalized species were replaced by native species over time. In addition, the restoration strategies incorporated into the project would reestablish the primary dune system and its vegetation community, which have been heavily impacted by past development actions and unstructured visitor use.

The development of the beach centers at Gunnison and North beaches would require additional maintenance and protection staff.

Utility costs for the new beach centers would increase by an unknown amount over what is needed to operate the existing beach centers. The service roads and pedestrian walkways at North Beach would follow existing roads and would have no adverse effect on natural resources.

COMPLIANCE

National Environmental Policy Act

The Environmental Assessment, Development of North Area Beach Centers, Sandy Hook, Gateway National Recreation Area, provides disclosure of the planning and decision-making process and potential environmental consequences of the alternatives. The environmental assessment was prepared in accordance with the Council on Environmental Quality (CEQ) regulations pertaining to the implementation of the procedural provisions of the National Environmental Policy Act (NEPA) (40 CFR 1500 et seq.) and in part 516 of the U.S. Department of the Interior's Departmental Manual (516 DM). The document will be available for public review, and agency and public comments will be considered. The environmental analysis will be reviewed in light of the comments, and the alternative selected for the final decision.

Paragraph 101 (b)(4) of the National Environmental Policy Act established a federal policy to preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice. This policy is understood to include highly productive farmlands. Evaluations are required to ensure that such farmlands are not irreversibly converted to other uses unless other national interests override the importance of preservation or otherwise outweigh the environmental benefits derived from their protection. Prime farmlands are defined as those whose value derives from their general advantage as cropland due to soil and water conditions; unique farmlands are defined as those whose value derives from their particular advantage for growing specialty crops.

Based on this environmental analysis, there would be no effect on prime or unique farmland because none exist at the site.

Endangered and Threatened Species Act of 1973, As Amended

Section 7 of the Endangered Species Act directs all federal agencies to use their authorities in furtherance of the purposes of the act by carrying out programs for the preservation of endangered and threatened species. The National Park Service will continue to consult with the U.S. Fish and Wildlife Service and National Marine Fisheries Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat.

It is the responsibility of the National Park Service to ensure that any management plan undertaken avoid the likelihood of jeopardizing the continued existence of the threatened Piping Plover or result in the destruction or adverse modification of

critical habitat. In 1990, approximately 31 percent of Atlantic Coast Piping Plovers nested on federally-owned beaches where protection is afforded under the Endangered Species Act. The National Park Service has taken steps to improve the current situation at Sandy Hook to assist with the recovery of the species.

In formulating reasonable and prudent alternatives for management of National Park Service lands at Sandy Hook, the U.S. Fish and Wildlife Service has given careful consideration to the particular factors that appear to limit Piping Plover productivity at the Hook. The National Park Service will implement several management activities to fulfill the National Park Service's Endangered Species Act requirements at Sandy Hook. These measures are listed in the Environmental Assessment/Management Plan For The Threatened Piping Plover, (Charadrius melodus), Sandy Hook Unit, Gateway National Recreation Area, June 1992.

The recommended course of action as specified in the environmental assessment for the Piping Plover will be strictly followed to ensure that actions proposed do not impact this threatened species. Specific park policy which applies to this project includes the exclusion of high impact recreational uses, trapping of domestic and feral animals, conditional closures of the natural intertidal zone and implementation of the U.S. Fish and Wildlife Service management recommendations will provide enough protection to enable the threatened Piping Plover to increase chick fledgling success (productivity) to more desirable levels. An intensive monitoring/research program will assess the contribution of low impact recreational uses to the overall productivity of nesting plovers. Should these activities be shown to adversely affect Piping Plovers, consultation with the U.S. Fish and Wildlife Service will be reinitiated and further restrictions on recreational activity may be required for future nesting seasons. In addition to these prescribed measures, the contract for this proposed development action will include a stop order so that if impacts are detected during construction mitigation can be formulated and implemented prior to the reinitiation of these activities. It will be required that the site engineer keep in close contact with the Chief, Resource Management/Research and Compliance and notice given when work activities are to commence, the progress of the project, and when work has been completed. This will enable a monitoring effort to be established by the resource management division to assess any potential impact to the nesting Piping Plovers and recommend mitigative measures for impacts determined.

The National Park Service will also continue to consult with the New Jersey Department of Environmental Protection to determine any effects on animal and plants species of special concern that are protected by state legislation.

Floodplains and Wetlands Management

Executive Order 11988, Floodplain Management and Executive Order 11990, Protection of Wetlands direct federal agencies to enhance floodplain and wetland values, to avoid development in floodplains and wetlands whenever there is a practicable alternative, and to avoid to the extent possible adverse impacts associated with the occupancy or modification of floodplains and wetlands. All of Sandy Hook is located in the base floodplain, however, certain types of action cannot accomplish their intended purpose unless they are located or carried out in close proximity to water. For these actions which are functionally dependent upon water, non-floodplain sites are never a practicable alternative. Feasible alternative actions and the no-action option will be evaluated for all water dependent actions. These procedures constitute a finding that there is no practicable alternative site outside the floodplain when the NPS proposes to perform any water dependent action.

A statement of findings would be prepared to document the rationale for locating structures and facilities within the floodplain and to identify mitigating actions to protect life and property. Approval of the statement of findings by the National Park Service director is required before implementation of the plan.

Coastal Zone Management Act

The actions evaluated in this environmental assessment are consistent with the New Jersey Coastal Zone Management Plan, and the New Jersey Department of Environmental Protection will be consulted for their concurrence.

Hazardous Waste Management

An assessment for hazardous wastes is required prior to removal of the storage tanks (above or below ground) in the proposed development area. This assessment will determine the presence/absence of such wastes and the course of action which should be pursued to ensure that environmental safeguards are employed in its removal. It is recommended that testing be undertaken to determine which chemicals are present and the disposal methods required.

All clean-up and disposal work performed will be coordinated by the hazardous material specialist and regional hazardous materials and waste enforcement coordinator to ensure that environmental and worker/public safety regulations are met.

Applicable regulations include the following comprehensive Environmental Response, Compensation and Liability Act (CERCLA);

Resource Conservation and Recovery Act (RCRA); Occupational Safety and Health Act, parts 1910.120 and 1910.1200. In addition, all local requirements for demolished structures (disposal, noise, etc.) will be met.

Cultural Resources

Because Sandy Hook is a National Historic Landmark, the New Jersey State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) require the review of all development and visitor use actions. In conformance with 36 CFR 800 and the 1990 Programmatic Agreement for Section 106 compliance, the NPS will provide the environmental assessment and subsequent design documents for their review.

CONSULTATION AND COORDINATION

The following is a list of those agencies, officials, organizations, and individuals who are being requested to review this environmental assessment.

Federal Agencies

Advisory Council of Historic Preservation
Environmental Protection Agency
Executive Office of the President, Council on Environmental Quality
Department of the Army, Corps of Engineers
Department of Commerce, National Oceanic and Atmospheric Agency
Department of the Interior, U.S. Fish and Wildlife Service
Department of Transportation, U.S. Coast Guard

U.S. Congress - Senate
 Senator Bill Bradley
 Senator Frank R. Lautenberg
U.S. Congress - House of Representatives
 Representative Marge Roukema, District 5

State Agencies

New Jersey Department of Environmental Protection
 Division of Coastal Resources
 Division of Fish, Game, and Wildlife
 Office of New Jersey Heritage
 State Historic Preservation Officer
New Jersey Department of Corrections

Local Agencies

Monmouth County, New Jersey
 Board of Chosen Freeholders
 Planning Board
 Vocational School District
 Marine Academy of Science and Technology

Citizens Groups

American Littoral Society
Brookdale Community College
Clean Ocean Action
Monmouth County Friends of Clearwater
New Jersey Audubon Society, Monmouth Chapter
New Jersey Marine Science Consortium
Sandy Hook Foundation

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APPENDICES

Appendix A

IMPACT AND RESTORATION ACREAGE GUNNISON AND NORTH BEACHES, SANDY HOOK UNIT

LOCATION	ACTION	IMPACT ACREAGE	RESTORATION ACREAGE
Gunnison Beach	Widen walkway and widen bus turnaround	0.36	0.0
North Beach	Remove Parking Lot I	0.0	1.6
North Beach	Remove Fuel Tank	0.0	0.4
North Beach	Build Beach Center	0.5	0.0
North Beach	Build Parking Lot I (new location)	3.1	0.0
North Area	Realign Atlantic Drive/Bike Trail	1.4	0.0
North Area	Abandon Parts of Atlantic Drive	0.0	3.6
North Area	Develop Bike Trail	1.3	0.0
Total		<u>6.66</u>	<u>5.6</u>

Appendix B

PARKING ALLOCATION, NORTH BEACH AND GUNNISON BEACH

Location	1990 GMP Amendment Parking Allocation	Alternative B Proposed Parking
Lot G	700	778
Lot G, Overflow	200	0
Lot I	0	355
Lot J	400	190
Lot K	600	600
Total	<u>1900</u>	<u>1923</u>



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