

CHAPTER THREE: AFFECTED ENVIRONMENT





THE AFFECTED ENVIRONMENT

Introduction

This chapter describes the resources and existing environment in the National Monument and immediate surrounding area that could be affected by implementation of any of the alternatives in this plan. The information is divided into cultural resources, natural resources, visitor experience, administration and operation, and the socioeconomic environment. Information was drawn from several sources listed in the bibliography, including the General Services Administration Final Environmental Impact Statement (GSA FEIS)—completed in 1998, after the Coast Guard’s departure.

The 2003 *Governors Island Preservation and Design Manual*—developed by the GSA in consultation with the Advisory Council on Historic Preservation, the National Trust for Historic Preservation, N.Y. State Historic Preservation Office, NYC Landmarks Preservation Commission, and NYC Planning Department—is the source for some of the cultural resource information and category descriptions for historic buildings in this chapter.

The topics were developed to focus and compare environmental impacts among the alternatives. These topics were selected based on federal law, regulations, executive orders, NPS management policies, and concerns expressed by the public or other agencies during scoping and comment

periods. The conditions described establish the baseline for the analysis of effects found in Chapter 4, Environmental Consequences.

The first section describes impact topics retained for further analysis. These are resources in the environment that have the potential to be affected by one or all of the alternatives in this plan. The last section describes impact topics dismissed from further analysis and the rationale for doing so.

A. Cultural Resources

The National Park Service is the steward of many of America’s most important cultural resources. These resources are categorized as archeological resources, cultural landscapes, ethnographic resources, historic and prehistoric structures, and museum collections.

The cultural resources evaluated for NEPA and Section 106 purposes that are within the National Monument include historic structures, the cultural landscape, archeological resources, and collections and archives.

The National Park Service has recently implemented a facility management system called the Facility Management Software System (FMSS) where a park's assets (resources) and conditions can be objectively assessed. First, an asset priority index (API) for each resource or facility is determined. The API value is a factor of the asset's importance in light of the park's enabling legislation. For example, the API values of the two forts at Governors Island would be quite high since they are the reason the park was established. Second, a Facility Condition Index (FCI) is determined for each resource. The FCI measures the condition of a resource in a particular point in time. FCI values are determined by dividing the cost of correcting deficiencies in a resource with its current replacement value.

In some cases, NPS's recent condition evaluations (FCI) differ from those assessed in the Manual. Because the FCI is more recent, this plan will use those condition evaluations in the analysis that follows; however the Manual categories (1-4) have been retained as they are not dependent on a resource's condition.

Also, in certain cases, NPS may have more stringent classifications, assessments or needs that would compel us to retain or treat a property differently. For instance, a resource listed as "non-contributing" may be a resource that is needed by NPS to carry out its operations, or may be a resource that, while historically insignificant, must be treated according to federal environmental laws.

| FCI | Definition | As it Applies to an Asset |
|--------------|---------------------------------|--|
| 0 to .10 | Good condition Rating | <ul style="list-style-type: none"> ◆ Building 107 ◆ Visitor Center #140 ◆ Fort Jay Fortification Walls ◆ Vehicular Moat Bridge ◆ Fort Jay Garages ◆ Parking areas – Fort Jay, Castle Williams ◆ All Roads |
| .11 to .15 | Fair condition Rating | <ul style="list-style-type: none"> ◆ Fort Jay Buildings 206, 210, 202, 214, ◆ Dock 102 ◆ Landscapes |
| .16 to .50 | Poor Condition Rating | <ul style="list-style-type: none"> ◆ Castle Williams ◆ Magazine, 215 ◆ Gate House, 201 ◆ Eagle Sculpture ◆ Buildings 204, 207, 213 ◆ Parking area 504 |
| >.50 | Serious Condition Rating | <ul style="list-style-type: none"> ◆ No National Monument resources are so decayed that they are considered ruins |
| Not assessed | Reason: to be removed | <ul style="list-style-type: none"> ◆ Building 251 ◆ Building 513 (A, B, C, D) |



1977 aerial shot of Fort Jay with Castle Williams in the background. Frank and Kathy Bennett.

NPS managers will use all available information as guides and treat the resources based on the most current and accurate data available.

1. National Monument Historic Structures

a. Fort Jay (Buildings 200 to S-221)

Fort Jay is one of the most historically and architecturally significant structures on Governors Island. The fort was designated a New York City Landmark in 1967. It was included in the National Historic Landmark District designated in 1985, and the New York City Historic District designated in 1996. The period of significance for Fort Jay spans the years 1794–1966, as defined by the National Register of Historic Places nomination.

The current fort configuration represents many years of evolving military engineering that began around 1776. Rudimentary earthen fortifications were erected in attempts to protect New York Harbor from British invasion at the onset of the American Revolution. These impermanent works were supplemented in 1794 and again in 1805 by American Lieutenant Colonel Jonathan Williams. Williams's improvements reconfigured Fort Jay and reinforced the walls with masonry. Fort Jay is a square fort with four projecting corners (or bastions), a projecting ravelin—the fifth point of the star—and is surrounded by a dry moat, which is itself surrounded by a *glacis*—an open lawn gently sloping to the shore, which served to deflect artillery over the fort and allowed for an unobstructed field of fire from the fort. The masonry walls are 20 feet high and 8 feet thick at the base. They are constructed of red sandstone with a top course of bluestone. Clipped lawn in the dry moat directly abuts the masonry walls. Two terraces created by masonry retaining walls



Fort Jay circa 1985. HABS.

step up in grade, returning to the level of the *glacis*.

Fort Jay is centrally located within the historic district and at the highest point on the island. This siting allowed the most comprehensive view and widest reach of the fort's 104 guns. The fort's main entrance is located on its east side, directly aligned with the historic main pier at Buttermilk Channel, now the site of the NPS dock (102). The doorway is a narrow passageway, once controlled by a heavy wooden gate. Above the gate is a small gatehouse topped by an elaborate sandstone sculpture combining an eagle with other military symbols. A concrete and asphalt bridge (219)—which replaced a drawbridge—leads from the fort over the dry moat and connects with a circular entry drive which replaced a barbican—a defensive earthwork—in the 1930s.

The fort's interior yard was converted from an open drilling ground with the addition of four rectangular barracks in 1834 (Buildings 202, 206, 210, and 214). These three-story brick structures have long porches, balconies, and Doric columns facing the internal quadrangle in the center of the fort. Each measures approximately 184 x 24 feet in size, containing approximately 11,000 square feet. The total available space in Fort Jay is approximately 44,000 square feet. Although the barracks have been modified several times to serve various residential purposes, the overall character

of the 19th-century quadrangle is well preserved. The four barracks were last reconfigured during the Works Projects Administration in the 1930s to form a total of 16, three-story apartments. The quadrangle is bound and divided into four quadrants by asphalt and cobblestone drives. The quadrants encompass various mature trees and lawn. The areas behind the barracks were modified, with the introduction of small garages, excavation down to basement-level and the installation of windows, and ornamental plantings among the abandoned gun mounts. While the individual trees and plants in the fort are not historical, the plantings may collectively contribute to the character of the domestic landscape during the period the barracks were built and housed Army and Coast Guard officers and their families. A pedestrian bridge (S-221) spans the dry moat at the southwest bastion. Five Rodman guns (a.k.a. cannons) are located along the walls of the ramparts.

A gate on the west side of the fort leads through an arch in the barracks to a set of sandstone steps and along the dry moat to a ramp up the northwest bastion which previously connected with Castle Williams along a "covered defile"—a depressed walkway. This walkway—a contributing feature—provided cover for soldiers while moving munitions between the forts.

Preservation and Condition Issues

Fort Jay is a Category 1 resource that must be preserved. Its features vary from poor to good condition. Character-defining features of Fort Jay include the earthworks, walls, ramparts, gatehouse with sculpture, masonry walls at the scarp and counterscarp, the *glacis*, moat, covered defile, gun mounts, the courtyard and the barracks.

With Fort Jay being one of the best-preserved Second American System fortifications and the earliest surviving fortification on the island, many have expressed a desire to see it preserved, rehabilitated, and reused. The barracks offer

many opportunities for reuse, while the fort, courtyard and *glacis* are expected to be available for public access, interpretation, education and special programs.

Gatehouse (Guardhouse) and Eagle Sculpture or Trophée D'Armes (Building 201)

The monumental sandstone gate is surmounted by a 15-foot carved sandstone *trophée d'armes*, commissioned by the New York State Artillery. A brick two-room gatehouse is situated to the rear and abuts the back of the gate; within the gate are a set of wooden doors and remnants of a former drawbridge. The *trophée d'armes* consists of an eagle holding a shield depicting the Hudson River with the sun rising over the mountains in the background. The eagle is flanked on either side by flags, a mortar and cannon, and various artillery implements. A banded bundle of rods—similar to a Roman fasces but lacking the enclosed axe—with a “liberty cap” perched on top is positioned behind the eagle. The carving is in poor condition, with many elements missing or patched. Initial research indicates it may be one of the earliest American monumental carvings of stone and fort decoration. The gatehouse is an integral part of Fort Jay and must be preserved.

Preservation and Condition Issues

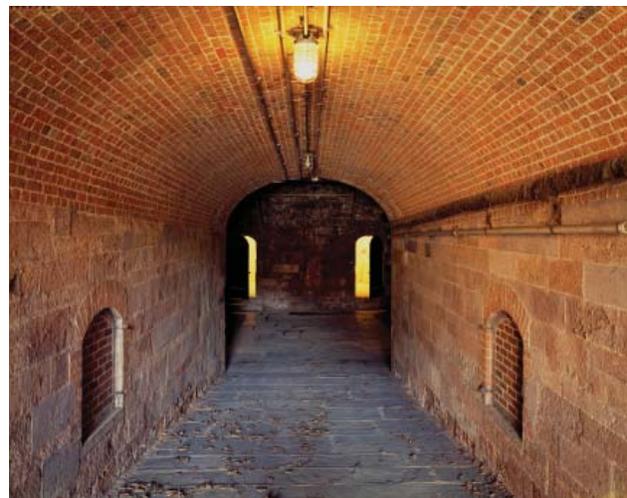
The *trophée d'armes* is in poor condition, with many elements missing or patched. Research is needed to identify the exact date of the sculpture's construction, the artist, and reasons for its commissioning. Initial stabilization is underway, part of a multi-phase restoration project. The Gatehouse is also in poor condition.

Powder Magazine (Building 215)

An earth-sheltered masonry and wood-roofed structure with six underground chambers is located in the ravelin. It is reached through an arched opening under Barrack 214. A gently



Above: Fort Jay gatehouse. NPS.
Below: Trophée d'Armes. Peter Aaron/Esto.



Entrance to Fort Jay's powder magazine.
Andrew Moore.

sloping tunnel descends to the main space, which measures approximately 32 x 40 feet. It has a flagstone floor and high ceiling. Six chambers with arched ceilings extend off the main space. Generally rectangular in shape, they vary in size from 230 to 660 square feet. Although storage of munitions in this area appears to have been part of the original design circa 1806, the current configuration of the magazine differs from that period. Two of the chambers may have originally been casemates, their openings onto the dry moat sealed at some later date. The roof over the central space appears to have been added sometime after 1806. The magazine is a contributing feature and is a Category 2 property.

Preservation and Condition Issues

The powder magazine is an inherent part of Fort Jay and is in poor condition. The spaces may have potential for use for public exhibits or programming.

Triangular Buildings (Buildings 204, 207, and 213)

Located at the ends of three barracks are small two-story triangular structures constructed circa 1830 of brick, granite, and sandstone. Originally numbering eight, several have been incorporated into the barracks. They served a



Barracks and triangular building. HABS, 1985.

variety of uses, housing tailors, married soldiers, a bakery, barbershop, sculleries, and privies. These buildings are contributing Category 2 structures.

Preservation and Condition Issues

The triangular buildings are in poor condition.

Garages (Buildings 203, 205, 208, 209, 211, 212, 217, and 218)

Eight one-story, flat-roofed brick structures, approximately 21 x 22 feet, with two windows at the rear are located in pairs at the rear corners of the barracks. Each garage is divided into two bays by a brick wall. With the exception of more recent (post-1966) roll-up doors and updated electrical service, they have not been modified. Their construction dates to the Works Projects Administration (WPA) circa 1937-38 and illustrates the development of domestic military life on the island. The *Governors Island Preservation and Design Manual* classifies the garages as Category 3, non-contributing features.

Preservation and Condition Issues

The garages are in good condition.



Fort Jay garages. NPS.

Barbican

Early drawings and later photographs show a “barbican,” a defensive feature that protected the east approach to Fort Jay. A roughly hexagonal mass formed by masonry retaining walls provided a covered firing position and deflected access to flanking narrow lanes. This feature was removed sometime after the 1930s to accommodate parking and improve vehicular access to the fort. A small brick planter now occupies the center of the area.

Preservation and Condition Issues

The planter is in poor condition. Rehabilitation of the entrance to Fort Jay will take into account the shape, size, and materials of the pre-1930s feature.



Brick planter where barbican used to be, in front of the entrance to Fort Jay. NPS.

b. Castle Williams (Building 501)

Castle Williams is a circular defensive work of red Newark sandstone on “Perkin’s Point,” the west point of Governors Island in New York Harbor. It was designed and erected between 1807 and 1811 under the direction of Colonel Jonathan Williams, Chief Engineer of the Corps of Engineers and first Superintendent of the Military Academy at West Point. The structure was a prototype for American seacoast fortifications and is one of the

best examples of its type in existence. The castle was one component of a defensive system for the inner harbor that included Fort Jay and the South Battery on Governors Island, Castle Clinton at the tip of Manhattan, and Forts Wood and Gibson on Liberty and Ellis Islands respectively.

Castle Williams was designated a New York City Landmark in 1967. It was included in the National Historic Landmark District designated in 1985, and the New York Historic District designated in 1996. The period of significance for Castle Williams spans the years 1807–1966, as defined by the National Register of Historic Places nomination.

The structure is comprised of a three-tiered 210-foot-diameter masonry core with a 125-foot-diameter central courtyard which is open to the sky. Its basic form consists of five-sixths of a cylinder with an L-shaped two-story gatehouse, which encloses the circle. A large wooden gate and a single door cut into the south side of the gatehouse, circa 1912, are the only entrances. A *bartizan*, or sentry tower, is located at the corner of the gatehouse facing Fort Jay. Galleries were an original feature of the castle, and constructed in the early 19th-century. Galleries located on the interior (courtyard) side of Castle Williams provide communication between the casemates in the second and third tiers. Castle Williams’s casemates are vaulted chambers with openings for gun emplacements that allow for a smaller, but more protected field of fire. The galleries achieved their existing appearance—enclosed with concrete and steel security sashes—in the 1930s–40s. Two round stair towers provide access to all tiers and the roof. A contemporary metal stairway provides access only to the tiers.

The walls are approximately 51 feet high, including the upper masonry parapet that is 6 feet high. The exterior masonry walls are 8 feet thick in the first tier and 7 feet thick in the second and third tiers; the interior masonry walls are 5 feet thick. The interior of the castle contains 39 casemates that are evenly distributed with

13 casemates on each of the three tiers. The casemates are trapezoidal in shape and roughly 800 square feet in size, tapering in width from 30 feet at the exterior wall to 22 feet at the interior wall. The height from floor to ceiling is approximately 12 feet. Pairs of embrasures, or splayed openings in the exterior wall for firing guns, are found in each casemate. Including the roof, or terreplein, Castle Williams was capable of accommodating as many as 100 guns. One large gun remains at Castle Williams today; it is mounted on the roof of the castle and faces Manhattan. The Castle contains approximately 33,000 square feet of interior space and 9,850 square feet in the courtyard.

The roof of Castle Williams provides panoramic, 360-degree views of the harbor. The New York City skyline, Brooklyn, the Statue of Liberty, Ellis Island, and the Brooklyn Bridge are among New York City's most iconic landmarks that can be seen from this incredible vantage point.

During the Civil War, Castle Williams and Fort Jay served as prisons for Confederate soldiers, Union Army deserters, and as a barracks for the garrison. After 1865 it became a low-security military prison that was also used as quarters for recruits and transient troops. By the 1880s, the Army considered Castle Williams, with pitted and crumbling walls, to be an aging and obsolete fortification.

A commitment to preserve Castle Williams and Fort Jay was made in the early 20th-century by Secretary of War Elihu Root, when landfill operations doubled the size of Governors Island between 1901 and 1912. The castle was fitted up as a model prison in 1903, and was likely wired for electricity when it came to the island in 1904. Remodeling of the angled gate walls occurred in 1912–13 to create two stories of rooms, using stones from two demolished magazines within the courtyard. Castle Williams became the Atlantic Branch of the Fort Leavenworth Disciplinary Barracks in 1915, and the Eastern Branch of the United States Disciplinary Barracks in 1921.



Aerial of Castle Williams. Lisa Kereszi.

Plumbing and central heating had been installed by 1916, which were renovated along with the electrical system in the 1930s. The floors and roof were also reinforced with steel in the 1930s, and steel grating and solitary confinement cells were installed in selected casemates of the second and third tiers.

Extensive renovations were carried out in 1947–48, resulting in the industrial appearance of the courtyard today. Concrete balconies enclosed with steel sashes replaced existing wooden galleries, and a three-story brick addition enclosed a steel stair. Concrete floors and brick partitions were installed in the casemates of the second tier, and steel security sashes and doors replaced those made of wood.

Castle Williams ceased operations as a military prison in 1966, when the U.S. Army left Governors Island. The castle was re-used by



the U.S. Coast Guard primarily as a storage area. Renovations were done to provide spaces for a community center that included a nursery, meeting rooms for scouts and clubs, a woodworking shop, art studios, a photography laboratory, and a museum. Old fixtures and some brick partitions were removed and new materials installed such as vinyl asbestos tiles, suspended acoustical ceilings, toilets and sinks, and fluorescent lights.

During its caretaking years (1996-2003), GSA weatherproofed the castle by installing a new roof and plexiglass windows within the courtyard interior. Since taking ownership in 2003, NPS has replaced the central staircase and is addressing minor safety issues within the castle's forecourt, courtyard and circular staircases.

Preservation and Condition Issues

Character-defining features of Castle Williams include its site orientation; the overall design and form; the fenestration; construction materials such as red sandstone from the original construction and the granite parapet wall in the upper tier from the 1890s; spatial configurations such as the original 39 casemates and the two round stair towers; the courtyard; and many of the features and materials from the use of the castle as a military prison from 1861 through 1966. Rehabilitation and/or re-use of this resource will be carefully evaluated with eyes toward the design guidelines, covenants, agreements, Presidential Proclamations, and *The Secretary of Interior's Standards for Historic Preservation* as well as all NPS guidelines and best practices for the use and rehabilitation of historic properties. Castle Williams is a Category 1 resource that must be preserved; it is in poor condition.

c. Building 107

Built as a storehouse for the New York Arsenal, this long, single-story, brick-masonry structure was built in several sections. It has parallel double gable roofs with wood eaves and fascia. Originally constructed between 1856 and 1857, sections of it burned and were rebuilt in 1904. The eastern section was added between 1908 and 1918. Roughly half of the interior was rehabilitated by the Coast Guard as offices, circa 1996. The remainder was gutted and left unfinished. The total usable space within Building 107 is approximately 11,000 square feet. It is currently used as NPS headquarters for the National Monument.

Preservation and Condition Issues

The building is a Category 2 contributing resource that must be preserved. The building is in good condition.



Looking at the NYC skyline from the roof of Castle Williams. Andrew Moore.

A prison cell in Castle Williams. Daniel C. Krebs.





A casemate in Castle Williams with a Halloween mural. Andrew Moore.

d. Building 140

Constructed between 1857 and 1867, this building's purpose was to store ordnance. It is a highly ornamented "Romanesque Revival" style building sited east of Soissons Dock and facing Carder Road; its northern windows have unobstructed views of Manhattan. The interior has been completely altered, with all historic fabric removed. However, its exterior is considered to be among the most architecturally distinguished New York Arsenal buildings. The Coast Guard used the building as a bank, post office, and for security. The building is owned by GIPEC; NPS has a 1,000-square-foot easement on the first floor and uses the space as a visitor contact station and Eastern National bookstore.

Preservation and Condition Issues

Building 140 is a Category 2 contributing resource that must be preserved. GIPEC is responsible for the preservation and maintenance of the building. NPS is responsible for the maintenance of its easement area. The building is in good condition.

2. Cultural Landscape

A cultural landscape is a reflection of human adaptation and use of natural resources. It is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and types of structures that are built. The character of a cultural



Building 107, NPS headquarters. NPS.



Building 140. NPS.

landscape is defined by physical materials such as roads, buildings, walls, and vegetation and by use reflecting cultural values and traditions. Cultural landscapes also include views and vistas. Shaped through time by historical land use and management practices, cultural landscapes provide a visual record of an area's past. The dynamic nature of modern human life, however, contributes to the continual reshaping of cultural landscapes. They are a good source of information about specific times and places, but at the same time, their long-term preservation is a challenge.

a. *Glacis*

The Fort Jay *glacis* is sometimes referred to as the Parade Ground. It is the National Monument's primary cultural landscape feature and was built initially as a defensive feature. This broad, gentle slope originally extended away from the fort in all directions, terminating at the shoreline. It was constructed by adding earth, as much as 20 feet deep, over the original level of the island. Over time, construction has reduced the *glacis* to approximately 23 acres. Much of the area retains its historic open character; however, areas have been modified and contain clusters of trees that loosely define the fairways of a nine-hole golf course that was built in the 1920s. The northern and eastern sections comprise about 4 acres of lawn running in a narrow zone between Fort Jay

and Andes Road. This section is edged by mature street trees, hedges, and brick sidewalks, with tall chain-link fencing in places. Two groupings of evergreen trees were planted in the 1970s and are non-contributing to the cultural landscape. They now obscure views from Fort Jay up the East River and west to Castle Williams.

An area of about 8 acres runs west from Fort Jay down to Castle Williams. The area is split almost evenly into a grassy upper slope that retains its open character, and a lower zone that contains Building S-251, Buildings 513, and associated sidewalks, stairs, and a parking lot. Historic views among the forts and the harbor, largely undisturbed until circa 1908, are obstructed by these remaining structures.

Although the NPS boundary includes most of the *glacis*, approximately 10 acres lie south of the National Monument boundary. This area is the lower half of a gently sloping field extending south from Fort Jay toward the South Battery (Building 298). Historic maps and photographs show the area was used for a variety of activities including a garden, temporary housing (soldiers' tents), parade grounds—for ceremonial events such as drilling, anniversary celebrations, and historic battle reenactments—polo, and golf. Some 20 gun emplacements in the south ramparts of Fort Jay overlook this field, reinforcing its defensive purpose. In this area are important

documented and potential archeological resources, four fenced-in tennis courts, remnants of the golf course, and the former Super 8 motel (Building 293) constructed in 1986. The former motel is a Category 4 structure in the *Governors Island Preservation and Design Manual*: non-contributing, obscuring important views, able to be removed.

Preservation and Condition Issues

The *glacis* is important to understanding the evolution of development on the island. The open lawn area is its primary character-defining feature, important for resource interpretation and education and must be preserved. The open historic lawn is protected from waterfront wind and has incredible views of New York and Jersey City. The resource will be monitored for signs of degradation and the level and intensity of public use will be coordinated with GIPEC. The *glacis* is in fair condition.

b. Covered Defile

Castle Williams was connected to the northwest bastion of Fort Jay by a recessed path with banked sidewalls, referred to by Colonel Jonathan

Williams as a “covered defile.” The earliest known drawing of this feature is a map of Governors Island dated 1813. The 1998 Public Archeology Laboratory (PAL), Inc. survey and study indicates it was built in 1807; however Jonathan Williams notes that it is yet to be built in 1808. It is also illustrated in a bird’s-eye view dated 1874, an engraving dated 1886, and on maps and plans dated 1832, 1867 and 1879; the 1874 bird’s eye is artistic and may not be accurate. Records indicate that the first structure to block the covered defile was an H-shaped building constructed circa 1908. The pathway appears to have still been visible in 1913, although the lower half had been destroyed by other modern constructions (Smith, Governor’s Island, 1913: 57). An aerial photograph taken between 1922 and 1932 shows the eastern portion of the feature largely intact.

Preservation and Condition Issues

Traces of this feature are visible today closer to Fort Jay. The defile had been filled in, although a depression in the ground marks its original location. Building 251, trees, a parking lot and a road are now on the original alignment, closest to Castle Williams. Surviving features of the defile, now covered with earth, include brick retaining walls and cobblestone paving. These were

Glacis looking north toward Fort Jay and Lower Manhattan. NPS.



identified by archeological excavations undertaken in 1997–98 by PAL. The 2003 NPS *Archeological Overview and Assessment Report* determined that there are few if any cultural materials associated with the defile and made no further recommendations. In 2006, a portion of the defile was uncovered by landscape contractors. In 2007, the park will conducted an archaeological assessment and site investigation to determine the extent of damage, condition of remaining features, and to recommend future treatment. Any rehabilitation activities associated with the defile or the *glacis* in that immediate area will necessitate archeological monitoring or other oversight as per NPS guidelines. The defile site is considered disturbed and in fair condition.

c. Historic Roads and Paths

The system of roads and pedestrian paths help define the character of the National Monument and are contributing features of the historic district. Roads within the National Monument include Andes, Hay, Tampa, and Kimball. Historic paths considered contributing include the brick sidewalk along much of Andes Road, and



Covered defile, looking towards Castle Williams. NPS.

the flagstone walkway that connects Hay Road with the west gate of Fort Jay.

Preservation and Condition Issues

The *Cultural Landscape Inventory* considers the following elements as contributing: Andes Road; the brick and flagstone path connecting Fort Jay and Comfort Road; the brick sidewalk along

Andes Road; the brick sidewalk and staircase south of library; Comfort Road; Hay Road; the interior bituminous road/walkways of Fort Jay courtyard; Kimball Road; Tampa Road; and the trace of depressed walkway between the forts (covered defile). The system of roads, pathways, and walkways is important to maintain for historic reasons as well as circulation. All roads and paths are in good condition.

d. Trees and Various Landscape Features

The National Monument contains various other landscape features that date from the period of significance. Notable among them are some 150 mature trees of varied species and approximately 1,000 feet of privet hedging along Andes Road. These and other features contribute to the campus-like character of the historic district.

Preservation and Condition Issues

The Preservation Design Manual recognizes these are contributing resources. The Cultural Landscape Inventory considers the allées of shade trees on Fort Jay’s perimeter, the *glacis* lawn, and the “Library Elm” to be contributing vegetation. Most features are in good condition; however, trees require regular pruning and crown cleaning. Several trees have been removed from the allée in recent years and should be replaced in-kind.

Overall Cultural Landscape Condition Assessment According to the CLI

The 2003 *Cultural Landscape Inventory* (CLI) considers the overall National Monument landscape to be in fair condition. Fair condition is defined as “the landscape shows clear evidence of minor disturbances and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the

deterioration of many of the character-defining elements will cause the landscape to degrade to a poor condition”.

The National Monument condition assessment of fair was due to “No major developments or subtractions have significantly marred the landscape, but deferred maintenance has caused some resources to deteriorate since the Coast Guard discontinued active military activities on the island in 1996. Some hedge rows are missing individual shrubs, creating a noncontiguous appearance. Lawn areas are in need of fertilization, seeding, thatching and aeration. Some masonry staircases and retaining walls are in need of repointing. Additionally, selected fence sections, curb lengths and areas of asphalt need replacing.”

3. Archeological Resources

The archeological record—the sites and objects left by those who came before us—provides tangible evidence of the diverse cultural heritage of the U.S. The people who lived long before us, their religions, technologies, and houses, and the environments in which they lived can all be discovered through archeology.

There are a number of sites in the National Monument and historic district that are considered of “high sensitivity” with the potential to yield additional information about Native American, Dutch, British, and early colonial activities. Although almost all of these sites are considered “disturbed,” there is the potential—especially in the northern part of the island that is the original landmass—for sites to yield information on early Native American work and habitation, contact period trading, Dutch and British era activities, Van Twillers’ frame house, structures affiliated with the early sawmill, the Revolutionary and French and Indian Wars, the Palatine quarantine, and early earthworks.

Also, since most construction and archeological “disturbances occurred during the historic period [up to 1966], they and their associated constructions may now themselves constitute archeological sites or potential sites” (O&A, p. 134).

As with any NPS site, should ground–disturbing activities take place, an archeological assessment will be conducted, with appropriate precautions and mitigation consistent with all guidelines, standards, and laws.

Preservation and Condition Issues

Known archeological sites and potential sites are mapped and will be considered in all phases of planning and implementation of the GMP. The *Archeological Overview and Assessment Report* states, “Overall, the archeological resources at Governors Island generally possess high research potential and interpretive value” (p. 146). There a number of sites within the National Monument that have the potential to yield information about both pre–contact Native American and Euro–American life.

4. Collections and Archives

There is an extensive archive pertaining to the development of structures on Governors Island, and a growing collection of materials assembled by the NPS for interpretation and education. The archive contains numerous architectural and engineering drawings and other records describing the construction, maintenance, and rehabilitation of buildings on the island, including Fort Jay and Castle Williams. These federal records were maintained by the Coast Guard, and the Army before them. In 2005-2006, the US Army and US Coast Guard’s drawings and site maps of Governors Island were electronically scanned by GIPEC. NPS and GIPEC retained paper copies of key documents and transferred the original



Cannon behind Fort Jay barracks. NPS.

hard copies to the National Archives and Records Administration (NARA), Northeast Region, New York City. In 2007, NARA plans to flatten and sort drawings by building number, place in acid-free folders and store in map cabinets, thereby safeguarding them long-term and making them more readily available to the public as well as NPS and GIPEC. NARA will also identify the most appropriate ways to treat the records that sustained water or mold damage and to store them in a climate controlled area to prevent further damage.

To further research and support the interpretive program, the NPS has begun collecting historical objects such as postcards, photographs, and other memorabilia. Some of these objects have been donated to the NPS. Additional materials in the NPS collection include a limited amount of archeological, ethnographic, historical, and management records in current use by interpretive, facilities maintenance, and administrative programs.

The National Monument contains six cannons dating from the mid-19th-century. Five cannons are located on the ramparts of Fort Jay. There are anecdotal reports that one of these guns, the Rodman located in the ravelin, was customarily fired at sunset and on other ceremonial occasions when the Army operated the post. The sixth cannon is mounted on the rooftop of Castle Williams.

Preservation and Condition Issues

NPS has and will continue to work with GIPEC and NARA regarding long-term storage, archival, and cataloging of the architectural records, using best practices methods and ensuring access to the public.

The National Monument will develop a Collections Management Plan to define the types of collections most suitable for Governors Island, will preserve historical objects using best practices methods, and will consult with NPS collections experts as to the proper storage and or display of the objects.

The cannons will be preserved using best practices methods and through consultation with NPS experts in the field of historic armaments.



Cannon on the roof of Castle Williams. NPS.

B. Natural Resources

The island was an intensely managed military campus landscape with characteristic ornamental plantings which support few species of wild biota; large shade trees likely support a few species of birds, bats, mammals, and invertebrates. With the exception of the NPS dock (102), the National Monument excludes the marine edge and also includes an intensely managed landscape.

Governors Island National Monument is primarily a historic resources park, with few natural resources. While the purpose of the National Monument is primarily to celebrate its history and associated cultural resources, NPS recognizes its responsibilities to protect, preserve, and enhance the natural resources within its jurisdiction. NPS also advocates and supports the protection and enhancement of natural resources throughout the island and the harbor through its direct and indirect relationships with on- and off-island partners.

1. Air Quality

One of the most important resources we have but take for granted is the quality of our air. NPS, in coordination with local, state, and other federal agencies, inventories, monitors, evaluates, and identifies causes of air pollution. Steps are taken at all NPS sites to reduce pollution. For example, some park units use electric or reduced-emissions vehicles, install up-to-date ventilation systems and incorporate best practices during construction. Clean air is not only imperative for public health and environmental welfare, but also enhances visibility. Views to and from Governors Island of the New York City skyline and the harbor are affected by poor visibility from pollution and smog. NPS uses electric and gasoline powered vehicles on the island. NPS will advocate for the best in green technology to

help reduce emissions and conserve resources, will collaborate with GIPEC to provide visitors with free on-island shuttles, and will limit on-island vehicles to service and operational vehicles.

Condition of Resources

In order to effectively monitor air pollution, it is necessary to both monitor the concentrations of pollutants in the air and assess the effects of those pollutants on park resources. There are six common air pollutants that the Environmental Protection Agency (EPA) regulates to protect public health. These regulations are known as the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants (i.e., ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide and lead). There are a number of national and state programs that monitor these pollutants to determine if national standards are violated and to help identify trends of improving or declining air quality. The NPS Air Resources Division focuses on three air pollution problems of most concern for park resources and visitors: visibility impairment (monitored through measuring particulate matter), acid deposition and ozone.

For each of the six criteria pollutants, the EPA determines if an area meets or violates the national standard based on a certain number of years of monitoring data. Because most state monitoring programs are designed to measure air pollution based on county boundaries, a violation of a national standard is determined on a county by county basis. If an area (i.e., county) is determined to be in violation of a national standard, that area is designated as a “non-attainment” area. The state then has a certain number of years to bring the area into “attainment” status. Again, monitoring data over a number of years is used to determine when, or if, an area can be re-designated as attaining the national standard.

Particulate Matter and Public Health

Small or “fine” particles in the air, typically those less than 2.5 micrometers in diameter (PM_{2.5}) are a leading cause of human respiratory illness. Particles are present everywhere, but high concentrations and/or specific types have been found to present a serious danger to human health. Fine particles are easily inhaled deeply into the lungs where they can be absorbed into the bloodstream or remain embedded for long periods of time. Particulates are especially harmful to people with lung disease such as asthma, chronic bronchitis and emphysema as well as people with heart disease. Exposure to particulates can trigger asthma attacks and cause wheezing, coughing and respiratory irritation in individuals with sensitive airways.

In 1997, the U.S. Environmental Protection Agency (EPA) finalized more stringent regulations for particulate matter. Original national standards for particulate matter were for those particles 10 micrometers or less (PM₁₀). As of April 2005, New York County, where Governors Island is located, was designated as non-attainment for the annual PM₁₀ standard of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Exceedances of the PM₁₀ standard occurred in the county in 1995, 1997 and 1998 (51, 56 and 51 $\mu\text{g}/\text{m}^3$, respectively). The new national standards now regulate PM_{2.5}, or “fine” particles. As of April 2005, New York County and nine surrounding counties were again designated as non-attainment for the annual PM_{2.5} standard of 15.0 $\mu\text{g}/\text{m}^3$. Between 1999 and 2005, the five PM_{2.5} monitors in New York County recorded exceedances of 15.1 to 19.3 $\mu\text{g}/\text{m}^3$. A high of 21.7 $\mu\text{g}/\text{m}^3$ was recorded in nearby Bronx County in 1999. The period of record is not long enough to detect trends in the PM_{2.5} data as of yet.

Particulate Matter and Visibility

Fine particles in the air are the main contributor to human-caused visibility impairment. The



Castle Williams and Lower Manhattan. Lisa Kereszi.

particles not only decrease the distance one can see, they also reduce the colors and clarity of scenic vistas. Moisture in the air enhances the impact, so areas in the eastern U.S., with higher relative humidity, have worse visibility than areas in the arid west. The primary contributor to visibility impairment in the Eastern U.S. is sulfate, which is emitted by coal-fired power plants and oil refineries, among other sources. Other contributors include nitrates (from fossil fuel combustion), organics (from automobiles and manufacturing facilities), and light absorbing carbon (from wood burning). Soil, from windblown dust, is a relatively small contributor to visibility impairment in the northeast.

It is generally believed that visibility in the eastern United States has suffered at least a 50% reduction since the 1940s. Therefore, improvements which



have occurred over the last decade (described below) have still not returned the clear and spectacular views with which national parks were once blessed. Although visibility is better in the west than the east, no parks have pristine air quality or unimpaired visibility.

The NPS visibility program calculates and tracks visibility conditions in 48 park units. These 48 park units have special designation under the Clean Air Act as Class I areas. The average visual range in 1999 for eastern Class I parks was 14 miles on poor visibility days (worse 20% of days monitored) and 50 miles on the clearest days (top 20% of days) (EPA 1999). Unfortunately, the NPS can not monitor visibility at all national park units. However, the Federal Aviation Administration (FAA) and the National Weather Service (NWS) do measure visual range

and meteorological conditions for every airport in the nation. These data can provide some basic information in describing local visibility conditions, but are only a small fraction of the parameters used by the NPS and EPA for tracking visibility in Class I national parks, therefore visual range and meteorological data can not provide complete pictures of a park unit's overall visibility conditions. Although visual range data are not available for New York City itself, it can be appropriately assumed that visibility at Governors Island is typical of that reported for other eastern urban areas. A web-linked camera located in Newark City, New Jersey, and pointing toward Lower Manhattan, has been documenting visibility conditions in the area since 2000. The camera has recorded many instances of hazy conditions in the New York City area.

Visibility conditions in Class I areas (156 overall, which includes wilderness areas managed by the U.S. Fish & Wildlife Service and the U.S. Forest Service) are monitored through the IMPROVE (Interagency Monitoring of Protected Visual Environments) program. Based on IMPROVE data from Class I areas in the northeast, it can be determined that Governors Island likely suffers from higher regional concentrations of precursors to sulfates and other man-made emissions, higher estimated regional background levels of fine particles and higher average relative humidity than western parks. Sulfates, which account for the majority of light extinction effects in the east, are particularly vulnerable to humidity, as they accumulate water and grow in size becoming more efficient at scattering light (EPA, 1999). Because of these differences, degradation of visibility in eastern parks is more severe. For the period of 1990–1999, visibility on the clearest 20% of days in eastern parks was comparable to the haziest 20% of days in the west.

Visibility is generally best in the fall and worst during the summer months, when the majority of visitors would probably visit most national parks. However, average summer visibility improved slightly in the eastern United States from 1980



The New York City skyline at dusk. Lisa Kereszi.

to 1995. Data from the late 1990s indicates this trend continued, as visibility on the typical and on the haziest 20% of days both showed a 10% improvement across all 10 eastern parks and wilderness areas measured in 1998 and 1999 (EPA 1999). This improvement is due in large part to the decrease in sulfates. In 1999, eastern aerosol light extinction due to sulfates on the haziest days reached its lowest level of the 1990s, with a 19% decline from 1992–1999.

Acid Deposition

Atmospheric deposition of sulfate, nitrate, and ammonium can acidify soils and surface waters, which can have negative consequences for fish, plants, and other biota. The New York State Department of Environmental Conservation has been monitoring precipitation chemistry at a number of locations statewide, including a site at the New York Botanical Gardens

since 1990. Data collected at the Botanical Gardens show no apparent overall trends in precipitation pH, or sulfate, nitrate or ammonium deposition. Reported precipitation pH values have consistently been about 4.5, while sulfate, nitrate and ammonium deposition have been about 22, 18 and 4 kilograms per hectare per year, respectively. Concentrations of sulfate and nitrate, however, have decreased, from about 3.2 parts per million (ppm) to 1.7 ppm sulfate, and from about 1.9 to 1.0 ppm nitrate, since 1990. The effects of atmospheric deposition at Governors Island, and the deposition sensitivity of National Monument resources, are unknown.

Ozone

High ozone concentrations cause respiratory problems in humans, and are a particular concern for those who are engaging in strenuous aerobic activity, such as hiking. Ozone also

damages sensitive plant species. It injures plant leaves by causing a visible spotting or “stipple” on the upper surface of the leaves. Ozone can affect plant physiology by reducing growth, increasing susceptibility to disease, and increasing senescence. Due to the lack of native vegetation at Governors Island, ozone injury will not be considered in this GMP.

The new National Ambient Air Quality Standard (NAAQS) for ozone is a 3-year average of the 4th highest daily maximum 8-hour ozone concentration. This value cannot exceed 0.085 ppm, or the area will be designated as non-attainment. As of April 2005, all of New Jersey, and all counties in the New York City area, including New York County, were designated non-attainment for both the new 8-hour ozone standard and the old 1-hour standard. One of the two ozone monitors in New York County recorded exceedances of the 8-hour standard each year from 1995 to 2001, with concentrations ranging from 0.089 to 0.112 ppm. While ozone data have not been collected in New York County since 2001, monitors in surrounding counties show continued exceedances of the ozone NAAQS.

2. Water Quality

Governors Island is located in Upper New York Bay and is classified as “Class I”—suitable for secondary contact recreation such as fishing and boating—by New York State Department of Environmental Conservation (NYSDEC).

As summarized in the GSA FEIS, New York City Department of Environmental Protection (NYCDEP) has designated sampling stations throughout New York Harbor which are routinely sampled. Three stations in the vicinity of Governors Island were included in the GSA FEIS analysis. One of the stations in the East River did not meet the water quality standard for dissolved oxygen. Dissolved oxygen exceedances

may be associated with warmer water during summer months, combined sewer overflows, and discharges from waste water treatment plants.

The island’s groundwater is considered unsuitable for drinking due to salinity. Surface water discharges from the island consist primarily of drainage from the storm sewer system.

The National Monument’s only direct contact with the waterfront is at NPS Dock 102. Here, best practices during pier rehabilitation will be utilized to minimize turbidity and its subsequent impacts on water quality and aquatic life; these impacts would be short-term and are analyzed in the next chapter.

3. Aquatic Life and Their Habitats

The GSA FEIS and the Ellis Island DCP were used to gain information about aquatic life present in New York Harbor.

A portion of the Hudson–Raritan Estuary includes Upper New York Bay, where Governors Island is located. Despite heavy surrounding urbanization, the bay supports a diverse aquatic ecosystem typical of estuaries, including a diverse benthic community and a variety of finfish species. The confluence of fresh and salt waters provides a unique habitat for both resident and seasonal transients. There is a thriving plankton population, forming the basis for a complex food web which includes many varieties of benthos and finfish.

Upper New York Harbor is a significant fish habitat complex with more than a hundred species of finfish. Large concentrations of marine and estuarine species pass the vicinity of Governors Island as they migrate between the Atlantic Ocean and the Hudson–Raritan Estuary. In addition to the migratory species, the harbor supports seasonal and year-round fish populations.

Surveys indicated dominant species such as striped bass, bay anchovy, blueback herring, American eel and Atlantic silversides. Deeper areas are important wintering habitats for striped bass and blueback herring. (GSA FEIS Appendix XIII, Tables C7–10).

C. Visitor Experience

NPS has welcomed visitors to the island since summer 2003, offering guided tours and sponsoring special events, often in collaboration with GIPEC and others. The number of recreational visits to the Monument for the last four years is summarized in the table on the next page.

Each year since 2003, NPS and GIPEC have coordinated and adjusted the public season to reflect an increasing number of days open, increased geographic areas, and increased number of programs and amenities offered. Through 2006, ferry service was provided solely by GIPEC, but additional private ferry service began in summer 2007. Public access to the island is expected to change somewhat each year, and will reflect staffing and funding levels, availability of ferry transportation and on-island construction and demolition schedules.

The following is a snapshot of the 2006 season. **Days Open:** Governors Island was open to the public Tuesdays through Saturdays, from June 1 through September 1. NPS rangers conducted walking tours of the historic district twice a day Tuesdays, Wednesdays and Thursdays, and approximately 6 times on Fridays and Saturdays. Tour group size averaged about 40 persons and tours lasted 60-90 minutes. The tours began and ended at Soissons Dock, the island's primary point of access.



Visitors on a tour of the National Monument and the H. Krebs.

Programs: On Fridays and Saturdays the public was able to visit and recreate without rangers or guides within a designated portion of the historic district. Self-guided tour maps were provided at Bldg. 140's visitor contact station, and several "special event" programs were offered by NPS, GIPEC or other city-organizations. Saturday visitors typically stayed on the island for two to three hours.

Visitor Facilities: GIPEC's Building 148 was open to visitors. It has public bathrooms, vending machines with snacks and beverages, and a ferry waiting area with approximately 30 seats. Books and gifts related to Governors Island, New York and New York Harbor were available for purchase in Building 140.

Buildings 148 and 140 are immediately adjacent to Soissons Dock. Portasans were provided at several locations throughout the historic district. Food vendors sold light snacks on Fridays and Saturdays.



Historic Landmark District. Summer, 2006. Daniel C.

Ferry Service: GIPEC’s ferry departed Manhattan from the Battery Maritime Building, in Lower Manhattan, just to the east of the Staten Island Ferry terminal. Several subway and bus lines stop nearby. There is limited parking in private lots in Lower Manhattan. The public is not allowed to bring cars on the island. Ferry service was free and there were no other program fees charged on the island.

The normal weekday ferry schedule was enhanced on Fridays and Saturdays to accommodate more visitors and ran every half hour, from 10:00 a.m. to 5:00 p.m.

Security: GIPEC’s contract private security staff and volunteers were present at the Battery Maritime Building and on the island during the public visitation season to help orient and direct visitors, provide information about the day’s events, and coordinate with island operators regarding any emergencies or logistical problems.

NPS rangers and guides supplemented GIPEC’s security by ensuring that Tuesday to Thursday tour groups got back on the ferry at the end of tours and assisted with emergency and logistical issues.

Future Plans: NPS is working with GIPEC, the City of New York, and others to enhance the visitor experience and the Manhattan “entrance” to Governors Island. Plans include the restoration of the Battery Maritime Building, rehabilitation of its Slips 5, 6, and 7, installation of a visitor contact station/waiting room inside the building, and long-term traffic and pedestrian improvements along the building’s entrance at South Street. These are but some of the many harborfront projects slated for completion within the next 10-20 years. These improvements, the NPS plans described in Alternative D, the redevelopment of GIPEC’s portions of Governors Island and additional ferry service will significantly enhance and improve the visitor experience to and on the island.

D. Administration and Operation

Administration of a national park unit encompasses developing, implementing, and assessing the diverse programs and activities that preserve resources and provide for public enjoyment. At Governors Island National Monument these may include the following kinds of programs and activities:

- ◆ Park Management and Administration— Superintendent; partner relations and cultivation; commercial services
- ◆ Facilities Management and Physical Operations— Transportation; accessibility for persons with disabilities; visitor safety, security, law enforcement and emergency services

National Monument Seasonal Visits

| Year | Visits |
|------|--------|
| 2003 | 3,604 |
| 2004 | 11,312 |
| 2005 | 14,164 |
| 2006 | 43,754 |

- ◆ Visitation Services—Interpretation, education; recreational and special uses
- ◆ Natural and Cultural Resources Management—SHPO and NPS regional office relations; research studies; collections and archival activities

At minimum, National Monument staff will consist of a superintendent, facility manager, chief of interpretation, interpretive ranger, management assistant, and seasonal rangers. Each alternative may have different or additional staff needs based on the emphasis given to any of the programs and activities listed above.

It is anticipated that any capital improvements, staff and operational costs will be phased over the life of this plan. The implementation of the approved plan will depend on future funding and Servicewide priorities. The approval of a GMP does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Full implementation of the GMP could be many years into the future.

E. Socioeconomic Environment

When the Governors Island U.S. Coast Guard facility closed in 1996, it had approximately 4,000 employees. There were 2,813 persons, including Coast Guard personnel and their families, living in base housing. At this writing,

no one permanently resides on Governors Island. People working on the island include staff from the Governors Island National Monument, GIPEC, Turner Construction (GIPEC's facility managers), security personnel, New York Fire Department, Governors Island Ferry crew, and other contractors hired by NPS or GIPEC.

GIPEC is responsible for redeveloping 150 acres on Governors Island. The Quitclaim Deed stipulates that this redevelopment include at least 90 acres for "public benefit uses," including at least 40 acres of parkland, to be situated mostly south of Division Road, and at least 20 acres for educational uses.

Permitted uses include:

1. parkland and open space
2. education
3. museums and historic sites
4. surface and water transportation
5. not for profit cultural facilities
6. entertainment facilities
7. housing for caretakers or managers of Governors Island, and police and fire facilities
8. short term or extended stay accommodations
9. cultural and arts facilities
10. hospitality uses
11. commercial office space
12. retail, service and dining facilities
13. public works
14. health facilities
15. other public, commercial and mixed-use purposes.

Prohibited uses include:

1. permanent residential
2. industrial or manufacturing
3. casino or gaming
4. parking unrelated to island operations
5. electric power generating stations that do not solely serve the island.

The GMP study area includes the Battery Maritime Building (BMB), a city-owned building, which is undergoing a multimillion dollar exterior restoration and available for interior redevelopment and use. The BMB's associated slips 6 and 7 serve as ferry debarkation points to Governors Island and will likely remain a long-term primary ferry access site.

In 2006, the City of New York provided half a million dollars to create a visitor contact station and waiting room inside the BMB. The goal is to provide an attractive portal to Governors Island for those taking the ferry or people seeking information about the island and public programs. The space is intended to be climate-controlled, open year-round, with restrooms, drinking water, exhibits and public information. The NPS is assisting with the development of content material for exhibits and brochures, the installation of a bookstore and information desk; and with staff coverage.

The BMB and its surroundings are important assets in the redevelopment of Lower Manhattan. The Department of City Planning's *"New York City Strategic Plan"* (Summer 2005) has made "Restore and Enhance Lower Manhattan" one of its nine key citywide initiatives. The Strategic Plan sets out to restore the status of Lower Manhattan as the nation's pre-eminent financial center after the severe blow delivered to the neighborhood by the destruction of the World Trade Center. The Strategic Plan recognizes that the waterfront at the tip of Manhattan is an underutilized asset, and recommends as a key project building a pedestrian-oriented plaza in front of the Battery Maritime Building. The added attention being paid to upgrading the waterfront will improve interest in and access to Governors Island.

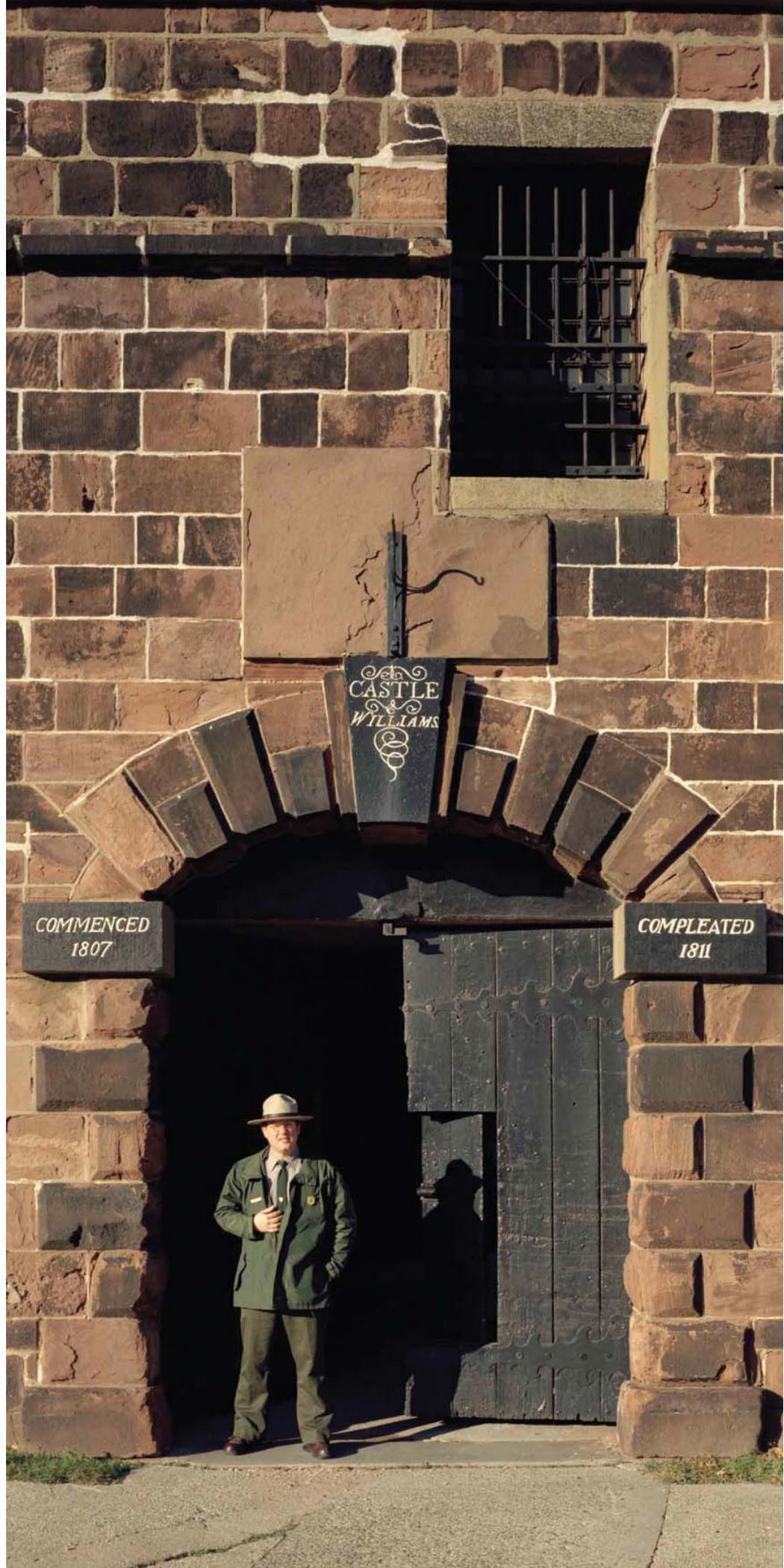
Also planned for Lower Manhattan is the East River Waterfront Park. Part of a larger urban greenway project around the island of Manhattan—the Manhattan Waterfront

Greenway—this project will provide public access to the water's edge.

The Brooklyn waterfront includes the Red Hook Container Port, which is managed by the Port Authority of New York and New Jersey. The container port has extensive storage facilities. The waterfront area not only has businesses servicing the port and industrial enterprises, it has a growing number of big-box stores. The neighborhood is attracting new residents, and warehouses are being converted into apartments. Away from the waterfront, the study area is primarily residential. Businesses in the study area employ approximately 14,000. Away from the waterfront, many of the businesses and jobs are in the retail sector.

Also new in the Brooklyn waterfront is the \$52 million Brooklyn Cruise Terminal at Pier 12 in Red Hook, the new home of the Queen Mary 2 and other large cruise ships. The terminal is 180,000 square feet with a capacity for 4,000 passengers, taxi and bus drop-off areas, and parking. The terminal is expected to host 40 ships in its first year of operation for the Carnival Corporation. According to NYC Economic Development Corporation estimates, New York City has the third largest cruise industry in the U.S.

Another greening and waterfront access project includes Brooklyn Bridge Park, which will be along the waterfront from the Manhattan Bridge to Atlantic Avenue. This will provide unprecedented access to the harbor in this area, which has been dominated by industrial and warehousing uses for decades.



Castle Williams entrance.
Andrew Moore.