National Park Service
U.S. Department of the Interior

Statue of Liberty National Monument and Ellis Island

Ellis Island Development Concept Plan

DRAFT ENVIRONMENTAL IMPACT STATEMENT

How to Comment on this Plan

Comments on this *Development Concept Plan / Draft Environmental Impact Statement* are welcome. If you wish to respond to the material contained within this document, you may submit your comments by any one of several methods. It is important to note that all comments must be received not more than 60 days from the date the Environmental Protection Agency filing notice is published in the *Federal Register*. This deadline will be posted on the park's website at http://www.nps.gov/elis and will be published in a press release in the local newspapers. You may mail written comments to:

Superintendent
Development Concept Plan
Statue of Liberty NM/Ellis Island
Liberty Island
New York, NY 10004

You may also comment via email to the address shown on the park's website which is http://www.nps.gov/elis. Please submit Internet comments as a text file avoiding the use of special characters or any form of encryption. Include your name and return address in your Internet message, and if possible, request a return receipt when sending your message.

You may hand deliver your comments at the public meetings to be announced in the media following release of this document. Meeting details will be posted on the park's website at http://www.nps.gov/elis.

All comments must be postmarked, transmitted, or logged as received no later than 60 days from the date the Environmental Protection Agency filing notice is published in the *Federal Register*.

Our practice is to make comments, including names and addresses of respondents, part of the public record. **We may not consider anonymous comments.** However, individual respondents may request that we withhold their addresses from the decision-making record, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold from the record a respondent's identity, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

The "Executive Summary" for this document is available on the park's website at http://www.nps.gov/elis. The entire document is also available on the park's website, plus the NPS planning website at http://www.planning.nps.gov.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

DEVELOPMENT CONCEPT PLAN
DRAFT ENVIRONMENTAL IMPACT STATEMENT

STATUE OF LIBERTY NATIONAL MONUMENT AND ELLIS ISLAND

New York Harbor, States of New York and New Jersey

Lead Agency: Department of the Interior, National Park Service, Northeast Region

This *Development Concept Plan / Draft Environmental Impact Statement* has been prepared by the National Park Service (NPS) to consider alternative adaptive reuses for the 30 remaining vacant and deteriorating buildings of Ellis Island and access to the island.

This environmental impact statement evaluates three alternatives regarding the future of the vacant historic buildings of Ellis Island. "Alternative 1: No Action — Continuation of Existing Management Direction," describes the conditions after only temporary stabilization of the buildings and the existing vehicular service bridge. The eventual result of no action is the complete or near-complete loss of these resources as the effects of temporary stabilization expire. This alternative provides a basis of comparison to judge the potential impacts of the two "action" alternatives. Both action alternatives would include a new managed limited-access bridge to New Jersey for emergency and service vehicles; the no-action alternative would not. "Alternative 2: Ellis Island Partners — Day Use Only," describes conditions that would result after the buildings are rehabilitated as a campus for nonprofit / institutional uses complementing the historic themes of Ellis Island. "Alternative 3: Ellis Island Institute with Overnight Accommodations" (the preferred alternative), describes conditions if the buildings were rehabilitated as a conference/retreat center. The institute would have overnight accommodations to host meetings, retreats, and workshops on issues such as immigration, world migration, public health, family history, historic preservation, and the environment. The preferred alternative would accomplish the goals and objectives set forth in the NPS 1982 *Statue of Liberty National Monument General Management Plan* and would offer the greatest potential for long-term economic viability.

The public review and comment period on this *Development Concept Plan* / *Draft Environmental Impact Statement* will end 60 days after the Environmental Protection Agency has accepted the document and published a Notice of Availability in the *Federal Register*. Following public review and comment, a final development concept plan and final environmental impact statement will be distributed. Thirty days after distribution of those final documents, the National Park Service will publish its Record of Decision (ROD) in the *Federal Register*. Thereafter, the National Park Service will coordinate with park partners to identify and/or solicit specific adaptive reuses for Ellis Island's historic buildings and landscape. Proposals will be judged on the basis of their compliance with this document, their economic viability, and other criteria that will be enumerated within the Request for Proposals.

All review comments must be received before the end of the 60-day public review period and should be addressed to:

Superintendent
Statue of Liberty NM/Ellis Island
Liberty Island
New York, NY 10004

EXECUTIVE SUMMARY
DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR THE STATUE OF LIBERTY NATIONAL MONUMENT
AND ELLIS ISLAND DEVELOPMENT CONCEPT PLAN

INTRODUCTION

Ellis Island occupies a singularly unique place in America's heritage. It was the primary United States immigration station from 1892 to 1954 when more than 12 million people passed through the island — the greatest wave of migration in this country's history. Today, 40% of Americans can trace their family history via Ellis Island. In 1965 President Lyndon Johnson added Ellis Island to the national park system as a part of the Statue of Liberty National Monument. This was done in recognition of its significance in American history, architecture, and culture.

When Ellis Island closed in 1954, abandonment led to a period of severe decline. In 1990, following extensive rehabilitation, the Main Building was reopened to the public as the Ellis Island Immigration Museum, and subsequently, two adjacent buildings were rehabilitated as administrative offices. The island's many remaining structures, however, remain abandoned and threatened.

NEED FOR THE ACTION

In recent years, concern for the accelerating rate of deterioration helped to rally private, state, and federal support for a program of temporary stabilization to the island's 375,000 square feet of vacant buildings and corridors. The need for the temporary stabilization program prompted the National Park Service (NPS) to identify a range of reuse alternatives that would lead to long-term rehabilitation and reuse of these buildings in order to expand visitor experiences and provide some level of economic sustainability. "Figure ES-1: Ellis Island Map Depicting All Structures" identifies the structures included in this *Development Concept Plan*.

This environmental impact statement analyzes the consequences of continuing to apply only temporary fixes for stabilization of the vacant buildings and service bridge for another 10 to 15 years (as prescribed under the no-action alternative) or implementing one of the two "action" alternatives that propose long-term rehabilitation and reuse.

PURPOSE AND OBJECTIVES OF TAKING ACTION

The overall purpose of the *Development Concept Plan* is to provide for the long-term rehabilitation, reuse, and protection of cultural and historic resources on Ellis Island. This statement relates directly to the objectives outlined in the 1982 *Statue of Liberty National Monument General Management Plan*. The NPS objectives are to

- protect the Island's cultural and natural resources
- provide for the long-term rehabilitation and adaptive reuse of the island's Beaux-Arts campus of integrated brick, stucco, and tile structures with connecting corridors of masonry and glass, within a designed landscape of lawn and mature trees
- provide uses that complement the island's historic themes and related contemporary issues and that can be economically sustained
- provide enhanced opportunities for visitors to understand and experience Ellis Island's history, including managed public access to most of the island's cultural landscape
- provide a high level of security and safety for the visitors, staff, and resources of Ellis and Liberty Islands, and the ability to respond quickly in emergency situations
- provide thematically appropriate, safe, and economically viable access to and from the island in support of its adaptive reuse and security requirements.

ISSUES

The NPS interdisciplinary planning team identified numerous issues through public meetings and agency consultations. The following issues were raised through scoping:

Loss of cultural resources if rehabilitation does not occur

Delaying a permanent solution would increase costs in the long run

If the no-action alternative is selected, mitigation for the loss of buildings should include documentation and interpretation

The federal government should pay for the protection of these buildings

Loss of bridge access would result in increased safety and security concerns

The plan should not include large-scale demolition or new construction

Jitney access for the public, retreat attendees, and lodging guests from Jersey City may raise security issues with respect to boarding

The permanent bridge should allow pedestrian access

The bridge, or parking for the ferry to Ellis Island, may affect natural and cultural resources of Liberty State Park

The temporary (or permanent) bridge are not part of the cultural landscape and should be permanently removed (or should not be constructed)

IMPACT TOPICS

The following impact topics were analyzed in this environmental impact statement:

Historic Architectural Resources
Cultural Landscapes
Archeological Resources
Geologic Resources and Soils
Marine Sediments
Floodplains
Vegetation / Threatened and Endangered Plants
Fish
Wildlife / Threatened and Endangered Wildlife
Surface Water
Groundwater
Air Quality
Noise
Hazardous Materials
Tourism
Park Administration
Access to Ellis Island
Access to Ferry Terminals
Parking
Circulation
Visitor Experience
Ellis Island Infrastructure

The following impact topics were considered but dismissed from further analysis because no impacts from the actions in this environmental impact statement would occur:

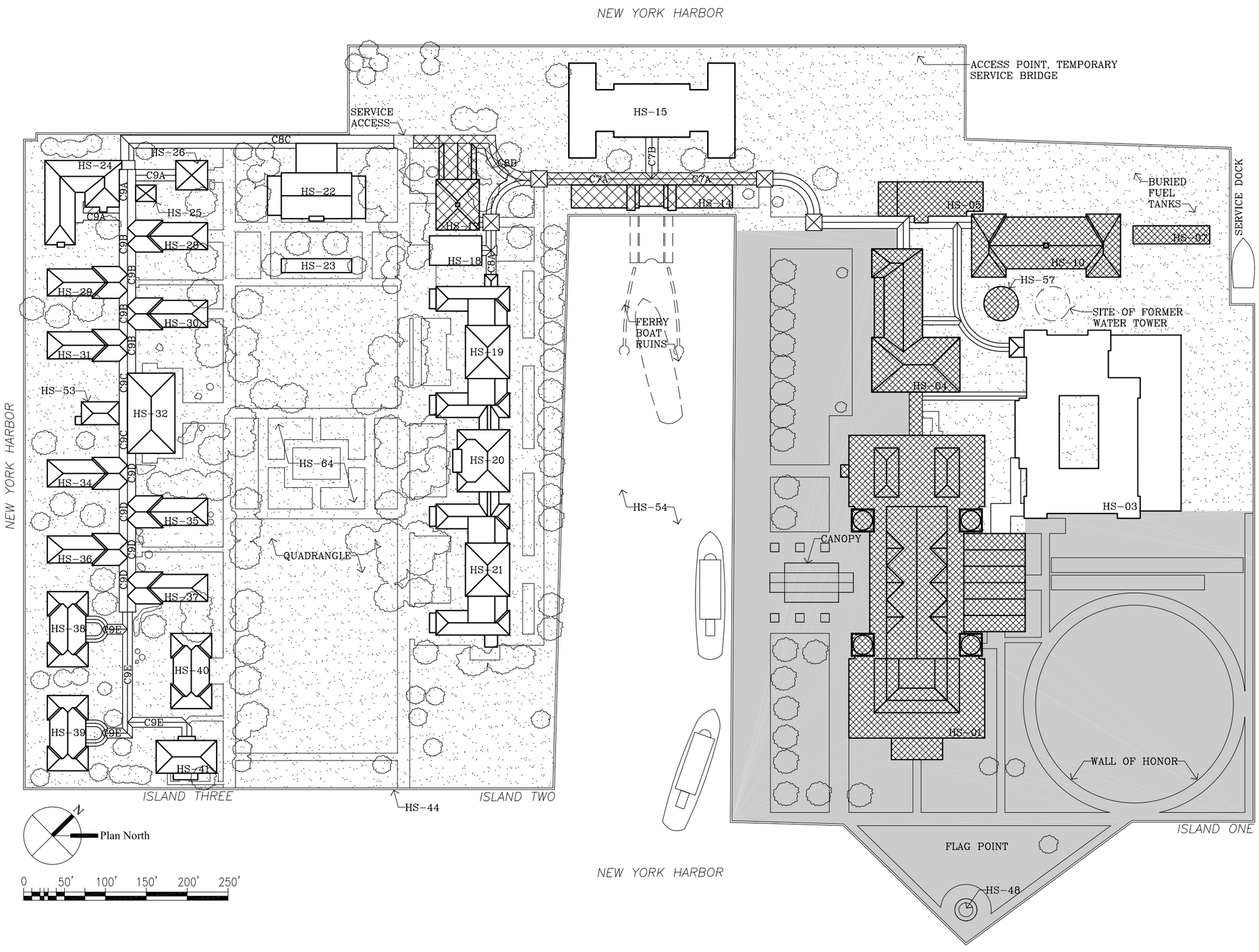
Museum Collections
Wetlands
Land Use
Environmental Justice and Population

ALTERNATIVES SELECTED FOR ANALYSIS

The alternatives presented in this environmental impact statement were developed by the NPS staff of the Statue of Liberty National Monument and Ellis Island. The NPS *Management Policies*, the park's mission statement and goals, relevant laws and regulations, and public input all helped to direct and shape the alternatives.

SUMMARY OF ALTERNATIVE 1: NO ACTION — CONTINUATION OF EXISTING MANAGEMENT DIRECTION

Under this alternative, maintenance and operations by the National Park Service would continue. Current stabilization treatment of the abandoned and unused buildings would carry on until all buildings have been completed. At the time of this writing, approximately 30% of the buildings have been stabilized. Stabilization measures would include temporary ventilated wood and Plexiglas window



Existing Conditions

- Rehabilitated & In Use
- Partially Rehabilitated
- Deteriorating & Vacant
- Outdoor Areas Managed Public Access
- Restricted Areas No Public Access
- Ferry Boat & Dock Ruins

HS-01 Main Building – 172,000 NSF
HS-02 Covered Walkway 6
HS-03 Baggage & Dormitory – 125,000 NSF
HS-04 Kitchen & Laundry – 25,000 NSF
HS-05 Powerhouse 1 – 20,000 NSF
HS-07 Oil Storage Building
HS-10 Bakery & Carpentry – 10,100 NSF
HS-12-1 Corridor 1 (C-1)
HS-12-2 Corridor 2 (C-2)
HS-12-3 Covered Way 3 (C-3)
HS-12-4 Covered Way 4 (C-4)
HS-12-4A Covered Way 4 Extension
HS-12-5 Covered Way 5 (C-5)
HS-13 Covered Ways 7A & 7B
HS-14 Ferry Building – 4,800 NSF
HS-15 Immigrant Building – 14,300 NSF
HS-16 Covered Ways 8A, 8B & 8C – 7,002 NSF
HS-17 Hospital Out-Building – 3,967 NSF
HS-18 Psychopathic Ward – 2,814 NSF
HS-19 Old Hospital – 33,604 NSF
HS-20 Hospital Administration – 14,969 NSF
HS-21 Hospital Extension – 29,442 NSF
HS-22 Recreation Hall – 6,300 NSF
HS-23 Recreation Shelter – 320 NSF
HS-24 Powerhouse 2 & Morgue – 7,330 NSF
HS-25 Lab – 247 NSF
HS-26 Office – 2,143 NSF
HS-27 Corridors 9A, 9B, 9C, 9D & 9E – 3,712 NSF
HS-28 Contagious Wards 11/12 (G) – 4,978 NSF
HS-29 Contagious Wards 13/14 (E) – 4,978 NSF
HS-30 Contagious Wards 15/16 (C) – 4,978 NSF
HS-31 Contagious Wards 17/18 (C) – 4,978 NSF
HS-32 Administration – 12,090 NSF
HS-33 Kitchen – 1,002 NSF
HS-34 Contagious Wards 19/20 (B) – 4,978 NSF
HS-35 Contagious Wards 21/22 (D) – 4,978 NSF
HS-36 Contagious Wards 23/24 (F/J) – 4,978 NSF
HS-37 Contagious Wards 25/26 (H) – 4,978 NSF
HS-38 Isolation Wards 27/28 (I) – 4,978 NSF
HS-39 Isolation Wards 29/30 (L) – 4,978 NSF
HS-40 Isolation Wards 31/32 (K) – 4,978 NSF
HS-41 Staff House – 4,265 NSF
HS-44 Granite Seawall
HS-48 Flag Pole
HS-54 Ferry Slip
HS-57 Water Tower
HS-64 Quadrangle Walkways

Figure ES-1: Ellis Island Map Depicting ALL Structures

panels to subdue water infiltration and facilitate air movement; temporary asphalt shingle roofs on areas where the removed original clay tiles would eventually be replaced or repaired; repointing of existing brick and stone masonry that has failed to resist the weather; shoring of compromised or failing structural and exterior wall elements; the maintenance and temporary repair of gutters, leaders, and other water-control techniques; removal and control of invasive vegetation that has been damaging the structures; and abatement and removal of debris and hazardous materials inside the buildings. The stabilization procedures are only a temporary strategy to slow further deterioration. Depending upon the condition of a particular building, stabilization might provide a 10- to 15-year period of suspended or slowed decay. These ongoing stabilization efforts would also include several interventions in the corridor system and to the utilities infrastructure. No public access would be allowed in these stabilized structures.

The ongoing NPS efforts to go beyond basic stabilization of two of the buildings would also continue. The exterior of the Ferry Building already has been restored, and the planned interior rehabilitation would be completed. The exterior of the Hospital Outbuilding and Laundry already has been restored, and the plans for interior rehabilitation of this building would be implemented. Depending on funding/staffing, limited access may be allowed in these two buildings, as well as some additional exterior grounds

Under this alternative, the park would continue to implement measures to increase security. The existing temporary construction bridge would continue to be used, subject to Federal Highway Administration inspection and permitting, until it could no longer be sustained. At that time, all access would be by ferry or barge.

Ongoing or perpetual stabilization would not be regarded as a viable or sustainable option because all structures would eventually reach a point at which they could not reasonably be reclaimed. While not provided for within this no-action alternative, demolition and removal would become a logical and unfortunate future consequence. This would occur when temporary stabilization measures have run their course, and efforts to secure funding for rehabilitation have been unsuccessful.

ELEMENTS COMMON TO ALTERNATIVES 2 AND 3

The economic feasibility of alternatives 2 and 3 is dependent upon the adaptive reuse of the 30 buildings proposed for restoration. Reuse must also be complementary to the island's historic themes and related contemporary issues. Both of these are consistent with the objectives identified above, which derive from the 1982 *General Management Plan*. The NPS intent to seek a private-sector partner(s) to assist in the rehabilitation and maintenance of these historic structures, which is an important feature of both alternatives, was also first adopted in its 1982 *General Management Plan*.

Both action alternatives would ensure the preservation of the defining characteristics of Ellis Island's buildings and their environment while providing some flexibility for reasonable adaptive reuse proposals. The overall campus environment of Ellis Island would be preserved and its character-defining features would be retained, including massing and scale, spatial organization and circulation, distinctive spaces and architectural features, fenestration, building materials, and vegetation patterns.

There are a number of elements that are consistent across alternatives 2 and 3, as both these alternatives meet the NPS goals for Ellis Island. The common elements are

Rehabilitation of all Ellis Island resources — Alternatives 2 and 3 propose rehabilitation efforts that are consistent with the guidelines of *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Continuation of ferry use — The action alternatives propose to continue the historic use of ferry boats by both day-use and overnight visitors.

Equal access provisions — A program would be implemented to increase opportunities for low-income people to visit the site. A variety of methods to subsidize ferry fares for these visitors would be put into place; this could include free rides for school groups in targeted areas, reduced-fare days, and special passes.

Construction of a permanent bridge — A managed limited-access bridge would be constructed in a location to be determined by subsequent permitting procedures. The bridge would only be used for operations, construction activities, maintenance, and deliveries, as well as for emergency vehicles and evacuations. In the case of alternative 3, the bridge may also be used for drop-off of conference attendees.

Improvements to infrastructure — Proposals for utility infrastructure improvements would be provided by the National Park Service, or its designated partner, in support of rehabilitation and reuse of all remaining vacant and unrestored buildings.

Operating budget increases — Implementation of either action alternative would require an increase in the park's annual operating base.

Additional funding — Annual operating subsidies from nonappropriated sources would be needed to sustain partnership programs and building maintenance.

Enhanced security — Both action alternatives propose a continuation of increased permanent security measures to include screening all visitors, packages, and vehicles to Ellis Island. Also included is the continued implementation of emergency evacuation procedures.

SUMMARY OF ALTERNATIVE 2: ELLIS ISLAND PARTNERS – DAY USE ONLY

The Ellis Island Partners concept would be managed primarily by the National Park Service and would create a campus of nonprofit and institutional uses that complement the purposes, themes, and significance of Ellis Island. The nonprofit organizations and institutions that would make up the campus of partners would offer visitor programs and exhibits relating to themes such as immigrant contributions, worldwide immigration issues, ethnic diversity, tolerance, human rights, refugees, public health, family history, and other topics relating to the significance of Ellis Island. Office space for nonprofit organizations and institutions would be appropriate under this concept, but general commercial office space would not be permitted.

This alternative proposes rehabilitation of Ellis Island's historic buildings and landscape over a 10- to 15-year period solely through private fundraising and future federal appropriations. A combination of partnerships, cooperators, and traditional concession operations would provide visitor services, programs, and routine maintenance of buildings. The National Park Service would have management oversight of the entire island. All of the building exteriors would be restored and interiors completed to "core and shell" condition, which means that interior finishes would be provided by future tenants. Over time, and as funding permits, all of the unrestored buildings of Ellis Island would be rehabilitated and occupied by a potentially diverse mix of cultural, educational, and other nonprofit institutions. To provide a visual comparison for visitors, one or more selected interior spaces would be preserved or left in a stabilized "ruin-like" condition for future research and interpretation. There would be no overnight accommodations.

Outdoor areas would be programmed for themed events and festivals. Some visitor services may be provided through one or more concession agreements.

SUMMARY OF ALTERNATIVE 3: ELLIS ISLAND INSTITUTE WITH OVERNIGHT ACCOMMODATIONS (PREFERRED ALTERNATIVE)

Alternative 3 was chosen as the preferred alternative because it would best accomplish the objectives and goals set forth in the *General Management Plan* that was prepared by the National Park Service in 1982. In particular, this alternative fulfills to the greatest extent of any of the alternatives, objective 3, which states that alternatives must be economically sustainable.

This alternative would have as a primary use, an "Ellis Island Institute" that would include a small retreat/conference facility with a policy research center and administrative and study spaces. Supplemental uses would include cultural, educational, and interpretive activities and programs. The retreat function would be associated with one or more nonprofit institutions and appropriate corporate sponsors that would utilize the facilities to host meetings, retreats, and workshops on issues such as immigration, world migration, public health, cultural and ethnic diversity, family history, and historic

preservation. The primary difference between alternatives 2 and 3 would be alternative 3's provisions for overnight lodging. In addition, state-of-the-art telephone, conferencing, Internet communications, and other technological amenities would be provided for retreat participants. The island would provide a secure world-class venue for deliberation, research, and reflection that is minutes away from the major cultural, educational, and transportation facilities of New York and New Jersey.

Through a Request for Proposals, the National Park Service would solicit a private development partner to finance, develop, and manage the small conference facility and overnight accommodations, with NPS policy guidance and oversight. In selecting a development partner, National Park Service would give preference to the most economically feasible proposal that meets the park's goals and that best supports the mission and operation of the nonprofit institute.

The buildings would be rehabilitated and adaptively reused over a five- to seven-year period through a combination of private financing, philanthropic support, and government appropriations. A market analysis (see "Appendix C: Analysis of Relative Financial Feasibility and Economic Sustainability of EIS Alternatives") suggests that Ellis Island includes many of the critical factors required for making such a retreat/conference facility successful, including association with large and resonant ideas, signature architecture, and uniqueness. Properly designed to the scale and historic context of Ellis Island, an "Ellis Island Institute" and retreat facility, in combination with one or more thematically related cultural institutions and visitor attractions, would restore an appropriate function and purpose to Ellis Island, thus ensuring its long-term rehabilitation and use.

ELEMENTS ELIMINATED FROM CONSIDERATION

During the course of developing the plan and three alternatives, several alternative elements were considered and subsequently eliminated from further consideration, including:

- intentional demolition of any structures
- construction of significant new structures
- reuses of buildings for dominant retail and/or commercial purposes
- pedestrian use of the service bridge

ENVIRONMENTAL CONSEQUENCES

The potential impacts of each alternative are summarized below.

CULTURAL RESOURCES

HISTORIC ARCHITECTURAL RESOURCES

In contrast to alternatives 2 and 3, the no-action alternative does not provide for a plan of historic preservation of the significant cultural resources of Ellis Island. The proposed stabilization activities of historic structures would result in only short-term benefits to the resources, and long-term preservation of cultural resources is not expected. The eventual loss of many, if not all, of the eligible properties on Ellis Island is possible. Although it may not happen during the 15- to 20-year life of this plan, eventually, the loss of such significant cultural resources is expected to result in impairment of NPS resources. When compared to alternatives 2 and 3, the no-action alternative is decidedly negative in its overall effect on historic properties, with long-term, major adverse impacts anticipated for the region and, possibly, for the nation. Conversely, the proposed rehabilitation and reuse of the structures on Ellis Island that are listed on the National Register of Historic Places (National Register), would ensure the preservation of National Register cultural resources. The ultimate effect of either action alternative—the avoidance of the loss of Ellis Island's historic structures to unchecked deterioration (the expected result of the no-action alternative)—is a major benefit compared to the no-action alternative. An additional adverse impact of the no-action alternative could result from the removal of the temporary service bridge connecting Ellis Island with the mainland. Historic properties on Ellis Island would be placed at higher risk of fire damage/loss due to longer response times and less efficient methods of fire-fighting, a potentially major adverse impact not expected under alternatives 2 and 3.

CULTURAL LANDSCAPE

A similar loss of the integrity of the cultural landscape, as described for historic architectural resources, would occur under the no-action alternative. In contrast to alternatives 2 and 3, this alternative does not provide for a plan of historic preservation for the cultural landscape of Ellis Island, and the possibility of its eventual loss exists. When compared to alternatives 2 and 3, the no-action alternative is decidedly negative in its overall effect on the cultural landscape of Ellis Island, with major adverse impacts anticipated for the region and, possibly, for the nation. Of the three alternatives, the no-action alternative would result in the highest risk to the cultural landscape of Ellis Island. Due to the lack of a long-term preservation strategy under this alternative, the eventual loss of the cultural landscape is likely and would be expected to result in impairment of NPS resources. Cultural landscape rehabilitation efforts under either action alternative would provide major benefits by conserving the major features of the cultural landscape intact.

Despite the postponement of the removal of the temporary service bridge, the no-action alternative would result in its eventual removal, a benefit for the cultural landscape of Ellis Island and surrounding areas. This positive effect is not realized under alternative 2 or 3, as both propose a permanent bridge replacement. The bridge would perpetuate the diminished nature of the waterspace between the island and the mainland, negatively affecting Ellis Island and surrounding National Register properties (Statue of Liberty, CRRNJ Terminal). At the same time, the presence of a bridge (under alternative 2) would provide a higher degree of protection from fire damage/loss for Ellis Island's cultural resources. This is an unknown, but possibly major positive effect compared to the no-action alternative.

TERRESTRIAL AND MARINE ARCHEOLOGICAL RESOURCES

The no-action alternative is not believed to have the potential to adversely affect archeological resources in a manner that would jeopardize their National Register characteristics. When compared to alternatives 2 and 3, under which ground-disturbing activities are likely, the risk to archeological resources on Ellis Island is believed to be minimized under the no-action alternative. Small-scale dredging in the ferry slip proposed under alternatives 2 and 3 has the potential to result in minor, site-specific adverse impacts because of its potential to affect buried cultural deposits. No impairment to park archeological resources would occur under any alternative.

NATURAL RESOURCES

GEOLOGIC RESOURCES AND SOILS

All three alternatives anticipate the removal of the temporary service bridge and the sealing of the gap in the existing floodwall guarding Liberty State Park where the bridge landing now exists. Negligible impact to soils would occur from filling the seawall. In alternatives 2 and 3, additional negligible to minor impacts to soils would result from excavating for new underground utility connections, grading new access roads to the landings at Liberty State Park and Ellis Island, and from grading for construction staging areas. No impairment of park soils or geology would occur.

MARINE SEDIMENTS

Localized negligible or minor temporary disturbance to marine sediments in the channel between Ellis Island and the state park would occur from removing pilings for the temporary service bridge under all three alternatives. Disturbance and increases in turbidity would continue under alternatives 2 and 3 as in-channel work, including the installation of new pilings, would be required. No marine sediments are part of the park; therefore, no impairment of park marine sediments is possible, although impacts would also be no more than minor.

FLOODPLAINS

Removing the temporary service bridge and sealing the floodwall could result in minor beneficial impacts from flood prevention under any of the alternatives. During extreme weather events, it is possible that the new permanent bridge proposed under alternatives 2 and 3 could experience some flooding and reduce access. No impairment of park floodplains would occur under any alternative.

VEGETATION

Under the no-action action alternative, it is expected that negligible to minor impacts to vegetation could occur from clearing for construction staging associated with stabilization efforts and removal of the temporary service bridge. Those impacts associated with bridge removal would also occur under the two action alternatives. Additional negligible to minor losses of open field vegetation would be likely from the creation of landing sites and access roads and from construction staging areas for building a permanent bridge, and rehabilitating buildings on Ellis Island.

No impacts to threatened or endangered vegetation are expected from the no-action alternative. However, minor to moderate localized impacts from the loss of two state protected plant species, Canada hawkweed and Ohio spiderwort, are possible from the planting of restored courtyards on Ellis Island for either alternative 2 or 3. These impacts could be eliminated or reduced to negligible through avoidance, replanting individuals, or improving off-site habitat. No impairment of park vegetation would occur.

FISH

Removal of the temporary service bridge, under any alternative, could result in minor to moderate short-term impacts to fish in the immediate area of construction from direct activity, increases in turbidity, and suspension of toxins. Additional moderate short-term impacts to fish in the channel between Ellis Island and the New Jersey shoreline, and a longer period of impact than under no action, could result from building the permanent bridge under alternatives 2 and 3. No impairment of park fisheries would occur.

WILDLIFE

Minor impacts to nonprotected wildlife from construction to remove the temporary service bridge in all alternatives are expected, particularly in Liberty State Park. The state protected Savannah sparrow could experience minor short-term effects, and other seasonal residents and migrants could experience negligible to minor impacts. Additional displacement through habitat removal and increased human activity from the construction and operation of bridge landings for the permanent bridge could result in additional negligible to minor long-term effects at both the state park and on Ellis Island under either action alternative. Savannah sparrows may experience moderate short-term effects, and other seasonal residents and migrants could experience minor impacts. Depending on the bridge alignment, Savannah sparrows may suffer minor long-term impacts resulting from loss of habitat and the additional presence of humans and traffic. Landscaping courtyards on Ellis Island under alternative 2 or 3 would remove habitat for some wildlife species with possible long-term minor adverse impacts. Additional negligible to minor impacts from the continual presence of humans throughout the night could also occur to Ellis Island wildlife if alternative 3 were adopted. No impairment of park wildlife resources would occur.

SURFACE WATER

Removal of the temporary service bridge could result in minor to major localized increases in turbidity in surface marine water during the construction period for all alternatives. Fuel leaks or petroleum releases from heavy equipment could result in negligible degradation of surface water near construction sites. Additional moderate impacts to surface water quality could result from construction of the permanent bridge, and minor impacts from construction of additional staging areas, roads, and rehabilitation could occur under alternatives 2 and 3. In the long term, impacts to surface water would be nonexistent or negligible. No impairment of park surface water would occur.

GROUNDWATER

The no-action alternative would have no impact on groundwater. Alternatives 2 or 3 could result in negligible to major impacts to local groundwater supplies if construction of the permanent bridge requires excavation in an area where groundwater tables are high, which might then require extensive pumping. Dewatering or contamination of the aquifer from pumping are possible outcomes. Additional testing and *National Environmental Policy Act* (NEPA) analysis would be required to determine features of the aquifer, mitigation, and whether impairment is possible. Such analysis is anticipated for site-specific analysis of the permanent bridge.

AIR QUALITY

Compared to existing conditions, emissions from construction equipment and increased car traffic related to increased visitation under any alternative, would probably not be detectable any further than the immediate construction area. Emissions from these same sources would be about 5% higher than the no-action alternative under either alternative 2 or 3. No impairment to park air quality would occur.

NOISE

Long-term increases in noise are expected to be negligible; however, noise during construction may be severe on a short-term basis. Very loud noise impacts would continue at least twice as long under alternative 2 or 3 than under no action, but would be temporary in any of the alternatives. No impairment of the park wildlife or visitor experience would occur as a result of noise.

HAZARDOUS MATERIALS

Resuspension of marine sediments during removal of the temporary service bridge pilings could result in negligible to minor increases in concentrations of toxic or carcinogenic chemicals in surface water under any of the alternatives. These same effects could also occur from installing pilings for the permanent bridge proposed in alternatives 2 and 3. The impact would decrease when the sediments resettle. Workers could also encounter soils contaminated with chromium and other dangerous toxins during construction of landings and access roads for the permanent bridge. If a mitigation plan is put into place and followed, impacts could be minor or moderate. Encapsulating contaminated fill following construction would eliminate the risk of exposure in the long-term. Stabilization of buildings in the no-action alternative, and rehabilitation in alternatives 2 and 3, would risk exposure of workers to asbestos and lead-based paint. With the use of standard precautions, this risk would be negligible. No impairment of park resources from exposure to hazardous materials would occur.

SOCIAL AND ECONOMIC RESOURCES

Under the no-action alternative, tourism at Ellis Island would likely continue to increase by a negligible to minor amount each year over the life of the plan. Extended programming and activities offered under alternatives 2 and 3 would result in a minor benefit to tourism in increased visitorship to and around Ellis Island, as well as increased demand for lodging in the New Jersey / New York area. Removing the temporary service bridge could increase emergency response times by up to 10 times, resulting in possible major impacts depending on the event and need for emergency services. Compared to this, building a permanent bridge would result in a benefit of unknown intensity, possibly major, to park administration in the ability to provide emergency assistance. The convenience the bridge would offer for non-emergency access is considered a minor benefit to park administration. No impairment of park resources would occur.

TRANSPORTATION AND CIRCULATION

Removal of the temporary service bridge under the no-action alternative could result in minor to moderate increases in ferry traffic and decreases in car and truck traffic to Ellis Island in the long term. Negligible to moderate short-term impacts to access for staff and delivery vehicles could result from bridge removal and reconstruction of a permanent bridge under alternatives 2 or 3. Compared to no action, the impact would be relatively beneficial because it is only temporary.

Negligible impacts to parking may occur at Liberty State Park from increased visitation under the no-action alternative. Minor impacts to parking in Liberty State Park would occur from increases in visitation expected from either action alternative. Undetectable to negligible impacts to levels of service at intersections in the area are attributable to increased visitation resulting from any of the alternatives.

VISITOR EXPERIENCE

Minor adverse impacts to the visitor experience would continue to occur under the no-action alternative from a lack of access to the larger experience of Ellis Island's historic structure and cultural landscape. Under alternative 3, the combination of significantly increased visitor access to the majority of Ellis Island, the expansion of interpretive offerings, and the provision of a conference facility with overnight lodging could

result in a major benefit to the visitor experience at Ellis Island. With the exception of overnight lodging accommodations, similar benefits to visitor experience are expected under alternative 2. When compared to the no-action alternative, where both access and interpretive offerings are limited, alternative 3 would provide a significantly more enhanced visitor experience.

All three alternatives would result in minor impacts to the visitor experience from construction noise and dust associated with bridge removal, construction of a permanent bridge in alternatives 2 and 3, and stabilization or rehabilitation of the buildings on Ellis Island. No impairment of park resources or values would occur.

INFRASTRUCTURE

The upgrading and improvement of utilities proposed under alternatives 2 and 3 are considered moderate benefits to the Ellis Island infrastructure and would complement the rehabilitation efforts of historic structures proposed for reuse under these alternatives.

SUMMARY CONCLUSIONS

Fifty years of neglect have taken a toll on Ellis Island's abandoned buildings and landscape. Today, however, a window of opportunity exists; interim stabilization measures, combined with the determination of highly motivated private partners, have created the opportunity for what may be the last best chance to save these historic treasures. This plan honors the legacy of Ellis Island and sets the stage for the restoration and adaptive reuse of the entire island. It builds upon earlier NPS efforts to identify a long-term feasible solution for preserving these historic structures and to ensure that comments expressed during previous public meetings and agency consultations are reflected in the plan.

The plan calls for uses that respond to the island's historic themes. Visitors and retreat participants would have a greater understanding of Ellis Island's history of welcoming, screening, and caring for millions of immigrants to this country. Buildings once used as dormitories and hospital wards for immigrants would be adaptively reused for interpretation, research, and education on issues that might include public health, world migration, immigrant contributions, and ethnography and family history. More than a museum, Ellis Island would provide an ideal setting to explore related contemporary issues such as racial and ethnic tolerance, civic responsibility, and the American experience.

This plan is just a framework; it will not be achieved without broad support and participation of state and local governments, the preservation community, and concerned citizens. The institutions proposed in this plan would have to be conceived and supported by others—and it will be expensive. Capital costs for restoration and rehabilitation could be approximately $169 million to $178 million and require an annual operating subsidy of perhaps $4 million to $6 million. By conventional standards, this plan is not feasible, even with the important participation of a development partner and access to some commercial financing. With constraints on public expenditure at all levels of government, the single most important factor toward closing the "feasibility gap" and achieving the vision set forth in this plan will be the fundraising efforts led by the park's private partners. Through a shared vision and cooperative action, Ellis Island will, again, be put into the service of a nation.

CONTENTS

PURPOSE OF AND NEED FOR THE ACTION

INTRODUCTION 3

BRIEF HISTORY OF ELLIS ISLAND 3

Recent Administrative History 6

PURPOSE OF AND NEED FOR THE ACTION 7

CONSTRAINTS 8

ISSUES AND IMPACT TOPICS 9

ISSUES RAISED BY SCOPING 9

Loss of Cultural Resources 9
Costs of Postponing Permanent Treatment 9
Mitigation for Loss 9
Federal Government Responsibility for Rehabilitation 9
Loss of Service Bridge Access 9
Loss of Historic Resources 9
Security Concerns 10
Pedestrian Access 10
Protection of Liberty State Park's Natural, Recreational, and Scenic Resources 10
Bridge as an Intrusion 10

IMPACT TOPICS ANALYZED 10

Historic Architectural Resources 10
Cultural Landscape 10
Archeological Resources 10
Geologic Resources and Soils 11
Marine Sediments 11
Floodplains 11
Vegetation / Threatened or Endangered Plants 11
Fish 11
Wildlife / Threatened or Endangered Wildlife 11
Surface Water 11
Groundwater 11
Air Quality 11
Noise 11
Hazardous Materials 11
Tourism 12
Park Administration 12
Access to Ellis Island 12

Access to Ferry Terminals 12
Parking 12
Circulation 12
Visitor Experience 12
Ellis Island Infrastructure 12
IMPACT TOPICS DISMISSED 12
Museum Collections 12
Wetlands 12
Land Use 12
Environmental Justice 13
Population 13
RELATIONSHIP TO OTHER PLANS AND POLICIES 14
BACKGROUND 14
1982 General Management Plan 14
Updated General Management Plan 14
Internal Draft Environmental Impact Statement, Ellis Island Bridge and Access Alternatives, Statue of Liberty and Ellis Island, August 25, 1995 14
Governors Island National Monument 15
National Parks of New York Harbor Initiative 15
Restoration of the Ferry Building and the Hospital Outbuilding and Laundry 15
Ferry Passenger Security Screening Facilities at the Battery in Manhattan and Liberty State Park in New Jersey 16
Stabilization Planning 16
Utility Infrastructure Planning 16
Seawall Rehabilitation 16
Liberty State Park Transportation Master Plan Update 16

ALTERNATIVES

INTRODUCTION 21
RANGE OF ALTERNATIVES 21
MITIGATION MEASURES AND DEVELOPMENT CONSTRAINTS 21
Facility Design 21
Resource Protection 21
IMPLEMENTATION PRIORITIES 22
ALTERNATIVE 1: NO ACTION — CONTINUATION OF EXISTING MANAGEMENT DIRECTION 23
GENERAL CONCEPT 23
The Later Years 23

Visitor Experiences and Uses 23
Management and Operations 24
Access 24
Costs 24
Summary 24
ELEMENTS COMMON TO ALTERNATIVES 2 AND 3 29
VISITOR EXPERIENCES AND USES 29
Interpretation 29
Cultural/Educational 29
Dining/Food Service 29
MANAGEMENT AND OPERATIONS 30
Utility Infrastructure 30
Increased Security 30
ACCESS 30
Service Bridge for Operations and Emergencies 30
COSTS 31
ALTERNATIVE 2: ELLIS ISLAND PARTNERS — DAY USE ONLY 32
GENERAL CONCEPT 32
Visitor Experiences and Uses 32
Management and Operations 32
Access 35
Costs 35
Summary 35
ALTERNATIVE 3: ELLIS ISLAND INSTITUTE WITH OVERNIGHT ACCOMMODATIONS (PREFERRED ALTERNATIVE) 36
GENERAL CONCEPT 36
Visitor Experiences and Uses 36
Management and Operations 39
Access 39
Costs 39
Summary 40
ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION 40
Substantial New Construction 40
Demolition 40
Dominant Retail or Commercial Office Uses 40
Pedestrian Use of Service Bridge 41

AFFECTED ENVIRONMENT

INTRODUCTION 57
HISTORIC SIGNIFICANCE OF ELLIS ISLAND 57
LAND USE 58
On-Site Uses 58
Liberty State Park 58
Grand Jersey Medical Center 59
Jersey City 59
POPULATION 59
State of New Jersey 59
Hudson County 59
Jersey City 59
New York County 60
ENVIRONMENTAL JUSTICE 60
AFFECTED ENVIRONMENT 61
CULTURAL RESOURCES 61
Regional Environment 61
Environment within the Project Area 62
Historic Architectural Resources 63
Defining Architectural Characteristics 64
CULTURAL LANDSCAPE 65
Defining Characteristics 66
ARCHEOLOGICAL RESOURCES 67
Terrestrial Archeological Resources 67
Marine Archeological Resources 68
MUSEUM RESOURCES 68
NATURAL RESOURCES 70
GEOLOGIC RESOURCES AND SOILS 70
MARINE SEDIMENTS 70
FLOODPLAINS 71
VEGETATION 71
Threatened and Endangered Plant Species 72
FISH 72
Threatened and Endangered Fish Species 72

WILDLIFE 73
New Jersey Threatened and Endangered Wildlife Species....73
SURFACE WATER 74
GROUNDWATER 75
AIR QUALITY 75
Criteria Pollutants 75
NOISE 76
HAZARDOUS MATERIALS 76
Historic Fill 77
Marine Sediments 78
Building Materials 78
Above-Ground Storage Tanks 78
SOCIAL AND ECONOMIC ENVIRONMENT 79
TOURISM 79
CONCESSIONS 79
CURRENT VISITOR EXPERIENCE 80
PARK ADMINISTRATION 80
TRANSPORTATION AND CIRCULATION 82
ACCESS TO ELLIS ISLAND 82
Temporary Service Bridge Access 82
Ferry Access 82
Battery Park Ferry Service 82
Liberty State Park Ferry Service 82
CIRCULATION AND ACCESS TO LIBERTY PARK TERMINAL 83
Access from Highways 83
Access from Adjacent Roadways 83
New Jersey Area Ferry and Light Rail Access 84
PARKING FACILITIES 84
Ellis Island 84
Liberty State Park 84
Nearby Parking Facilities 84
CIRCULATION 85
ELLIS ISLAND INFRASTRUCTURE 86
STABILIZATION IMPROVEMENT 86
UTILITIES 86

PLUMBING SYSTEMS 86
Domestic Water 86
Fire Protection 87
Sewage Disposal 87
Storm Sewers 87
ELECTRIC AND FUEL SERVICE 87
Electrical Power 87
Standby Electrical Power Generation 88
Natural Gas 88
Fuel Oil 88
MECHANICAL SYSTEMS 88
Central Chilled-Water Plant 88
Central Heating Plant 88

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION 93
OVERARCHING LAWS AND POLICIES 93
CUMULATIVE IMPACTS 93
METHODOLOGY FOR ANALYZING IMPACTS 94
CULTURAL RESOURCES 94
Historic Architectural Resources, Cultural Landscapes 94
Archeological Resources 94
NATURAL RESOURCES 95
Geologic Resources, Soils, and Marine Sediments 95
Floodplains 95
Vegetation / Threatened and Endangered Plant Species 95
Fish 96
Wildlife / Threatened and Endangered Wildlife Species 96
Water Resources 96
Air Quality 97
Noise 97
Hazardous Materials 98
SOCIAL AND ECONOMIC ENVIRONMENT 98
TRANSPORTATION AND CIRCULATION 99
VISITOR EXPERIENCE 99
ELLIS ISLAND INFRASTRUCTURE 100

Site Utilities 100
REGULATIONS AND POLICIES 101
CULTURAL RESOURCES 101
NATURAL RESOURCES 102
Geologic Resources, Soils, and Marine Sediments 102
Floodplains 102
Vegetation / Threatened and Endangered Plant Species 102
Fish 102
Wildlife / Threatened and Endangered Wildlife Species 102
Water Resources 103
Air Quality 103
Noise 103
Hazardous Materials 103
SOCIAL AND ECONOMIC ENVIRONMENT 104
TRANSPORTATION AND CIRCULATION 104
VISITOR EXPERIENCE 104
ELLIS ISLAND INFRASTRUCTURE 104
IMPACTS OF ALTERNATIVE 1: NO ACTION — CONTINUATION OF EXISTING MANAGEMENT DIRECTION 105
CULTURAL RESOURCES 105
Historic Architectural Resources 105
Cultural Landscape 105
Archeological Resources 107
NATURAL RESOURCES 107
Geologic Resources and Soils 107
Marine Sediments 108
Floodplains 108
Vegetation / Threatened and Endangered Plant Species 108
Fish 109
Wildlife / Threatened and Endangered Wildlife Species 109
Surface Water 110
Groundwater 111
Air Quality 111
Noise 111
Hazardous Materials 111
SOCIAL AND ECONOMIC ENVIRONMENT 112
Tourism 112

Park Administration....112
TRANSPORTATION AND CIRCULATION....113
Access to Ellis Island....113
Access to Ferry Terminals....113
Parking....113
Circulation....113
VISITOR EXPERIENCE....114
ELLIS ISLAND INFRASTRUCTURE....114
SECTIONS REQUIRED UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT....115
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES....115
LOSS IN LONG-TERM AVAILABILITY OR PRODUCTIVITY OF RESOURCES TO ACHIEVE SHORT-TERM GAIN....115
UNAVOIDABLE ADVERSE IMPACTS....115
IMPACTS OF ALTERNATIVE 2: ELLIS ISLAND PARTNERS — DAY USE ONLY....116
CULTURAL RESOURCES....116
Historic Architectural Resources....116
Cultural Landscape....116
Archeological Resources....118
NATURAL RESOURCES....119
Geologic Resources and Soils....119
Marine Sediments....120
Floodplains....120
Vegetation / Threatened and Endangered Plant Species....120
Fish....121
Wildlife / Threatened and Endangered Wildlife Species....122
Surface Water....123
Groundwater....124
Air Quality....124
Noise....125
Hazardous Materials....125
SOCIAL AND ECONOMIC ENVIRONMENT....126
Tourism....126
Park Administration....127
TRANSPORTATION AND CIRCULATION....127
Access to Ellis Island....127
Access to Ferry Terminals....128
Parking....128

Circulation 128
VISITOR EXPERIENCE 129
ELLIS ISLAND INFRASTRUCTURE 130
SECTIONS REQUIRED UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT 131
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES 131
LOSS IN LONG-TERM AVAILABILITY OR PRODUCTIVITY OF THE RESOURCES TO ACHIEVE SHORT-TERM GAIN 131
UNAVOIDABLE ADVERSE IMPACTS 131
IMPACTS OF ALTERNATIVE 3: ELLIS ISLAND INSTITUTE WITH OVERNIGHT ACCOMMODATIONS (PREFERRED ALTERNATIVE) 132
CULTURAL RESOURCES 132
Historic Architectural Resources 132
Cultural Landscapes 132
Archeological Resources 133
NATURAL RESOURCES 133
Geologic Resources and Soils 133
Marine Sediments 133
Floodplains 134
Vegetation / Threatened and Endangered Plant Species 134
Fish 134
Wildlife / Threatened and Endangered Wildlife Species 135
Surface Water 135
Groundwater 136
Air Quality 136
Noise 136
Hazardous Materials 136
SOCIAL AND ECONOMIC ENVIRONMENT 137
Tourism 137
Park Administration 137
TRANSPORTATION AND CIRCULATION 138
Access to Ellis Island 138
Access to Ferry Terminals 138
Parking 138
Circulation 138
VISITOR EXPERIENCE 139
ELLIS ISLAND INFRASTRUCTURE 139
SECTIONS REQUIRED UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT 140

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES....140

LOSS IN LONG-TERM AVAILABILITY OR PRODUCTIVITY OF THE RESOURCES TO ACHIEVE SHORT-TERM GAIN....140

UNAVOIDABLE ADVERSE IMPACTS....140

CONSULTATION AND COORDINATION

HISTORY OF PUBLIC INVOLVEMENT....143

SCOPING PROCESS AND PUBLIC MEETINGS....143

Public Scoping Forums....143

Alternatives Analysis Workshop....144

PUBLIC NOTIFICATION....145

AGENCIES AND ORGANIZATIONS PARTICIPATING DURING THE SCOPING PROCESS....146

MAILING LIST....146

Federal Agencies....146

State of New Jersey....146

State of New York....146

Elected Officials....147

City and County Agencies....147

LIST OF PREPARERS AND CONTRIBUTORS....148

National Park Service....148

Beyer Blinder Belle Architects & Planners LLP....149

Robert Silman Associates....149

Dewberry-Goodkind, Inc.....149

Sedway Group....149

APPENDIXES

APPENDIX A: SCOPING MEETINGS SUMMARY FOR THE DEVELOPMENT CONCEPT PLAN / DRAFT ENVIRONMENTAL IMPACT STATEMENT....153

APPENDIX B: LETTERS TO STATE HISTORIC PRESERVATION OFFICES AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION....158

APPENDIX C: DRAFT ANALYSIS OF RELATIVE FINANCIAL FEASIBILITY AND ECONOMIC SUSTAINABILITY OF EIS ALTERNATIVES....161

APPENDIX D: DRAFT PROGRAMMATIC AGREEMENT....187

APPENDIX E: LETTER FROM NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SPECIES LIST....198

REFERENCES

REFERENCES 231

FIGURES

1: Region and Vicinity Plan 4

2: Alternative 1, No Action — the Early Years 25

3: Alternative 1, No Action — the Later Years 27

4: Ellis Island Partners — Day Use Only 33

5: Ellis Island Institute with Overnight Accommodations 37

TABLES

1: Features of the Alternatives 42

2: Impact Summary Chart 47

3: Purpose and Objectives of Taking Action and the Means by Which Each Alternative Meets Them 52

Purpose of and Need for the Action

INTRODUCTION

The National Park Service (NPS) proposes in this *Development Concept Plan / Draft Environmental Impact Statement* to adaptively reuse the 30 remaining vacant and deteriorating buildings of Ellis Island. This document describes how buildings, utilities, and landscaping would be restored or rehabilitated under each alternative. The combination of these scenarios for the 30 buildings is referred to as a "development concept plan," or "site development plan."

This environmental impact statement also analyzes, in a more programmatic or broad-scale way, options for continuing to transport materials, supplies, and park staff and provide for emergency service to the island, which now takes place by way of a service bridge between Liberty State Park in New Jersey and Ellis Island. The bridge was originally intended as a temporary structure for transport of materials used during restoration of the Main Immigration Building. Alternative 1 (no action) contemplates bridge removal, with transport of materials, supplies, staff, and emergency personnel by ferry or barge. Alternatives 2 and 3 propose the replacement of the existing temporary bridge with a permanent service bridge. Because the analysis of access is programmatic in this environmental impact statement, the National Park Service anticipates a future additional environmental impact statement or environmental assessment to further analyze site-specific impacts and gather public input on a permanent service bridge if either alternative 2 or 3 is selected.

Over the past several years, concerned individuals, civic groups, and preservation organizations have brought national attention to the perilous condition of Ellis Island's many long-vacant, deteriorating buildings. There is wide consensus that these buildings will be lost unless appropriate reuses for them can be found. This *Development Concept Plan / Draft Environmental Impact Statement* signals the NPS intent to seek the active participation of one or more partners to rehabilitate and revitalize this campus of historically significant and architecturally distinctive buildings and to do so in a manner that is consistent with the goals and principals set forth in this document and the NPS 1982 *Statute of Liberty National Monument General Management* (NPS 1982).

BRIEF HISTORY OF ELLIS ISLAND

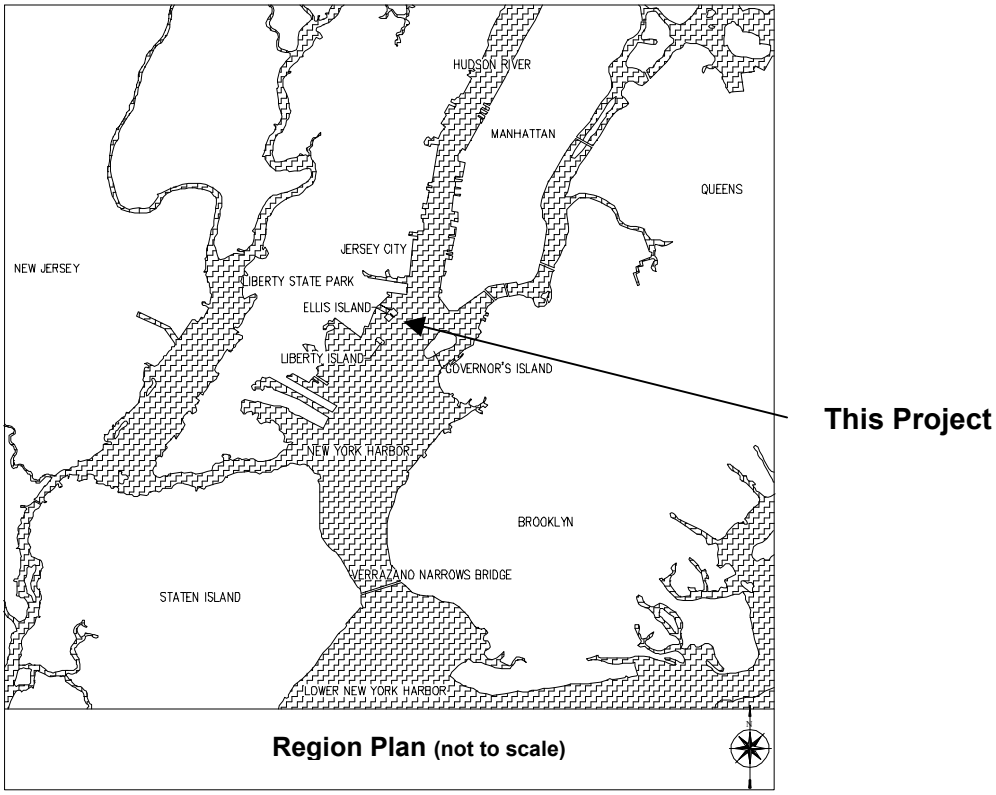
Ellis Island, a small island in New York Harbor, is located in the upper bay just off the New Jersey coast, within the shadow of the Statue of Liberty (see "Figure 1: Region and Vicinity Plan"). Both it and the Statue of Liberty are managed by the National Park Service as part of the Statue of Liberty National Monument. The primary historic significance of Ellis Island is its use as an immigration station; from 1892 to 1954, over 12 million immigrants entered the United States through the portal of Ellis Island.

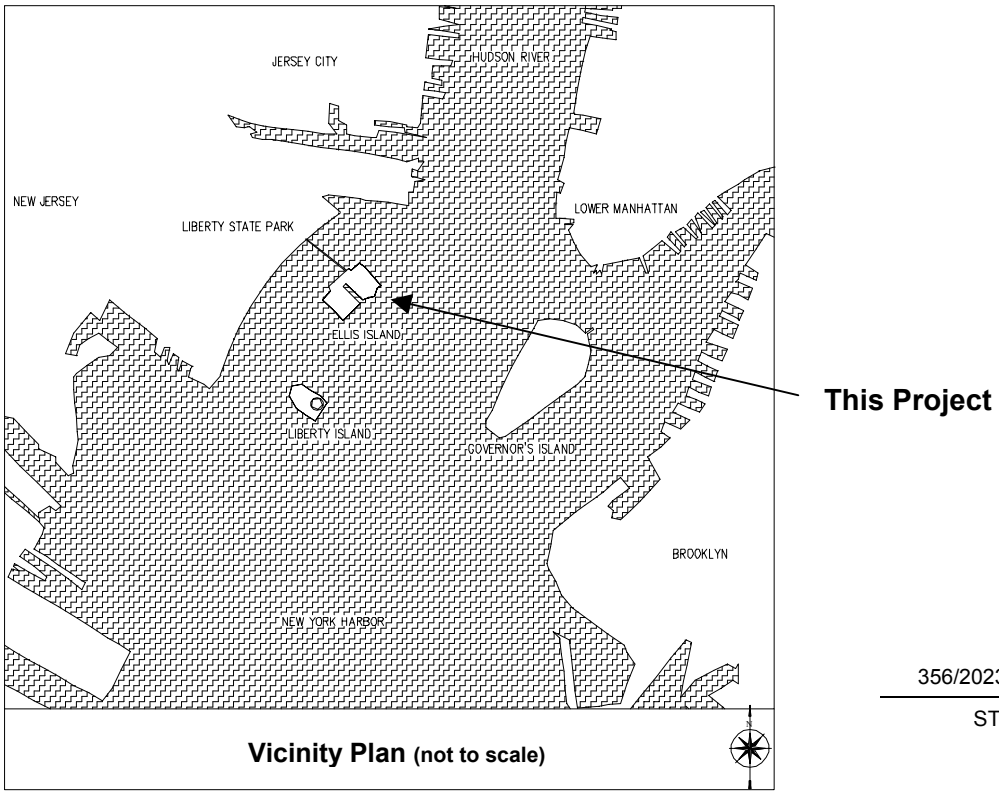
The Dutch purchased the 3-acre island from the Delaware Nation in 1630 to reward Michael Paaw (Paw) for shipping goods to the emerging colony. Its present name is derived from Samuel Ellis, who had come into possession of the island by 1785. From the time of the Dutch purchase through several centuries, Ellis Island has played many roles in American History.

During 1794 serious threat of war with France and Great Britain forced the state of New York to secure Ellis Island as part of its harbor defense system to deter a naval attack, and earthworks were built on the island. In the years preceding the War of 1812, additional fortification was constructed, including Fort Wood on Bedloe's Island, Castle William and Fort Jay on Governors Island, and the West Battery at the southern tip of Manhattan (now Castle Clinton National Monument). Shortly before the War of 1812, a battery of 20 guns, a magazine, and a barracks were constructed on Ellis Island and named Fort Gibson. In 1861, as the Civil War began, Fort Gibson was dismantled, and a naval powder magazine was established in its place.

In 1890 the federal government assumed full responsibility for the reception of immigrants at the Port of New York. On April 11, 1890, Congress decided to remove the naval powder magazine operation from Ellis Island and appropriated $75,000 to enable the secretary of the treasury to improve Ellis Island for use as a federal immigration station.

On January 1, 1892, the immigration station on Ellis Island was formally opened to process steerage passengers. (First and second cabin passengers were processed on board ship and disembarked directly in





356/20236	356
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FIGURE 1: REGION AND VICINITY PLAN

Manhattan.) At a cost of some $500,000, the new immigration station consisted of a large two-story processing building, separate hospital facilities, laundry, and utility plant, all constructed of wood. In addition, parts of Fort Gibson and naval magazines were converted for use as detainees' dormitories and other station purposes. Landfill was used to enlarge the site to approximately double its original 3.3-acre size. Landfilling continued by the federal government to increase the size of Ellis Island to 14 acres in 1897. This portion of Ellis Island is known as the north side of Ellis Island or "Island 1."

On June 15, 1897, the island's buildings were virtually destroyed by fire, and later that year, Congress authorized funds for new fireproof facilities at Ellis Island. A contract was awarded to the Broadway firm of Boring & Tilton to design the new brick and ironwork structures. This was the first important government building to be designed by private architects under competition mandated by the *Tarnsey Act of 1875*. Three years later, on December 17, 1900, the new Ellis Island immigration station was opened. At a cost of some $1.5 million, the new station complex featured an impressive French "Beaux-Arts" Renaissance-style brick structure laid in Flemish bond with limestone trim. By 1899 a second 3-acre "island," or extension of Ellis to the southwest, was created from fill to house a new hospital complex. "Island 2" was separated from Island 1 by a ferry slip and was completed in 1901. The placement of still more fill between 1903 and 1906 created a 4.75-acre "Island 3" to the southwest of Island 2. It was separated by a ferry dock basin (later filled) and housed a contagious disease hospital complex opened for use in 1911. Filling the dock basin and adding another approximately 3 acres of fill to various parts of the island created the 27.5-acre Ellis Island of today. Islands 2 and 3 are referred to as the "south side" of Ellis Island, and as noted above, the northern 14 acres are known as the "north side."

When the United States entered World War I on April 6, 1917, the Ellis Island facilities were used to hold German merchant ship crews in custody while their ships remained anchored in New York Harbor. Numerous suspected enemy aliens throughout the nation were also rounded up and brought to Ellis Island for incarceration. Between 1918 and 1919 the U.S. Army and Navy took over the Main Building, the Baggage and Dormitory Building, and the Hospital Complex on Islands 2 and 3 for use as a way station and treatment of returning sick and wounded American servicemen.

Following the war, the aging and neglected facilities at Ellis Island were reopened for immigrant inspection in 1920. Postwar immigration quickly revived with 560,971 immigrants passing through Ellis Island in 1921. The *Immigration Act of 1924* had a significant impact on the operation of Ellis Island by placing an annual limit on the number of permitted immigrants. Under this law, regular immigration processing was transferred to the United States consulates abroad for processing before coming to the United States. Immigrants were sent to Ellis Island only when their papers were not in order, their status was questioned, or they required medical treatment. Accordingly, the buildings at Ellis Island slowly fell into disuse and disrepair.

In the 1930s, in response to a growing sentiment for humanizing the conditions under which detainees were kept, some improvements were made. The Public Works Administration (WPA) funded further landfilling on Ellis Island, creating recreation grounds on the Manhattan side of the Main Building. Other new playgrounds and gardens were constructed and maintained through WPA labor, including the filled area between Islands 2 and 3. Between 1934 and 1935 the Baggage and Dormitory Building was remodeled to allow better segregation of the different classes of deportees.

After World War II erupted in Europe in September 1939, the U.S. Coast Guard occupied the Immigration Building, Ferry House, and ground floor of the Baggage and Dormitory Building to house and train recruits to patrol the region's waters. In 1940 the Immigration and Naturalization Service was transferred from the Department of Labor to the Department of Justice, symbolic of the fact that immigrants had come to be considered primarily as potential threats to our national security. After the United States entered the war in December 1941, Ellis Island was again used as a hospital for returning wounded servicemen.

Following the decommissioning of the Coast Guard station in 1946, Ellis Island remained in use primarily as a detention center for aliens whose status was questioned. In 1951 the United States Public Health Service closed the Hospital Complex on the island. As a result of the *Immigration and Naturalization Act of 1952* and a liberalized detention policy in 1954, the number of detainees on Ellis Island dropped to less than 30. The Ellis Island facility, consisting of some 40 structures, was closed as an immigration station in 1954 and declared surplus federal property by the General Services Administration.

Over the next decade, all of the structures remained vacant and in a state of deterioration. In 1965—in recognition of its importance to the country's heritage and the need for its preservation—President Lyndon Johnson declared Ellis Island part of the Statue of Liberty National Monument. Between 1976 and 1984, Ellis Island was opened to the public, but only on a limited basis. Because it was part of a national monument, the island's control and maintenance became the responsibility of the National Park Service; however, no funds were appropriated for upkeep or rehabilitation. A few resource studies and planning activities were conducted during the 1970s, and limited funds were appropriated for emergency repairs in 1976. Over this period, the National Park Service was able to maintain only a minimal security presence on the island while the buildings continued to deteriorate.

RECENT ADMINISTRATIVE HISTORY

The current trend toward rehabilitating the buildings on Ellis Island began with preparation for the centennial—the 100th anniversaries of the Statue of Liberty and Ellis Island—which started as early as 1979. The National Park Service created a planning team to explore possible management, rehabilitation, and development alternatives for the Statue of Liberty. With the approaching centennial, national attention focused on the need for restoration of the Statue of Liberty. Ellis Island ultimately benefited from its proximity and thematic connection with the Statue, because the 1980 *Analysis of Alternatives for the General Management Plan* (NPS 1980) that was prepared by the planning team also included Ellis Island.

In 1982 the National Park Service completed the *Statute of Liberty National Monument General Management Plan* (NPS 1982), which focused primarily on Ellis Island. The plan proposed that the Main Immigration Building would be rehabilitated to become the Immigration Museum. The adjacent Kitchen and Laundry Buildings would also be rehabilitated and used for administrative functions. These improvements were subsequently accomplished through a partnership between the National Park Service and the Statue of Liberty-Ellis Island Foundation, Inc. The Main Building was reopened to the public on September 10, 1990, as the Ellis Island Immigration Museum. Over 20 million people have visited the Museum since it opened. In 2002 the museum received almost 1.5 million visitors.

The 1982 *General Management Plan* also determined that the Baggage and Dormitory Building and the entire Hospital Complex were surplus to the operational and interpretive needs of the National Park Service and proposed that a private development partner be found to assist in rehabilitation and adaptive reuse of these buildings.

In 1982 the Park Service issued a Request for Proposals as a means of gathering ideas for development and rehabilitation. A developer selected by the Park Service proposed that an international conference center be established on Ellis Island. After several years of negotiations, the secretary of the interior agreed to a plan that preserved most of the buildings on the island. In 1988 an agreement to lease was signed by the secretary, and in 1992, the developer submitted more detailed plans. Reaction to these plans included major concerns raised by the preservation community regarding the proposed demolition of certain structures. The subsequent controversy, combined with a weakening economy, resulted in the developer's eventual withdrawal from the lease agreement.

By the mid-1990s public attention again focused on the continued deterioration of the many unoccupied buildings of Ellis Island. The World Monuments Fund, the National Trust for Historic Preservation, the New York Landmarks Conservancy, and other preservation organizations focused national attention on the imperiled condition of the buildings.

During this same period, the U.S. Supreme Court settled the long-standing jurisdictional dispute on Ellis Island between the states of New York and New Jersey. The court granted the state of New Jersey sovereignty over 22.5 of the island's 27.5 acres. Following the decision, the governor of New Jersey appointed an Advisory Committee on the Preservation and Reuse of Ellis Island. The deliberations and final report of that committee contributed significantly to the growing public awareness of the need for action. To further focus attention on the issue, a new nonprofit organization called Save Ellis Island! Inc. was established to raise funds to preserve the remaining buildings on Ellis Island. In 2001 the National Park Service signed a major fundraising agreement with Save Ellis Island! Inc.

Through the cooperative efforts of federal, New Jersey State, Save Ellis Island! Inc., and private efforts, a program of building stabilization is now underway. When completed, this effort will stem

further deterioration for a period of approximately 10 to 15 years. At the time of this writing, stabilization has been completed on Island 2, and stabilization plans are currently being designed for Island 3 and the Baggage and Dormitory Building on Island 1. Stabilization for all the buildings is targeted for completion by mid-2004.

This new public-private partnership has also resulted in the restoration of the exteriors of two additional buildings: the Ferry Building and the Hospital Outbuilding and Laundry. Work on rehabilitation of the Ferry Building interior and associated corridor is expected to begin in mid-2003. Other important work now underway relates to planning and improvements to the utility infrastructure for the south side and rehabilitation of the Ellis Island seawall.

Other recent activities at Ellis Island include those put in place after September 11, 2001. The National Park Service closed the Statue of Liberty National Monument and Ellis Island after September 11 to strengthen security elements of the park's operation and put key security measures into place. The park reopened to the public on December 20, 2001, and continues to consider the enhancement of security procedures in the park as a top priority.

PURPOSE OF AND NEED FOR THE ACTION

The same coalition of public and private interests that motivated the building stabilization program recognizes that stabilization is only a short-term tactic, and a long-term solution to securing the island's future must still be identified. To be viable, a balanced approach must be found that is compatible with the objectives of historic preservation and acknowledges the economic realities that have stood in the way of previous efforts to adaptively reuse the buildings.

Part of the long-term solution must also address the question of access to Ellis Island. The public comes to Ellis Island by concession-managed ferries from Battery Park in Lower Manhattan and from Liberty State Park in Jersey City, New Jersey. Service and maintenance vehicles access Ellis Island via a temporary service bridge that was constructed in the 1980s to facilitate restoration of the Main Building. The bridge has existed long beyond its intended life span. A project to stabilize the bridge was completed in fall 2002 to enable continued use for park operations and emergencies; this work will extend the life of the bridge for about 10 years.

The purpose of this *Development Concept Plan* is to provide for the long-term rehabilitation, reuse, and protection of cultural and historic resources on Ellis Island. This statement is consistent with the 1982 *General Management Plan*. In addition, several more specific objectives for this *Development Concept Plan* were developed using the framework of the 1982 *General Management Plan* to better reflect current conditions.

The objectives listed below were used by NPS staff to help determine the appropriate range of alternatives to analyze in this environmental impact statement. If an alternative did not meet the above-stated purpose and the objectives to a large degree, it was considered to be unreasonable (see the "Alternatives" chapter for more information). The NPS objectives are to

- protect the island's cultural and natural resources
- provide for the long-term rehabilitation and adaptive reuse of the island's Beaux-Arts campus of integrated brick, stucco, and tile structures with connecting corridors of masonry and glass, within a designed landscape of lawn and mature trees
- provide uses that complement the island's historic themes and related contemporary issues and that can be economically sustained
- provide enhanced opportunities for visitors to understand and experience Ellis Island's history, including managed public access to most of the island's cultural landscape
- provide a high level of security and safety for the visitors, staff, and resources of Ellis and Liberty Islands, and the ability to respond quickly in emergency situations
- provide thematically appropriate, safe, and economically viable access to and from the island in support of its adaptive reuse and security requirements

The statement of purpose and these objectives will be incorporated in an updated general management plan for the Statue of Liberty National Monument and Ellis Island that will be initiated in 2003.

CONSTRAINTS

The National Park Service is prohibited by a set of laws, regulations, and policies from taking certain actions. For example, the NPS *Organic Act of 1916* prohibits the Park Service from taking or continuing actions that would impair any park resource or value, and particularly those resources or values for which the park was created.

The *National Environmental Policy Act* (NEPA) requires federal agencies to consider all environmental impacts of a proposed action, including impacts to cultural resources. This *Development Concept Plan / Draft Environmental Impact Statement*, with the scoping and review of this draft document by the interested and affected public, fulfills the requirements of the *National Environmental Policy Act*.

Section 106 of the *National Historic Preservation Act* requires federal agencies to take into account the effects of a proposed action on historic properties. This means that federal agencies must make a responsible effort to identify properties listed on or eligible for the National Register of Historic Places that may be affected by an action and to determine the impacts that an action may have on such properties. The information on cultural resources contained in this environmental impact statement is presented to help fulfill these requirements.

Security — The National Park Service is constrained in its operation and management of the Statue of Liberty National Monument and Ellis Island by security concerns that have been brought into focus by the events of September 11, 2001. Symbols of American values are considered high-profile targets for future terrorist attacks, and in response to these possible threats, improvements to the security elements of park operations are being implemented with advice and consultation from security experts from the public and private sector. Nearly all aspects of NPS operations, as well as those of park concessioners, partners, and contractors, have been altered by an increased awareness of security issues. Access is of particular concern, although within the context of increased security, the National Park Service remains committed to maintaining public access to the Statue of Liberty National Monument and Ellis Island. Currently, access to the park is being intensely managed, and actions have been implemented to ensure a high level of security at all entry points to the park. Some measures, such as airport-type screening of all passengers before boarding ferries, are readily apparent to visitors, while others are not. In addition, for the purposes of this environmental impact statement, some management options that might have been feasible in the past are now considered to pose unacceptable security risks. For example, the introduction of a new location for general public entry, such as a pedestrian bridge to Ellis Island, was considered but deemed infeasible from a security point of view.

ISSUES AND IMPACT TOPICS

Issues are problems raised by the public and National Park Service or other agency staff that are thought to need resolution through the current planning process. In the case of this *Development Concept Plan / Draft Environmental Impact Statement*, the public was involved through scoping. A summary of the specific scoping activities is available in the "Consultation and Coordination" chapter. Also, see appendix A for a summary of the scoping meetings and appendix B for copies of the NPS letters to the New York and New Jersey State Historic Preservation Offices and the Advisory Council on Historic Preservation.

The following section summarizes major planning issues and environmental impact topics that have come from these scoping activities.

ISSUES RAISED BY SCOPING

LOSS OF CULTURAL RESOURCES

Many members of the public, as well as the National Park Service (as explained above), are concerned that stabilization of the buildings on Ellis Island was only intended as a temporary solution, and the process of deterioration would continue as soon as stabilization work has been completed, resulting in the eventual loss of the buildings. This planning issue is a central component of the NPS need for action.

COSTS OF POSTPONING PERMANENT TREATMENT

Delaying a permanent solution to the deterioration of buildings on Ellis Island could increase costs. This is because the buildings would need to be stabilized in the interim, yet stabilization would not offset the ultimate cost of permanent rehabilitation. Stabilization only lasts 10 to 15 years; without a long term solution available, it would need to be repeated to prevent the loss of the historic resource. At the extreme, the "cost" of postponing treatment could be the eventual loss of the resources themselves. However, if a permanent treatment alternative is implemented sooner rather than later, interim stabilization costs, and the chances the buildings would be lost, would be minimized.

MITIGATION FOR LOSS

If treatment beyond stabilization is not possible, the loss of the historic resources may be potentially mitigated by means of building documentation, interpretive programs, and displays. These are standard mitigation measures for the loss of cultural resources, and would be used if the no-action alternative were adopted.

FEDERAL GOVERNMENT RESPONSIBILITY FOR REHABILITATION

Some commenters expressed the view that the federal government and congress should be responsible for providing funding to protect these historic resources. Alternative 2 gives the federal government, through the National Park Service, a major role in funding the rehabilitation. Because overall costs are so high in relation to the entire annual NPS budget for construction, philanthropic donations would be used in this alternative as a supplemental source of funds. Both action alternatives include a federal role in funding the costs of providing utility infrastructure for the south side and increasing the park's operating base.

LOSS OF SERVICE BRIDGE ACCESS

The loss of the bridge would result in increased safety and security concerns due to lack of access for emergency equipment and the inability to transport visitors and employees off Ellis Island during natural disasters, fire, medical emergencies, or other circumstances requiring evacuation. The loss of the bridge and vehicular service access to Ellis Island prior to completion of the rehabilitation would substantially increase rehabilitation costs and adversely impact the overall feasibility of adaptive reuse of the island's vacant buildings. These factors are analyzed for the no-action and action alternatives in this environmental impact statement.

LOSS OF HISTORIC RESOURCES

Some commenters indicated concern regarding demolition and new construction of buildings. The National Park Service determined that only small-

scale dismantling would be considered part of the action alternatives, as impacts to the cultural landscape from large-scale changes to the buildings would violate the purpose and objectives in the 1982 *General Management Plan*.

SECURITY CONCERNS

Security is an ongoing concern for this and other national parks regardless of the means by which visitors access them. Jitney or other authorized vehicular access for the public, retreat attendees, and/or lodging guests via the service bridge would all raise security concerns. These concerns are addressed in the action alternatives through measures such as limiting access, using gated entries, and/or expanding NPS screening at the entry point of the bridge.

PEDESTRIAN ACCESS

Some commenters indicated their desire for a bridge allowing pedestrian access to Ellis Island, while others raised concerns that, if pedestrian access were allowed, Liberty State Park would function as a parking lot for the Statue of Liberty and Ellis Island. The need for pedestrian access may be driven by the desire to have more "affordable" access to the island. The cost of ferry service is perceived to prevent some low- and moderate-income people from visiting the island. However, a pedestrian bridge has been eliminated from detailed analysis in this environmental impact statement because of the increased security risk it poses, particularly in the aftermath of the September 11, 2001, terrorist attacks. Mitigation measures to provide additional opportunities for low- and moderate-income visitors to experience the island would be put in place and are described in the action alternatives. These measures include subsidies of the cost of ferry trips and other programmatic solutions.

PROTECTION OF LIBERTY STATE PARK'S NATURAL, RECREATIONAL, AND SCENIC RESOURCES

Some commenters expressed their hopes for the continued restoration and protection of Liberty State Park lands. They raised concerns that the park not be perceived simply as a parking lot for visitors traveling to the Statue of Liberty National Monument and Ellis Island. Others raised concerns about the present location of the service bridge landing in the state park. These concerns are analyzed in the action and no-action alternatives; mitigation measures would be further addressed in the subsequent design of a permanent bridge should one of the action alternatives be implemented.

BRIDGE AS AN INTRUSION

Some commenters indicated the temporary service bridge is an intrusion upon the island's cultural landscape and should be permanently removed. Alternative 1 (no action) includes the permanent removal of the bridge, and alternatives 2 and 3 include analysis of this concern as an impact topic.

IMPACT TOPICS ANALYZED

The following section identifies topics carried forward as part of the impacts analysis.

HISTORIC ARCHITECTURAL RESOURCES

The impacts to several features of the buildings on Ellis Island from the actions proposed in each alternative are analyzed. These include massing and scale, building materials, fenestration, corridor systems, stairwells, and interior spaces and features.

CULTURAL LANDSCAPE

The cultural landscape of the island includes how the combination of buildings, landscaping, roads, or paths present themselves. This environmental impact statement analyzes spatial organization, or the "campus feel" of the immigration station, clustering of buildings, and open spaces between buildings; the circulation, including covered corridors and historic walkways; and vegetation patterns and historic trees.

ARCHEOLOGICAL RESOURCES

Buried historic or prehistoric resources are present both on the island and underwater just off the coast of the island. Bridge removal, construction, or the rehabilitation of structures on Ellis Island could involve grading or excavating soils in which these resources may be present.

GEOLOGIC RESOURCES AND SOILS

The alternatives include proposals to remove the existing bridge, build a permanent bridge, and/or grade staging areas and access roads. All of these could remove soils, although none are expected to affect bedrock.

MARINE SEDIMENTS

Bridge removal and construction would involve work in the channel, which could disturb marine sediments.

FLOODPLAINS

A section of Liberty State Park, where one side of the temporary service bridge connects, is vulnerable to flooding and protected by a floodwall. Removing the temporary bridge would require that a space in the wall be sealed and flood protection increased.

VEGETATION / THREATENED OR ENDANGERED PLANTS

Vegetation would be removed to grade areas for bridge landings, staging areas, and access roads. In addition, two protected plant species that grow in courtyards on Ellis Island would be removed to restore landscaping to that more associated with the cultural value of the island.

FISH

Work in the channel between Ellis Island and Liberty State Park would directly disturb and displace fish and would increase turbidity and mobilize marine sediments. The sediments contain known toxins, such as heavy metals and organics, which could keep fish away from the area or harm aquatic life during and for a period of time following construction of the bridge.

WILDLIFE / THREATENED OR ENDANGERED WILDLIFE

Wildlife could be disturbed and displaced by construction noise and could be permanently affected by the removal of habitat or presence of traffic adjacent to habitat, particularly in Liberty State Park. The protected Savannah sparrow and other year-round resident birds may experience more adverse affects than would seasonal or migratory species.

SURFACE WATER

As noted above, work in the channel to remove the existing bridge and build a new one would increase turbidity and disturb marine sediments, some of which may contain heavy metals or other toxins.

GROUNDWATER

The bridge landing on the New Jersey side could require excavation in an area with high groundwater tables. There is also some small chance that pumping to dewater the groundwater table could result in contamination of the aquifer from seawater or from heavy metals or other toxins.

AIR QUALITY

Increases in vehicles associated with construction or increased visitor use could result in increased emissions of pollutants associated with internal combustion or diesel engines, as well as dust from grading or construction sites.

NOISE

Construction equipment could be quite loud and disturb visitors and wildlife. Construction workers would be less affected because they would wear ear protection.

HAZARDOUS MATERIALS

The fill material and marine sediments in the study area, and particularly in Liberty State Park and the channel between it and Ellis Island have, in some cases, been found to contain dangerous heavy metals and organics such as polychlorinated biphenyls (PCBs), dichlorodiphenyl trichloroethane (DDT), and polycyclic aromatic hydrocarbons (PAH). Building bridge landings, roads, or removing bridge pilings could result in the exposure of workers or visitors to these substances if precautions are not taken.

TOURISM

Tourism could increase at a slightly faster pace if the buildings are restored than if they are not, resulting in increased revenues in New York City and local New Jersey communities.

PARK ADMINISTRATION

Additional park staff would be required to help coordinate with partners, operate facilities, and manage visitors under either action alternative. Emergency services would take longer to provide if no bridge access is available.

ACCESS TO ELLIS ISLAND

Although removing the bridge would not affect current public access, it would require the use of ferries to transport goods and services to administer the park and associated operations.

ACCESS TO FERRY TERMINALS

Roads leading to the ferry terminals in New York and New Jersey may experience increases in traffic, some of which would not be associated with this project but would be cumulative from other sources.

PARKING

As visitation to both Ellis Island and to Liberty State Park increases, demand for parking spaces would also increase. Parking is already limited and, although additional parking has been proposed, it has not been funded.

CIRCULATION

Arriving at either of the ferry terminals involves the use of public or private transportation. The use of private vehicles may contribute to ongoing cumulative impacts from congested roads and intersections.

VISITOR EXPERIENCE

Restoring buildings or the cultural landscape on Ellis Island would increase access to portions of the Island and enhance the overall scope of the visitor experience.

ELLIS ISLAND INFRASTRUCTURE

Some deficiencies in the electrical, plumbing, or other infrastructure on Ellis Island exist, particularly with regard to the buildings that would be restored under the action alternatives. They would be upgraded to accommodate reuse of the restored buildings if alternative 2 or 3 were selected.

IMPACT TOPICS DISMISSED

MUSEUM COLLECTIONS

No impacts to the current museum collections are expected from any of the alternatives. Some of the Ellis Island collection would need to be moved from their existing locations so that buildings, such as the Recreation Hall, could be rehabilitated (see the "Affected Environment" chapter for more information).

WETLANDS

No wetlands occur within the project area, but they do exist in Liberty State Park between Freedom Way and Liberty Walk. No bridge landings, access roads, or other development in this area of the state park are proposed; therefore, no direct impacts to wetlands are expected. Silt fencing or other mitigation would be used to prevent runoff from entering wetlands from construction sites if the wetlands are lower in elevation or would be affected by dust.

LAND USE

Some very small-scale changes in land use may occur as a result of implementing the alternatives, but these changes are better analyzed in other sections. For example, bridge landings are analyzed in soils, vegetation, noise, and wildlife, and restoration of the buildings is discussed in "Cultural Resources" and "Visitor Experience" sections of the "Environmental

Consequences" chapter. Therefore, to avoid overlap, land use as its own section was eliminated.

ENVIRONMENTAL JUSTICE

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations," requires all federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. After some preliminary analysis, no impacts to minority or low-income populations were apparent; thus, the impact topic was dropped. Additional information is presented in the introduction to the "Affected Environment" chapter.

POPULATION

Census information and other statistics were collected for the local counties and region and for the states of New York and New Jersey. However, no impacts to the populations of any of these areas from the activities proposed in this *Development Concept Plan / Draft Environmental Impact Statement* were discernable. Therefore, the impact topic was dropped from further analysis.

RELATIONSHIP TO OTHER PLANS AND POLICIES

BACKGROUND

This section describes the relevant features of other plans, policies, projects, and environmental impact documents that have led to or helped define the purpose, need, and alternatives in this *Development Concept Plan / Draft Environmental Impact Statement*, or which have bearing on impacts evaluated in this document.

1982 GENERAL MANAGEMENT PLAN

In 1982 the *Statue of Liberty National Monument General Management Plan,* which primarily focused on Ellis Island, recognized the need to rehabilitate the historically significant vacant buildings on Ellis Island in order to interpret the immigrant experience of arrival and screening in the United States during the years that Ellis Island served as an immigrant processing facility and hospital. Most of the buildings on the north side of Ellis Island were recommended for rehabilitation and use by the National Park Service for interpretation, visitor services, and administrative use. The balance of the buildings on the island, including all of the south-side buildings comprising the former hospital complex and associated buildings, were to be preserved on the exteriors, and the interior spaces adapted for use by either the National Park Service or a private organization under a lease agreement or concession contract. This *Development Concept Plan / Draft Environmental Impact Statement* is consistent with the goals and intent of the 1982 *General Management Plan*.

UPDATED GENERAL MANAGEMENT PLAN

Work will soon begin on a comprehensive revision and update to the 1982 *General Management Plan*. This effort will take approximately 18 months to complete. The broad purpose of the updated general management plan will be to clearly describe specific resource conditions and visitor experiences to be achieved within the park, and to identify the kinds of management use and development that will be appropriate in achieving and maintaining those conditions. The plan will ensure that this basic foundation for decision making has been developed in consultation with the general public and interested stakeholders and adopted by the NPS leadership after adequate analysis of the economic and environmental costs and benefits of alternative courses of action. The updated general management plan will incorporate the decisions made in this *Development Concept Plan*.

INTERNAL DRAFT ENVIRONMENTAL IMPACT STATEMENT, ELLIS ISLAND BRIDGE AND ACCESS ALTERNATIVES, STATUE OF LIBERTY AND ELLIS ISLAND, AUGUST 25, 1995

In 1992 congress appropriated $15 million for construction of a permanent bridge linking Ellis Island and New Jersey's Liberty State Park, located within Jersey City, New Jersey. In response to this, the National Park Service prepared an internal draft environmental impact statement (NPS 1995a) to consider various access alternatives that responded to the need articulated by Congress and others for affordable access to Ellis Island. At that time, the National Park Service outlined four objectives: (1) preserve Ellis Island and provide for the enjoyment of this resource; (2) preserve and protect the historic, cultural, and natural aspects of the environment; (3) support NPS operations and administration of the park; and (4) maximize the economic efficiency of the transportation system.

The internal draft environmental impact statement fully evaluated these four alternatives:

No-action alternative described the conditions that would exist after the removal of the current temporary service bridge

No-build alternative described conditions similar to the no-action alternative, but included a provision for free ferry service from New Jersey on either one day each week or one day each month

New bridge alternative (the preferred alternative) identified a location and design profile for a new bridge, which would be suitable for pedestrian access

A pedestrian tunnel alternative would provide a tunnel in the bedrock below the harbor.

Public scoping meetings were held in July 1993, and additional meetings with public agencies were held during July and August 1993 to elicit issues and concerns. The draft environmental impact statement was completed on August 25, 1995, for internal NPS review prior to release for public review and comment. During this same period, however, congress rescinded the appropriation for the bridge. Work and expenditures on the draft environmental impact statement were halted, the document was never released for public review, and the National Park Service did not prepare a final environment impact statement. To date, funds for the construction of a new bridge connecting Ellis Island and New Jersey have not been reinstated by congress.

GOVERNORS ISLAND NATIONAL MONUMENT

The Governors Island National Monument was established by Presidential Proclamation on January 19, 2001. The monument includes two early 19th century fortifications (Castle Williams and Fort Jay), built as part of a system of defenses for New York Harbor. The monument consists of approximately 20 acres, sits within a National Historic Landmark District, and is part of a larger island totaling 172 acres. In a White House ceremony held on January 31, 2003, President Bush reaffirmed the establishment of the Governors Island National Monument and executed the transfer of the monument to the National Park Service and the rest of the island to the state and city of New York. The Governors Island Preservation and Education Corporation (the state-city redevelopment entity) and the National Park Service will develop a general management plan and collaborate on respective management and redevelopment plans, public access, programs, and activities for the island. It has been suggested that ferry service to the Statue of Liberty and Ellis Island might also include a stop at Governors Island so visitors can experience that national monument. In the past, Governors Island has also been identified as a potential location for a major conference center, with some elements similar to the ideas in alternative 3 of this environmental impact statement for Ellis Island.

NATIONAL PARKS OF NEW YORK HARBOR INITIATIVE

The National Parks of New York Harbor is a new collaboration among several units of the national park system in the greater New York / New Jersey metropolitan area, with leadership and support provided by a special office under the direction of an executive council comprised of park superintendents and coordinated by a commissioner and small staff. The Statue of Liberty and Ellis Island are part of this collaboration.

The mission of the National Parks of New York Harbor is to enhance the identity, visibility, and public support for the NPS units and to collaborate with others in the New York / New Jersey metropolitan area in the care and appropriate use of all historic, recreational, and natural resources and to promote the national park system. Among other things, this new office will play an important role in promoting and coordinating the interpretive and educational programs of the various NPS sites, including Ellis Island. The initiative also includes the involvement of the National Park Foundation to raise funds for the resources and programs of the National Parks of New York Harbor.

RESTORATION OF THE FERRY BUILDING AND THE HOSPITAL OUTBUILDING AND LAUNDRY

In 2002 the exterior restoration of the Ferry Building and the Hospital Outbuilding and Laundry were completed. This work was funded by two federal challenge grants through the Save America's Treasures Program with matching funds from New Jersey. Work included restoration of windows, masonry elements, terra cotta roof tiles, the copper and lead-clad tower, and replicating metal entry doors. Within the Ferry Building, work also included new utilities, replacing existing steam, electric, and water service. As of the writing of this *Development Concept Plan*, a design for interior rehabilitation of the Ferry Building has been prepared and construction is expected to begin later this year. Funds for the interior work were provided through private donations to the National Trust for Historic Preservation's Save America's Treasures Program and by the New Jersey fiscal year (FY) 2002 budget appropriation.

FERRY PASSENGER SECURITY SCREENING FACILITIES AT THE BATTERY IN MANHATTAN AND LIBERTY STATE PARK IN NEW JERSEY

The National Park Service has been evaluating suitable locations for the placement of permanent airport-type security screening for ferry passengers bound for the Statue of Liberty National Monument and Ellis Island from the Battery in lower Manhattan. The operation is temporarily housed in several connected tent structures located on the promenade adjacent to Castle Clinton National Monument. Through a memorandum of understanding with the New York City Department of Parks and Recreation, the National Park Service was granted permission to occupy the park to operate a screening facility for one year, renewable for two additional one-year periods. Preliminary evaluations and discussions with city agencies and other stakeholders suggest that historic Pier A, located at the northern end of the Battery, would provide a suitable location. Implementation however, would be subject to the National Park Service obtaining the necessary authority to lease or acquire an interest in the structure and authorizations of funding. Permanent screening facilities will also be needed for ferry passengers boarding in New Jersey at Liberty State Park. The operation at Liberty State Park is also housed in temporary tent structures. Permanent screening facilities would likely be housed adjacent to the Central Railroad of New Jersey Terminal. No funding has been allocated, and design of such a facility has not yet been initiated.

STABILIZATION PLANNING

A plan for stabilization of all of the vacant and deteriorating buildings of Ellis Island was completed by the National Park Service in 1998. In 1999 the Park Service began a stabilization campaign to secure all of the unrestored and vacant buildings on Ellis Island from further deterioration for a 10 to 15 year period. Work included removal of hazardous materials from some buildings, cutting back encroaching vegetation, temporary roof repairs, and sealing window and door openings. Work has proceeded in phases. Funding for this work has come from a variety of sources including the state of New Jersey, the park's concession franchise fee program, and congressional appropriations. Save Ellis Island! Inc. has been instrumental in advocating for the stabilization program. Remaining work includes Island 3 and the Baggage and Dormitory Building.

UTILITY INFRASTRUCTURE PLANNING

In anticipation of the rehabilitation and reuse of the south-side buildings, the National Park Service has initiated a program of infrastructure planning and improvements to bring essential services to all of the buildings. Improvements call for extending domestic and fire protection water, storm and sanitary sewers, electric service and communications, and HVAC (heating, ventilation, and air conditioning) systems. The total estimate cost of this work is close to $10 million to $12 million. Work will proceed in phases as funding becomes available. To date, congress has appropriated approximately $2 million to begin the first phase of this work that will extend utilities from the Ferry Building to the Power House on Island 3. Subsequent phases will depend upon future appropriations.

SEAWALL REHABILITATION

The entire perimeter of Ellis Island is protected by a masonry seawall built of various construction techniques from the late 19th century to the mid-1930s. Although several preservation efforts were undertaken in the 1980s along Island 1, today much of the seawall shows varying degrees of deterioration. Mortar joints have eroded, dislodging large granite blocks that have fallen into the harbor. In some areas, wooden piers and pilings are decaying and being attacked by marine borers, leading to erosion beneath and behind the seawall. Seawall settlement is most noted adjacent to the Ferry Building, along the east side of Island 2 and at the southwest corner of Island 3. The FY 2005 Line Item Construction Program of the National Park Service includes funding for rehabilitation of approximately 6,500 linear feet of seawall.

LIBERTY STATE PARK TRANSPORTATION MASTER PLAN UPDATE

At the request of the Governor's Advisory Committee on the Preservation and Use of Ellis Island, a Final Transportation Master Plan Update (Vollmer 2002) was issued in September 2002 for Liberty State Park. The goal of the updated plan

was to develop recommendations that would aid in the reduction of vehicular impacts brought about by future development and projected levels of visitation. The plan is a framework that aims at promoting park goals, such as the preservation of open space and the decrease of overall park traffic in order to enhance the park visitors' experience. The plan update included a number of recommendations relating to the following: external access to the park, internal park circulation, parking facilities within the park, traffic flow, pedestrian use, and park gateways. The updated plan discusses the development of a managed access bridge as an alternate means of pedestrian travel to Ellis Island. The plan does suggest, however, that further consideration of the merits of this proposal should be taken up in an Ellis Island development concept plan / environmental impact statement.

Alternatives

INTRODUCTION

RANGE OF ALTERNATIVES

This *Development Concept Plan / Draft Environmental Impact Statement* evaluates three alternatives for the adaptive reuse of 30 vacant buildings on Ellis Island. The *National Environmental Policy Act* (NEPA), NPS *Management Policies* (NPS 2001c), the goals presented in the NPS 1982 *General Management Plan* (NPS 1982) (which are refined in this *Development Concept Plan* to reflect current conditions), and other relevant laws and regulations have all helped to direct and shape the alternatives. The alternatives also reflect input from workshop meetings of the interdisciplinary team, comments by public agencies, and suggestions from the general public received during the public scoping process for this environmental impact statement. "Table 1: Features of the Alternative," which can be found at the end of this chapter, presents a comparison of the actions proposed under the following three alternatives:

Alternative 1: No Action — Continuation of Existing Management Direction

Alternative 2: Ellis Island Partners — Day Use only

Alternative 3: Ellis Island Institute with Overnight Accommodations

The *National Environmental Policy Act* requires analysis of "reasonable" alternatives, which are defined as "practical or feasible" from a technical and economic point of view, and those that are obvious or make sense. A recent financial feasibility and economic sustainability analysis (see appendix C) indicated neither of the action alternatives would be economically feasible in the traditional private development sense; however, they would be considered potentially feasible if, through a combination of project revenues and public and private-sector fundraising, they could generate sufficient capital funds for construction. The authors found that if approximately 15% of the cost of restoration could be generated from conventional private sources, the chance of raising the balance from a combination of private and public sources was considered reasonably good. Reuse of the buildings by private "partners" was considered critical in making the restoration effort feasible and is an integral part of both action alternatives (alternatives 2 and 3).

Part of the test of reasonableness is whether an alternative meets, either fully or to a large degree, the objectives presented earlier in the "Purpose of and Need for the Action" chapter and is within stated constraints. Each of the action alternatives is responsive to the objectives and within the constraints.

MITIGATION MEASURES AND DEVELOPMENT CONSTRAINTS

Mitigation measures and development constraints are specific actions that can be implemented to minimize, avoid, or eliminate negative impacts (see "Table 2: Impact Summary Chart" at the end of this chapter) on resources that would be affected by alternative actions. The National Park Service would fully comply with all applicable laws, regulations, and policies governing resource protection as described in the "Consultation and Coordination" chapter of this document.

FACILITY DESIGN

Rehabilitation plans and designs would be consistent with the historic architectural themes of Ellis Island and the guidelines of *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (NPS 1995c).

RESOURCE PROTECTION

Natural Resources

Areas near building rehabilitation activities would be revegetated with native or appropriate transplanted species to restore the historic landscaping appearance of the island. Rehabilitation efforts would comply with the various natural resource protection laws that are discussed in the "Environmental Consequences" chapter.

Cultural Resources

The quality of cultural resources would be preserved. Rehabilitation efforts would comply with the various cultural resource protection laws discussed in the "Environmental Consequences" chapter. Through consultation with project designers and the State Historic Preservation Offices of the states of New York and New Jersey, a plan would be developed to avoid or mitigate negative impacts to resources.

IMPLEMENTATION PRIORITIES

The purpose of the development concept planning effort is to determine the types of management actions that would be appropriate to enhance natural and cultural resource protection and visitor experience at Ellis Island. Available funding ultimately will determine when most proposed actions could be implemented.

ALTERNATIVE 1: NO ACTION — CONTINUATION OF EXISTING MANAGEMENT DIRECTION

GENERAL CONCEPT

Under this alternative (see "Figure 2: Alternative 1, No Action — the Early Years"), current stabilization treatment of the abandoned and unused buildings would continue until all buildings have been completed. At the time of this writing, approximately 30% of the buildings have been stabilized. Stabilization measures would include temporary ventilated wood and Plexiglas window panels to subdue water infiltration and facilitate air movement; temporary asphalt shingle roofs on areas where the removed original clay tiles eventually would be replaced or repaired; repointing of existing brick and stone masonry that has failed to resist the weather; shoring of compromised or failing structural and exterior wall elements; the maintenance and temporary repair of gutters, leaders, and other water control techniques; removal and control of invasive vegetation that has been damaging the structures; and, subject to available funds, abatement and removal of debris and hazardous materials inside the buildings. The stabilization procedures are only a temporary strategy to slow further deterioration. Depending upon the condition of a particular building, stabilization might provide a 10- to 15-year period of suspended or slowed decay.

The ongoing NPS efforts to go beyond basic stabilization of two of the buildings also would continue. The exterior of the Ferry Building has already been restored, and the planned interior rehabilitation would be completed. The exterior of the Hospital Outbuilding and Laundry has also been restored, and the plans for interior rehabilitation of this building would be undertaken. These ongoing efforts would also include several interventions in the corridor system and to a portion of the utilities infrastructure.

The existing temporary service bridge would continue to be used, subject to Federal Highway Administration inspection and permitting, until it could no longer be sustained.

Ongoing or perpetual stabilization would not be regarded as a viable or sustainable option because all structures would eventually reach a point at which they could not reasonably be reclaimed. While not provided for within this alternative, demolition and removal would become a logical and unfortunate future consequence. This would occur when temporary stabilization measures have run their course, and efforts to secure funding for rehabilitation have been unsuccessful.

A decision to not install a permanent service bridge would lead to the eventual loss of the bridge and would have severe logistic and economic consequences for the operation, safety, and viability of island programs and facilities.

THE LATER YEARS

If efforts to secure funding for rehabilitation fail, ongoing or perpetual stabilization would not be a viable or sustainable option. Eventually, these structures would reach a point at which they could not reasonably be reclaimed, even by concerted efforts (see "Figure 3: Alternative 1, No Action — the Later Years"). Due to the differential decay in the structures (dependent upon such factors as specific location, age, and exposure), it would be difficult to predict precisely when a particular building might irretrievably deteriorate. The long-term implication of the no-action alternative is that once a building reaches this state of irretrievable disrepair, actions would have to be taken to prevent possible injury to visitors and staff. This could entail protective barriers, as well as demolition and removal of structures in the longer term.

VISITOR EXPERIENCES AND USES

General public access to the stabilized buildings would not be permitted. If funding and staffing allowed, and with assistance from park partners, some opportunities would be provided for visitor experiences in the Ferry Building and the Hospital Outbuilding and Laundry. These buildings would be used for interpretive purposes—interactive exhibits and programs would be developed to enable a better understanding of the history and use of Ellis Island's south side. Limited tours of some exterior grounds could also be provided for as long as they could be safely conducted; but again, only if funding and staffing were available, and park partners were able to assist.

MANAGEMENT AND OPERATIONS

NPS maintenance and operations would continue as they are currently managed. The stabilized and restored buildings would be maintained as long as possible with continued assistance from park partners and as funding and staffing permitted.

Increased Security

The park would continue to implement measures to enhance security and to help protect visitors, employees, and park resources. Access to the park would continue to be intensely managed and a high level of security maintained at all entry points to the park. Airport-type screening for all passengers before boarding the visitor ferries to Ellis Island would continue to occur off site. All vehicles arriving via the temporary service bridge would continue to be subject to inspection.

In the event of an emergency evacuation from Liberty or Ellis Islands, the temporary service bridge would be used as a primary evacuation route as long as it was serviceable.

ACCESS

Visitors to Ellis Island would continue to arrive and depart as they have historically, by boat to and from the main slip. All embarking visitors would continue to be screened for any items determined to be a security risk at facilities at Battery Park in Manhattan and Liberty State Park in New Jersey.

Docking facilities for NPS staff and for the United States Park Police boats would be retained. No private marina uses would be allowed.

In fall 2002 the temporary service bridge underwent stabilization to extend its service life for up to 10 years. During this time the bridge will continue to provide access for park operations, construction activities, maintenance, and deliveries, as well as for emergency vehicles and evacuations. After this time, the temporary service bridge would reach its limit of sustainable service and would be removed. Access for operations, construction, maintenance, deliveries, and emergencies would be by boat or barge.

COSTS

Over the next 10 to 15 years, financial costs associated with the no-action alternative would be related to completion of the stabilization program on the remaining buildings. In addition, some minimal staff and financial resources would be required to maintain the stabilized structures for approximately 10 to 15 years, beyond which time, routine maintenance would no longer be feasible. Presently, approximately $4.5 million is available to complete stabilization of structures located on Island 3 and the Baggage and Dormitory Building. No specific funding has been provided to maintain the stabilization program. The park would continue to allocate existing maintenance staff and funding resources to the greatest extent practicable to maintain the stabilized structures.

In the later years, as the useful life of the stabilization efforts expires, steps (such as erection of barriers or removal of failed or failing structures) may have to be taken to ensure staff and visitor safety. These actions, however, are not a part of this *Development Concept Plan*, and the costs associated with them have not been estimated.

The eventual removal of the temporary service bridge when it is no longer safe or serviceable is estimated to cost approximately $500,000.

SUMMARY

The current management direction would result in rehabilitation of the Ferry Building and Hospital Outbuilding and Laundry and stabilization of the remaining buildings. The stabilization strategy was put into place as a temporary fix to slow further deterioration with the intent of being followed by long-term measures such as rehabilitation. A strategy of perpetual stabilization would not be viable over the long term and would mean that efforts to secure rehabilitation funding for the rest of the buildings had failed. Removal of the temporary service bridge would seriously compromise the park's capability to respond to an emergency and would have severe economic and functional consequences for park operations as a whole.

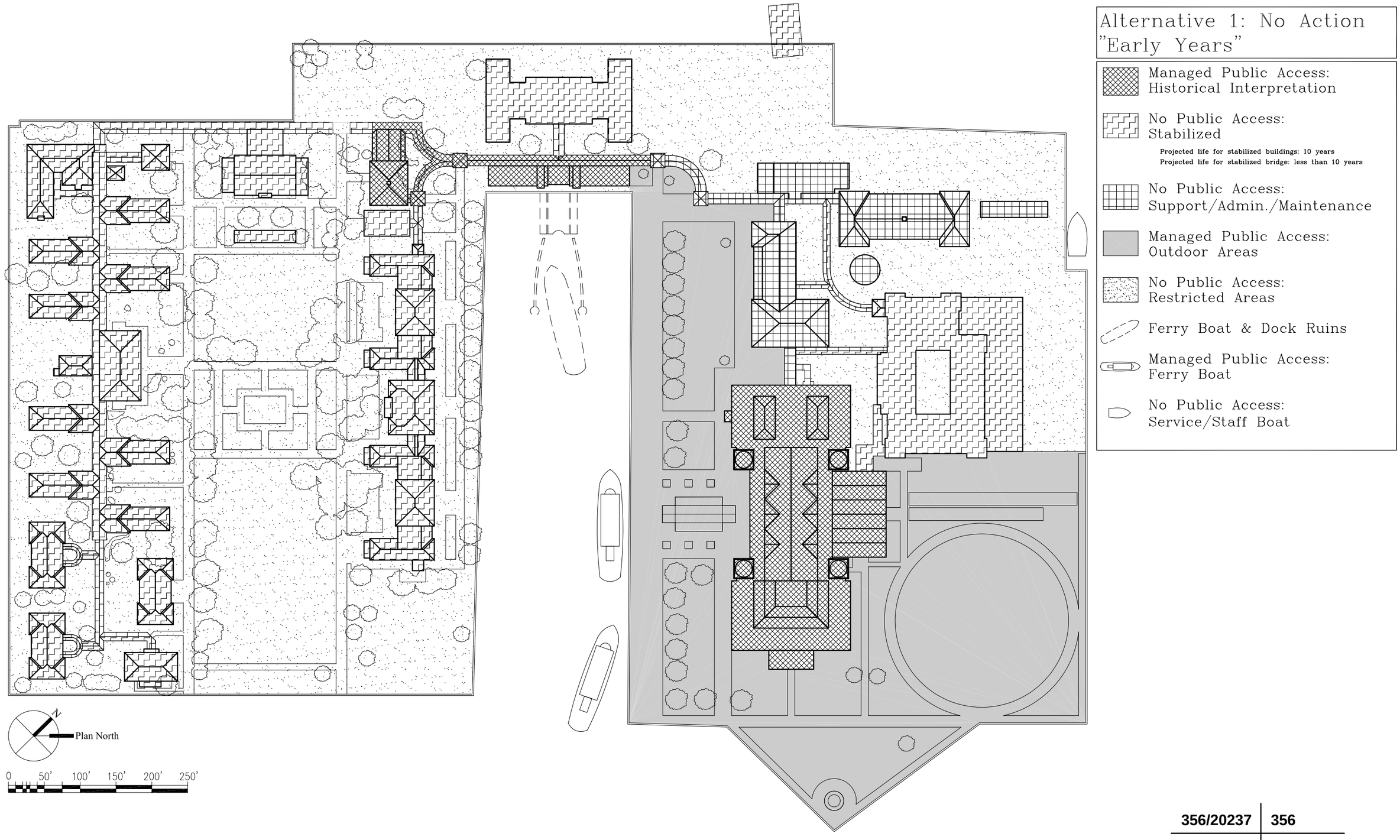


Figure 2: Alternative 1, No Action - The Early Years

356/20237	**356**
STLI	**May 2003**

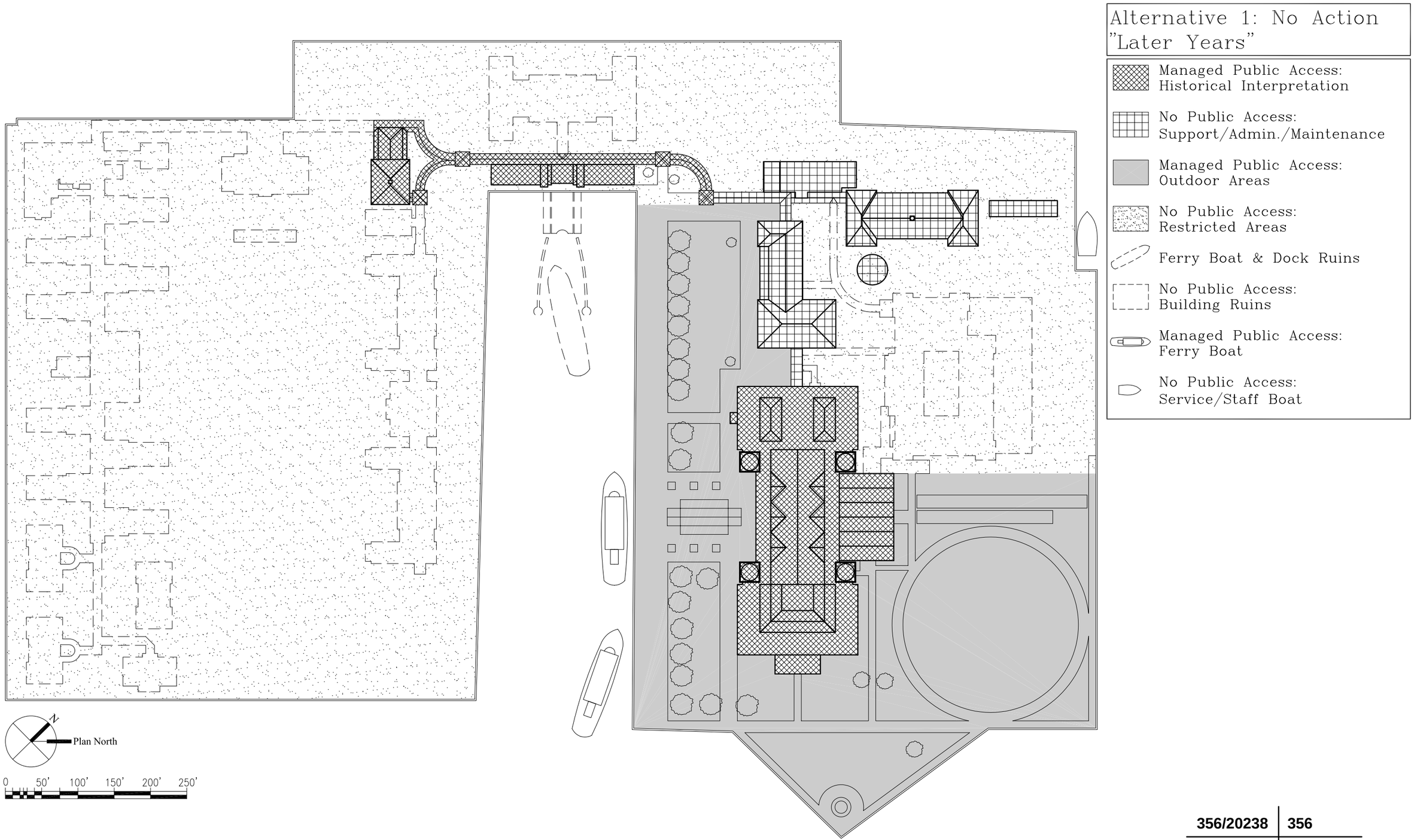


Figure 3: Alternative 1, No Action - The Later Years

356/20238	**356**
STLI	**May 2003**

ELEMENTS COMMON TO ALTERNATIVES 2 AND 3

The economic feasibility of alternatives 2 and 3 is dependent upon the adaptive reuse of the 30 buildings proposed for rehabilitation. Reuse must also be complementary to the island's historic themes and related contemporary issues. Both economic feasibility and reuse consistent with historic themes are components of an objective derived from the 1982 *General Management Plan* and identified in the "Purpose of and Need for the Action" chapter. The NPS intent to seek a private-sector partner(s) to assist in the rehabilitation and maintenance of these historic structures, which is an important feature of both action alternatives, was also first adopted in the 1982 *General Management Plan*.

Both action alternatives would ensure the preservation of the defining characteristics of Ellis Island's buildings and their environment while providing some flexibility for reasonable adaptive reuse proposals. The overall campus environment of Ellis Island would be preserved, and its character-defining features would be retained, including massing and scale, spatial organization and circulation, distinctive spaces and architectural features, fenestration, building materials, and vegetation patterns.

A number of other elements that are common to alternatives 2 and 3 are described below.

VISITOR EXPERIENCES AND USES

Although the action alternatives include descriptions of general rehabilitation treatment for each of the buildings, they do not identify a specific use. Instead, the following sections describe the types of reuses that the National Park Service believes would be appropriate at Ellis Island and the framework under alternatives 2 and 3 for making decisions on specific uses for individual structures. This approach reflects the NPS commitment to maximize flexibility to allow private-sector partners full opportunity to propose specific building reuse schemes and programs that would be appropriate and feasible in the context of an over-all reuse plan. The range of opportunities for visitor experiences would largely depend upon building use and program offerings of the selected park partner(s).

INTERPRETATION

The National Park Service has identified a variety of structures, landscapes, and spaces that are important to public understanding of the purpose and significance of Ellis Island. These elements would be preserved and interpreted to promote a broad understanding of their historic appearance and use. All exterior grounds, except where specifically identified for a more restricted use, would be included in this reuse category. In some buildings, selected interior spaces might be preserved or might be left in a stabilized "ruin-like" condition to provide a range of interactive experiences for visitors. Some areas would be open to the general public while others might be open only in association with one of the alternative reuse concepts. Management and interpretation would be by the National Park Service or other entities.

CULTURAL/EDUCATIONAL

Within this category, a wide variety of uses would be appropriate in a combination of public and limited-public space, depending on the specific nature of use, such as museum-type exhibits and presentations; theatrical events; festivals and celebrations (including use of outdoor spaces); research and learning centers for a range of for-profit and not-for-profit organizations; educational facilities for various school groups (elementary through high school); university-sponsored inquiry and study programs; genealogical research; or event spaces supporting cultural and educational purposes.

DINING/FOOD SERVICE

Food service could be accommodated in various locations to supplement and diversify existing food services on the island (open to general public), and to exclusively support a rehabilitation concept use. A variety of dining and food service uses would be developed in support of the culinary and economic needs of diverse visitors. Dining and food service would be provided through a cooperative agreement, historic lease operation, and/or by NPS concession contract.

MANAGEMENT AND OPERATIONS

Under both action alternatives, certain structures and areas of the island would be set aside for current and future NPS operations, administration, maintenance, and storage. These structures and areas would be maintained by the National Park Service and would not be accessible to the general public. In addition, alternatives 2 and 3 would include:

UTILITY INFRASTRUCTURE

The National Park Service would provide utility infrastructure improvements to bring basic services to all of the rehabilitated buildings on Ellis Island using future federal appropriations. This "federal share" of the rehabilitation would demonstrate the type of financial commitment by the government that many philanthropic donors want to see as evidence of an effective partnership before giving support to a project. Directing and coordinating this work would enable the National Park Service to ensure that such systems are sufficiently flexible to serve future partner requirements, are environmentally sound, and are fully compatible with the existing or proposed systems of occupied structures on Island 1.

Utility infrastructure work would include electricity, domestic water, sanitary and storm sewer, fire protection and suppression, communication/data systems, and centralized heating and cooling to, or to the immediate vicinity of, all buildings. Subsequent tie-in, interior distribution system(s), and metering configuration would vary according to the proposed use and partner/user needs.

INCREASED SECURITY

Measures to provide a higher level of security would be integral to both action alternatives. The security implications of all proposals and decisions would be carefully evaluated. Access to the park would be stringently managed and a high level of security maintained at a limited number of entry points to the park. All visitors to Ellis Island by boat would continue to be screened prior to boarding for any items determined to be a security risk. Similarly, all vehicles arriving via the service bridge would continue to be subject to inspection. In the event of an emergency evacuation of Liberty and Ellis Islands, the service bridge to New Jersey would serve as a permanent, primary evacuation route under alternatives 2 and 3.

ACCESS

Both action alternatives would make continued use of water-borne transportation as the preferred means of transport for the general public. Traveling to Ellis Island by boat is a key component of the overall interpretive experience and would remain the primary means of visitor access. Day-use visitors to Ellis Island would continue to arrive and depart as they have historically, by boat to and from the main ferry slip. New uses provided for under the action alternatives might require dedicated ferry service that would tie up along the seawall adjacent to Island 2. To maintain adequate security, all embarking visitors would be screened at screening facilities at Battery Park in Manhattan and Liberty State Park in New Jersey.

No public or private marina uses would be permitted. Docking facilities for the NPS staff and United States Park Police boats would be retained.

To increase opportunities for low-income people to visit the site, a variety of programs to subsidize ferry fares for these visitors would be put into place. These might include free rides for school groups in targeted areas, reduced fare days, and special passes.

SERVICE BRIDGE FOR OPERATIONS AND EMERGENCIES

Under alternatives 2 and 3, the current temporary service bridge linking Ellis Island and New Jersey would be replaced with a permanent bridge and security screening facility. The design and location would be determined by subsequent environmental planning under the *National Environmental Policy Act*, and permitting procedures managed by the U.S. Army Corps of Engineers, in consultation with the U.S. Coast Guard; New Jersey Department of Environmental Protection; Jersey City and Liberty State Park, New Jersey; New York and New Jersey State Historic Preservation Offices; and other interested parties. The final alignment and design of a permanent service bridge and security screening structure would seek to mitigate environmental, visual, and traffic impacts upon the island and on Liberty State Park and would consider additional factors such as cost and maintenance issues. The permanent service bridge would be used for operations, construction activities, maintenance, and deliveries, as well as for emergency vehicles and evacuations.

As with all other entry points to the park, access would be rigorously managed and a high level of security maintained at the service bridge. Access would be strictly limited, and all vehicles would be screened before being allowed to enter the park. General vehicular and pedestrian access across the service bridge would not be permitted because, as noted above, an additional entry point for the general public would not be prudent given the constraints imposed by increased security.

COSTS

Providing basic utilities infrastructure to all of the rehabilitated buildings under either alternative 2 or 3, is estimated to cost in the range of $10 million to $12 million. To date, $2 million has been spent to improve or provide utilities to buildings that have already been stabilized (under the no-action alternative). Removing the temporary bridge is estimated to cost $500,000, and replacing it with a permanent bridge would cost in the range of $20 million to $25 million. More precise costs of bridge removal and replacement would be developed as part of future environmental impact analysis that would take place if a permanent bridge and security facility are part of the selected alternative.

ALTERNATIVE 2: ELLIS ISLAND PARTNERS — DAY USE ONLY

GENERAL CONCEPT

The Ellis Island Partners concept would create a campus of nonprofit and institutional uses that complement the purposes, themes, and significance of Ellis Island (see "Figure 4: Ellis Island Partners — Day Use Only"). The nonprofit organizations and institutions that would make up the campus of partners would offer visitor programs and exhibits relating to themes such as immigrant contributions, worldwide immigration issues, ethnic diversity, tolerance, human rights, refugees, public health, family history, and other topics relating to the significance of Ellis Island. Office space for nonprofit organizations and institutions would be appropriate under this concept, but general commercial office space would not be permitted.

This alternative proposes rehabilitation of Ellis Island's historic buildings and landscape over a period of 10 to 15 years, funded solely through private fundraising and future federal appropriations. A combination of partnerships, cooperators, and traditional concession operations would provide visitor services, programs, and routine maintenance of buildings. The National Park Service would have management oversight of the entire island. All of the building exteriors would be restored and interiors completed to "core and shell" condition, which means that interior finishes would be provided by future tenants. Over time and as funding permits, all of the unrestored buildings of Ellis Island would be rehabilitated and occupied by a potentially diverse mix of cultural, educational, and other nonprofit institutions. To provide a visual comparison for visitors, one or more selected interior spaces would be preserved or left in a stabilized "ruin-like" condition for future research and interpretation. There would be no overnight accommodations.

Outdoor areas would be programmed for themed events and festivals. Some visitor services might be provided through one or more concession agreements.

VISITOR EXPERIENCES AND USES

Under this alternative the buildings would be adaptively reused primarily for interpretive uses and cultural/educational uses. Food services would also be provided, and some of the buildings would be reused as offices or administrative spaces for nonprofit organizations. The specific mix and distribution of uses would be determined through memoranda of agreement or lease or cooperative agreements between the nonprofit organizations and the National Park Service.

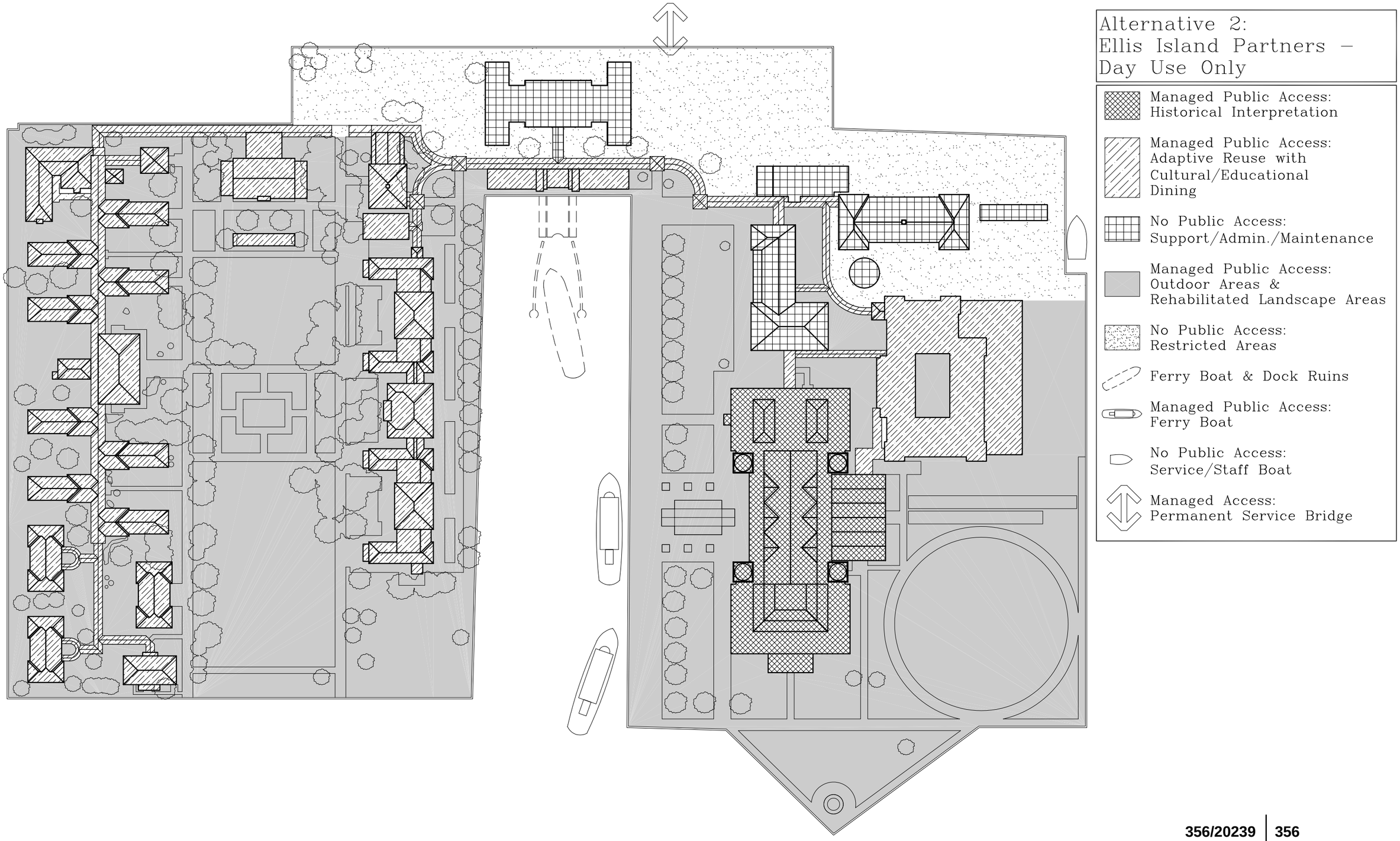
Visitors to Ellis Island would have a wide range of opportunities to experience the buildings and spaces on the south side of Ellis Island and in the Baggage and Dormitory Building. The majority of programs and exhibits offered by numerous organizations would be open to the general public. There would be times, activities, and places that would likely be limited to users of the Ellis Island Partners; however, this would likely be a relatively small percentage of the overall space on the island. The majority of the office and administrative areas would not be open to the general public.

Any overnight accommodations that might be associated with the Ellis Island Partners would be located off-island in New Jersey, Manhattan, or elsewhere.

MANAGEMENT AND OPERATIONS

The National Park Service would undertake the rehabilitation work directly or through one or more fundraising partners. Buildings would be rehabilitated so as to be generally suitable for the range of day uses described above (refer to the section "Elements Common to Alternatives 2 and 3" that was presented earlier in this chapter). Rehabilitation would proceed in phases based upon the availability of funds and the space needs of partners. Priority would be placed upon rehabilitation and reuse of the buildings on Island 2 to extend the rehabilitation work that was recently done to the Ferry Building and Hospital Outbuilding and Laundry. This would initially secure the architectural context of the ferry slip and the view from the Immigration Museum.

Under the Ellis Island Partners concept, the National Park Service would assume the primary role in the management, maintenance, and upkeep of the buildings. Although many functions would be accomplished through outsourcing, a substantial increase in the park's operating base would be required.



356/20239	356
STLI	May 2003

Figure 4: Ellis Island Partners - Day Use Only

The National Park Service would enter into leases with not-for-profit cultural/educational institutions and organizations to fit out and occupy buildings for specific purposes. The lease agreements would specify occupancy fees and rates for the various services that would be provided.

ACCESS

Under this alternative a new permanent service bridge would be used for park and Ellis Island Partner operations, construction activities, maintenance, and deliveries, as well as for emergency vehicles and evacuations. The general public visiting the Ellis Island Partners facilities would travel to the island via ferry, as would visitors to the Immigration Museum.

COSTS

As part of this plan, capital development costs (shell, core, exterior construction, and interior finishing costs), infrastructure, and net operating income for the Ellis Island Partners were estimated. Although not based on a specific development program, an economic analysis (see appendix C) was done to help understand the relative potential financial feasibility and sustainability of the alternatives. According to the financial analysis, capital development costs for this concept would be about $156 million. Funding for these costs would need to come entirely from governmental and philanthropic sources. Due to the uncertainties of occupancy and revenue, conventional financing would not be considered a viable option. A major fundraising campaign(s) would be undertaken to raise this money.

Individual elements of the Ellis Island Partners' cultural/educational/interpretive programs and activities would be capable of generating some revenue. However, the predominant experience for this kind of activity in the United States indicates that breaking even would be considered a financial success. Therefore, governmental appropriations would be required to sustain operations and provide adequate upkeep of the buildings. The National Park Service estimates it would require a park operating base increase of about $2 million annually to fund maintenance and other services and provide an additional 21 personnel needed to manage buildings and programs. Considerable philanthropic contributions would also be needed.

SUMMARY

Although the concept of a campus of nonprofit partners has many compelling elements, it is not the preferred alternative. Programs and activities of the various partners may not provide a clear and compelling public image for the island, and the organizations could find themselves competing with one another for limited private funding resources. The NPS role as landlord and facility manager could result in a far larger and more complex federal operation requiring additional staff, funding, and contracting. Due to a reliance on governmental appropriations and philanthropic contributions for capital improvements, it is anticipated that development of the Ellis Island Partners' concept would take as long as 10 to 15 years to complete, or perhaps longer. These concerns, combined with the continuing need for substantial operating subsidies from governmental and philanthropic sources, make this alternative relatively less desirable as a long-term sustainable solution.

ALTERNATIVE 3: ELLIS ISLAND INSTITUTE WITH OVERNIGHT ACCOMMODATIONS (PREFERRED ALTERNATIVE)

GENERAL CONCEPT

Alternative 3 was chosen as the preferred alternative because it would best accomplish the objectives and goals derived from the 1982 *General Management Plan* (see "Table 3: Purpose and Objectives of Taking Action and the Means by Which Each Alternative Meets Them" at the end of this chapter). In particular, objective 3, which states alternatives must be economically sustainable, would be fulfilled to the greatest extent of any of the alternatives.

This alternative would have as a primary use, an "Ellis Island Institute" that would include a small retreat/conference facility with a policy research center, administrative and study spaces, and supplemented by cultural, educational, and interpretive activities and programs (see "Figure 5: Ellis Island Institute with Overnight Accommodations"). The retreat function would be shared with one or more nonprofit institutions and appropriate corporate sponsors that would utilize the facilities to host meetings, retreats, and workshops on issues such as immigration, world migration, public health, cultural and ethnic diversity, family history, and historic preservation. A primary difference between alternatives 2 and 3 would be alternative 3's provisions for overnight lodging. In addition, state-of-the-art telephone, conferencing, Internet communications, and other technological amenities would be provided for retreat participants. The island would provide a secure world-class venue for deliberation, research, and reflection minutes away from the major cultural, educational, and transportation facilities of New York and New Jersey.

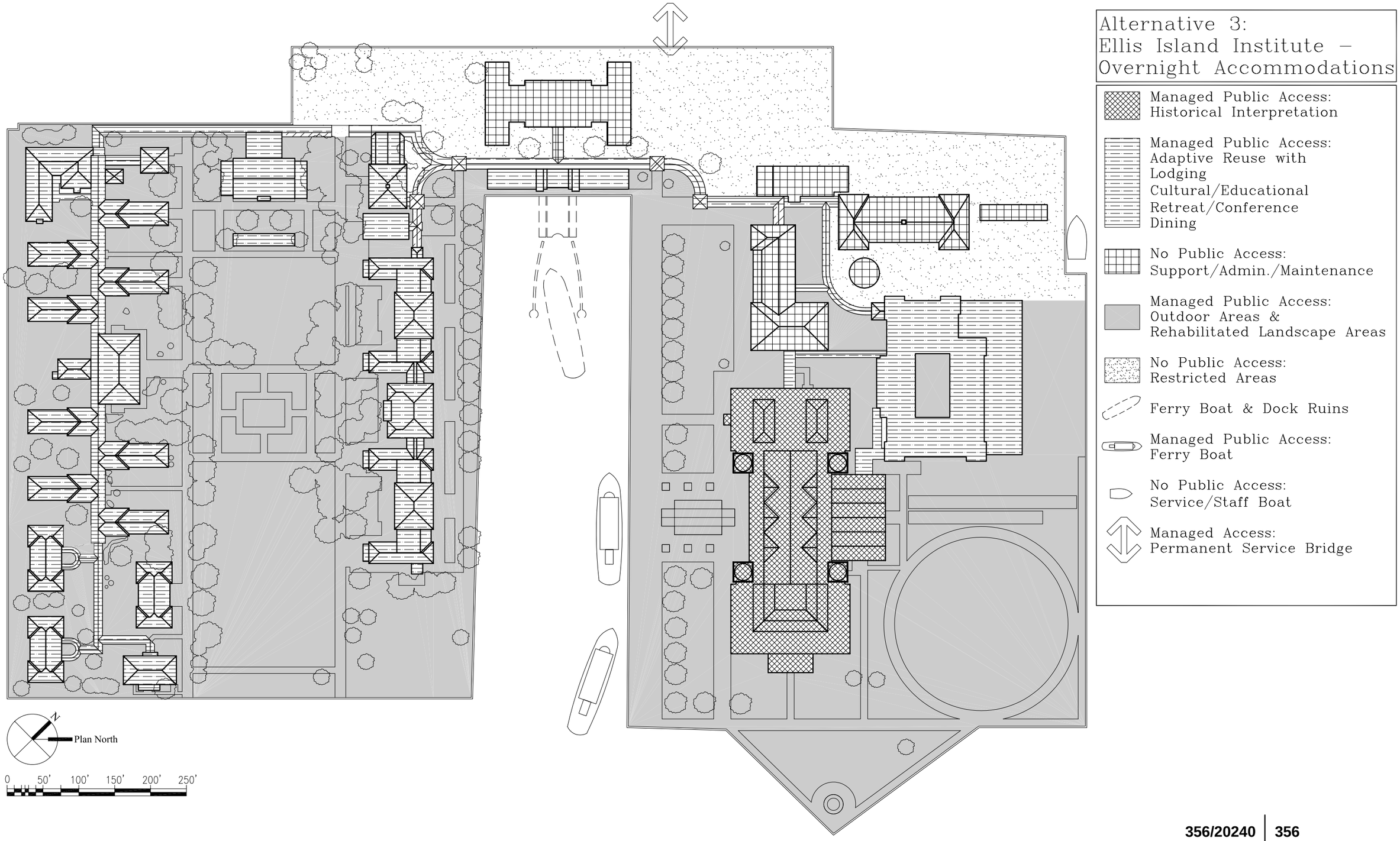
Through a Request for Proposals, the National Park Service would solicit a private development partner to finance, develop, and manage the small conference facility and overnight accommodations. In selecting a development partner, National Park Service would give preference to the most economically feasible proposal that meets the park's goals and that best supports the mission and operation of the nonprofit institute.

The buildings would be rehabilitated over a five- to seven-year period, and adaptively reused through a combination of private financing, philanthropic support, and government appropriations. A market analysis (see "Appendix C: Analysis of Relative Financial Feasibility and Economic Sustainability of EIS Alternatives") suggests that Ellis Island includes many of the critical factors required for making such a retreat/conference facility successful, including association with large and resonant ideas, signature architecture, and uniqueness. Properly designed to the scale and historic context of Ellis Island, an "Ellis Island Institute" and retreat facility, in combination with one or more thematically related cultural institutions and visitor attractions, would restore an appropriate function and purpose to Ellis Island, thus ensuring its long-term rehabilitation and use.

VISITOR EXPERIENCES AND USES

Under this alternative the buildings would be adaptively reused for the same functions described for alternative 2, including interpretation, cultural/educational purposes, and dining/food service. In addition, a maximum of 250 overnight guest rooms would be permitted in conjunction with the conference facility. Lodging and dining could take a number of forms, and depending upon the design of the overall facility, be accommodated in various buildings. Regardless, conference facility buildings would be finished out to high-quality standards. Rehabilitation to accommodate lodging and dining would recognize the limitations inherent in the existing floor plans, building configurations, existing window locations, and other character-defining features and spatial relationships. Support spaces normally associated with lodging (such as housekeeping, laundry, and maintenance) would be accommodated in a manner sensitive to the historic character of Ellis Island or be accommodated off-island.

It is anticipated that the institute and conference facility would accommodate about 300 people. The character and size of the conference center would be similar to academic and institutional retreat centers of a comparable size. Examples of potential uses would include academic and scholarly retreats, forums, "think-tank" policy meetings, specialized training programs, and family reunions.



356/20240	356
STLI	May 2003

Figure 5: Ellis Island Institute with Overnight Accommodations

Visitors to Ellis Island would be provided with a range of opportunities similar to those in alternative 2, including buildings and spaces on the south side of Ellis Island and in the Baggage and Dormitory Building. The nature and extent of these opportunities would depend on the specific reuse scenario selected. The extent and quality of the experiences offered to the general public are considered important factors in the evaluation of reuse proposals.

All or portions of buildings included in the institute and conference facility would, at times, be limited to retreat participants or other users of the institute. Institute and conference facility attendees would have an opportunity for the exceptional experience of spending the night on Ellis Island.

MANAGEMENT AND OPERATIONS

Historic structures and landscapes on Ellis Island would be rehabilitated for adaptive reuse through a combination of private financing, philanthropic support, and government funding. The institute would establish and manage interpretive, research, and educational programs. The development partner would manage the various hospitality elements of the conference facility. An agreement between the National Park Service, the institute, and the conference facility partner would define business relationships, responsibilities, and protocols, including marketing and "branding" of the facilities, programming and management responsibilities, scheduling procedures, and preferential arrangements such as minimum annual allocation of facilities for the exclusive use of the institute, cost sharing, guidelines for appropriate use(s) of the facilities by others, and so forth. The institute and the conference facility, while legally and financially separate, would be seen and would function as a seamless entity.

The National Park Service would provide policy guidance and oversight for the institute but would not be actively involved in management or operations. A small increase in the park's operating base would be required.

ACCESS

The service bridge would be used for deliveries, to support the operations of the park, institute, and conference facility; maintenance; and to provide access for emergency vehicles and evacuation. Under this alternative, however, managed access via the service bridge would be provided to accommodate "drop-off" and "pick-up" service for attendees of functions sponsored by the institute and conference facility. All vehicles and occupants arriving via the service bridge would be subject to inspection at the security screening facility.

COSTS

As part of this development concept plan, capital development costs (shell, core, exterior construction, and interior finishing costs), infrastructure, and net operating income for the Ellis Island Institute were estimated. Although not based on a specific development program, an economic analysis was done to help understand the relative potential financial feasibility and sustainability of the alternatives. According to the financial analysis, capital development costs for the retreat/conference component of the institute are estimated at $103 million and would generate an estimated income of $4.8 million per year. This annual revenue would leverage a private investment of about $48 million, a significant portion of the overall development costs.

It is assumed that the developer of the conference facility would be able to obtain conventional financing for a portion of the conference facility development costs and make use of investment tax incentives under the *National Historic Preservation Act of 1966* (16 U.S.C. 16,470a-1(a)(170 ed.), as amended. Given the high cost of rehabilitating the buildings at Ellis Island, and the limits being placed on their uses, the retreat component might not generate sufficient revenue to cover its operating costs and the high level of debt that would be incurred for capital development. Thus, the facility might not be economically feasible in the conventional profit-making sense of the word, and some sort of gap assistance might be needed. Such assistance would be sought through private fundraising.

Capital development costs for the cultural/ educational/interpretive components of the institute would be estimated at $45 million. Funding for these elements would be expected to come primarily through philanthropic contributions raised during a fundraising campaign(s) by the nonprofit partner. In addition, the National Park Service would seek special legislation to enable the

nonprofit to qualify for the preservation tax credit. It is anticipated that the cultural/educational /interpretive components of the institute would, by being well programmed and marketed, be capable of generating some revenue. However, as noted in alternative 2, this kind of venture is considered a success if it is able to simply break even on its operating costs. Nevertheless, the fundraising campaign(s) would seek contributions to set up an endowment that could function as an operating subsidy for the institute.

A small increase to the park's operating base would be required for administration and coordination with the institute. It is estimated that an increase of $900,000 for 11 staff and other services would be sufficient for these activities.

SUMMARY

The ability to use a combination of funding sources, including conventional debt financing to put together a comprehensive development package that achieves park goals and that can accomplished in five to seven years, provides a compelling reason to select the "Ellis Island Institute" concept as the preferred reuse alternative. The institute would provide a new international forum to present and discuss historic and contemporary issues associated with world migration and public health. The institute's purpose and mission would have the potential to resonate with individual and corporate donors, as well as foundations. Few locations in the United States have as much name recognition and unique meaning as Ellis Island. Its name is recognized by most Americans, as well as people around the world.

ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

As noted above, all possible reasonable alternatives were screened for technical, logistic, and economic feasibility, as well as for their ability to achieve stated objectives for this plan. They also needed to be within the stated constraints, including consistency with NPS *Management Policies*, *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, the goals and objectives contained in the 1982 *General Management Plan* and refined in this *Development Concept Plan*, and the cultural resources and historic themes of Ellis Island. Only those able to pass all tests were included for environmental analysis.

Some of those considered but rejected because they were not reasonable include:

SUBSTANTIAL NEW CONSTRUCTION

The Secretary of the Interior's Standards for Treatment of Historic Properties (NPS 1995c) and the accompanying guidelines allow for a contemporary use through alterations and additions, but such alterations and additions, to be in accord with the standards, should not radically change, obscure, or destroy character-defining features and spatial relationships. Substantial new construction was eliminated from further consideration, because the addition of new buildings would radically change the campus setting of the buildings that has continued to characterize the site over time despite numerous phases of development and subsequent decline.

DEMOLITION

The inter-connected buildings and corridors of Ellis Island, including their organization, massing, scale, and architectural detailing, are also character-defining features. Historically, each structure served a specific function that related to the operation of the whole. While the functions would change with adaptive reuse, and minor alterations would be possible as long as they are consistent with the guidelines of *The Secretary of the Interior's Standards,* demolition of structures was eliminated from further consideration because the loss of any structure or structures would compromise the integrity of the entire campus.

DOMINANT RETAIL OR COMMERCIAL OFFICE USES

This plan provides for the rehabilitation and adaptive reuse of Ellis Island's vacant buildings for purposes that support, enrich, or complement the historic themes and related contemporary issues associated with Ellis Island's rich legacy. The plan identifies the types of uses that would be appropriate for inclusion in an adaptive reuse development. Commercial office space and dominant retail uses were not given further

consideration because these uses would be inconsistent with park purposes and significance and, thus, inappropriate for inclusion in a reuse scenario for Ellis Island.

PEDESTRIAN USE OF SERVICE BRIDGE

Since the events of September 11, 2002, enhancing security at the Statue of Liberty National Monument and Ellis Island has been a priority for the park. Improvements to the security elements of park operations are being implemented with advice and consultation from security experts from both the public and private sectors. The security implications of all actions are being carefully considered. Strict management of entry points is a fundamental tenet of the overall security strategy. Use of the service bridge for pedestrian access to Ellis Island was eliminated from further consideration because introducing a new location for general public entry would be inconsistent with the requirements of increased security. From a security point of view, increasing the number of entry points to the park would pose an unacceptable risk. This same reasoning applies to creating an underground tunnel connecting the mainland with Ellis Island.

TABLE 1: FEATURES OF THE ALTERNATIVES

Plan Elements	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
Building Stabilization / Rehabilitation			
	Currently scheduled stabilization of unused buildings would continue.	Preservation of the defining characteristics of all buildings, while allowing some flexibility for reasonable adaptive reuse proposals.	Same as alternative 2.
	Stabilization measures include temporary ventilated wood and Plexiglas window panels to subdue water infiltration and facilitate air movement.	Treatment of all buildings would be based on *The Secretary of the Interior's Standards for Rehabilitation*.	Same as alternative 2.
	Placement of temporary asphalt shingle roofs where original clay tiles were removed; some repair of damaged clay tiles.	Overall campus environment of Ellis Island would be preserved and its character-defining features would be retained, including massing and scale, spatial organization and circulation, distinctive spaces and architectural features, fenestration, building materials, and vegetation patterns.	Same as alternative 2.
	Repointing of existing brick and stone masonry.	Rehabilitation would proceed in phases over a period of 10 to 15+ years as funds are available.	This alternative would present a holistic approach to rehabilitation at the start and would be accomplished in a 5- to 7-year time frame.
	Shoring of compromised or failing structural and exterior wall elements.		
	Maintenance and temporary repair of gutters, leaders, and other water-control techniques.		
	Removal of invasive vegetation that have caused structural damage.		
	Abatement and removal of debris and hazardous materials inside the buildings.		
	Continue with plans to rehabilitate the interiors of the Ferry Building and the Hospital Outbuilding and Laundry (exterior restorations have been completed).		

Plan Elements	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
Visitor Experiences and Uses			
	General public access to stabilized buildings not permitted. Contingent on funding and staffing, some visitor access to the Ferry Building and Hospital Outbuilding and Laundry for interpretive uses. Contingent on funding and staffing, some limited tours of exterior grounds.	The Ellis Island Partners concept would create a campus of nonprofit and institutional uses that complement the purposes, themes, and significance of Ellis Island. Office and meeting room space for nonprofit organizations and institutions would be available; general commercial office space would not be permitted.	Primary use would be the "Ellis Island Institute" that would include a small retreat / conference facility with state-of-the-art communication / data infrastructure, overnight lodging, a policy research center, and administrative and study spaces. Capacity of the institute and conference facility would be approximately 300 persons.
		Lodging	**Lodging**
		No overnight accommodations on the island.	A maximum of 250 overnight guest rooms would be permitted in conjunction with the conference facility; spaces required for lodging support purposes (i.e., housekeeping, laundry).
		Interpretation	**Interpretation**
		A variety of structures, landscapes, and spaces would be preserved and interpreted to promote a broad understanding of their historic appearance and use.	Same as alternative 2.
		Exterior grounds (except where indicated) would be included for interpretive uses.	Same as alternative 2.
		Some interior space would be left in a '"ruin-like" or preserved condition to provide a range of interactive experiences.	Same as alternative 2.
		There would be a wide range of opportunities for visitor experiences. The majority of programs and exhibits would be open to the general public. A small percentage of areas, times, and activities would be limited to Ellis Island Partners. Office and administrative areas would not be open to the general public.	There would be a range of opportunities for visitor experiences but nature and extent would depend on the specific reuse scenario. All or portions of the institute and conference facility would at times be limited to retreat participants and institute users. Retreat participants would experience spending the night at Ellis Island.
		Management of visitor programs and interpretation would be primarily by NPS staff with some outsourcing.	Management of visitor programs and interpretation would be by the Ellis Island Institute with oversight and policy guidance by the National Park Service.

Plan Elements	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
		Cultural/Education	**Cultural/Education**
		A wide variety of uses would be appropriate in a combination of public and limited-public-use spaces.	Same as alternative 2.
		Uses could include museum-type exhibits and presentations, theatrical events, festivals and celebrations, research and learning centers, educational and cultural purposes, study programs, genealogical research.	Same as alternative 2.
		Dining/Food Service	**Dining/Food Service**
		General public food service available in various locations.	Same as alternative 2.
		Food service to support specific concept uses.	Food service to support specific concept uses and overnight guests.
		Dining and food service provided through a cooperative agreement, historic lease operation, or NPS concession contract.	Same as alternative 2.
Management/Operations/Security			
	No change in NPS management of maintenance and operations.	Certain structures and areas would be set aside for NPS operations, administration, maintenance, and storage. These structures/areas would be maintained by the National Park Service and would not be accessible to the general public.	Same as alternative 2.
	Stabilized and restored buildings would be maintained as long as funding is available.	The National Park Service would have overall facility management responsibility.	The retreat / conference facility operator would assume most facility management responsibilities.
	Enhanced program to provide greater levels of security.		
	Use of the temporary service bridge for emergency access and evacuation for as long as it is serviceable.	Utility infrastructure improvements would be provided by the Park Service.	Same as alternative 2.
	High level of security at all entry points. All embarking visitors would be screened at the screening facilities at Battery Park and Liberty State Park. Entry at temporary service bridge would be strictly managed, and all vehicles would be inspected.	Enhanced program to provide greater levels of security, including emergency and evacuation procedures.	Same as alternative 2.

Plan Elements	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
		Permanent use of service bridge for emergency access and evacuations.	Same as alternative 2.
		High level of security at limited number of entry points. All embarking visitors would be screened at the screening facilities at Battery Park and Liberty State Park. Entry at service bridge would be strictly managed, and all vehicles would be inspected.	Same as alternative 2.
Access			
	Primary method of visitor access to the island would continue to be by ferry.	Same as alternative 1.	Same as alternative 1.
	All embarking visitors would be screened at the screening facilities at Battery Park and Liberty State Park.	Same as alternative 1.	Same as alternative 1.
	No public or private marina uses would be permitted.	Same as alternative 1.	Same as alternative 1.
	Docking facilities for NPS staff and U.S. Park Police boats would be retained.	Same as alternative 1.	Same as alternative 1.
		A variety of programs to subsidize ferry fares for low-income visitors, free rides for school groups, reduced fare days, special passes would be implemented.	Same as alternative 2.
	Recent stabilization of the temporary service bridge would extend service life another 10 years; bridge would be removed when it reached its limit of sustainable service. After bridge removal, access for all uses (visitor, operations, construction, maintenance, deliveries, and emergencies) would only be by boat or barge.	A permanent service bridge and security facility would be constructed; location would be determined by subsequent permitting procedures.	Same as alternative 2.
		General vehicular and pedestrian access across the service bridge would not be permitted.	Same as alternative 2. Managed access would be provided by authorized vehicles for drop off and pick up of conference/retreat attendees.

Plan Elements	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
Costs/Funding			
	Park would use existing staff and funding as much as possible to maintain the stabilized buildings. Current stabilization—$4.5 million	Funding for rehabilitation and maintenance of all existing buildings would come from a combination of philanthropic contributions and future government appropriations, with relatively short-term lease agreements; conventional financing by partners would not be considered a viable option. Estimated costs for the Ellis Island Partners concept would be $156 million. Ellis Island Partners' cultural, educational, and interpretive programs would generate some level of revenue.	Private-sector financial assistance is the basis for rehabilitation and maintenance of all existing buildings. Conference/retreat facility costs estimated to be approximately $103 million private developer would obtain conventional financing for a portion of costs and some funding could come from the investment tax incentives program under the *National Historic Preservation Act*. Some buildings would be renovated and adaptively reused through a combination of private financing, philanthropic support, and government appropriations. Capital costs for the cultural/educational/interpretive components of the institute estimated to be about $45 million.
	Removal of temporary bridge—$500,000.	Removal of temporary bridge—$500,000. Replacement bridge—$20 million to $25 million.	Same as alternative 2.
		Utilities infrastructure to rehabilitated buildings estimated at $10 million to $12 million.	Same as alternative 2.
		Increase of park operating budget of $2 million for 21 additional personnel and other services.	Increase of park operating budget of $900,000 for 11 additional personnel and other services.

TABLE 2: IMPACT SUMMARY CHART

Impact Topic	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
Cultural Resources			
Historic Architectural Resources	Stabilization of remaining Ellis Island structures provides a localized, minor benefit.	Historic structure rehabilitation efforts under alternative 2 would provide moderate benefits to cultural resources.	Same as alternative 2.
	Rehabilitation of the interiors of the Ferry Building and Hospital Outbuilding and Laundry provides a moderate, site-specific benefit.		
	Bridge removal results in potential major adverse impact to historic structures due to increased risk of fire damage/loss.		
	The eventual loss of many, if not all, of the eligible properties on Ellis Island and impairment of NPS historic architectural resources.	No impairment of park resources.	Same as alternative 2.
Cultural Landscape	Due to the lack of a long-term preservation strategy under this alternative, the eventual loss of the cultural landscape is likely and could result in impairment of NPS resources.	The rehabilitation and reuse of the cultural landscape proposed under alternative 2 would result in a moderate, site-specific benefit to cultural resources on Ellis Island compared to no action.	Same as alternative 2.
	Major benefit to the original cultural landscape from the removal of the temporary service bridge, with no bridge replacement.	The construction of a new bridge could have long-term, moderate adverse impacts to the cultural landscape of Ellis Island and several surrounding National Register properties.	Same as alternative 2.
		Construction of a permanent bridge would offer an unknown benefit to the cultural resources of Ellis Island by providing a high level of protection from fire damage/loss.	Same as alternative 2
Archeological Resources	It is believed that the no-action alternative does not have the potential to adversely affect archeological resources in a manner that would jeopardize their National Register characteristics.	Small-scale dredging activities proposed under alternative 2 could potentially result in minor, site-specific adverse impacts in its potential to affect cultural deposits.	Same as alternative 2.
Geologic Resources, Soils, and Marine Sediments			
Geology and Soils	Negligible impact to soils could occur from filling the seawall after removing the temporary service bridge.	Negligible to minor impact to soils could occur from filling the seawall after removing the temporary service bridge. Additional negligible to minor impacts from excavating for new underground utility connections, grading new access roads to the permanent bridge landings,	Same as alternative 2.

Impact Topic	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
		and grading for construction staging areas.	
Marine Sediments	Localized negligible or minor temporary disturbance to marine sediments in the channel between Ellis Island and the state park could occur from removing pilings for the temporary service bridge under all three alternatives.	Localized negligible or minor temporary disturbance to marine sediments in the channel between Ellis Island and the state park could occur from removing pilings for the temporary bridge and completing construction of a new bridge. Impacts could extend for at least twice as long compared to the no-action alternative.	Same as alternative 2.
Floodplains			
Flood risk	Removing the temporary service bridge and sealing the floodwall could result in minor beneficial impacts from flood prevention.	Removing the temporary service bridge and sealing the floodwall could result in minor beneficial impacts from flood prevention.	Same as alternative 2.
Access	No long-term impact from flooding.	During extreme weather events, bridge could be somewhat flooded and restrict vehicular access.	Same as alternative 2.
Vegetation, Fish, and Wildlife			
Vegetation	Negligible to minor temporary impacts from clearing construction area to remove temporary service bridge.	Additional negligible to minor temporary impacts from activities to construct permanent bridge, as well as long-term loss to build new bridge features such as access roads and landings.	Same as alternative 2.
Protected plant species	No impacts expected.	Minor to moderate impacts to two species listed by New Jersey as species of special concern from replanting courtyards on Ellis Island.	Same as alternative 2.
Fish	Minor to moderate short-term impacts from increased mobility of sediments and potential toxins during temporary service bridge removal.	Compared to no action, additional moderate impacts from increased suspension of sediments and increased turbidity and concentrations of toxins from bridge construction.	Same as alternative 2.
Wildlife—construction	Short-term minor impacts through disturbance and possible displacement from construction activity.	Same as alternative 1, except the duration of activity and resulting impacts could be at least double, resulting in minor to moderate impacts.	Same as alternative 2.
Wildlife—long term	No long-term impacts are anticipated.	Habitat would be removed to create such bridge features as access roads and landings. In addition, car and truck traffic using the bridge could permanently disturb or displace wildlife near the landings. Planting courtyards could remove existing bird and other wildlife habitat. All of the above would result in minor impacts to wildlife.	Same as alternative 2, plus additional negligible to minor impacts to wildlife from the nighttime presence of humans and lighting on the island.

Impact Topic	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
Protected wildlife—short term	Short-term disturbance and possible displacement from construction activity with minor effects possible to Savannah sparrow and seasonal resident bird species.	Same as alternative 1, except the duration of activity and resulting impacts could be at least double. Minor to moderate impacts to Savannah sparrows, and minor impacts to other seasonal protected bird species.	Same as alternative 2.
Protected wildlife—long term	No long-term impacts are anticipated.	Possible minor impacts from the removal of Savannah sparrow habitat near the bridge landing or the presence of truck traffic along the bridge.	Same as alternative 2.
Water Resources			
Surface Water	An unknown degree of increase in turbidity and suspension of toxins currently in marine sediments could result from removing bridge pilings. Impacts could range from minor to major for the construction period. Additional negligible impacts from surface disturbance, fuel leaks, etc. during construction are possible. No long-term impacts are anticipated.	Same as alternative 1 for bridge removal activities. Additional likely moderate short-term impacts could result from the same activities associated with the construction of a permanent bridge. No long-term impacts are anticipated.	Same as alternative 2.
Groundwater	No impacts to groundwater are expected.	Unknown negligible to major impacts to groundwater aquifers from dewatering or contamination are possible, but not likely, if bridge landing locations require extensive groundwater pumping.	Same as alternative 2.
Air Quality and Noise			
Air Quality	Temporary emissions associated with construction vehicles would only be detectable in the immediate area. No detectable area-wide changes in air quality would result from construction or increased visitor use.	Same as no action, except emissions are expected to increase by about 5% over no action. Negligible to minor impacts.	Same as alternative 2.
Noise	Very loud noise (some over 100 decibels) would occur for short periods of time, with resulting short-term severe impacts to wildlife and visitors.	The same very loud noise (over 100 decibels) could continue for at least twice as long as no action to build a permanent bridge and complete rehabilitation of historic structures.	Same as alternative 2.

Table 2: Impact Summary Chart

Impact Topic	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
Hazardous Materials			
Marine Sediments	The resuspension of marine sediments could result in unknown, but likely no more than minor impacts from increased concentrations of heavy metals and other contaminants. The impacts would be temporary.	Resuspension of marine sediments and associated toxins related to bridge removal and new bridge construction could continue for at least twice as long as under the no-action alternative.	Same as alternative 2.
Soils	No impact from disturbing soils is expected.	Minor to moderate impacts to workers who could be exposed to heavy metals and other contaminants in soils during grading or excavating for permanent bridge landings or access roads. Long-term impacts negligible or nonexistent because of clean-fill cap.	Same as alternative 2.
Structure Rehabilitation	Negligible risk to workers removing asbestos and lead-based paint during stabilization because of standard mitigation.	Negligible risk to workers removing asbestos and lead-based paint during rehabilitation because of standard mitigation.	Same as alternative 2.
Social and Economic Environment			
Tourism	Tourism would increase by a negligible to minor amount each year over the life of the plan.	Extended programming would provide an additional minor benefit to tourism, which is expected to increase at a slightly higher rate than under no action.	Same as alternative 2.
Park Administration—Emergency Response	Emergency response times without bridge access are expected to increase by up to 10 fold, with resulting possible major impacts to the park's ability to provide fire, ambulance, or police protection.	No impacts to existing conditions would occur; however, compared to no action, a permanent bridge could provide up to major relative benefits in the park's ability to provide fire, ambulance, or police protection.	Same as alternative 2.
Transportation and Circulation			
Access to Ellis Island	Minor to moderate increases in ferry traffic and decreases in car and truck traffic to Ellis Island could result in the long term from bridge removal.	No impacts relative to existing conditions would occur; however, compared to no action, minor to moderate relative decreases in ferry traffic and increases in car and truck traffic from New Jersey to the island would occur.	Same as alternative 2.
Parking	Negligible impacts to parking may occur at Liberty State Park from increased visitation under the no-action alternative.	Negligible to minor impacts to parking in Liberty State Park could occur from increases in visitation expected from either action alternative.	Same as alternative 2, but possibly closer to minor impacts because of additional requirements for parking for overnight guests.
Circulation	Undetectable to negligible impacts to levels of service at intersections in the area are attributable to increased visitation resulting from any of the alternatives.	Same as alternative 1.	Same as alternative 1.

Impact Topic	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
Visitor Experience			
Long Term	Minor adverse impacts to the visitor experience could continue to occur from a lack of access to the larger experience of Ellis Island's historic structure and cultural landscape.	The combination of significantly increased visitor access to the majority of Ellis Island and the expansion of interpretive offerings could result in a major benefit to the visitor experience at Ellis Island.	Additional visitor experience benefits would derive from the provision of a conference and retreat center, with the option of overnight lodging accommodations. Otherwise, benefits would be similar to alternative 2.
Short Term	Negligible to minor impacts to the visitor experience from construction noise and dust associated with bridge removal and stabilization of buildings on Ellis Island.	Similar impacts as no action, but the period of time visitors would be subjected to construction noise and dust, and its effect on the visitor experience, would be at least twice as long.	Same as alternative 2.
Site Infrastructure			
Utilities	Existing utilities would remain as they are now.	Moderate benefits to the site from completing electrical and water utilities would take place.	Same as alternative 2.

Table 2: Impact Summary Chart

TABLE 3: PURPOSE AND OBJECTIVES OF TAKING ACTION AND THE MEANS BY WHICH EACH ALTERNATIVE MEETS THEM

Purpose and Objectives	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
Provide for the long-term rehabilitation, reuse, and protection of cultural and historic resources on Ellis Island.	The interiors of the Ferry Building and the Hospital Outbuilding and Laundry will continue to be rehabilitated; the remaining 28 buildings will be stabilized, but will eventually deteriorate. The long-term purpose and objective would not be met.	All historic buildings will be rehabilitated and reused through a phased program that relies exclusively upon philanthropic contributions and government appropriations. Dependent upon donations and public appropriations, the rehabilitation work may take 10 to 15 years or more to complete.	All of the buildings are rehabilitated in a timely and coordinated building program and adaptively reused through the efforts of a public/private partnership. Improvements could be accomplished in five to seven years.
Protect the island's cultural and natural resources	Natural resources would continue to exist as they are currently, and would be protected in compliance with NPS *Management Policies* and other relevant statutes.	Same as alternative 1.	Same as alternative 1.
Provide for the long-term rehabilitation and adaptive reuse of the island's Beaux Arts campus of integrated brick, stucco, and tile structures, with connecting corridors of masonry and glass, within a designed landscape of lawn and mature trees.	This objective would not be met. Individual buildings would eventually be lost when stabilization efforts can no longer preserve the building for any adaptive reuse.	Over an extended period of time, the entire campus of buildings would be rehabilitated by the National Park Service with the possible assistance of one or more nonprofit partners consistent with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.	The National Park Service would issue a Request for Proposals and select a private-sector partner to help finance and rehabilitate the entire campus. Major tenant would be the Ellis Island Institute and retreat center with overnight accommodations. A draft programmatic agreement (see appendix D) among the New York and New Jersey State Historic Preservation Offices, the Advisory Council on Historic Preservation, and the National Park Service would establish procedures for review and approval of all rehabilitation work.
Provide uses that complement the island's historic themes and related contemporary issues and that can be economically sustained.	This objective would not be met. The stabilized buildings would accommodate no uses and would eventually be lost altogether.	The nonprofit organizations would offer programs and exhibits that relate to the park's historic themes and related contemporary issues. Organizations would offer interpretive and educational programming on the island. Tenants would fund fit-out costs of space and would make lease payments to the park to help defray the overall cost of maintaining the buildings and landscape.	The Ellis Island Institute would offer programs, workshops, and retreats on a range of immigration and public health issues related to the broad historical themes of Ellis Island. The private partner would utilize conventional debt financing and the investment tax incentive program to offset development costs. Revenue generated by the retreat center would be applied to debt service and operating costs of the retreat center.

Table 3: Purpose and Objectives of Taking Action and the Means by Which Each Alternative Meets Them

Purpose and Objectives	Alternative 1: Continuation of Existing Management Direction (No Action)	Alternative 2: Ellis Island Partners — Day Use Only	Alternative 3: Ellis Island Institute With Overnight Accommodations (Preferred Alternative)
		Significant operating subsidies would be needed from governmental and private philanthropic sources to offset annual operating deficits.	Some gap assistance may be required to subsidize annual operating revenue.
Provide enhanced opportunities for visitors to understand and experience Ellis Island's history including managed public access to most of the island's cultural landscape.	This objective would not be met. The visiting public would be restricted from any access to the south side of Ellis Island.	Visitors would have general access to the majority of the grounds and many of the common areas within the rehabilitated buildings.	Visitors would have access to the majority of the grounds, but relatively less access to some of the common and public spaces within the rehabilitated buildings.
Provide a high level of security and safety for the visitors, staff, and resources of Ellis and Liberty Islands, and the ability to respond quickly in emergency situations.	A high level of security would be provided, although the eventual loss of the temporary service bridge, when it can no longer be maintained, will have a severe impact on the NPS's ability to provide for the safety and security of resources and visitors in emergency situations.	A high level of security would be provided. Visitors to Ellis Island by ferry would be screened before boarding in Manhattan and New Jersey. All vehicles utilizing the service bridge would be thoroughly screened before crossing. The service bridge would significantly improve emergency response time and evacuation.	A high level of security would be provided. Visitors to Ellis Island by ferry would be screened before boarding in Manhattan and New Jersey. All vehicles utilizing the service bridge would also be screened. The service bridge would play a critical role in facilitating emergency response and evacuation.
Provide thematically appropriate, safe, and economically viable access to and from the island in support of its adaptive reuse and security requirements.	This objective will no longer be met when the temporary service bridge can no longer be maintained and must be removed. All transportation to and from the island would be by boat or barge. Service, maintenance, and emergency response operations will be compromised and more costly following the loss of the service bridge.	Most visitors to Ellis Island would continue to arrive by ferry as immigrants did historically. The permanent service bridge will facilitate the rehabilitation and maintenance of the island's historic structures by providing an economically feasible means of access for construction, operations, and management activities.	Most visitors to the Immigration Museum and the Ellis Island Institute would continue to arrive by ferry. A permanent service bridge would be critical to the economic feasibility of constructing the institute/retreat center and operating/management activities. Some institute/retreat participants would be dropped off or picked up on the island by authorized and screened vehicles utilizing the service bridge.

Affected Environment

INTRODUCTION

This chapter provides a general description of the environment of Ellis Island and the surrounding study area. It is divided into two sections: this introduction section, which identifies important or interesting information about the park or study area; and the "Affected Environment" section, which describes the resources that could experience effects from one or more of the actions in the alternatives. The "Affected Environment" section describes the cultural, natural, socioeconomic, and logistic (such as traffic and infrastructure) elements of the environment. An impact analysis corresponding to each of the topics in this section is provided in the "Environmental Consequences" chapter that follows.

Additional information about the park is available by reading the *Statue of Liberty National Monument General Management Plan* prepared by the National Park Service in 1982. Although the *General Management Plan* was prepared 20 years ago, its stated goals are relevant today. For example, the *General Management Plan* identified the need for $50 million to restore the northern half of Ellis Island as an immigration museum and suggested the possibility of leasing the south side of the island to the private sector. That same year, the Secretary of the Interior established the Statue of Liberty-Ellis Island Centennial Commission, and the Statue of Liberty-Ellis Island Foundation was set up as the fundraising arm. In October 1976, Ellis Island was placed on the National Register of Historic Places (National Register).

In 1986 a temporary service bridge was constructed from Liberty Park, on the New Jersey mainland, to Ellis Island to aid in the construction of the museum and visitor center. The bridge was permitted and constructed as a temporary structure planned for removal after its construction-related purpose was fulfilled. The bridge remains in operation today and was stabilized in 2002. While all alternatives include removal of this bridge, alternatives 2 and 3 contemplate construction of a permanent service bridge in its place.

In 1990 restoration of the Main Building, the largest historic restoration project in United States history, was completed. The restored Main Building reopened as the Ellis Island Immigration Museum to celebrate the American immigrant experience. Over 20 million people have visited the museum since it opened. In the year 2000, the number of visitors to the museum reached nearly 2 million. Visitors numbers dropped to 1.5 million people in 2002 following the attacks of September 11, 2001, but are expected to rise steadily in the coming years. In 1996 the entire south side of Ellis Island was named one of the world's "most endangered sites" by the World Monuments Fund. The following year, the National Trust for Historic Preservation listed the abandoned buildings of Ellis Island as one of the nation's "most endangered historic places."

In 1998 a long-standing jurisdictional dispute was finally settled by the U.S. Supreme Court when it granted the State of New Jersey sovereignty over 22.5 of the island's 27.5 acres. Following the decision, New Jersey Governor Christie Whitman appointed an Advisory Committee on the Preservation and Reuse of Ellis Island. The deliberations and final report of that committee contributed significantly to the growing public awareness of the need for action. To further focus attention on the issue, a new nonprofit organization called Save Ellis Island! Inc. was established to raise funds to preserve the remaining buildings on Ellis Island. In 2001 the National Park Service signed a major fundraising agreement with Save Ellis Island! Inc.

In 1999 Congress appropriated initial funding for the temporary stabilization of the south-side buildings—work that continues today. Also in 1999, the Save America's Treasures program awarded Ellis Island funds to begin restoration of the Ferry Building, with additional matching funds being secured in 2000 by the New Jersey Governor's Advisory Committee. A second Save America's Treasures grant was awarded later in 2000 for restoration of the Hospital Laundry and Outbuilding.

HISTORIC SIGNIFICANCE OF ELLIS ISLAND

Ellis Island, located off the New Jersey shoreline in Upper New York Bay and within sight of the Statue of Liberty, is significant in its role as the principal federal immigration station in the United States between 1892 and 1954. Today Ellis Island has become a symbol of American immigration, the history of diversity in America, and the reasons

people still seek refuge in the United States. Before it was destroyed by fire in 1897, approximately 1.5 million immigrants were processed on Ellis Island at the first federal depot for the Port of New York. A new inspection station was built and opened on the island in 1900 with the completion of the massive Main Building. During the first half of the 20th century, the small original island (approximately 3 acres) was enlarged to encompass three connected islands covering 27.5 acres on which were built some 41 structures, including a general hospital and contagious disease hospital complexes. These facilities provided for the administration of federal immigration laws in the processing of incoming immigrants. It is estimated that some 12 million immigrants entered the United States through Ellis Island.

The physical aspect of Ellis Island embodies the American ideals of freedom, democracy, and an open society. Major characteristics that contribute to Ellis Island's symbolic presence are its siting in New York Harbor on a large, clearly artificial island that can be seen from many vantage points around the harbor; its dramatic profile rising from a flat land mass; the circulation system within the property; the views of New York and New Jersey from the island; and the building complex itself, the details (profiles, plans, materials, workmanship, doors, windows, cornices, roofing, and ornament) of which contribute to the overall characteristics of Ellis Island.

The physical and social history of Ellis Island also reflects important transitions in American attitudes toward immigration. Between 1900 and 1914, immigration was at its highest level for the 20th century, reaching its peak in 1907 when more than one million aliens passed through Ellis Island. After a sharp decline in immigration during World War I, a period that saw the island used primarily as a military hospital and detention and deportation center for suspected enemy aliens, the flow of aliens quickly revived. However, immigration was altered dramatically with the passage of immigration restriction laws in the early 1920s. These statutes, which placed a ceiling on annual immigration and established quotas for foreign nations, also provided for the primary inspection of immigrants in American consulates in the immigrant's country of origin. Thereafter, only those immigrants whose status in this country was questioned, whose papers were not in order, or who required medical treatment were sent to Ellis Island. The facilities were increasingly used for the assembly, detention, and deportation of aliens who had violated the terms of their admittance. Thus, while the early history of the Ellis Island immigration station reflected America's liberal "open door" attitudes toward immigration, the later history of the island was shaped by the new national policies that succeeded in narrowing the open door to America.

LAND USE

ON-SITE USES

Ellis Island is completely owned and operated by the National Park Service and is part of the Statue of Liberty National Monument. Public access is currently limited to the Main Building (Ellis Island Immigration Museum) and surrounding grounds. Park administration buildings are located immediately west of the Immigration Museum. Currently, buildings on the south side of Ellis Island are undergoing stabilization work to stem further decay of resources.

LIBERTY STATE PARK

Opposite the Statue of Liberty and Ellis Island, Liberty State Park encompasses approximately 800 acres. Over 2 million persons visit Liberty State Park annually, making it the most popular of all state parks in New Jersey. Besides natural amenities, such as wetland habitats, the park offers an interpretive center, playground facilities, the historic Central Railroad of New Jersey Terminal, and the Liberty Science Center. Approximately $90 million has been expended in the first stages of the park's development. The initial phase of a 400-slip boat marina at the northern end of the park has been completed. The Liberty Science Center, a 200,000 square foot, $50 million science museum located in Liberty State Park, is a marquee attraction that opened in 1992. In 2000 additional improved open space was provided (Millennium Park), and Liberty House Restaurant opened in 2002. The nonprofit New Jersey Tree Foundation is developing plans for a memorial arboretum to be planted within Liberty State Park. This "Grove of Remembrance" will be located within a 10.8-acre parcel of land on the south side of Audrey Zapp Drive and will be intended as a living memorial to the 691 New Jersey residents killed in the attacks on September 11, 2001.

GRAND JERSEY MEDICAL CENTER

Immediately adjacent to the entrance to Liberty State Park on Jersey Avenue, construction is underway on the Grand Jersey Medical Center, a $180 million, 325-bed medical facility. This project, scheduled for completion in 2004, is a partnership of the Jersey City Medical Center, the New Jersey Economic Development Authority, and the City of Jersey City.

JERSEY CITY

Jersey City's historic industrial waterfront has been replaced with residential and office development — particularly in the financial services sector. Demand for office space is very strong: as of the fourth quarter of 2002, vacancy of Class A office space was less than 5%. In the period between 1990 and 2002, over 15 million square feet of office space and nearly 80,000 new residential units were developed. Four hotels providing nearly 950 rooms have been completed or are under construction. The former location of the Colgate Palmolive Company has been transformed into 6 million square feet of office space and 800 residential units. The Goldman Sachs office tower under construction now will be the tallest building in New Jersey and mirror the office towers of lower Manhattan. In addition to development at the Exchange Place District, Colgate Redevelopment Area, and the Tidewater Redevelopment Area, other ongoing residential projects will add over 450 new residential units at Fultons Landing, Pier House, and Hudson Point.

POPULATION

STATE OF NEW JERSEY

According to 2000 Census data, New Jersey has a population of 8,414,350, an increase of slightly more than 9% over the last decade. According to census figures, nearly 73% of that population is classified as white (a 6% decrease since 1990), nearly 14% as Black/African American (similar to 1990), and approximately 13% as Hispanic or Latino (a 4% increase since 1990). Since 1990 the minority population has increased from approximately 21% to more than 27% of the total population.

Owner-occupied housing constitutes 65% of the New Jersey housing market, with a median house value of $162,300. Renter-occupied housing composes the remaining 35% of the housing market with a median monthly rent of $521. The average per capita income for 1989 was $18,714. Earnings of 7.6% of the state's population fall below the poverty level.

HUDSON COUNTY

According to 2000 Census data, Hudson County has a population of 608,975, an approximate 9% increase over 1990. The majority (55%) of that population is classified as white (approximately 13% decrease since 1990), 13% as Black/African American (a 1% increase since 1990), and nearly 40% as Hispanic or Latino (an increase of about 7% since 1990). Since 1990 the minority population has increased from approximately 48% to more than 53% of the total population

Owner-occupied housing constitutes 31% of the Hudson County housing market with a median house value of $157,000, roughly 3% lower than the state of New Jersey median value of $162,300. Renter-occupied housing composes the remaining 69% of the housing market with a median monthly rent of $465, nearly 11% lower than the state of New Jersey median of $521.

The average per capita income in Hudson County for 1989 was $14,480, 23% below the state average. Earnings of approximately 15% of the county's population fall below the poverty level, nearly twice the state figure for wage earners living below the poverty level.

JERSEY CITY

Jersey City has a population of 240,055, a 5% increase since 1990. Thirty-four percent of that population is classified as white (a 14% decrease since 1990), 28% as Black/African American (a decrease of more than 1%), 28% as Hispanic or Latino (a 4% increase since 1990), and the remaining 10% as other ethnic origin. Census Tract 47 encompasses the westernmost portions of Jersey City, including Liberty State Park. This tract extends beyond the study area and comprises less than 1% of the total Jersey City population.

Owner-occupied housing constitutes 28% of the Jersey City housing market with a median value of $127,700, 21% lower than the state median value of $162,300 (1989 Census data). Renter-occupied

housing composes the remaining 72% of the housing market with a median monthly rent of $464, nearly 11% lower than the state median rent of $521.

The average per capita income in Jersey City for 1989 was $13,060, 30% below the state average and 10% below the county average. Earnings of approximately 19% of the Jersey City population fall below the poverty level, more than twice the state percentage and 30% more than the county percentage.

NEW YORK COUNTY

According to 2000 Census data, a portion of Ellis Island is in New York State as part of New York County. The census data for this area is Census Tract 1 Block 1. In the 1990 Census data there were six people living in this portion of New York County, primarily park service employees on Liberty Island. Several NPS staff remain housed here.

ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations," requires all federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. The goal of EO 12898 is to require each federal agency to ". . . identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations" (section 1-101, EO 12898, 1994).

The purpose of the environmental justice review is to determine if a disproportionate share of the proposed project's socioeconomic impacts that may be considered significantly adverse are borne by low-income and minority communities.

The environmental justice evaluation of the demographic and economic census data indicates that minority residents dominate the surrounding urban area. The poverty level for the surrounding area is above the Hudson County level and well above the percentage for New Jersey.

According to the 2000 Census data, 56% of the population of Jersey City is comprised of Black/African American and Hispanic or Latino minorities, consistent with the 53% minority population in Hudson County, but much higher than the New Jersey State minority population level of 27%. Between 1990 and 2000, the minority population has increased by approximately 5% at the city, county, and state levels.

According to 1989 economic data, the percentage of residents with earnings below the poverty level in Jersey City was 19%. Fifteen percent of the Hudson County population was classified below the poverty level while only 7.6% of the state population was classified below the poverty level.

As indicated earlier in the "Purpose of and Need for the Action" chapter, none of the activities anticipated in any of the alternatives would have disproportionate effects on disadvantaged communities. Although this supporting information is presented for public review, analysis of the impacts of each alternative indicated none would occur specifically on economically disadvantaged or minority communities, and so it was dropped from the affected environment and impacts analysis discussions.

AFFECTED ENVIRONMENT

CULTURAL RESOURCES

REGIONAL ENVIRONMENT

The Upper New York Harbor region surrounding Ellis Island is rich in historical and cultural resources, several of which exist within the study area. A number of properties on or eligible for the National Register of Historic Places (National Register) exist in the region and are described below to give some context for the importance of Ellis Island. A few properties in Lower Manhattan are designated National Historic Landmarks. This area has been selectively surveyed and studied to identify some of the properties eligible for the National Register of Historic Places. Selected National Register properties that exist within the region are listed below.

Statue of Liberty
National Monument, Liberty Island

Liberty Island is historically significant because it is the home of the Statue of Liberty. The statue is so monumental that its significance is established by its architecture, engineering, and artistic accomplishments as sculpture. The island is also the site of Fort Wood, a part of the 19th century harbor defense system. The Statue of Liberty was constructed between 1875 and 1884, and it was dedicated in 1886. It was conceived and designed by the French sculptor Frederic Auguste Bartholi, with engineering of its iron skeleton by Gustave Eiffel.

The copper statue stands 152 feet above an 89-foot pedestal, making it easily visible in the harbor. It rises from the center of Fort Wood in a massive granite base designed by the prominent architect Richard Morris Hunt. The statue underwent major renovations in the 1980s, leading to its rededication in 1986—its centennial year.

France presented the statue to the United States in celebration of the two countries' friendship; however, it soon became the symbol of freedom and opportunity for immigrants to America. Taken together, the Statue of Liberty and Ellis Island are powerful visual representations of the American philosophy of liberty and democracy, as well as a collective symbol for the welcoming of immigrants at the turn of the 20th century.

Central Railroad of New Jersey Terminal

The CRRNJ Terminal is historically important because it is one of the last two major railroad terminals in Hudson County, the home of the coastal terminals in the later 19th and early 20th centuries. The eminent Boston architectural firm of Peabody and Sterns designed the terminal, which is located in the region of Jersey City once known as Communipaw Cove. Completed in 1889, it was the largest railroad terminal undertaken at the time and is now part of Liberty State Park. The architecturally significant Chateauesque-style structure included ferry and railroad terminals with four ferry slips leading to the train shed, a significant engineering achievement for its time. Although the tracks themselves have been removed, the building still stands as an important representation of the great railroad network in Jersey City.

Morris Canal

The Morris Canal Jersey City extension, located just north of the CRRNJ Terminal, retains its National Register significance as the third of the great Hudson River canals, constructed between 1825 and 1831 after the Erie and the Delaware and Hudson. The Morris Canal originally linked the Passaic River at Newark with the Delaware River at Philipsburg, and was extended in 1836 to connect to the Hudson River at Jersey City. Railroads soon supplanted the need for canal-based transportation, but sections of the system still exist. The end of the canal extension contains little cultural or historical association with Ellis Island, but is located in close proximity to it.

Castle Clinton National Monument

Castle Clinton National Monument is significant for its role in the chain of forts built for the defense of the harbor in the early 19th century and for its use as a major immigration station in the latter 19th century. The circular sandstone fort was constructed between 1808 and 1811 on an islet just off Manhattan's southern tip, eventually becoming fully integrated through landfilling. It was designed by Lt. Col. Jonathan Williams—architect of Castle Williams and Fort Gibson—with assistance from John McComb, Jr., one of the architects of New York's City Hall and Hamilton Grange National Monument. In 1824 Castle Clinton was converted into Castle Garden, a

theatre. It was then used as an immigration station from 1855 to 1890 and was closed just before Ellis Island opened for similar purposes in 1892. From 1894 to 1941 Castle Clinton was used as the New York Aquarium. It was designated a National Monument in 1946 and is administered by the National Park Service. Castle Clinton houses the ticketing facility for visitors to Ellis Island and the Statue of Liberty.

Governors Island

The eastern one-third of Governors Island is a National Historic Landmark. From the time of the American Revolution, Governors Island had been a major component of the coastal fortification system for the nation's largest harbor. The fortifications within the historic district are Fort Jay, a square four-bastioned fort, and Castle Williams, a circular casemated work. They date from before the War of 1812. Together with Castle Clinton, Fort Gibson (on Ellis Island) and Fort Wood (on Liberty Island) provided a formidable defense of the harbor. Fort Jay and Castle William now comprise the Governors Island National Monument. The northern part of Ellis Island can be seen from the northern shore of Governors Island, from approximately Castle Williams to the ferry terminal dock. The massive circular sandstone Castle Williams can be seen from Ellis Island. It was erected between 1807 and 1811, and designed by Lieutenant Colonel Jonathan Williams.

City Pier A

City Pier A is located at the northern end of Battery Park and was built between 1884 and 1886. It is the oldest pier on the waterfront of Manhattan, with the only pier shed from the 19th century. A clock tower built in 1919 is a memorial to American servicemen killed in World War I.

Whitehall Building

This building was designed by Henry Hardenbergh and built between 1902 and 1904. The office building was very profitable, and its owners enlarged it between 1908 and 1910, with plans by Clinton and Russell. It is characterized by its large size, color scheme, and terracotta ornamentation on top.

International Mercantile Marine Company Building

This building was constructed between 1882 and 1887 as the red brick Washington Building. After it was acquired by the International Mercantile Marine Company in 1919, it was given a new façade and interiors. The company was the world's largest steamship company.

United States Custom House

Listed as a National Historic Landmark, the Custom House was constructed between 1900 and 1907. It is an outstanding example of Beaux-Arts elements in a government building and one of noted architect Cass Gilbert's finest designs. It includes sculpture by Daniel Chester French and murals by Reginald Marsh.

Bowling Green Park and Historic Fence

This 18th century park was enclosed by an iron fence. Both the park and fence are among the few surviving landscape features of Colonial New York.

Bowling Green Station Control House

Built between 1904 and 1905, this entrance has always served the Bowling Green subway station. It was constructed by the Interborough Rapid Transit Company, which built New York's first subway lines.

Watson House

Built for James Watson (1793, extension 1806), this house is a survivor from the days when State Street was a prestigious residential neighborhood. Its design is attributed to John McComb. It was also the home of Elizabeth Ann Seton, who was the founder of the Sisters of Charity and first American-born Roman Catholic saint.

ENVIRONMENT WITHIN THE PROJECT AREA

The site of Ellis Island involves a cultural history ranging from prehistoric times (approximately 3,000 years ago) to the present. The most complete record of human use dates from the last 400 years to present. The site currently exists as a complex of

approximately 41 structures (34 of which are buildings) mostly of brick, stone, and stucco construction as shown in the NPS *List of Classified Structures* (NPS 1995b). Structures range from one to three stories in height and are specifically associated with the Ellis Island "immigration period" (1892–1954), which is defined as the "period of significance." For this time period, the site has been determined eligible under two criteria (A and C) for the National Register of Historic Places (NPS 1976). The specific elements that contribute to significance under each criterion are described below:

Criterion A — Buildings or landscapes can be found significant for their association with events related to broad patterns of United States history. This criterion is reflected in Ellis Island's influence on events that have significantly contributed to the history of the United States. Unique to Ellis Island, these events are characterized by the great wave of immigration during the early 20th century that helped shape the United States socially, economically, and politically. In addition, prior to the immigration station, the island played a significant role as part of the harbor defense system of the late 18th and early 19th centuries.

Criterion C — An historic structure or complex can be significant because it embodies distinctive characteristics of a particular construction technique. This criterion is represented in the collection of Beaux Arts-style buildings on Ellis Island. The Main Building is one of the several dozen great Beaux Arts public monuments in the country. The major characteristics of the Ellis Island buildings are largely intact and possess integrity of location, design, materials, and workmanship, as well as feeling and association with the immigration period.

Between 1892 and 1954, major changes occurred as the size of the island was increased and additional buildings were constructed. The island's built environment and cultural landscape, although deteriorated, remain largely intact, as does the overall setting of the island in the harbor. Information on the specific cultural resource elements of Ellis Island is presented below.

HISTORIC ARCHITECTURAL RESOURCES

The site exists today as a complex of approximately 41 structures dating to the "immigration period" (1892–1954). Between 1897 and 1901, the original Beaux Arts-style structures were planned and built, including the Main Building, the Kitchen and Laundry Building, and the Powerhouse on Island 1, and the Hospital Outbuilding and Laundry on Island 2. A simple ferry building was built during this period but was replaced between 1934 and 1936 with the current Art Deco structure.

For the most part, the existing historic building complex was built between 1900 and 1937 as the United States Immigration Station and encompasses the Beaux Arts and Moderne styles of architecture. The Main Building and Hospital Complex resolutely communicate authority, solidity, and grandeur, the dominant architectural language of Ellis Island.

In particular, the Hospital Complex, operated by the United States Public Health Service on Islands 2 and 3, is noteworthy in that it is one of the largest hospital complexes to be built in a single campaign in the United States during the first decades of the 20th century. Its notable architectural design further contributes to its significance.

In the early years of Ellis Island's use as a United States immigration station, before the passing of acts restricting immigration, the Immigration Service had little means of controlling either the quantity or physical well-being of the waves of immigrants. A number of immigrants arrived with communicable diseases such as chicken pox, measles, diphtheria, tuberculosis, mumps, and ringworm. The various hospital buildings were designed to meet this challenge. The hospital's design included a series of freestanding, standardized pavilions that were connected to each other, to the medical facilities, and to the rest of the buildings on Island 1 by a system of weatherproof galleries. This design, with its decentralized pavilions, is significant because it represents a particular theory of contagion control-by-isolation carried to its highest point before the appearance of the modern pharmacopoeia of antibiotics. (Beyer et al. 1988). Thus, regarding both historic and artistic significance, the Ellis Island Hospital Complex is an important monument. Size alone makes it compelling and the design, in the unity and coherence of its Georgian Revival idiom, makes it reminiscent of Jefferson's campus design for the University of Virginia. All of the buildings within the Hospital Complex are integral to one another, so much so that the removal of one structure would prove detrimental to the whole.

Taken as a representative whole, the buildings of Ellis Island were many immigrants' introduction to the architecture of the United States and likely shaped their first impressions of the country. The preservation of those individual design elements that collectively contribute to the integrity of the architectural resource are, therefore, part of both action alternatives.

DEFINING ARCHITECTURAL CHARACTERISTICS

A *Historic Structure Report* (Unrau 1981) for Ellis Island was prepared in 1981. Subsequently, in 1984 the historical component was completed for a *Historic Resource Study* (Unrau 1984) of Ellis Island. The defining architectural character of Ellis Island is well documented.

Massing and Scale

The architecture of the buildings on Ellis Island follows a progression from the imposing to the welcoming. From the Main Building to the farthest Isolation Ward, the scale of each structure is reflective of its function and purpose. Individual buildings appear to advance from and recede into their environment. Some structures, such as the Ferry Building, Psychopathic Ward, and Main Hospital, dominate the surroundings. Others, such as the Isolation Wards and Staff House, are more submissive. This oscillation between the grand and the modest helps to shape the overall feeling of the island and to maintain the symbolic and historic importance of each structure.

Materials

Dominant construction materials—limestone and brick, terra cotta and stucco, clay tile and copper—were apparently chosen not only for their inherent durability, but also for their connotations of permanence and beauty (Beyer et al. 1988). Several materials, such as brick and limestone, are used in combinations to render pleasing and, sometimes, startling contrasts. Undulating red clay roofs feature massive copper gutters and detailing. Bulls-eye windows framed by red brick punctuate walls of earthy, pebbledash stucco. Although later structures, such as the Ferry Building and the Recreation Hall, lack exuberant ornamentation reflecting a later design vernacular, the use of common materials such as brick and limestone firmly relate these structures to the whole (Beyer et al. 1988).

Fenestration

Aside from the functional requirements of light and ventilation—of topical concern for any medical facility—the windows of Ellis Island were, in fact, the only view many immigrants had of the new world, especially if they were confined to isolation wards for long periods of time. Architecturally, the windows at Ellis Island contain a fair amount of ornamentation (such as keystones, terra cotta, and limestone trim and quoins) that contributes to the complete visual impact of the complex.

Corridor System

Most of the buildings on Ellis Island are interconnected by means of a covered corridor system. This system was an obvious circulation choice considering the harsh winter conditions of a relatively small, flat island in the New York Harbor, where patients, doctors, nurses, and staff needed access to all parts of the island year-round. Architecturally, the corridor, with its brick base, arched windows, and clay tile roof, provides a steady, unassuming theme through which the individual buildings harmonize with each other. The earliest and latest structures are united, literally and figuratively.

Stairwells and Associated Light Monitors

The basic floor plans of the south-side buildings have not been modified substantially since their original construction. One of the more distinguishing features of these plans is the location and configuration of the stairwells and monitors, particularly in the main hospital complex on Island 2. Aside from their role of providing strategically placed vertical circulation and egress, the stairwells also serve to reinforce the architectural language of the buildings, stepped back slightly in elevation and articulated at the roofs by means of octagonal light monitors. Each of these subtle gestures is meant to telegraph an interior function to an exterior expression of massing and detail (Beyer et al. 1988).

Interior Spaces and Features

Some hospital interior spaces and features present a vivid record of the specific uses for which they were

designed. Planned and constructed as a fully self-sustaining entity, the hospital's layout and facilities responded to the latest medical theories regarding the nature and treatment of contagious diseases. Future rehabilitation and reuse of the hospital buildings should preserve the historic character of those interior spaces that are particularly evocative and/or significant to the understanding of how the hospital functioned. Examples of such relevant interior spaces include the Laundry Press (Laundry Building, 1st Floor); the Operating Room in the hospital extension, 3rd floor; the Autopsy Theatre/Morgue and Boiler Room, both located in the Powerhouse 2 building.

CULTURAL LANDSCAPE

Ellis Island's cultural landscape has been extensively altered from its earliest history as a Native American seasonal hunting and fishing ground to its current incarnation as the Ellis Island Immigration Museum and historic site. The earliest changes came with the implementation of commercial, domestic, and military land uses by 17th and 18th century colonists and the accompanying addition of buildings, fortifications, and associated small-scale features. Construction of the first immigration station between 1890 and 1897 shifted the island's primary land use to immigration and changed its special organization by creating a campus-like setting of facilities that remained consistent throughout subsequent phases of island development. Completion of the second immigration station in 1897 and the addition of landfill to create Islands 2 and 3 altered many landscape characteristics, including spatial organization, circulation, topography, and vegetation. The new buildings were once again clustered in a campus arrangement, but this time they were set back from the water's edge, creating more open space and emphasizing the facility's importance. For many immigrants during the first decades of the 20th century, the island's landscape was their initial introduction to America. Recognizing this, Commissioner William Williams implemented changes to enhance the station's status as the country's premier immigration station, including creating a more formalized landscape with defined walkways, expansive lawns, and ornamental plantings. This period was likely the most significant and eventful in the frequency and significance of landscape change.

During World War I, the landscape remained relatively unaltered. It showed evidence of neglect when the island reopened for immigration after the war, but post-war priorities centered on reestablishing immigration operations and maintaining deteriorating buildings, leaving limited resources available for the ornamental landscape. However, throughout the ensuing decades landscape improvements did occur. Landfill projects during the 1920s and 1930s increased the island's size to 27.5 acres, while development and partial implementation of a comprehensive planting plan in the 1930s and 1940s provided a sense of overall order and continuity in the landscape. The present circulation patterns, open spaces, and rows of small trees on the leeward side of the island were established during this period.

Changes in the immigration patterns and island operations directly influenced how the cultural landscape evolved and was maintained throughout the late 1940s and early 1950s. The shift from immigration processing to detention led to the creation of more fenced outdoor spaces for detainee and employee recreation and less emphasis on maintaining a highly manicured formal landscape. Soon after the island was abandoned in 1954, vegetation became overgrown and obscured the designed landscape, although some features like the circulation system of walkways remained relatively unchanged. Interest in island preservation led to subsequent construction projects in the 1970s and 1980s that modified portions of the landscape on Island 1 for new uses. In the 1990s, NPS planners began to recognize the importance of the cultural landscape in the overall island rehabilitation. Planning efforts began to comprehensively address the island's cultural landscape, including work to preserve and stabilize the landscape and structures on Islands 2 and 3.

Currently, the island's cultural landscape includes remnants of the development that occurred in the 1940s, along with a layer of contemporary additions. Much of the remaining landscape, particularly on Islands 2 and 3, remains in poor condition. The historic character of the landscape is discerned through examination of the island's primary landscape characteristics.

Thirty-four historic buildings are included within the Ellis Island's *List of Classified Structures* (NPS 1995b), which also includes additional structures such as corridors, a flag pole, water tower, walkways, ferry slip, and seawall. These buildings and other

structures are in varying states of rehabilitation, stabilization, or abandonment. Several nonhistoric structures, such as the reconstructed water tower, NPS guardhouse, concession kiosk, and maintenance building, also exist on the island. Vegetation dating to the 1940s remains dominant on the island, including London planetree (*Platanus acerifolia*) which lines the ferry basin, and various other trees and shrubs planted along the walks and between buildings on Islands 2 and 3. Open lawns are also present on all three islands, generally following the historic layout, with slight modifications on Island 1 for the addition of the contemporary entry portico and Wall of Honor. Modern additions include flowerbeds and newly planted trees on Island 1, and volunteer trees and shrubs at various locations on all three islands.

Both on-site and off-site views have changed. On-site views have recently improved with the removal of overgrown vegetation and the continuing rehabilitation of the island's facilities. Off-site views are more varied with the growth of the urban environment. They are dominated by the lower Manhattan skyline (now absent the World Trade Towers) to the northeast, the Statue of Liberty to the south, and Liberty State Park to the northwest.

Extant small-scale features include a combination of historic items, including iron cleats along the ferry slip, water hydrants, manhole covers, the main flagstaff, remnants of light poles, fencing, a bird bath, flagpole foundation, a cinder rubble wall, and a trash can, and contemporary features such as new lighting, benches, trash cans, fencing railings, and NPS signage.

DEFINING CHARACTERISTICS

Of the landscape characteristics identified for Ellis Island, three categories stand out as the most significant for preservation of the cultural landscape: spatial organization, circulation, and vegetation (NPS 2001b; NPS 2002). Additionally, preservation of some of the island's small-scale features would also assist in maintaining the cultural landscape's integrity to a lesser extent.

Spatial Organization

Of primary concern is the island's spatial organization. Throughout its history, the campus feel of the immigration station has been preserved despite numerous phases of development and subsequent decline. The clustering of buildings around the ferry basin and the preservation of open spaces between buildings has allowed this campus feel to be maintained. The campus setting is further reinforced by open lawn areas, small courtyards between buildings, linear tree plantings, and the geometric pattern of the walkways. Land use has changed from immigration and detention to commemoration, interpretation, and preservation, resulting in numerous landscape additions like the Wall of Honor, concession areas, crowd-control features, and signage. The topography remains relatively flat and level, much as it has been throughout the island's history.

Circulation

Closely related to the spatial organization is the island's internal circulation system, which includes covered corridors and elements of the historic walkway system with contemporary improvements and upgrades, especially around the rehabilitated Main Immigration Building on Island 1. The geometric layout of the sidewalks and corridors on all three islands has been a major feature of the landscape since the 1940s. This pattern of development also contributes to the island's spatial organization by providing connections between individual buildings and open spaces. Circulation to and from the island is provided by boat, as it was historically, and for limited purposes, by vehicle with the addition of the nonhistoric temporary service bridge to New Jersey.

Vegetation

Vegetation patterns, as well as individual historic trees, are also an important contribution to the integrity of the cultural landscape. The linear plantings of trees along the ferry basin and sidewalks, the historic pattern of trees and shrubs on Islands 2 and 3, and the established lawns on all three islands have been defining elements of the cultural landscape since the historic period. Mature historic trees, including the London planetree (*Platanus acerifloia*) on Island 1 and other identified historic species on Islands 2 and 3, are significant contributors to the island's historic character.

ARCHEOLOGICAL RESOURCES

TERRESTRIAL ARCHEOLOGICAL RESOURCES

Ellis Island contains prehistoric and historic archeological resources. These resources range in age from at least the pre-European hunting and gathering Woodland period (approximately 3,000 to 400 years ago) to the closing of the second immigration station in 1954. Many of these resources have been documented over the past 20 years through planned research and unplanned discoveries. Most of these archeological resources are unique and can illuminate information about prehistory and history not available through other sources or disciplines.

Prehistoric hunters and gatherers exploited the rich estuarine environment offered by the mixing of the Hudson River and the Atlantic Ocean. This environment provided resources including an abundance of plant species, large and small mammals, local and migrating birds, finfish, and diverse shellfish. Ellis Island, like its neighbor Liberty Island, was known as one of the "Oyster Islands" in the harbor because of the large number of Eastern oysters that could easily be gathered in the waters surrounding the island. A large Middle/Late Woodland-period shell midden was excavated on Liberty Island a few years ago.

European settlers also gathered oysters from waters around Ellis Island, and the locale was noted for shad fishing. By the 18th century, a tavern may have been located on the island. Beginning in 1765, Ellis Island was used for the execution of people convicted of piracy. While artifacts or features associated with this period of the island's history may be found, their existence is far from certain, and they will probably be accidentally discovered. Most of the deposits, artifacts, and features from either prehistoric or early historic times will likely be deeply buried by the large fill deposits used to level and expand the island.

As noted in the section "Brief History of Ellis Island" and elsewhere in this document, the island was an important piece of the defense of New York Harbor, and chances are good that remnants exist of fortifications dating back as early as 1794, from Fort Gibson and from later use as a naval munitions storage area.

Beginning in the 1890s, Ellis Island grew through land filling. What began as a small island of approximately 3 acres expanded to its present size of 27.5 acres by the time the immigration function of the island was discontinued. The present configuration developed as a result of several different expansion episodes rather than a single design. The northern and western edges of Island 1 (i.e., the northern part of Ellis Island) consist of land created in the 1920s and 1930s. Fill material used to create this land does not have much archeological value. Discrete soil deposits within the fill, however, and the bulkheads constructed to retain it, may have some further research value. When the land was created, wharfs or docks may have been buried beneath the fill. Any remains of such structures, or other features, may also have archeological value.

Several archeological projects conducted on the island through the last 25 years have documented archeological resources from several of the periods mentioned. The most important and extensive research projects are those conducted by John Pousson in the 1980s and by Hunter Research, Inc., in the 1990s.

John F. Pousson prepared an "Archeological Overview and Assessment of Archeological Resources on Ellis Island of Statue of Liberty National Monument, New York" (Pousson 1986). In the assessment, Pousson discusses the prehistory and history of the island in great detail and presents numerous maps and historical documents noting the known resources. A systematic archeological survey of the resources was also conducted over the island, and the results were reported in the assessment. This survey provided coverage for most of the island, and it documented many deposits connected with the first and second immigration stations. Pousson's report also notes the presence of a shell midden, human skeletal remains, and a few fragments of prehistoric pottery in the Main Building basement (Pousson 1986). Pousson's conclusions are summarized as follows:

> Evidence of prehistoric use of Ellis Island may be expected on remnants of the island's original surface (i.e., on portions of Island 1).
>
> Historic use (including commercial and military use) may be represented by deposits found (a) beneath and north of the Main Building and (b) beneath, north, and northeast of the Kitchen and Laundry Building. The area between the Main Building, the Kitchen and Laundry

> Building, and the Baggage and Dormitory Building, therefore, has the potential for containing historic archeological remains.
>
> Development of the first immigration station and its destruction by fire in 1897 are likely to be reflected in "abundant and significant archeological resources" on Island 1.
>
> "The remarkably well documented development of the second immigration station also resulted in archeological resources, but the structural preservation of nearly the entire station and the operational routines for immigrant activity and debris disposal seriously limit the quantity and significance of these resources." Artifacts associated with immigration and related activities do, however, "possess a significance which surpasses the archeological potential of their context. This significance derives from the artifacts' direct association with a nationally renowned historic site, and their potential for enhancing the public's appreciation of that site through their interpretation and display."

One of the major drawbacks of the investigations reported in the "Archeological Overview and Assessment," however, was that the testing examined deposits only 1 to 1.5 feet below the 1986 grade, which limited the ability of the testing program to document deeply buried deposits or features. Moreover, the work did not focus on utility infrastructure, which can be interpreted and evaluated as industrial archeological resources that reflect engineering and technology from 1892 to 1954.

Hunter Research, Inc., conducted extensive excavations on Ellis Island in the early 1990s in anticipation of the construction of the Wall of Honor (Hunter 1993). This research project uncovered portions of military works (such as foundations of the parapet and barracks dating from 1794, 1807–1812 [Fort Gibson], and later) and the first immigration station (i.e., Disinfecting House and the Kitchen and Restaurant, 1890–1897). Part of Fort Gibson was incorporated into an interpretive design and is now on public display. These excavations provided detailed evidence of the existence of archeological remains connected with use of the island during the 19th century.

MARINE ARCHEOLOGICAL RESOURCES

As an island, Ellis Island has both documented and potential archeological resources lying underwater. Foremost among these are the remains of the sunken ferry Ellis Island. This ferry entered service as a passenger and staff boat for Ellis Island in 1904 and ran almost continuously until 1954. When the island was transferred to the National Park Service, the ferry was also included. In 1968 the ferry sank at the dock within the ferry slip in its present position. Efforts to raise the ferry in 1987 and 1988 by the U.S. Navy were unsuccessful and the wreck remains in the ferry slip where portions of it are visible at low tide. In July 2002 the NPS Submerged Cultural Resources Unit spent more than a month documenting the remains of the ferry and assessing its rate of decay.

In April 2002 a remote sensing survey in the ferry slip and around the island produced numerous magnetic anomalies indicative of cultural resources. While many, if not most, of these anomalies are likely modern debris such as pipes and building materials, some may represent the historical use of Ellis Island.

MUSEUM RESOURCES

The Statue of Liberty and Ellis Island museum collections consist of approximately 35,000 objects, as well as archival and archeological collections. These collections are used to document and interpret the following themes:

> The history of the Statue of Liberty, its design, construction, restoration, and fundraising activities
>
> The Statue of Liberty as an evolving symbol of liberty and freedom
>
> The history and development of Ellis Island as a major immigration station and hospital complex, 1892 to 1954
>
> Other uses of Ellis Island, including a detention center for enemy aliens, hospital for American soldiers, and Coast Guard training center
>
> Prehistory, early European contact period, and 19th century military history of Bedloe's and Ellis Islands.

Part of the museum collection is presently stored in the Recreation Hall (*List of Classified Structures* # 22666, NPS 1995b). The objects include furniture left on Ellis Island after it closed in 1954, pieces of the original copper towers on the Main Building, original armature bars from the Statue of Liberty, molds used to create the 1986 Statue of Liberty torch, and assorted building fragments from Ellis Island buildings.

The Recreation Hall was designed as a theatre for immigrants and staff and retains many of its original features. A large open shelving system stands in the center of the auditorium, providing 6,500 square feet of museum storage. The stage and several smaller adjacent rooms also contain museum objects.

The museum collection stored in the Recreation Hall would need to be moved to another location before that building could be rehabilitated for future use. The park's *Collection Storage Plan* and *Collection Management Plan* are being updated in 2003, and these plans will provide further guidance in identifying and developing a new museum storage area for these collections. The park is interested in rehabilitating the Immigration Building (*List of Classified Structures* # 22660, NPS 1995b), also known as the New Immigration Building, for use as museum storage where current collections could be moved. However, the museum collection would not be moved out of the Recreation Hall until rehabilitation of the New Immigration Building is complete and meets NPS collection storage standards.

NATURAL RESOURCES

GEOLOGIC RESOURCES AND SOILS

In 1908 the bedrock beneath Ellis Island was first identified as Hudson Schist. Borings conducted in 1984 for the construction of the existing temporary bridge confirmed the presence of mica schist bedrock. The schist is also mapped beneath Liberty Island and westward to approximately the inshore end of the Morris Canal Basin (MRCE 1993).

Geologic maps indicate that the bedrock is overlain by soils of glacial origin. The glacial soils comprise heterogeneous mixtures of sand, gravel, silt, and clay with cobbles and boulders. Overlying the till on the river bottom and near shore are recent river sediments composed of organic silts.

Soils on Ellis Island, like most of eastern Jersey City, are filled land over nearly level, very poorly drained, very deep mineral and organic soils on tidal flats. Both the island and Liberty State Park overlie part of a broad, shallow tidal flat that stretched from Paulus Hook to Constable Hook in the city of Bayonne, and extended a mile eastward from the shoreline to the Hudson River Channel. By the end of the 19th century, it and neighboring land had been filled in using garbage from New York City, dredge spoils from New York Harbor, and fill materials from local industrial facilities. By 1872 a large promontory had been built just south of Paulus Hook. The Central Railroad of New Jersey laid track at the end of the promontory and constructed the existing CRRNJ Terminal. As demand for rail space increased, the railroads extended the shorelines to the east from the Jersey City waterfront by dumping debris and fill into the river and New York Bay. The fill material varies from 10 to 30 feet thick. The rail lines and piers were later removed for redevelopment into Liberty State Park.

The original size of Ellis Island, prior to its use as an immigration station, was approximately 3 acres (U.S. Supreme Court 1998). By the January 1892 opening of Ellis Island as an immigration station, the United States had added fill to the shoreline of the island to form a landmass of approximately 6 acres. With continued landfilling by the United States government, Ellis Island consisted of 14 acres of land by 1897. This portion of Ellis Island is now known as the north side or Island 1. By 1899 Island 2 (approximately 3 acres) was created to the southwest of the original island. This section of the island contains the Main Hospital Building, Administration Building, the Psychopathic Ward, the Hospital Outbuilding and Laundry, and the New Hospital Extension. The current ferry basin is located between Island 2 and the Island 1. Between 1903 and 1906, Island 3, with a landmass of approximately 4.75 acres, was constructed to the southwest of Island 2. A dock basin separated Islands 2 and 3. All three islands were connected along the northwestern side of Ellis Island by a covered gangway, supported by piles. During the 1920s the dock basin was filled, adding approximately 4 acres of land to the island. Islands 2 and 3 were then known as the South Island (now called south side). Finally, between 1933 and 1934, approximately 3 acres of fill were added to the north side of the original island and along the northwest side of the original island and the south side. A recent report (MRCE 1993) indicated that fill material on the northeast portion of Ellis Island, near the existing temporary service bridge, is approximately 14 feet thick.

Tests conducted by the New Jersey Department of Environmental Protection (NJDEP), in connection with the redevelopment of Liberty State Park, indicate that chemical compounds are present in the fill (see the "Hazardous Materials" section for more information). Although the New Jersey Department of Environmental Protection attempted to assess the risk posed by the freight yards in 1990, a lack of sufficient quantified data prevented it, and the department indicated a more thorough investigation was required. No decision has been made concerning the risk posed by soil contamination and how it might affect future development in Liberty State Park.

Areas that are within 100 feet of the centerline of Liberty Walk at the state park consist of clean fill that was brought in during the 1990s for the construction of the promenade.

MARINE SEDIMENTS

The marine sediments in the project area consist of the sub-bottom portion of New York Harbor located between the western edge of Ellis Island and Liberty State Park. This area includes the touch-down point or landing for the temporary service bridge. The portion of the harbor west of Ellis Island currently

ranges in depth from approximately 14 to 23 feet, with the deeper section located towards the middle of the channel.

Sub-bottom stratigraphy in the project vicinity generally consists of a layer of organic silt overlying glacial and/or lacustrine deposits of sand, silt, and/or clay. These deposits, in turn, lie on bedrock. In some restricted locations, possibly late-Pleistocene or early Holocene-aged peat deposits are located on top of the glacial deposits or immediately on top of the bedrock, with no glacial deposit present.

Studies of the channel between Ellis Island and Liberty State Park show that bottom sediments are high in oxygen-depleting organic material and various pollutants. Although information on the chemical and physical characteristics of sediments in the channel is not available, sediment contamination similar to that taken from other areas of New York Harbor is expected here as well (see the "Hazardous Materials" section for more information).

FLOODPLAINS

All of Ellis Island is in the 100-year floodplain as designated by the Federal Emergency Management Agency (FEMA). The 100-year flood occurs at an elevation of 3.1 feet (National Geodetic Vertical Datum of 1929). Flood elevations for the 10-, 50-, and 500-year storm events as depicted on the FEMA map are 7.4 feet, 9.4 feet, and 11 feet, respectively.

The FEMA map also shows the points where the temporary service bridge connecting Liberty State Park and Ellis Island are below the elevation of the 100-year flood event. However, both Ellis Island and Liberty State Park are protected from flooding by seawalls. The seawall protecting Liberty State Park (which includes protective berms) and Liberty Walk was constructed at an elevation of 11.7 feet above the 500-year flood level. Although this seawall protects most of the lower-lying areas of Liberty State Park, water from even a 100-year flood event could penetrate the seawall at the point where the bridge is cut into it. During the restoration of Island 1 and the development of Liberty State Park during the 1980s, the National Park Service and the New Jersey Department of Environmental Protection entered into an agreement in which the National Park Service allocated funds to the New Jersey Department of Environmental Protection for maintenance of the seawall.

Ellis Island and portions of Liberty State Park are not protected from high waves and both are vulnerable to wave action from long fetches within the harbor.

VEGETATION

Ellis Island has undergone numerous changes throughout its history. The original island was a 3-acre island with a tavern for fisherman. As described earlier in this document, it was later enlarged to its present size of 27.5 acres by landfill, and the landscape was extensively altered through the planting of trees and lawn areas and the addition of buildings, courtyards, and paths. As a result of these activities, few natural areas remain.

The northern portion of the island, largely outside the study area, is currently open to the public and includes the Ellis Island Immigration Museum and other tourist attractions. Vegetation continues to consist of landscaped lawns and gardens.

The southern portion of the island is covered with a number of buildings that have been vacant for approximately 50 years. Courtyards overgrown with weedy, invasive species and tree-lined walkways separate each set of buildings. The dominant tree species within the southern portion of the island is the Eastern Sycamore (*Platanus occidentalis*). While some of the weedy species have escaped from cultivation in the former gardens, others appear to have been wind borne or otherwise more "naturally" invaded. Of the over 250 plant species identified on Ellis Island, at least one-half are not native to the region. The most represented families of plant species observed during a site reconnaissance of Ellis Island in August 2001 (NPS 2001b) were *Asteraceae*, a highly diversified family of herbs, and *Poaceae*, primarily herbs.

Like Ellis Island, Liberty State Park has also undergone numerous changes that have affected vegetation. The site contained abandoned industrial buildings, unused railroad tracks, and dump sites when it was proposed as a state park. Clearing these structures also necessarily resulted in the clearing of much of the vegetation of the 1,156-acre park. Today, this open space is a mosaic of early and successional old-field plant communities, wooded thickets, emergent wetlands, and landscaped gardens.

Vegetative communities in the state park include a variety of species. In 1993 a plant survey conducted

by the New Jersey Department of Environmental Protection recorded over 150 plant species (NJDEP 1993).

Open fields in the park are dominated by species of wormwood, goldenrod, and boneset. Wooded thickets include pioneering hardwood species such as trembling aspen, eastern cottonwood, tree-of-heaven, and species of sumac. Approximately one-third of Liberty State Park has been landscaped as lawn, picnic areas, and parking areas. The lawn areas have been planted with a variety of grass species, including orchard grass, weeping love grass, fescue, bluegrass, and crab grass.

THREATENED AND ENDANGERED PLANT SPECIES

No recorded sightings of federally threatened or endangered plant species have occurred on Ellis Island or in Liberty State Park, although three state protected species have been found. The Canada hawkweed (*Hieracium kalmii*) is listed as endangered from New Jersey's official Endangered Plant Species List. The Canada hawkweed is typically found in a variety of habitats including woods, beaches, and fields, but especially in sandy soils. This perennial is located from Newfoundland to New Jersey and west to Illinois and British Columbia, and has been located on Ellis Island.

The New Jersey Department of Environmental Protection Natural Heritage Program classifies species as critically imperiled (S1), imperiled (S2), or rare (S3). The Ohio spiderwort (*Tradescantia ohiensis*) is classified by the program as an imperiled species (S2) in the state of New Jersey and has been located on Ellis Island (Canada hawkweed is listed as S1). This plant is typically found in meadows and thickets from Massachusetts to Minnesota, and south to Florida and Texas.

A 1990 vegetation inventory (Anderson 1990) found Torrey's Rush (*Juncus torreyi*), a species of special concern ranked critically imperiled (S1) in New Jersey in Liberty State Park. No rare (S3) species or any rare natural communities listed in the Natural Heritage Program database for Hudson County have been identified on Ellis Island or in Liberty State Park. Between 1995 and 1997, two vascular plant inventories were performed on Ellis Island. No federal threatened or endangered plants were sited. *Hieracium kalmii* and *Tradescantia ohiensis* were observed and documented.

FISH

Ellis Island is part of a regionally significant fish habitat complex (which includes the Upper New York Harbor of the Hudson River) with more than 100 species of finfish. Large concentrations of marine and estuarine species pass near the island as they migrate between the Atlantic Ocean and the Hudson-Raritan Estuary. In addition to these migratory species, the bay in the vicinity of Ellis Island supports seasonal and year-round populations of fish. Various surveys have been performed in the vicinity of Ellis Island (Texas Instruments 1976; NJDEP 1984). The surveys indicate dominant species such as striped bass, bay anchovy, blueback herring, American eel, and Atlantic silversides. The deeper-water areas directly west of Ellis Island, between Liberty State Park and Ellis Island, are important wintering habitats for striped bass and blueback herring. The near-shore waters of Liberty State Park, wetlands, and mudflats provide important nursery habitat for many species including the Atlantic tomcod, striped killifish, and mummichog.

THREATENED AND ENDANGERED FISH SPECIES

One protected species that occupies both brackish and fresh water in the harbor and Hudson River is the federal and state endangered shortnose sturgeon (*Acipenser brevirostrum*). The shortnose sturgeon spends the majority of its adult life in the less saline portions of the Hudson River where it occupies deep channels with strong currents. Spawning occurs in the upper reaches of the bay, and after spawning, the adult sturgeon move downstream. Nursery areas for juvenile and larval sturgeon in the Hudson River extend from Haverstraw Bay to Coeymans.

The Hudson River-Upper New York Bay is also an important habitat for several anadromous (those that travel into freshwater to spawn) fish of special concern, including the Atlantic or Gulf sturgeon (*Acipenser oxyrinchus*), Atlantic tomcod (*Microgadus tomcod*), hickory shad (*Alosa mediocris*), and rainbow smelt (*Osmerus mordax*). The hickory shad and the Atlantic tomcod are classified by the New Jersey Natural Heritage Program as a state species of special concern and

ranked as a rare species (S3) in New Jersey. The rainbow smelt is also classified as a species of special concern, ranked as "believed to be in peril but the degree of rarity uncertain" (SU) in the state of New Jersey. The Atlantic sturgeon is a federally listed threatened species. The majority of anadromous fish in the Hudson River estuary, including Atlantic sturgeon and hickory shad, spawn in spring. Two anadromous species, Atlantic tomcod and rainbow smelt, enter the estuary during the fall and remain until their respective spawns (early winter for tomcod and early spring for smelt).

WILDLIFE

With minimal natural areas, few species of reptiles or mammals have been documented on Ellis Island. Those that have been identified were typically located in the southern portion of the island where overgrown courtyards provide some cover and food. The most common mammals are mice and rats. Other mammals observed include muskrats, an Eastern gray squirrel, and a single Virginia opossum, which may have been extirpated. The only reptile observed recently by park officials was a garter snake.

A few species of amphibians, reptiles, and mammals, primarily those species readily adapted to urban environments or able to survive in smaller wetlands, have been documented in Liberty State Park. Open fields and thickets provide habitat for eastern cottontail rabbits, opossum, meadow vole, and Norway rat. Species inhabiting the wetland habitats include muskrat, snapping turtle, and painted turtle. The common garter snake and Fowlers' toad have also been observed.

Due to a lack of habitat, there are also few bird species actually on the island. The bulk of bird diversity on the island is located in the habitat provided by overgrown courtyards, which provide limited shelter and food. A recent field survey found species typical of urban areas, including song sparrow, rock dove, American crow, European starling, and barn swallow. Waterfowl observed include ring-billed gull, laughing gull, Canada goose, mallard, and double-crested cormorant. These species are common bird species located along the shorelines of New York and New Jersey. A pair of night herons has been observed inhabiting the trees in the vicinity of the Hospital Outbuilding and Laundry on the south side. At least one barn owl observed by park officials is now nesting in the attic of one of the hospital buildings.

While few bird species are able to live on Ellis Island, many more migratory and seasonal resident species use the open spaces and relatively diverse habitat in Liberty State Park. Surveys conducted since the mid-1970s (Texas Instruments 1976; (NJDEP 1994) recorded a total of 240 bird species in the state park and surrounding areas, 18 of which are under federal or state protection as threatened, endangered, or other special status (see below). The state park's shoreline attracts herons, egrets, and several types of waterfowl. The park is an important concentration area for wintering waterfowl such as brant, American black duck, canvasback, greater scaup, and Canada goose. Several species of raptors use the park during the spring and fall migrations and as seasonal residents.

NEW JERSEY THREATENED AND ENDANGERED WILDLIFE SPECIES

No sightings of federal or state protected birds have been recorded at Ellis Island. Of the 18 known to live or migrate through Liberty State Park, four species are year-round or seasonal residents. None are listed under the federal *Endangered Species Act*, but all are on the state list (see appendix E) of endangered and threatened wildlife maintained by the New Jersey Division of Fish and Wildlife. They include one year-round resident, the threatened Savannah sparrow (*Passerculus sandwichensis*), and seasonal residents northern harrier (*Circus cyaneus*), peregrine falcon (*Falco peregrinus*) and short-eared owl (*Asio flammeus*). The latter three species are listed as endangered on the New Jersey state list. Northern harriers and long-eared owls winter in the park. Peregrine falcons are observed regularly hunting along the shoreline. The following information about each is taken from the New Jersey Division of Fish and Wildlife website at http://www.njfishandwildlife.com/.

The Savannah sparrow occupies open habitats and nests in fields, grasslands, and meadows, as well as salt marsh edges and coastal grasslands, if they are available. Historically, the clearing of forests for farmland and filling of coastal marshes provided habitat for breeding sparrows in New Jersey. With the decline in traditional agriculture, breeding populations of sparrows have also fallen. Christmas bird counts and other information indicate a

significant decrease in wintering Savannah sparrows in the state since the late 1950s.

The northern harrier hawk inhabits open country such as tidal marshes, fallow fields, grasslands, meadows, and agricultural areas. This species forages over these same areas that contain low vegetation. Communal winter roosts of harriers are located on the ground within drier portions of marshes or in grasslands. Declines of breeding harriers in New Jersey have been related to the loss of habitat, shooting (earlier in the 20th century), and reproductive failures resulting from organic pesticides. Wintering populations of harriers in New Jersey are considered stable, but breeding populations are endangered.

Peregrine falcons, recently (1999) de-listed on the federal threatened and endangered species list, favor open areas for foraging and often hunt over marshes, beaches, or open water. Peregrine falcons historically bred in New Jersey on cliffs along the Hudson River (Palisades) and along the Delaware River. Persecution, nest disturbances, and particularly the introduction of DDT (dichlordiphenyl trichloroethane) eliminated the species from much of its former range. An aggressive program of building artificial nest sites and raising and releasing birds has helped in de-listing the species. In New Jersey, the peregrine population remains stable at about 15 pairs. Despite elevated PCB (polychlorinated biphenyls) levels in peregrine eggs, pairs are exhibiting good productivity.

The short-eared owl inhabits coastal tidal and brackish marshes, inland fields, pastures, and grasslands in New Jersey. Owls forage on drier portions of coastal habitat, similar to northern harriers. This species is sensitive to human activity and requires large tracts of undisturbed open areas, particularly for breeding (they do not breed in the study area). Wintering short-eared owls may concentrate at landfills where rodents are abundant, and winter roosts are sometimes in conifers also occupied by long-eared owls. Habitat loss, shooting, and egg collecting are considered reasons for its decline.

SURFACE WATER

Ellis Island lies near the west bank of the mouth of the Hudson River. The source of the Hudson River is the Adirondack Mountains from which the river flows southward to the Atlantic Ocean. Near Troy, New York, approximately 140 miles north of Ellis Island, the river becomes tidal.

Due to sea level changes associated with the end of the Wisconsin glaciations, New York Harbor has undergone tremendous environmental changes over the last 12,000 years (Pirnie 1994). Approximately 12,000 years ago, the project area was part of a marshy plain overlooking a narrower Hudson River. Over the next approximately 8,000 years, the marshy plain changed first to a coniferous forest and, subsequently, a deciduous one. Small areas of marshland may have continued to exist in these forests in localized lower-lying locations. For the past 4,000 years, a continual rise of sea level slowly inundated the study area, which became a shallow part of Upper New York Bay (Pirnie 1994).

During the 17th century the project area was part of a large cove or bay (now filled in as Liberty State Park) called Communipaw Cove or Oyster Bay. The latter name was in reference to the large numbers of shellfish that formerly resided along the bottom of the bay.

Now, New York Harbor is a network of tidal waterways located between southeastern New York and northern New Jersey. The harbor meets the Atlantic Ocean at the eastern end of the Long Island Sound and at the mouth of the Lower New York Bay at Sandy Hook. Waters surrounding Ellis Island are relatively shallow in comparison with the main channel of the Hudson River. The water depths near the existing temporary service bridge range from 10 to 20 feet below mean sea level.

Dredging within the project vicinity apparently occurred during the mid-to-late 19th century and early 20th century. The dredging was conducted in order to create and maintain approach channels with appropriate depth of water to the piers that formerly extended from the shoreline of Liberty State Park. Prior to dredging, the depth of the channel between Ellis Island and the mainland was shallow enough for wading. Generally, the dredging deepened this portion of New York Harbor to depths of 15 to 27 feet.

The waters surrounding Ellis Island are under the jurisdiction of the Interstate Sanitation Commission. Both New York and New Jersey have classified the surface water for differing uses: New York State Department of Environmental Conservation as Class 1 saline, suitable for secondary contact recreation, fishing, fish propagation and survival; and New Jersey as Class SE2 saline estuarine waters,

designated for maintenance, migration, and propagation of natural and established biota, migration of diadromous fish between fresh and salt water, maintenance of wildlife, secondary contact recreation, and any other reasonable uses. In 1992 surface water met applicable ambient water quality standards for dissolved oxygen, chlorine, coliform, and metal concentrations at harbor survey stations monitored by the New York City Department of Environmental Protection. Tetrachloroethylene exceeded New York and New Jersey standards during the 1992 survey.

An earlier study in the vicinity of the Liberty State Park Northern Marina indicated the presence of pesticides and metals in the surface waters throughout of the Morris Canal Basin. The study concluded that water quality near Ellis Island may be similarly contaminated (NJDEP 1990).

GROUNDWATER

Depth to groundwater in Liberty State Park is approximately 4 feet below grade and is expected to be similar for Ellis Island. Liberty State Park groundwater is designated as Class II-A by the New Jersey Department of Environmental Protection. Groundwater investigations in Liberty State Park have revealed the presence of metals, semi-volatile organic compounds, and total petroleum hydrocarbons in excess of the NJDEP Groundwater Quality Standards. No specific groundwater investigation has been conducted for Ellis Island.

AIR QUALITY

Either action alternative could result in increased visitor use at Ellis Island in the long term, as well as temporary construction impacts associated with rehabilitating buildings and replacing the temporary service bridge with a permanent one. Increases in visitor use would also increase the concentrations of vehicle-related pollutants, possibly including those from additional ferry use. In particular, cars looking for parking to take the ferry would increase. Besides emissions from construction equipment, construction itself could increase dust (total suspended particulates). Therefore, these types of emissions are described here and in the impacts analysis in the "Environmental Consequences" chapter.

The levels of pollutants in lower Manhattan were not examined, because NPS visitor use information indicates that the portion of visitors to the ferry are probably not significant enough to impact air quality levels compared with the total number of automobiles, buses, trucks, and other stationary sources in the lower Manhattan area.

CRITERIA POLLUTANTS

The U.S. Environmental Protection Agency (EPA) regulates six criteria pollutants that could cause adverse health effects by setting emission standards (national ambient air quality standards [NAAQS]). The six regulated pollutants under this program are: sulfur dioxide (SO_2), particulate matter with a diameter less than or equal to 10 microns (PM_{10}), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), and carbon dioxide (CO). The national ambient air quality standards are typically established for a variety of averaging times, ranging from one hour to one year. The state of New Jersey has also established ambient air quality standards (AAQS) that include six criteria pollutants and total suspended particulates.

Although all six criteria pollutants are of importance, CO, nitrogen oxides (NO_x), and hydrocarbons (HC) are given particular scrutiny because HC and NO_x can react with sunlight to form ozone and photochemical smog. The formation of smog in the New York / New Jersey metropolitan area is a regional problem and is the result of significant and widespread emissions of ozone precursors, such as HC and NO_x, which emanate from mobile sources, and from stationary sources outside the area that are transported into the region.

NJDEP monitoring of CO levels at two nearby stations (Kennedy Boulevard station and at the North Bergen monitoring station) between 1996 and 2001 showed no exceedances of the 1-hour or 8-hour CO standards during the last six years. A monitoring station at Veterans Park indicated that levels of NO_2 and SO_2 are well below national and state standards. The Newark Avenue station in Jersey City reported PM_{10} well below national standards. Total suspended particulates were also below the New Jersey primary standard for annual average concentrations and below both the primary and secondary standards for 24-hour concentrations between 1989 and 1993.

NOISE

Quantitative information on the effects of airborne noise on people is well documented. Noise may interfere with human activities such as sleep, speech, communication, and tasks requiring concentration or coordination. It may also cause annoyance, hearing damage, and other physiological problems. Several factors affect sound as the human ear perceives it. These include the actual level of sound (or noise), the frequencies involved, the period of exposure to the noise, and changes or fluctuations in the noise levels during exposure. Levels of noise are measured to correspond to human hearing in the unit known as the A-weighted decibel, or dBA.

Because the sound pressure level unit of dBA describes a noise level at a moment in time, and because very few noises are constant, the equivalent sound level is used to describe the fluctuating noise heard over a specific period, as if it had been a steady, unchanging sound. For this condition, a descriptor called L_{eq} can be computed. L_{eq} is the constant sound level that, in a given situation and period (e.g., 1 hour, denoted by $L_{eq(1)}$ or 24 hours, denoted as $L_{eq(24)}$), conveys the same sound energy as the actual time–varying sound. Statistical sound-level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x are sometimes used to indicate noise levels that are exceeded 1, 10, 50, 90 and x percent of the time, respectively. The L_{10} descriptor is particularly appropriate for traffic noise because of its fluctuating nature.

Monitoring of noise levels on Ellis Island and Liberty State Park was conducted in July 1994 as part of the 1995 draft environmental impact statement (NPS 1995a). For that study, dates were selected to represent typical conditions experienced during weekend day and weekday traffic and visitor use. Three stations on Ellis Island and two in Liberty State Park were selected.

Discrete noise sources on the island included helicopters and planes flying overhead, horns from ferries arriving at and departing from the island, NPS work boats, movement of construction vehicles, and all-terrain vehicles used by NPS staff. The majority of these activities (except for construction) continue to take place on Ellis Island.

The same types of noise were heard in Liberty State Park, including helicopters and planes flying overhead, private automobiles, and buses traveling along park roads, lawnmowers, pavement repair equipment on the sidewalk/bicycle path, and construction trucks. Since the time of monitoring, the Liberty Walk construction project has been completed, eliminating the construction noise. All other monitored activities continue at the park.

The daily average L_{eq} values measured during the monitoring program ranged form 52.3 dBA at Liberty State Park 1 monitoring station (LSP1) to 60.3 dBA on the western side of Ellis Island. Average L_{10} values ranged during the day from 53.4 dBA at LSP1 to 65.9 dBA on the northwest corner of the island. The highest L_{eq} and L_{10} values recorded on Ellis Island were 84.7 dBA and 86 dBA, respectively. The higher intermittent values were attributed to the construction equipment operating near these locations. The lowest noise levels occurred in Liberty State Park at a relatively isolated setting near the Interpretive Center building. The maximum noise level recorded was at 102.8 dBA, which occurred on Ellis Island and was related to the movement of construction equipment.

Average L_{eq} and L_{10} values recorded during the noise monitoring program at Ellis Island and Liberty State Park were below federal highways criteria, although the highest L_{eq} and L_{10} values were above them. However, these values are attributed to construction equipment and are considered a temporary, localized increase.

HAZARDOUS MATERIALS

As part of this environmental impact statement, existing data were reviewed to assess the potential sources and extent of contamination by hazardous materials resulting from the activities described in each alternative. A site reconnaissance of Ellis Island was conducted on August 2, 2001, to supplement the existing data and to observe the condition of the 30 buildings on Ellis Island that are the subject of this environmental impact statement.

Potential sources of hazardous materials include landfill material that was used to construct the majority of the 27.5 acres of landmass of Ellis Island, landfill material that was deposited along the west shoreline of what is now Liberty State Park, the marine sediments in the Upper New York Bay, the water quality of the Upper New York Bay itself, the above-ground fuel-oil storage tanks on Ellis Island, suspected asbestos-containing materials, and lead-

based paint associated with various portions of the proposed project area.

HISTORIC FILL

The source of the fill on Ellis Island is unknown as are the chemical characteristics of the island's fill material. It is likely similar to other "historic fill" used during this same time period in urban areas of New York and New Jersey in the late 1800s to the early 1900s. Tests of this material have found it typically contains concentrations of heavy metals, semi-volatile organic compounds, and petroleum hydrocarbons that may exceed the NJDEP residential or non-residential direct contact soil cleanup criteria.

The eastern shoreline of Jersey City that is now Liberty State Park was created by landfill activities, the majority of which were conducted from the 1860s through the late 1920s. The fill material is 10- to 30-feet thick and consists of garbage from New York City, dredge spoils from New York Harbor, and fill from local industrial facilities. According to historic maps (Sanborn® Fire Insurance), the former uses of the northern and central portions of Liberty State Park include a railroad terminal of the Central Railroad of New Jersey and a freight yard of the Lehigh Valley Terminal Railroad Company. Numerous piers operated by coal freighting companies extended into the Upper New York Bay.

Demolition of the railyards and piers preceded the opening of Liberty State Park to the public in the 1980s. Surveys conducted of the railroad freight yard, CRRNJ Terminal parking area, and the south lawn area (Pirnie 1994) indicate metals, semi-volatile organic compounds, and petroleum hydrocarbon contamination in the fill material, with concentrations of contaminants in some areas exceeding the NJDEP residential or non-residential direct contact soil cleanup criteria.

The freight-yard area consists of approximately 350 acres and was the subject of a 1990 contaminant investigation by the New Jersey Department of Environmental Protection. A total of 57 soil samples were collected at depths up to 0.5 foot from 28 locations within the freight yard. The samples were analyzed for a full slate of contaminants, including organics, pesticides, polychlorinated biphenyls (PCB), and metals. A few volatile organic compounds were detectable at levels up to 0.012 parts per million (ppm) (less than the current NJDEP residential or non-residential direct contact soil cleanup criteria). These include acetone, methylene chloride, 2-butanone, chloroform, ethylbenzene, trichloroethene, and toluene. Semi-volatile organic compounds (including several polycyclic aromatic hydrocarbon [PAH] compounds), pesticides (including dieldrin, DDE, and DDT), PCBs, and many metals (including arsenic, cadmium, chromium, mercury, and lead) were also detected, many at concentrations that exceeded the NJDEP action levels in effect at the time. The NJDEP Site Remediation Program's (SRP) 1999 Site Status Report (NJDEP 1999b) states that the metals, pesticides, semi-volatile organic compounds, and total petroleum hydrocarbon contaminants have been found in one or more of the following media at the site: groundwater, surface water, soil, or sediments. The SRP's Site Status Report noted that at the time the park decides to develop the freight-yard area (see alternatives 2 and 3), a minimum of 1 foot of clean fill material and/or asphalt would be placed as a cover over the contaminated fill material, in accordance with NJDEP remediation requirements for historic fill sites. The clean fill-cap method of encapsulating the historic fill has been utilized at other locations within Liberty State Park (Liberty Science Center, CRRNJ Terminal parking lot, Liberty Walk, and the Northern Marina) to eliminate the exposure pathways of inhalation and direct contact with the contaminated historic fill. Chromate waste fill material has been identified by the New Jersey Department of Environmental Protection in the area of the Caven Point Pier and the sewer line area of the freight yard. The NJDEP SRP 1999 Site Status Report (NJDEP 1999b) indicates that additional investigation is necessary to characterize the extent of chromate contamination in these areas.

Another site in Hudson County adjacent to the park is also a potential source of contamination. Chromium has been found in fill material at this site (Chromate site 15) and at many others in Hudson County. Most of these areas were either the locations of former chromate ore processing plants or where ore was used as fill material. They have been found to contain both hexavalent and trivalent forms of chromium; hexavalent is considered most dangerous to humans as inhalation of dust particles is associated with a higher incidence of cancer. Chromate site 15 is reportedly not accessible to the public, and according to the NJDEP SRP Chrome Update 28 Report (NJDEP 1999a) has undergone a Preliminary Site Characterization where soil, groundwater, surface water, and sediment sampling have been conducted. The results of the site characterization sampling were

not available at the time of publication of this *Draft Environmental Impact Statement*.

MARINE SEDIMENTS

Marine sediments in the area of the existing temporary service bridge consist of organic silt (5- to 20-feet thick) over a layer of till or sand (0 to 25-feet thick), with bedrock consisting of mica schist. Studies of the bottom sediments in the channel between Ellis Island and Liberty State Park indicate they are high in oxygen-depleting organic material. However, further information on the chemical characteristics of this material is not available. For the purposes of analysis, this environmental impact statement assumes sediments in the entire vicinity of the project area are physically similar to those below the temporary service bridge, and that they also are high in organics.

Additional pollutants are likely part of the marine sediments in the study area. The National Oceanic and Atmospheric Administration National Status and Trends Program collected data that indicates sediment contamination is found throughout the Upper New York Bay. The study shows the New York Harbor area ranks among the 20 worst estuaries in the nation with respect to high concentrations of organic and inorganic pollutants.

A 1988 sampling effort in the sediment of Morris Canal Basin north of the tide-water basin area of the park (NJDEP 1988) found elevated levels of polycyclic aromatic hydrocarbons (PAH) and total petroleum hydrocarbons (TPH). However, the report concluded the contamination may result from the Northern Marina site, and may not be indicative of the conditions in the rest of the study area.

BUILDING MATERIALS

Asbestos and lead have been found in the materials of several buildings on Ellis Island. Stabilization of the buildings, including removal or abatement of asbestos-containing materials and the scraping and removal of deteriorated lead-based paint, is ongoing and subject to available funding. Currently, contractors have stabilized 6 of the 30 existing buildings on the south side and Island 1. In addition to the removal of hazardous materials, stabilization includes removing exterior overgrown vegetation, weatherproofing (e.g., roof, window, and brick repairs as necessary), general cleanup, and removal of debris from inside the buildings.

Investigations to date have found asbestos is primarily a component of linoleum and floor tile in the Main Hospital Building, Administration Building, New Hospital Extension, and the connecting corridors between these buildings. Asbestos survey and sampling were conducted during the hazmat removal phase of the stabilization of Island 2, including the attic and connecting structure spaces. Before reuse takes place, such a survey would be completed, and any required asbestos-removal activities would be conducted as part of building stabilization. Minor amounts of asbestos-containing material, not observed or removed during the stabilization of the buildings, may be encountered during the final renovation of the buildings as part of the island's south-side adaptive reuse construction project.

The 30 buildings that are the subject of this analysis were constructed prior to the implementation of federal regulations that, today, severely restrict the use of lead in residential and commercial paints. Paint observed on the interiors of all the buildings is suspected of containing lead. In addition to scraping paint, stabilization includes cleanup, removal, and proper disposal of the lead-based paint debris. Even this effort does not completely abate or encapsulate the lead-based paint within the buildings, and some remnant of lead-based paint would likely be encountered throughout the buildings during final renovation work associated with the reuse of the south side.

ABOVE-GROUND STORAGE TANKS

Three above-ground tanks store #2 marine grade diesel fuels for NPS boats, emergency generators, construction contractors working on stabilizing buildings on Islands 2 and 3, and for heating. There are currently no underground storage tanks on Ellis Island. The 10,000-gallon double-walled, above-ground marine fuel tanks are located on the northeast corner of the island, near the service dock. In 1986 these three above-ground tanks replaced the three old underground tanks. A 1,000-gallon double-walled, above-ground gasoline fuel tank also serves the stabilization effort in the contractor staging area on the west side of the island. To date, there have been no spills or other problems with the operation of the above-ground storage tanks.

SOCIAL AND ECONOMIC ENVIRONMENT

TOURISM

Ellis and Liberty Islands are only two of many world-renowned destinations in the New York / New Jersey metropolitan area, famous for virtually unlimited opportunities for recreation and entertainment. The city contains almost 18,000 restaurants and, according to the New York City Convention and Visitors Bureau, provides overnight lodging for more than 17 million overnight visitors to the city annually. Over 37 million people visited New York City in 2000, accounting for almost $25 billion in economic impact. The tourism industry plays a large role in the local and regional economy, supporting approximately 300,000 jobs and generating $3.2 billion in wages and approximately $3 billion in tax revenues in 2000. New York City alone received nearly $1 billion in tax revenues as a result of the tourism industry.

Economically, tourism is no less important to New Jersey. In 2001 over $30 billion was spent in New Jersey on travel and tourism. In 2000 tourism accounted for over 700,000 jobs, approximately $16.6 billion in wages, and $5.5 billion in tax revenues.

In 2001 the tourism industry experienced a downturn primarily due to economic conditions that occurred throughout the country and region and the events of September 11, 2001. As a result, the number of visitors decreased to approximately 32 million in 2001; similar projections were made for 2002. However, industry experts predict the downturn to be temporary and cyclical.

The recent regional and national trends in tourism have been mirrored in visitor attendance at the Statue of Liberty National Monument and Ellis Island. In 2000, 4.4 million ferry tickets were sold and approximately 1.9 million persons visited Ellis Island. Following the terrorist attack in September 2001, the park was closed for 3 months. In 2002, 3.2 million ferry tickets were sold and approximately 1.4 million persons visited Ellis Island. The park expects visitation to grow approximately 2.5% annually from the 2002 level.

CONCESSIONS

Commercial activities at the Statue of Liberty National Monument and Ellis Island are administered by concession contracts. Services provided include visitor ferry transportation to and from both New York and New Jersey. Gift and refreshment services are available on the boats. Presently, the contract is with Circle-Line Statue of Liberty Ferry, Inc. This contract requires a 15% fee payable to the U.S. Treasury on gross receipts of ticket sales and 10% on the gross revenues generated from other authorized services. In addition to the above, the concessioner pays a flat rental fee for space provided at Castle Clinton National Monument of $3,300 per year. The concessioner also has contracts with both New York City and New Jersey for the activities conducted at each jurisdiction. New York fees are 7% of the ticket sales and 8.25% on other income. New Jersey collects a 12.5% fee on the gross receipts and a flat rental of $330,600 per year.

Concession services provided at Ellis Island include food, a souvenir shop, audio tour, and day and after-hours catering. The current concessioner for these services is Aramark Sports and Entertainment, Inc. Concession supplies transported over the temporary service bridge are delivered to Ellis Island at a substantial savings to Aramark relative to the costs of ferry transport.

The concessions at both Liberty and Ellis Islands generated about $29 million in sales during FY 2002, with visitation of just over 2.1 million. A fee obligation to the U.S. Treasury generated by concession activities at both sites was over $4.6 million.

Fares from ferry taxes, sales taxes, fees, hotel occupancy, and city income taxes generate about $10.7 million in revenue for the city of New York, $10.9 million for the state of New York, and $2 million for the state of New Jersey. Using U.S. Department of Commerce employment multipliers, the total increase in direct and indirect sales from visitor- and concession-related expenditures is responsible for about 1,015 jobs in New Jersey and 5,270 jobs in New York.

CURRENT VISITOR EXPERIENCE

All visitors access Ellis Island by concession-operated ferries from either Battery Park in lower Manhattan or the Central Railroad of New Jersey Terminal in Liberty State Park, New Jersey. Since September 11, 2001, all visitors are screened before they board the ferries. From Manhattan, ferries travel first to Liberty Island, where visitors can disembark. The interior of the Statue of Liberty has been temporarily closed since September 11, 2001, while new safety and security measures are implemented. During this interim period, visitors can take part in ranger tours, view the interpretive waysides, and contemplate the view of the Statue of Liberty National Monument from the grounds surrounding its base. Visit duration time on Liberty Island averaged 2 to 3 hours before September 11, depending upon the number of individuals in line to climb to the crown. With access recently limited to the grounds, visit duration times on Liberty Island are generally less than 1 hour. Ferries depart approximately every 30 minutes from Liberty Island for Ellis Island. Ferries leaving from Liberty State Park travel in the reverse direction, going to Ellis Island first and then to Liberty Island.

All visitors to Ellis Island arrive at the historic ferry slip and are directed to the Main Building that now houses the Ellis Island Immigration Museum. Here, on three floors of the building, visitors can view extensive permanent and temporary exhibits pertaining to immigration and related themes. Visitors may participate in ranger tours or experience the museum at their own pace. For a fee, visitors may also rent a portable audio player that provides supplemental interpretive information. An introductory film is presented several times an hour and at times, historical dramas are presented in a small theatre. Visitors spend an average of 2 to 3 hours on Ellis Island.

The American Family Immigration History Center, developed and operated by the Statue of Liberty-Ellis Island Foundation, is located in a portion of the ground floor of the Main Building. For a fee, visitors can conduct immigrant research using a computer database of ship manifests and print out their search results.

Visitor services on Ellis Island include a concession-operated café and gift shop. Weather permitting, visitors can stroll around a portion of the grounds adjacent to the Main Building with views of the harbor, the Statue of Liberty, and the Manhattan skyline.

PARK ADMINISTRATION

The National Park Service operates the Statue of Liberty National Monument (which includes Liberty and Ellis Islands) 364 days a year. Ellis Island is open from 9:00 A.M. to 5:00 P.M. for visitors, with extended open hours during the summer and when space is provided for special events. Hours vary seasonally and according to weather. Visitors currently arrive by ferries both for normal visitation and for special events.

The National Park Service maintains offices in the Kitchen and Laundry Building on the north side of Ellis Island for the administration and operation of the Statue of Liberty National Monument. Approximately 250 to 300 park staff and contract employees work on Liberty and Ellis Islands, depending upon the time of year.

The existing temporary service bridge facilitates access to Ellis Island by NPS and concession staff, maintenance contractors, emergency personnel, and suppliers. Park operations also require periodic building maintenance, delivery of supplies, and removal of wastes for which the service bridge provides access. The temporary service bridge also provides rapid access and egress for emergency vehicles in case of a medical, fire, hazardous waste, or law enforcement emergency.

The Jersey City Fire Department provides fire protection and medical emergency response to Ellis Island and Liberty State Park. The Fire Department employs approximately 480 full-time personnel, all of which are first-respondent trained. Some have received Emergency Medical Technician (EMT) certification. The Fire Department has five fire companies (10, SQ4, 22, 8, and 9, in respective order) that would respond in case of an incident at Ellis Island or Liberty State Park. Tower Ladders 4 and 6 would also be utilized if needed.

The Jersey City Fire Department also responds to calls for assistance and medical emergencies on Ellis Island via Liberty State Park and the temporary service bridge. The existing response time is approximately 3 to 4 minutes. There have been four incidents requiring emergency fire department assistance in the last three years: one in 2000, two in 2001, and one in 2002. The incident in 2002 was reported to be a structure fire that

may have been due to a lack of maintenance in a building; fire response teams were on the scene for approximately one hour.

The Jersey City Emergency Squad consists of three two-person trucks that rove throughout the city. According to the Jersey City Police Department, response time to Ellis Island ranges from 90 seconds to 4 minutes, depending upon the location of the truck at time of dispatch, time of day, day of the week, and traffic conditions. Depending on the nature of the call for service, ambulances may also be dispatched at the same time. Ambulance units from Jersey City and Bayonne have a response time of less than four minutes.

Currently, trained Emergency Medical Technicians on the NPS staff handle medical emergencies; victims are normally transported to a fully equipped first-aid facility for treatment and to await an ambulance. By comparison, medical emergencies on Liberty Island require individuals to be transported by ferry to either New Jersey or New York City, where an ambulance provides transport to a local hospital. A NPS ranger accompanies the person on the trip from Liberty Island to the mainland. In extreme medical emergencies, a helicopter equipped for medical evacuations transports individuals off the island.

TRANSPORTATION AND CIRCULATION

ACCESS TO ELLIS ISLAND

TEMPORARY SERVICE BRIDGE ACCESS

The existing service bridge was originally built in 1986 as a temporary structure to provide access during construction of the existing museum and visitor center on Ellis Island. The bridge originates in the Green Park area of Liberty State Park, directly across the narrow waterway from Ellis Island. Users of this bridge are restricted to construction, delivery and emergency vehicles, and authorized park vehicles associated with the administration and maintenance services on the island. At no time are pedestrians permitted on the bridge. A security guard house is located at the entrance to the bridge on the New Jersey mainland. The bridge has outlived its intended life span and was stabilized in 2002 in order to provide safe short-term service.

FERRY ACCESS

Ferries are the only mode of transportation for the general public to access Ellis Island. Circle Line operates six ferries between terminals in New York City and New Jersey and Liberty and Ellis Islands. The capacity of each ferry ranges from 450 to 1,035 passengers, with a median capacity of about 800. Ferries currently depart in New Jersey from the CRRNJ Terminal located in Liberty State Park, and in New York from a slip in Battery Park at the southern tip of Manhattan. Scheduled tours and other group outings depart from other Circle Line ferry terminals in Manhattan. Ferry service is provided seven days a week, year-round, from both the New York and New Jersey locations.

Ferry service is historically significant to the New York Harbor area and also permits control of the number of visitors to Ellis Island. Although there is no charge to visit either the Statue of Liberty or Ellis Island, there is a fee for the ferry service. Currently, the fee is $4 for children and $10 for adults for a round-trip ticket that includes both the Statue of Liberty and Ellis Island.

The ferry service is partly governed by supply and demand. If the forecast increases in visitor traffic associated with the action alternatives (alternatives 2 and 3) prove accurate, ferry service operators might be expected to increase the frequency of trips to Ellis Island and the Statute of Liberty. However, there is a limit to the number of boats that can be serviced at Ellis Island based upon the available number of ferry slips (docks) and the need for security. Current operations use two slips only. The future ferry route may be revised to encourage more visitors to Ellis Island.

BATTERY PARK FERRY SERVICE

The New York access to Ellis Island is from the Castle Clinton National Monument in Battery Park at the southern tip of Manhattan. Prior to September 11, 2001, about 3.5 million passengers per year used this location to access Ellis and Liberty Islands (NPS 1995a). In 2002, about 2.2 million embarked from Battery Park. The Battery Park location has been in operation far longer than the Liberty State Park location.

The two methods available to the public for accessing the ferry service at Battery Park include private vehicles (cars, taxis, or school buses) and mass transportation in the form of New York City subway and city buses. Parking in and around Battery Park for private vehicles is limited.

Battery Park is readily accessible by public transit. After being temporarily suspended following September 11, 2001, bus and subway service has been restored. Currently, the M1, M6, and M15 bus lines all stop at Battery Park. The Bowling Green station on the 4 and 5 subway lines is located next to Battery Park. In addition, the N and R subway lines stop at the Whitehall Street station, and the 1 and 9 subway lines stop at the South Ferry station at the southern end of Battery Park. An NPS survey of ferry passengers indicates a large proportion of travelers from the Battery Park terminal access the terminal by way of public transportation (42%) or charter bus (16%).

LIBERTY STATE PARK FERRY SERVICE

The New Jersey ferry access point within Liberty State Park has been changed several times due to construction and modifications within the park. Currently, boarding takes place at the North

Overlook, adjacent to the CRRNJ Terminal, and at the northern end of the park. In 2000, approximately 842,000 visitors departed from Liberty State Park for the Statue of Liberty and Ellis Island. Following September 11, 2001, this decreased, and in 2002, approximately 500,000 visitors embarked from the state park terminal. Future plans for Liberty State Park include renovation of one of the existing historic ferry slips at the tip of the North Overlook. The use of the renovated slip would have historic significance, but would probably not change the efficiency of the ferry service.

There are two possible ways to access Liberty State Park. Unlike New York, the majority of passengers (85%) on the New Jersey ferry arrive at the landing in personal automobiles. Mass transit is available to the terminal via Hudson-Bergen Light Rail, which connects Newport Mall and PATH (Port Authority Trans Hudson rail link) in Jersey City to Bayonne and Newark. This service is intended to provide a rail system along the New Jersey waterfront in the Jersey City area, and to connect the waterfront to points in New York City. The Liberty State Park light rail station is immediately outside Liberty State Park at the street intersection of Johnston Avenue and Monitor Street in Jersey City, adjacent to the New Jersey Turnpike. A park-operated jitney service makes stops at both the light rail station and the ferry terminal.

CIRCULATION AND ACCESS TO LIBERTY PARK TERMINAL

Because so many private vehicles are used to access the terminal at Liberty State Park, the potential for impacts to approaching traffic exists as a result of NPS proposals. In addition, air quality could be negatively impacted from increased visitor use and/or construction of a permanent bridge. Analyses of existing traffic conditions and future predicted conditions for each action alternative at major intersections and access points were conducted for this environmental impact statement.

ACCESS FROM HIGHWAYS

Currently, major vehicular access to Liberty State Park is via exits 14B and 14C from the New Jersey Turnpike. There are no other highways that provide direct access to Liberty State Park. The current New Jersey Turnpike signage to Liberty State Park directs drivers to use exit 14B, though exit 14C is actually closer to Liberty Science Center. Vehicles using exit 14B are directed through the Industrial Park to reach Liberty State Park. The New Jersey Turnpike is planning to re-sign exits to provide for more direct access by directing park visitors to exit 14C if they are headed east on the Turnpike. Exit 14B would still be used to access the park for westbound drivers.

ACCESS FROM ADJACENT ROADWAYS

Several roads exist in Liberty State Park. From a counterclockwise direction from the ferry service dock at the North Overlook and CRRNJ Terminal, the loop roadways are described below.

Audrey Zapp Drive — located on the northerly side of the park, running from the ferry dock, CRRNJ Terminal, and North Overlook west to Phillip Drive. Audrey Zapp Drive continues west under the New Jersey Turnpike and out of the park, changing to Johnston Avenue.

Phillip Drive — runs south from Audrey Zapp Drive along the westerly perimeter of the park, passing the Liberty Science Center at Communipaw Avenue. Phillip Drive ends at Burma Road in the adjacent industrial park that occupies the southwest corner of the peninsula on which Liberty State Park is located.

Burma Road — continues south through the industrial park to a traffic circle at the southwest corner of the industrial park. At the traffic circle, Burma Road meets Morris Pesin Drive and Bayview Avenue.

Morris Pesin Drive — a continuation of Bayview Avenue from the west. Morris Pesin Drive proceeds east through the industrial park and into Liberty State Park, terminating at Freedom Way at the Visitor Center entrance to Liberty Walk and South Overlook.

Freedom Way — continues north from Morris Pesin Drive to terminate at Audrey Zapp Drive immediately west of the CRRNJ Terminal. Liberty Walk, which parallels Freedom Way, is a pedestrian walkway along the waterfront between the Visitor Center at South Overlook and the ferry dock at North Overlook.

Current roadway configuration and signage direct Liberty State Park visitors from the New Jersey Turnpike exit 14B onto Bayview Avenue. At the

traffic circle in the industrial park, visitors can either turn east onto Morris Pesin Drive to reach the visitor center, or north onto Burma Road to reach Liberty Science Center.

NEW JERSEY AREA FERRY AND LIGHT RAIL ACCESS

Ferry service connects the Exchange Place, Hudson Exchange, and Liberty Harbor North areas to lower Manhattan, and also connects Hudson Exchange to 38th Street in Manhattan. In April 1999 the Hudson-Bergen Light Rail Transit System (HBLRTS) began operation from 34th Street in Bayonne to Exchange Place, providing access to Exchange Place area businesses, Colgate ferry, and the PATH from two park-and-ride lots and 11 stations in Bayonne and Jersey City. Recently, the HBLRTS has extended its operation to Harborside, Newport, and Hoboken. When completed, the HBLRTS will be a 20.5-mile system that will run along the Hudson County waterfront from Bayonne to Ridgefield in Bergen County, New Jersey.

PARKING FACILITIES

ELLIS ISLAND

Parking on Ellis Island is currently limited to employees, contractors, suppliers, and other essential personnel. Currently, parking exists for 40 to 50 NPS employees on the west side of the island behind the Bakery and Carpentry Building. Temporary, informal parking areas have existed with the construction of the temporary service bridge that was built in 1986 for the rehabilitation of the Ellis Island Immigration Museum and other buildings on Island 1. Additional small parking areas have also been created on the island for stabilization contractors, delivery trucks, and other visitors.

LIBERTY STATE PARK

Liberty State Park provides several scattered parking areas for private cars and buses. Lot 6 functions as the primary parking area for visitors to Ellis and Liberty Islands, accommodating 900 cars and 50 buses. This lot reaches capacity on busy days but is typically no more than one-half full during the week, even in the summer. A fee of $5 to park more than 2 hours is collected. The park intends to add 25 bus spaces to Lot 6.

Other lots adjacent to the park's Visitor and Interpretive Centers can accommodate several hundred additional vehicles some distance from the terminal and ferry slip. Vehicles using these lots most often belong to visitors who are picnicking or using Liberty Walk, the Visitor Center, or the Interpretive Center. Recent spot checks indicate most of these lots are no more than one-half full during the week. Two additional lots serve the Liberty Science Center.

Overall, parking facilities at Liberty State Park are sufficient for most weekdays, but insufficient for heavy normal days and special-event situations. On sunny weekend days, the parking areas can reach their capacities, and access restrictions must be enforced. This is exacerbated by a steady increase in visitorship to the park, from approximately 1.6 million visitors in 1990 to approximately 4.5 million in 2001. Liberty Science Center currently experiences over 700,000 visitors with a projected 1.1 million visitors by 2005. As such, available parking is a growing concern.

The Liberty State Park Transportation Master Plan Update completed in 2002 (Vollmer 2002) recommends the completion of an expanded central parking facility at the Liberty Science Center. There are no other plans for expanding parking facilities within the park. Without additional available parking, there is concern that the anticipated increases in visitors to Liberty State Park and Ellis Island would routinely overwhelm the parking facilities during the primary season.

NEARBY PARKING FACILITIES

Two public parking lots exist outside Liberty State Park. The park operates a jitney between the light rail station and several transit stations in Liberty State Park. A lot for the rail station near the Liberty Science Center accommodates approximately 1,200 vehicles, with the possibility of increasing the lot to 5,000 cars. Visitors to the park could utilize both this lot and the jitney to access the ferries to Ellis Island, although the jitney stop currently is intended to serve as a connection between the train and the park, rather than for visitors arriving in personal vehicles. The lot is operated by the New Jersey Transit Authority for light rail passengers only, but does allow the park to use it for overflow

parking during peak usage days (primarily summer weekends) and for special events. Although the Jersey City Planning Board has approved the larger-capacity lot, expansion would require a parking structure, and no plans are currently being considered.

The West Side Avenue Park and Ride lot is located in Jersey City. This lot is not in the vicinity of the park, and no regular transit service exists between it and the park. In addition, signs directing visitors to the park are poor. Jersey City is considering a way-finding program to direct visitors to the park and to the West Side Avenue park-and-ride lot.

CIRCULATION

The Hudson County Extension of the New Jersey Turnpike is the primary access route to Liberty State Park. Impending connection of the Hudson Bergen Light Rail to Hoboken Terminal will offer visitors the ability to reach Liberty State Park by mass transit. Due to the long distances between attractions within the park and the limited access from areas north and west of the park, there is relatively little pedestrian circulation within the park.

Visitors are encouraged to take advantage of a park shuttle to travel within the park on a 40-minute loop. Recent residential, commercial, and office development in downtown Jersey City will likely create an expanded base of potential visitors who would access the park on foot.

The effective operation of an urban street network is largely dependent on the way that roadway intersections accommodate traffic. In particular, the level of service (LOS) at signalized and unsignalized intersections controls the level of service of the entire roadway network.

A 1994 traffic study (NPS 1995) indicated that the intersection of Audrey Zapp Drive and Phillip Drive was operating at capacity—LOS E—during afternoon hours. Given the normal increase in capacity observed at area intersections, this intersection may now be operating at an unacceptable level of service (LOS F). LOS F is defined as having average vehicle delays of over 60 seconds at unsignalized intersections. LOS F intersections will operate in an unpredictable manner, with the possibility for extensive delays and gridlock. All other intersections within Liberty State Park and in the adjacent industrial park were found to operate at acceptable levels of service.

The off-site intersections through which park visitors access the park were found to operate at unacceptable levels of service during the afternoon and evening. There are two intersections between New Jersey Turnpike exit 14B and the traffic circle in the industrial park: Morris Pesin Drive / Bayview Avenue at Caven Point Road and Bayview Avenue at the New Jersey Turnpike exit. Both of these intersections were found to operate at or above capacity (LOS E or LOS F) in 1994. Since the number of visitors to the park area has increased, it is likely that vehicle traffic and congestion has also increased to a predominately LOS F situation at these intersections.

The 2002 Liberty State Park Transportation Master Plan Update (Vollmer 2002) includes a number of proposed projects within the park to promote better vehicular circulation; these include

- installing a traffic light at Audrey Zapp Drive and Phillip Street
- realigning Phillip Street and Burma Road
- eliminating the Burma Road Traffic Circle
- improving the turning radii at the corner of Morris Pesin Drive and Freedom Way
- prohibiting trucks from making left turns onto Phillip Street from Jersey City Boulevard

ELLIS ISLAND INFRASTRUCTURE

STABILIZATION IMPROVEMENTS

Phase I and II stabilization improvements have been completed on Island 2. The stabilized buildings include the Hospital Building, Hospital Administration Building, New Hospital Extension, Psychopathic Ward, and portions of the connecting corridors. The Ferry Building and Hospital Outbuilding and Laundry were also included in this effort and have now undergone extensive exterior restoration.

The intent of the pending Phase III stabilization will be to stabilize the balance of the buildings and structures on Islands 2 and 3, as well as the Baggage and Dormitory Building on Island 1. The Phase III stabilization work will proceed and be coordinated with Phase I of the upgrades to the south-side master utilities and infrastructure improvements.

The objective of the stabilization improvements is to reduce the rate of deterioration to the buildings and structures for a period of 10 to 15 years, by securing the building envelopes from the elements. Upon completion of the stabilization improvements, the buildings and structures will require continued maintenance and housekeeping programs in order to achieve the maximum benefit for the longest period of time.

UTILITIES

Ellis Island receives utility service from the various New Jersey utilities. Many of the utility support systems were upgraded as part of the major renovations completed in 1990 for the opening of the Immigration Museum and in anticipation of future redevelopment of the south side.

PLUMBING SYSTEMS

DOMESTIC WATER

Domestic water is supplied through a 12-inch-diameter ductile iron pipe fed from a 12-inch city water main, located in Liberty State Park, New Jersey, where the utility company meter pit is located. The water main crosses under the Hudson River and enters the island through the Main Powerhouse Building. The water service has been designed to provide water service and fire protection for the entire island.

After entering the Powerhouse Building, a 4-inch branch line provides temporary domestic water to Islands 2 and 3, while the 12-inch main feeds two 25-hp (horsepower), 1,000-rpm (revolutions per minute), 75-foot head tank fill pumps, which then feed a 300,000-gallon elevated water storage tank. The elevated tank feeds a 10-inch underground-pressurized loop around Island 1. The underground loop currently supplies the fire hydrants and feeds domestic water services and fire protection/sprinkler systems in the Powerhouse, Bakery and Carpentry, Kitchen and Laundry, and Main Buildings. The water supply has a capped 10-inch underground tap for future extension of the water supply lines to Islands 2 and 3.

According to the *Draft Ellis Island Utility System Existing Conditions Report* by H.F. Lenz Company (H.F. Lenz Company 2001), the domestic water piping and valves appear to be in good condition, with no leaks or deterioration of pipe joints visible. The available water pressure was sufficient for the plumbing fixtures or equipment it served. Static pressure in the Main Building measured 36 psi (pounds per square inch) in the basement and 30 psi at the second floor.

The primary purpose of the 300,000-gallon water storage tank is to provide domestic water and fire protection water reserve capacity. Additionally, the tank minimizes dependency on the Jersey City Water Authority for water pressure and flow during short-term interruptions in service.

Islands 2 and 3 currently have no domestic water supply connections to existing buildings or structures. The existing domestic water lines that at one time were active have been abandoned in place and are believed to be inadequate for reuse because of deteriorated condition (H.F. Lenz Company 2001). Several sections of the piping would require testing to confirm this assumption. A secondary 8-inch water main from Jersey City was provided to Islands 2 and 3 as part of the 1988 renovations on Island 1. According to the *Ellis Island Site Utilities Technical Feasibility Study* (Syska and Hennessy, Inc. 1984), a leak had occurred near the New Jersey bulkhead. The

study recommended that the line be repaired and used during construction and then interconnected to the new water distribution loop to serve as a reserve in the event of a rupture in the new line.

FIRE PROTECTION

Water service for fire protection is provided from the 10-inch water service loop that encircles Island 1. Currently, electric fire pumps located in the basement of the Bakery and Carpentry Building and in the Main Building are used to provide pressure to operate sprinkler systems in these buildings and in the Kitchen and Laundry Building. A fire pump test header for the Main Building is located at the harbor, while the test header for the Bakery and Carpentry Building is located along the south wall of the structure.

New fire hydrants were installed around Island 1 as part of the 1980s renovation project. Inspection of existing fire hydrants on Islands 2 and 3 revealed that the condition was very poor due to inactivity and could not be operated because of rusted or corroded valves and parts. Reportedly, previous attempts by NPS staff to reuse existing piping and equipment have been unsuccessful, which suggests that all underground piping on the south side may need to be replaced.

SEWAGE DISPOSAL

Existing duplex sewage disposal pumps, located adjacent to the Powerhouse at the north end of Island 1, consist of a 480-gpm (gallons per minute), duplex lift station that discharges all waste from Island 1 to the Jersey City Sewage Authority System through an 8-inch ductile iron force main. The pumps were installed in conjunction with the 1988 renovations on Island 1. The pumps currently serve only the renovated buildings but were sized with future building renovations in mind.

The existing domestic water and sanitary sewage loads are based on north-side figures and produce 120,000 gallons per day; south side produces 150,000 gallons per day. The combined flow of 270,000 gallons per day is sufficient for a population of 1,000 day-night users. The north side's daily demand of 120,000 gallons equates to a flow rate of 211 gpm, leaving a reserve pumping capacity for the south side of 269 gpm.

STORM SEWERS

The existing storm sewer system on Ellis Island consists of two distinct, separate systems: one serves Island 1 and another Islands 2 and 3. The system on Island 1 includes yard inlets, catch basins, area drains, roof drains, pipes, and rainwater conductors that deposit stormwater into the Hudson River (New York Harbor). Also included in this system are some drainage structures (inlets) from an earlier period. The newer parts of this system were installed with restoration work undertaken to develop the visitor and administrative areas.

The sewer system on Islands 2 and 3 consists of a combination storm and sanitary sewer system. Stormwater is piped away from the buildings through sewer pipes that collect both stormwater and sanitary sewage. The combined flow is deposited into the Hudson River. The system on Island 2 also includes cisterns. Many older municipalities in the region have similar combined sewer systems.

ELECTRIC AND FUEL SERVICE

ELECTRICAL POWER

Ellis Island is currently supplied with 13.2 kV (kilovolt) power from a Public Service Electric & Gas (PSE&G) substation located in Liberty State Park in New Jersey. The 13.2 kV cables run beneath New York Harbor, encased in PVC conduit to the Powerhouse. A double-ended switchgear unit is located in the Powerhouse, which in turn distributes 13.2 kV power to transformers in the Powerhouse and Main Buildings. From there, power is distributed at lower voltage levels to the remaining buildings and equipment on Ellis Island. These voltage levels are usually 480/277 volts or 208/120 volts, 3-phase.

The power system appears to have been designed to serve all of Ellis Island. The main distribution equipment is located in the Powerhouse and currently is connected at full power to two other buildings. The secondary power distribution system to the existing buildings on Islands 2 and 3 has not been operated because of its poor condition. Temporary service to the buildings for ongoing stabilization work is currently provided through temporary feeders. The 13.2 kV switchgear, located in the Powerhouse, is equipped with spare breakers designated for feeder extensions to all parts of the island.

STANDBY ELECTRICAL POWER GENERATION

A single 750 kW (kilowatt) diesel generator is located in the Powerhouse and serves the life safety loads in the Main, Powerhouse, and Kitchen and Laundry Buildings. This generator also serves the fire pumps that are located in the Main Building and in the Bakery and Carpentry Building. The generator is not adequately sized to provide standby power for the entire island.

NATURAL GAS

Natural gas service to Ellis Island is provided by Public Service Electric & Gas. An existing 8-inch-diameter service line was installed by Public Service Electric & Gas for the rehabilitation and restoration of Island 1. The service enters the Powerhouse Building, where it primarily serves three high-pressure steam boilers. The boilers were designed to provide heating, domestic hot water generation, and humidification loads for the entire island.

FUEL OIL

No. 2 fuel oil is stored on Ellis Island to serve the fueling station for NPS boats, to provide fuel for the diesel-driven electric generator, and as a back-up fuel for the steam boilers. The oil is stored in three 10,000-gallon aboveground, concrete-vaulted tanks located in the northwest corner of Island 1. Oil is pumped through a quadraplex fuel oil pump station to a day tank, where it serves the boilers and generator. In addition to the quadraplex pumps, a simplex fuel oil pump located in its own building serves the fueling station.

MECHANICAL SYSTEMS

CENTRAL CHILLED-WATER PLANT

A central chilled-water plant was installed within the Powerhouse Building on Island 1 as part of the 1980s renovation project to serve the island's present needs, as well as the proposed future needs. The central chilled-water plant consists of three electric-driven hermetic chillers; three induced-draft, cross-flow cooling towers; three chilled-water distribution pumps; three condenser water pumps; and one plate-and-frame heat exchanger.

Two of the existing chillers have a nominal capacity of 500 tons and were manufactured in 1985. The third chiller has a capacity of 700 tons and was manufactured in 1995. Currently, only one of the three chillers is required to be operating at any given time to serve the existing cooling demands, resulting in a relatively low number of operating hours for each machine. The chillers are in good condition and have a life expectancy of at least 10 more years (through 2011) with current demand and operation patterns. Refrigerant HCFC-123, to be phased out in year 2030, is utilized in all three machines. An ASHRAE-15 compliant ventilation system has been installed within the chilled-water plant; however, the existing refrigerant monitoring system is not operational.

Two cooling towers with a nominal capacity of 500 tons were installed in 1985 to serve the two original chillers. A third cooling tower with a nominal capacity of 700 tons was installed in 1995 to serve the third chiller. Each cooling tower is provided with a submersible-type distribution pump. The original cooling towers and their associated pumps are in relatively poor condition and would need to be replaced in the near future, assuming existing demand remains at current levels. The condenser water system is provided with a chemical water treatment system.

Three chilled-water pumps are designed to match the required flow rate through each associated chiller. The pumps are connected in a parallel piping configuration allowing for each pump to operate at full flow. A single chiller and associated pump can satisfy the cooling demand for the existing renovated structures on Island 1.

A plate-and-frame heat exchanger has been installed within the Powerhouse 1 Building as part of the 1980s renovation project to generate chilled water in the winter months without the use of the chillers. The heat exchanger can produce nominally 500 tons of cooling with one of the 500 ton cooling towers.

CENTRAL HEATING PLANT

In addition to the construction of a new chilled-water plant in Powerhouse 1, the 1980s renovation project included a new high-pressure steam boiler plant and distribution system. The estimated heating and domestic water heating requirements for the entire

island were approximately 1,212-boiler hp or 40,573 million Btu/hr. (British thermal units per hour.)

There are three dual-fuel (gas and No. 2 fuel oil) high-pressure steam boilers, with a total capacity of 1,200-boiler hp, to meet the heating and hot water needs of the entire island.

As with the chilled-water needs, all existing demand for heating comes from Island 1. High-pressure steam piping and pressure-reducing valves provide low-pressure steam for domestic hot water, heating, and humidification needs in the renovated buildings on Island 1. Low-pressure condensate receiver/pumps located in each building pump condensate back to the surge tank in Powerhouse 1 to feed the boilers.

The overall condition of the boiler plant is good to fair. The boiler plant was constructed to allow for a fourth boiler at 500-boiler hp in order to provide additional capacity and/or redundancy to the system if it is expanded.

Environmental Consequences

INTRODUCTION

This environmental consequences chapter analyzes both beneficial and adverse impacts that could result from implementing the three alternatives. In addition, it includes a summary of laws and policies relevant to each impact topic, methods used to analyze impacts, and definitions of impact "thresholds" (e.g., negligible, minor, moderate, and major). As required by the national regulations implementing the *National Environmental Policy Act* (NEPA), a summary of the impacts is provided in table 2, which can be found in the "Alternatives" chapter.

As noted in the "Purpose of and Need for the Action" chapter, this environmental impact statement includes more specific information for the rehabilitation of buildings on Ellis Island than it does for a permanent bridge. This is because an additional environmental analysis would be completed to compare alternative bridge designs and the impacts of construction and operation. Additional environmental analysis would also include obtaining all necessary permits and approvals from state and federal regulatory agencies.

OVERARCHING LAWS AND POLICIES

Two overarching environmental protection laws and policies guide the National Park Service: the *National Environmental Policy Act of 1969* and its implementing regulations and the NPS *Organic Act of 1916*.

The *National Environmental Policy Act* is implemented through regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500–8). The National Park Service has in turn adopted procedures to comply with the *National Environmental Policy Act* and CEQ regulations, as found in *Director's Order 12*: *Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2001a) and its accompanying handbook.

The National Park Service is prohibited by the NPS *Organic Act* from impairing park resources and values. NPS *Management Policies* (NPS 2001c, Section 1.4.5) state "an impairment . . . is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values."

In keeping with the requirements of both *Director's Order 12* and NPS *Management Policies*, this environmental impact statement includes an assessment of whether impairment of park resources or values might occur. The NPS *Management Policies* help park units identify whether impairment is possible by providing the following guidance:

> An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, is the key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or is identified as a goal in the park's general management plan or other relevant NPS planning documents.
>
> An impact would be less likely to constitute impairment to the extent that it is an unavoidable result, which cannot be reasonably further mitigated, of an action necessary to preserve or restore the integrity of park resources or values.

CUMULATIVE IMPACTS

Cumulative impacts are a part of every NPS environmental analysis. They help the reader and decision maker understand something about the "total" or "combined" impacts of actions on a resource that may also be affected by the actions in one of the alternatives. The analysis includes actions taken in the past, present, or reasonably foreseeable future, and is without regard to land ownership. Therefore, actions on private or adjacent state or federal land that contribute to impacts on resources in the study area can be included.

METHODOLOGY FOR ANALYZING IMPACTS

This section provides a description of the methodology and thresholds used in the impact analysis.

CULTURAL RESOURCES

A review of relevant resource materials regarding cultural resources on Ellis Island and in the project area was completed to identify and evaluate potential impacts to historic properties. The most recent cultural resource studies conducted within the proposal area include Pousson (1986), Hunter Research (1993), and NPS Olmsted Center for Landscape Preservation, Cultural Landscape Report for Ellis Island (2002). In addition, a review of documents related to several cultural resource studies conducted in the general area within the past 25 years contributes to the information provided in the "Affected Environment" chapter of this document.

The National Park Service characterizes cultural resources by the following categories: historic architectural resources, cultural landscapes, archeological resources, museum objects, and ethnographic resources. The potential impacts and mitigation measures for all alternatives are addressed below by cultural resource type. The analysis of impacts to cultural resources presented in this *Draft Environmental Impact Statement* assumes the National Park Service's adherence to *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (see "Regulations and Policies" section in this chapter for more information on these standards).

For the purposes of this document, the level of impacts on cultural resources was determined using the following criteria:

HISTORIC ARCHITECTURAL RESOURCES, CULTURAL LANDSCAPES

Negligible — impact(s) at the lowest levels of detection (barely perceptible or measurable).

Minor Adverse — impact does not affect the character-defining features of a National Register eligible or listed structure or cultural landscape. *Minor Beneficial* — stabilization/preservation of character-defining features to maintain existing integrity of a structure or cultural landscape in accordance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties* and *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Secretary of the Interior's Standards).

Moderate Adverse — impact alters a character-defining feature(s) of the structure or cultural landscape but does not diminish the National Register integrity of the resource. *Moderate Beneficial* — rehabilitation of a structure or cultural landscape in accordance with the Secretary of the Interior's Standards to make possible a compatible use of the resource, while preserving its character-defining features.

Major Adverse — impact alters a character-defining features(s) of the structure or cultural landscape, diminishing its integrity to the extent that it is no longer eligible for the National Register. *Major Beneficial* — restoration in accordance with the Secretary of the Interior's Standards to accurately depict the form, features, and character of a structure or cultural landscape as it appeared during its period of significance.

Impairment — A major, adverse impact to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Ellis Island as a National Monument; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents.

ARCHEOLOGICAL RESOURCES

Negligible — *i*mpact(s) is at the lowest levels of detection (barely perceptible or measurable).

Minor Adverse — impact affects an archeological site with the potential to yield important information related to local prehistory/history. Disturbance is confined to a small area with little, if any, potential for loss of important information. *Minor Beneficial* — preservation of a site in its natural state.

Moderate Adverse — impact affects an archeological site with the potential to yield important information related to state prehistory/history. Disturbance would not result in a substantial loss of important information. *Moderate Beneficial* — stabilization of the site.

Major Adverse — impact affects an archeological site with the potential to yield important information related to national prehistory/history. Disturbance is substantial, resulting in the loss of most or all of the site's potential to yield important data. *Major Beneficial* — active intervention to preserve the site.

Impairment — same as under "Historic Architectural Resources, Cultural Landscapes."

NATURAL RESOURCES

GEOLOGIC RESOURCES, SOILS, AND MARINE SEDIMENTS

Information from the U.S. Forest Service, National Oceanic and Atmospheric Administration, and historic literature were consulted to identify existing and historical conditions. The following definitions were used to assess impacts:

Negligible — The impact is slight but detectable locally or in the short-term, or is at the lower levels of detection in the long-term or regionally.

Minor — The impact is readily apparent locally or in the short-term, or slight but detectable in the long-term or regionally.

Moderate — The impact is severe locally or in the short-term, or readily apparent regionally or in the long-term.

Major — The impact is severe regionally or in the long-term.

Impairment — The impact is so sustained and severe that the integrity of the resource will be lost parkwide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

FLOODPLAINS

Floodplain maps and information in an earlier environmental impact statement (NPS 1995a) were used to assess the 100- and 500-year floodplains for the project area. The following definitions of impacts were used in evaluating effects on flooding.

Negligible — No detectable change in the risk of flooding would occur.

Minor — Slight, but detectable changes in the risk of flooding or extent of damage it would cause would occur.

Moderate — Readily detectable changes in the risk of flooding or extent of damage it would cause would occur.

Major — Very large increases in the risk of flooding or extent of damage it would cause would occur.

Impairment — The risk and frequency of large-scale flooding would irreparably damage park resources or values.

VEGETATION / THREATENED AND ENDANGERED PLANT SPECIES

The standards developed by the New Jersey Department of Environmental Protection were used to assess the status of vegetative communities at Liberty State Park and on Ellis Island and to document potential impacts from each of the alternatives. The following definitions of impacts were used in evaluating effects on vegetation:

Negligible — The impact is slight but detectable locally or in the short-term, or is at the lower levels of detection in the long-term or regionally. No protected species are affected.

Minor — The impact is readily apparent locally or in the short-term, or slight but detectable in the long-term or regionally. No habitat critical for protected species is affected or other habitat is available nearby.

Moderate — The impact is severe locally or in the short-term, or readily apparent regionally or in the long-term. Local loss of protected species may occur, but regional populations are not affected in a readily detectable way.

Major — The impact is severe regionally or in the long-term. The loss of local protected species affects regional populations in a readily detectable way.

Impairment — The impact is so sustained and severe that the integrity of the resource will be lost parkwide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

FISH

The literature was consulted to determine which species of fish would be present in the vicinity of the island. The same criteria and methodology as those described below for wildlife were used to determine impacts to fish.

WILDLIFE / THREATENED AND ENDANGERED WILDLIFE SPECIES

Casual and more systematic wildlife surveys in Liberty State Park and on Ellis Island were used to determine the presence or absence of particular species. Special zones, such as the Natural Area in Liberty State Park, were considered in each alternative to document possible far-reaching wildlife effects within the park. Informal consultation with both the U.S. Fish and Wildlife Service and the New Jersey Department of Environmental Protection were held to help determine the presence or absence of federal (threatened, endangered, candidate, or proposed) and state (threatened or endangered) protected animal species.

The following definitions were used to assess impacts to wildlife:

Negligible — The impact to nonprotected wildlife is slight but detectable locally or in the short-term, or is at the lower levels of detection in the long-term or regionally. No protected species are affected.

Minor — The impact to nonprotected wildlife is readily apparent locally or in the short-term, or slight but detectable in the long-term or regionally. No habitat critical for protected species is affected or other habitat is available nearby. Only nonbreeding animals of concern are present, or proposed mitigation to breeding animals will fully offset impacts to these individuals.

Moderate — The impact to nonprotected wildlife is severe locally or in the short-term, or readily apparent regionally or in the long-term. Local loss of protected species may occur, but regional populations are not affected in a readily detectable way. Actions may interfere with activities necessary for survival or breeding on an occasional or short-term basis, but are not expected to threaten the continued existence of the species in the park.

Major — The impact to nonprotected wildlife is severe regionally or in the long-term. The loss of local protected species affects regional populations in a readily detectable way. Mortality or other effects are expected on a regular basis and could threaten continued survival of the species in the park.

Impairment — The impact is so sustained and severe that the integrity of the resource will be lost parkwide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

WATER RESOURCES

The *Clean Water Act* and supporting criteria and standards (promulgated by the Environmental Protection Agency) and criteria applicable to surface water and groundwater quality (as established by the New Jersey Department of Environmental Protection and New York State Department of Environmental Conservation standards for class I and SE2 waters) were used to assess waters surrounding Ellis Island.

The following impact thresholds were established to describe the relative changes in water quality (overall, localized, short-term, long-term, cumulative, adverse, and beneficial) under the two action alternatives when compared with the baseline conditions of the no-action alternative for Ellis Island.

Negligible — The impact is slight but detectable locally or in the short-term, or is at the lower levels of detection in the long-term or regionally.

Minor — The impact is readily apparent locally or in the short-term, or slight but detectable in the long-term or regionally.

Moderate — The impact may exceed standards in the short-term, or is readily apparent, but does not exceed standards, regionally or in the long-term.

Major — The project will result in impacts that exceed New York and New Jersey standards for water quality in the long-term or permanently.

Impairment — The impact is so sustained and severe that the integrity of the resource will be lost parkwide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

AIR QUALITY

The pollutants of concern for this *Draft Environmental Impact Statement* are those associated with vehicle emissions, and include carbon monoxide (CO), and the constituents of "smog" or ozone, hydrocarbons and oxides of nitrogen. Because it is most likely to change, carbon monoxide was particularly called out in this analysis.

Four stations were selected for this project to represent existing (i.e., background) ambient air quality. Those stations were located at Kennedy Boulevard in Jersey City, Newark Avenue in Jersey City, Veterans Park in Bayonne, and Tonnelle Avenue in North Bergen. Year 2001 data are the latest available data for these monitoring stations.

The New Jersey Department of Environmental Protection records CO levels at the Kennedy Boulevard and North Bergen monitoring stations. The Kennedy Boulevard station has a record extending back many years. For this *Draft Environmental Impact Statement*, CO levels were analyzed for the period between 1996 and 2001.

The model added CO emissions related to localized traffic increases and delays at intersections, project-related impacts from construction vehicles, and conservative CO background levels, and the resulting total impact was compared to the 1-hour and 8-hour CO ambient air quality standards of 35 mg/kg (milligrams/kilograms) and 9 mg/kg (35 parts per million [ppm] and 9 ppm, respectively), in order to assess the compliance of the intersections with the standards. Results from an earlier, unpublished study (NPS 1995a) were then compared with baseline conditions in 2001 and the proposed alternatives. A qualitative analysis was then conducted to determine potential impacts to air quality.

The following definitions were used in assessing impacts to air quality:

Negligible — The impact is slight but detectable locally or in the short-term, or is at the lower levels of detection in the long-term or regionally.

Minor — The impact is readily apparent locally or in the short-term, or slight but detectable in the long-term or regionally.

Moderate — The impact may exceed standards in the short-term, or is readily apparent, but does not exceed standards, regionally or in the long-term.

Major — The project will result in impacts that exceed air quality standards in the long-term or permanently.

Impairment — The impact is so sustained and severe that the integrity of the resource will be lost parkwide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

NOISE

Because the sound pressure level unit of dBA (A-weighted decibel) describes a noise level at just one moment and very few noises are constant, the equivalent sound level, L_{eq} is used to describe the fluctuating noise heard over a specific period, as if it had been a steady, unchanging sound. L_{eq} is the constant sound level that, in a given situation and period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted as $L_{eq(24)}$), conveys the same sound energy as the actual time–varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x are sometimes used to indicate noise levels that are exceeded 1, 10, 50, 90, and x percent of the time, respectively. The L_{10} descriptor is particularly appropriate for traffic noise because of its fluctuating nature.

Noise Monitoring Stations

An ambient or background noise monitoring program was conducted in 1994 to measure existing noise levels within the project area. Noise levels on Ellis Island and Liberty State Park were measured and recorded on two dates in July 1994. Three stations were selected on Ellis Island and two in Liberty State Park. The dates coincided with the traffic counting program in 1994 to represent typical conditions experienced during weekend day and weekday.

Noise monitoring stations were located on the western side of Ellis Island, the northwest corner of Ellis Island and the northern section of Ellis Island. The Liberty State Park locations were near the landing site of the existing temporary service bridge and at the CRRNJ parking lot.

The noise meters at monitoring stations were programmed to measure random background noise and the following:

L_{eq} — equivalent sound level

Max (L) — maximum sound level

Min (L) — minimum sound level

L_{10} — noise level that is exceeded 10% of the time

L_{90} — noise level that is exceeded 90% of the time

Impacts were assessed using the following criteria:

Negligible — Noise increases over background by no more than 3 decibels in the short-term, and does not increase by detectable amounts in the long-term.

Minor — Noise increases between 3 to 9 decibels in the short-term, and by no more than 3 decibels in the long-term.

Moderate — Noise increases between 10 to 15 decibels in the short-term (unmitigated), and by no more than 10 decibels in the long-term.

Major — Noise increases by more than 15 decibels in the short-term and 10 decibels in the long-term.

Impairment — Noise is so persistent or loud that visitor experience, wildlife, or other park resources or values are lost throughout the park for a long period of time or permanently.

HAZARDOUS MATERIALS

Historic literature and the results of surveys for toxic substances were used to determine the presence and concentrations of hazardous materials in buildings, soils, and marine fill.

Impacts were assessed using the following criteria:

Negligible — No standards are violated or thresholds crossed in the short- or long-term; workers and visitors are fully protected from direct contact with contaminated substances; changes in water quality are at the limits of detection, even locally.

Minor — No standards are violated or thresholds crossed in the short- or long-term; workers and visitors are fully protected from direct contact with contaminated substances; changes in water quality are slight, but detectable in the short-term or locally, or at the limits of detection in the long-term or regionally.

Moderate — No standards are violated or thresholds crossed in the long-term, but short-term exceedances may occur; workers and visitors are usually fully protected from direct contact with contaminated substances, but occasional contact may occur; changes in water quality are readily detectable in the short-term or locally, or slight, but detectable in the long-term or regionally.

Major — Standards may be violated or thresholds crossed on a sustained basis; workers and visitors make regular contact with contaminated substances; changes in water quality are readily detectable and severe in the short- or long-term, both locally and regionally.

Impairment — Standards and thresholds are repeatedly violated and clean up cannot repair this; workers and visitors are unsafe from contact with contaminated substances when at the park; changes in water quality are severe and permanent.

SOCIAL AND ECONOMIC ENVIRONMENT

Tourism data were derived from the New York City Convention and Visitors Bureau. Historical visitor data, visitor projections, employment data and projections, and park administration information were obtained from NPS staff and documents. Land use information was based upon field visits during 2001 and from secondary information. U.S. Census Data were used for analysis of regional population and economic data. An environmental justice review was conducted to determine if a disproportionate share of the proposed project's socioeconomic impacts that could be considered significantly adverse are borne by low-income and minority communities. The review consisted of the

identification of disadvantaged (low-income and/or minority) populations and the determination of whether any disadvantaged populations would be disproportionately impacted by the proposed project. As noted in the "Purpose of and Need for the Action" chapter, no disadvantaged populations would be disproportionately affected by any of the alternatives; therefore, this topic was dropped from further analysis. The following definitions were used to assess impact to tourism and park administration:

Negligible — The impact is slight but detectable locally or in the short-term, or is at the lower levels of detection in the long-term or regionally.

Minor — The impact is readily apparent locally or in the short-term, or slight but detectable in the long-term or regionally.

Moderate — The impact is severe locally or in the short-term, or readily apparent regionally or in the long-term.

Major — The impact is severe regionally or in the long-term.

Impairment — The impact is so sustained and severe that the integrity of the resource will be lost parkwide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

TRANSPORTATION AND CIRCULATION

Existing "level of service" data were compared to projections of anticipated future volumes for evaluation of traffic and transportation impacts on local roadways and parking facilities.

The following definitions were used to assess the degree of impact:

Negligible — Access to Ellis Island for visitors and staff remains uninterrupted, or experiences short-term, barely detectable changes, and/or no long-term changes. Changes in demand for parking as a result of this project are at the lower limits of detection, usually a 1% increase or less. Level of service stays within its existing category, and changes are barely detectable.

Minor — Access to Ellis Island for visitors and staff experiences slight but detectable changes in the short-term, and/or barely detectable in the long-term. Changes in demand for parking as a result of this project are slight, but detectable, usually a 1%–9% change. Level of service stays within its existing category, and changes within the category are slight but detectable.

Moderate — Access to Ellis Island for visitors and staff experiences readily detectable changes in the short-term, and/or slight, but detectable changes in the long-term. Changes in demand for parking as a result of this project are readily detectable, usually a 10%–15% change. Level of service changes one category

Major — Access to Ellis Island for visitors and staff experiences large-scale changes in the short-term, and/or readily detectable changes in the long-term. Changes in demand for parking as a result of this project are severe, and decrease by more than 15%. Level of service moves from under capacity to at or over capacity.

Impairment — Because no intersections exist on Ellis Island, impairment of park resources is not possible under this impact topic.

VISITOR EXPERIENCE

The following definitions were used to assess degree of impact:

Negligible — The impact is slight but detectable locally or in the short-term, or is at the lower levels of detection in the long-term or regionally.

Minor — The impact is readily apparent locally or in the short-term, or slight but detectable in the long-term or regionally.

Moderate — The impact is severe or exceptionally beneficial locally or in the short-term, or readily apparent regionally or in the long-term.

Major — The impact is severe or exceptionally beneficial regionally or in the long-term.

Impairment — The impact is so sustained and severe that the integrity of the resource will be lost parkwide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

ELLIS ISLAND INFRASTRUCTURE

SITE UTILITIES

The general standards by which utility size and service are evaluated in the United States are established by Building Officials Code Administrators (BOCA), International. Local authorities typically refer to BOCA for enforcement of building and construction codes. The following threshold definitions were used in this analysis:

Negligible — The impact is at the lower limits of detection.

Minor — The impact is slight but detectable.

Moderate — The impact is readily apparent.

Major — The impact is severe or highly beneficial.

Impairment — The impact is so sustained and severe that the integrity of the resource will be lost parkwide, and the resource is either important to park purposes or is one whose protection has been spelled out as a reason for creating the park.

REGULATIONS AND POLICIES

This section provides a description of the laws, regulations, and policies related to each impact topic.

CULTURAL RESOURCES

The National Park Service is charged with protection and management of cultural resources in its custody. This is furthered through the implementation of NPS *Director's Order 28*: *Cultural Resources Management Guidelines* (NPS 1998), the 2001 NPS *Management Policies*, and the 1995 Servicewide Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers. The park also has a draft programmatic agreement (see appendix D) in progress with the New Jersey and New York State Historic Preservation Officers and the Advisory Council on Historic Preservation, specifically for work on Ellis Island structures and landscapes. These documents require NPS managers to avoid adversely impacting park resources and values, or to minimize impacts to the greatest degree practicable.

Numerous laws also regulate the management of cultural resources on public lands, including the following:

Antiquities Act of 1906 — authorized the president to establish historic landmarks and structures as monuments owned or controlled by the U.S. government and to institute a fine for unauthorized collection of their artifacts.

The Secretary of the Interior's Standards for the Treatment of Historic Properties — define the degree to which historic properties can be changed and retain their integrity. The standards and the accompanying guidelines allow for a contemporary use through alterations and additions if properties are rehabilitated, but such alterations and additions to be in accord with the standards should not radically change, obscure, or destroy character-defining features and spatial relationships of buildings or a cultural landscape.

National Historic Preservation Act of 1966 — this act, as amended, and the regulations of the Advisory Council on Historic Preservation (36 CFR 800), typically represent the principal pieces of management legislation for cultural resources associated with NPS projects. Section 106 of the *National Historic Preservation Act* requires all federal agencies to consider the effects of their actions on cultural resources determined eligible for inclusion in the National Register of Historic Places (National Register), and take actions to minimize harm to them. An action is considered to have an effect if it alters a National Register-eligible resource's significant characteristics such as location, setting, or use. An adverse effect is one that diminishes the integrity of a resource, thereby jeopardizing its National Register eligibility/status (e.g., alteration of setting, physical damage/ destruction, neglect, sale, or lease without adequate protective restrictions). Section 110 of the act further requires federal land managers to establish programs in consultation with the state historic preservation office to identify, evaluate, and nominate properties to the National Register. This act applies to all federal undertakings or projects requiring federal funds or permits.

National Parks and Recreation Act of 1978 (*The Redwoods Act*) — requires that general management plans be developed for each unit in the national park system, and that the plans include, among other things, measures for preserving the area's resources and an indication of the types and intensities of development associated with public use of a given unit.

Archeological Resources Protection Act of 1979 — further codifies the federal government's efforts to protect and preserve archeological resources on public lands by stiffening criminal penalties, as well as instituting civil penalties, for the unauthorized collection of artifacts. Additionally, it establishes a permit system for the excavation and removal of artifacts from public lands, including their final disposition, as well as confidentiality provisions for sensitive site location information where the release of such information may endanger the resource.

Native American Graves Protection and Repatriation Act of 1990 — sets forth procedures for determining the final disposition of any human remains, funerary objects, or objects of cultural patrimony that are discovered on public lands or during the course of a federal undertaking.

Curation of Federally Owned and Administered Archeological Collections — establishes guidelines and procedures for the proper curation and management of archeological collections owned or administered by federal agencies (36 CFR part 79).

NATURAL RESOURCES

GEOLOGIC RESOURCES, SOILS, AND MARINE SEDIMENTS

NPS *Management Policies* require that each park unit "will actively seek to understand and preserve soil resources of parks and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources."

FLOODPLAINS

NPS *Management Policies* (NPS 2001c), section 4.6.4, address management of and in floodplains. Parks are instructed to (1) manage for the preservation of floodplain values; (2) minimize potentially hazardous conditions associated with flooding; and (3) comply with the NPS *Organic Act* and all other federal laws or executive orders related to the management of activities in flood-prone areas. In particular, parks are told to avoid direct and indirect support of development in floodplains if the development could adversely affect the functions of the floodplain or its natural resources, or increase flood risks. Executive Order 11988 requires parks to evaluate alternatives that would lessen or eliminate adverse effects of their actions on floodplains, and prepare a "statement of findings" presenting options for doing so. No adverse effects to floodplains are expected from any alternative in this environmental impact statement.

VEGETATION / THREATENED AND ENDANGERED PLANT SPECIES

Biological resource management in the National Park Service has its roots in its founding legislation, the *Organic Act of 1916*, which directs parks to "conserve the scenery and the natural and historic objects and the wildlife therein to leave them unimpaired for the enjoyment of future generations." These general powers were broadened by the *Redwood National Park Act of 1978,* in which Congress gave further direction that parks should not be managed in any way that might reduce values or purposes for which they have been established.

Generally, NPS *Management Policies* state the parks "will maintain as parts of the natural ecosystems of parks all native plants and animals" (section 4.4.1). Parks are called upon to minimize human impacts on native plants and plant communities, and when actions require removal of native plants, to ensure that such removals will not cause unacceptable impacts to native resources, natural processes, or other park resources (section 4.4.2.1).

NPS *Management Policies* also direct the National Park Service to inventory, monitor, and manage state and locally listed (e.g., protected under state acts similar to the federal *Endangered Species Act*) species and other native species that are of special management concern to the parks to maintain their natural distribution and abundance. Although the National Park Service must follow the mandates of the federal *Endangered Species Act*, no federally listed, candidate, or proposed species exist in the study area.

FISH

The NPS *Organic Act of 1916* directs parks to "conserve the scenery and the natural and historic objects and the wildlife therein to leave them unimpaired for the enjoyment of future generations." These general powers were broadened by the *Redwood National Park Act of 1978*, in which Congress gave further direction that parks should not be managed in any way that might reduce values or purposes for which they have been established. In this context, biological resource management is designed to preserve or restore the natural behavior, genetic variability and diversity, and ecological integrity of fish populations.

WILDLIFE / THREATENED AND ENDANGERED WILDLIFE SPECIES

As noted in the "Vegetation" and "Fish" sections, biological resource management in the National Park Service has its roots in the *Organic Act of 1916*, which directs parks to "conserve the scenery and the natural and historic objects and the wildlife therein to leave them unimpaired for the enjoyment of future generations." This means parks cannot be managed in

any way that reduces values or purposes for which they have been established. In this context, biological resource management is designed to preserve or restore the natural behavior, genetic variability and diversity, and ecological integrity of wildlife populations. Parks are also directed to protect and perpetuate native wildlife as part of the park's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible.

NPS *Management Policies* also direct the National Park Service to inventory, monitor, and manage state and locally listed (e.g., protected under state acts similar to the federal *Endangered Species Act*) species and other native species that are of special management concern to the parks to maintain their natural distribution and abundance. Although the National Park Service must follow the mandates of the federal *Endangered Species Act*, no federally listed, candidate, or proposed species exist in the study area.

WATER RESOURCES

NPS *Management Policies* (2001c, section 4.6) have water protection policies. In section 4.6.3, the policies state "The Service will determine the quality of park surface and groundwater resources and avoid, wherever possible, the pollution of park waters by human activities occurring within and outside of parks."

A primary means for protecting water quality is the *Clean Water Act* that provides for the establishment, implementation, and enforcement of water quality standards. Generally, the federal government has delegated the development of standards to the individual states subject to EPA approval. In addition, the New Jersey Department of Environment Protection and New York State Department of Environmental Conservation have standards for different classes of surface water.

AIR QUALITY

The Environmental Protection Agency has set air quality standards for six principal "criteria" pollutants, including carbon monoxide, ozone, and two types of particulates (those smaller than 10 microns and those smaller than 2.5 microns).

NPS management of air quality is primarily to monitor and mitigate impacts to visibility in larger parks considered to be class I areas by the *Clean Air Act*. Beyond this, parks are instructed to comply with all federal and state air quality standards.

NOISE

The Federal Highway Administration (FHWA) guidelines for noise abatement criteria are widely used for the discussion and evaluation of noise levels. The guidelines provide different standards based on land use. In general, when noise levels from a project approach or exceed the noise abatement criteria or when they exceed existing noise levels by more than 10 decibels (dBA), abatement measures would be considered.

The New Jersey Department of Transportation (NJDOT) uses FHWA-derived standards in noise control and abatement for highway projects. If noise levels from a particular project are within 3 dBA of the FHWA standards, or if the increase is 10 dBA or more, then noise abatement may be required. Noise abatement is not automatically required if one of these conditions is met. The need for abatement is determined on a case-by-case basis. For noise abatement measures, the goal of noise reduction is 10 dBA.

NPS *Management Policies* (2001c) also require parks to "preserve, to the greatest extent possible, the natural soundscapes." These are soundscapes that exist in the absence of human-caused sound.

HAZARDOUS MATERIALS

NPS *Management Policies* address hazardous materials in the biological, soils, and water quality management sections, but also add that the National Park Service will strive to prevent the release of human-generated chemicals that can block the release, deposition, or perception of natural chemicals.

Standards for exposure to lead-based paint and asbestos, for contact with contaminated soil or groundwater, and for surface or groundwater pollution are promulgated by the Occupational, Safety, and Health Administration; Environmental Protection Agency; and state environmental protection agencies.

SOCIAL AND ECONOMIC ENVIRONMENT

The only policy guidance outside of that contained in regulations for the *National Environmental Policy Act* for socioeconomics is supplied by a 1994 executive order (EO 12898) requiring all federal agencies to analyze and consider impacts of actions on minority and low-income populations and communities to make sure they are not adversely and disproportionately affected.

TRANSPORTATION AND CIRCULATION

Policies concerning transportation systems exist in the NPS *Management Policies*; however, they primarily pertain to the building of new roads. The National Park Service does encourage visitors to use a mix of public transportation, including buses, trains, and ferries.

VISITOR EXPERIENCE

The NPS *Management Policies* and *Organic Act* indicate that enjoyment of park resources and values by the people of the United States is "part of the fundamental purpose of all parks" (section 8.2). The National Park Service is committed to "providing appropriate, high quality opportunities for visitors to enjoy the parks," and promises to maintain within parks "an atmosphere that is open, inviting, and accessible to every segment of American society." This section also identifies constraints on the kind of uses parks can allow.

ELLIS ISLAND INFRASTRUCTURE

The general standards by which utility size and service are evaluated in the United States are established by Building Officials Code Administrators (BOCA), International. Local authorities typically refer to BOCA for enforcement of building and construction codes.

IMPACTS OF ALTERNATIVE 1: NO ACTION — CONTINUATION OF EXISTING MANAGEMENT DIRECTION

CULTURAL RESOURCES

HISTORIC ARCHITECTURAL RESOURCES

With the exception of the potential for enhanced protection for archeological resources and the restoration of the historic setting of the island (bridge removal), the no-action alternative meets none of the cultural resource-related NPS objectives stated in the "Purpose of and Need for the Action" chapter for the future of Ellis Island. Of particular concern is the lack of long-term protection of historic structures that are listed on the National Register of Historic Places.

Under this no-action alternative, improvements to historic structures would be limited to ongoing stabilization of Ellis Island structures over the next 10 to 15 years, as well as the interior rehabilitation of the Ferry Building and the Hospital Outbuilding and Laundry. The exteriors of these buildings were previously restored. All stabilization and rehabilitation activities are being conducted according to *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.

The Ellis Island stabilization program is of limited historic preservation value, delaying for 15 to 20 years, at best, the eventual point at which significant deterioration of historic structures would become apparent. It is not regarded as a viable or sustainable option for the National Park Service because, eventually, all structures on the island would reach a point of deterioration, which would preclude any further maintenance or restoration. As structures on Ellis Island reach a state of irreversible deterioration and are deemed unsafe, actions would be necessary to prevent injury to visitors and staff. Consideration would necessarily be given to demolition; however, demolition/removal activities are not included under the no-action alternative and would be addressed at a later time, should they be necessary.

Stabilization activities are considered a short-term, localized, minor benefit to the cultural resources of Ellis Island. These benefits, however, are of limited usefulness in the long-term preservation of the National Register resources of Ellis Island. When compared with alternatives 2 and 3, which propose rehabilitation of all historic structures, the no-action alternative poses a significantly higher degree of risk to cultural resources on Ellis Island.

The rehabilitation of the interiors of the Ferry Building and Hospital Outbuilding and Laundry is considered a moderate, site-specific benefit for the cultural resources of Ellis Island. However, when compared to rehabilitation of all historic structures under alternatives 2 and 3, the benefit provided under the no-action alternative is significantly less.

Cumulative Impacts. Beyond the natural forces of time and weather, no additional impacts to the buildings on Ellis Island would occur.

Conclusions. Rehabilitation of the interiors of the Ferry Building and Hospital Outbuilding and Laundry provides a moderate, site-specific benefit. However, in general, this alternative does not provide for a plan of historic preservation of the significant cultural resources of Ellis Island. Stabilization activities of historic structures proposed would result in only short-term benefits to the resources, and long-term preservation of cultural resources is not expected. The eventual loss of many, if not all, of the eligible properties on Ellis Island is possible. The predicted loss of such significant cultural resources is expected to result in impairment of NPS resources. When compared to the positive preservation benefits offered under alternatives 2 and 3, the no-action alternative is decidedly negative in its overall effect on historic properties, with long-term, major adverse impacts anticipated for the region and, possibly, for the nation.

CULTURAL LANDSCAPE

Defining characteristics of the cultural landscape of Ellis Island have been identified as spatial organization, circulation, vegetation, and, to a lesser degree, small-scale features (see the "Affected Environment" chapter). Under the no-action alternative, maintenance of the Ellis Island landscape would not continue at the level required to maintain its historic integrity.

For the immediate future, the spatial organization of the landscape (structures' relationships to one another) would remain essentially unaffected by the

no-action alternative. However, a lack of maintenance of the defined and characteristic spaces between historic structures would undoubtedly contribute to a loss of the campus setting. Delineation of open spaces would become less distinct with the overgrowth of invasive vegetation. In later years, the effects of the lack of maintenance of historic structures would also become apparent. The potential need to remove deteriorating structures would jeopardize the general spatial organization of the cultural landscape of Ellis Island.

This alternative's lack of long-term maintenance and preservation strategies for circulation routes (sidewalks and covered corridors) on Ellis Island would result in the general deterioration of the enclosed corridor system and the existing pattern of sidewalks surrounding the recreation yard between Islands 2 and 3. Distinct vegetation patterns, as well as individual historic trees, currently contribute to the integrity of the cultural landscape of Ellis Island. Over time, the no-action alternative would likely result in significant detrimental effects to the characteristic vegetation due to a lack of maintenance.

Many extant small-scale features, which currently exist within the landscape of Ellis Island, are in poor condition and in need of preservation. Under the no-action alternative, these features would continue to deteriorate, eventually beyond the point where reasonable preservation is practical. If extant features cannot be preserved in place, preservation of a particular item style or type, such as a historic light post, may be achieved by placing the item in curatorial storage. The loss of the integrity of the cultural landscape of Ellis Island due to neglect / lack of maintenance expected under the no-action alternative has the potential to result in a long-term, major, adverse impact to a National Register resource. The effect would be regional, if not national, in scope. The no-action alternative poses a higher degree of risk to the cultural landscape of Ellis Island than do alternatives 2 and 3, which propose landscape rehabilitation.

The no-action alternative would also result in the short-term stabilization and eventual removal of the nonhistoric temporary service bridge. Stabilization actions would extend the bridge's service life approximately 10 years and, consequently, result in the postponement of restoration of the historic setting and views to and from Ellis Island. This nonhistoric feature, a situation that would continue with the delay of bridge removal, currently mars views from certain aspects of Ellis Island. A significant National Register characteristic of Ellis Island is its isolated historic setting, a primary reason for its selection as a site for an immigration station. Postponing the restoration of its original historic setting hinders the public's understanding of the island's isolated geographic position during the period of its greatest use (immigration period). Extension of the service life of the temporary bridge is considered a moderate, adverse impact to the cultural landscape of Ellis Island, albeit a temporary one. The impact is considered local to regional (harbor-wide) in nature.

The eventual bridge removal proposed under the no-action alternative would result in a variety of positive effects on the cultural landscape of Ellis Island. Restoring the historic setting would promote greater understanding of the significant characteristics of Ellis Island, including its unique position in U.S. history, its association with the immigration period, and elements of the landscape design, all of which are impacted by the existing bridge. Removal of the temporary service bridge would also allow the restoration of the 1930s seawall and the existing roadway and parking areas on Ellis Island to an earlier, more sympathetic appearance when no vehicles existed on the island.

Views of Ellis Island would also benefit from the removal of the nonhistoric bridge's visual obstruction by restoring the original historic setting of the island and the region (harbor area) (e.g., restoration of “waterspace” between Ellis Island and the mainland, reinforcing the sense of an island). Currently, visitors on Ellis Island cannot see the existing service bridge, as visitor space now exists on the east side of the island with the view toward the west blocked by existing historic buildings. However, views of Ellis Island from Liberty State Park and the CRRNJ Terminal would be enhanced by the restoration of the historic setting.

The restoration of the historic setting of Ellis Island as a result of the proposed bridge removal is considered a major, long-term benefit to the cultural landscape of Ellis Island. The benefits are believed to be regional in scope due to the concomitant positive effects of the bridge's removal on nearby National Register properties located within Ellis Island's viewshed. The positive effect on the cultural landscape of Ellis Island as a result of eventual removal of the bridge is significantly greater under the no-action alternative than under alternatives 2

and 3, which propose construction of a new permanent bridge.

Removal of the bridge would also have the potential to negatively affect the cultural resources of Ellis Island as a result of increased fire response time. Ellis Island would be reliant on New York City fireboats based in Brooklyn. Best response times would be between 20 to 30 minutes but could be longer, depending on the location of the boat at the time of the emergency call. In addition, fireboats are likely to be less effective in combating a fire than land-based engine companies because their water cannons may not be able to reach fires in structures on all parts of the island. In addition, salt water used by the fireboats would have a more detrimental effect on historic structures than would fresh water used by land-based engines. The less efficient fire-fighting methods expected by the eventual removal of the bridge proposed under the no-action alternative have the potential to result in adverse impacts of unknown intensity to cultural resources on Ellis Island. Alternatives 2 and 3 provide a significantly lower risk of loss of historic resources by fire due to the bridge replacement proposals included in both.

Cumulative Impacts. Time and the lack of an adequate long-term preservation plan for the cultural landscape of Ellis Island have had a combined impact on many of the features that make up the cultural landscape. The cumulative loss of National Register properties on Ellis Island over time under the no-action alternative is considered a major, long-term, adverse impact to cultural resources, with regional to national implications.

Conclusions. The postponement of the removal of the temporary service bridge is considered a temporary, moderate, adverse impact. However, the no-action alternative would result in its eventual removal, a major benefit for the cultural landscape of Ellis Island and surrounding areas. This positive effect is not realized under alternatives 2 or 3, as both propose a permanent bridge replacement.

Associated with eventual bridge removal, historic properties on Ellis Island would be placed at higher risk of fire damage/loss due to longer response times and less efficient methods of fire-fighting, a potentially major adverse impact not expected under alternatives 2 and 3.

In contrast to alternatives 2 and 3, this alternative does not provide for a plan of historic preservation for the cultural landscape of Ellis Island, and the possibility of its eventual loss exists. When compared to alternatives 2 and 3, the no-action alternative is decidedly negative in its overall affect on the cultural landscape of Ellis Island, with major adverse impacts anticipated for the region and, possibly, for the nation.

Of the three alternatives, the no-action alternative would result in the highest risk to the cultural landscape of Ellis Island. Due to the lack of a long-term preservation strategy under this alternative, the eventual loss of the cultural landscape is likely and would be expected to result in impairment of NPS resources.

ARCHEOLOGICAL RESOURCES

Under this no-action alternative, no impacts to either terrestrial or marine archeological resources are anticipated.

Cumulative Impacts. No cumulative impacts to archeological resources have been identified under the no-action alternative.

Conclusions. The no-action alternative does not have the potential to adversely affect archeological resources in a manner that would jeopardize their National Register characteristics. When compared to alternatives 2 and 3, under which ground-disturbing activities are likely, the risk to archeological resources on Ellis Island is minimal under the no-action alternative. No impairment of park archeological resources would occur.

NATURAL RESOURCES

GEOLOGIC RESOURCES AND SOILS

New soil would be required to fill in where the existing bridge touches down on both Ellis Island and in Liberty State Park and to fill in the break in the seawall where the bridge intersects it. The impacts to soils from these activities would be negligible.

The stabilization of the buildings on the south side (Islands 2 and 3) is anticipated to have no impact upon the project area's geologic formations or existing soils.

Cumulative Impacts. As described in the "Affected Environment" chapter, dredge spoils and other materials have been used as fill to create soils in the area on which to build. Soils have also been graded, excavated, and removed throughout the region to accommodate building. Especially compared to these actions, the impact of soil placement required under the no-action alternative is not detectable.

Conclusions. Negligible impacts to soils would result from filling the seawall following bridge removal. No impairment of park soils or geology would occur.

MARINE SEDIMENTS

The existing temporary service bridge rests on piles driven into marine sediments. The removal of these piles would leave holes in the sediment in the channel between the island and the state park and cause the suspension of bottom sediments into the water column. In time, sediments would settle, and over several years, the holes left by the pilings would be filled with marine sediments. A silt curtain surrounding the area where bridge removal would take place could minimize increases in turbidity associated with suspending sediments. The degree of impact to sediments is likely to be negligible or minor and localized.

Cumulative Impacts. Marine sediments have been dredged and used as fill in several locations throughout the region, as described in the "Affected Environment" chapter.

Conclusions. Localized negligible or minor temporary impact to marine sediments in the channel between Ellis Island and the state park would occur from removing pilings. No marine sediments are part of the park; therefore, no impairment of park marine sediments is possible.

FLOODPLAINS

All of Liberty State Park is low lying and subject to flooding, although some would only experience minimal inundation should a flood event occur. A 3.6-foot-high seawall (upon which Liberty Walk rests) protects most of the park, except where the temporary bridge is cut into the seawall at ground level. Here, water from a 100-year or 500-year flood event could penetrate the seawall and inundate lower-lying parts of the state park immediately to the northwest.

Dismantling the existing temporary service bridge and completing the seawall following removal of the landing would reduce the potential for flooding of susceptible areas of Liberty State Park behind Liberty Walk during flood conditions, a minor positive impact.

Cumulative Impacts. Liberty State Park is also vulnerable to wave action from long fetches within the harbor. Removing the bridge touchdown point and sealing the seawall could offer additional protection from this type of flooding.

Conclusions. Removing the temporary service bridge and sealing the seawall could result in minor beneficial impacts from flood prevention. No impacts to or impairment of park floodplains would occur.

VEGETATION / THREATENED AND ENDANGERED PLANT SPECIES

Vegetation in the courtyards on the south side (Islands 2 and 3) would continue to grow undisturbed, although construction staging and other small-scale clearing or occupation of Ellis Island resulting from the ongoing stabilization efforts may result in the temporary removal of some weedy vegetation. This is likely only a short-term, negligible impact to vegetation on the island. Invasive plant species would continue to invade and dominate much of these small, untamed areas.

Two of the three New Jersey state protected plant species (Canada hawkweed and the Ohio spiderwort) found on Ellis Island grow in open areas and unmaintained courtyards. However, the no-action alternative is unlikely to have any effect on individuals of these species.

Removal of the temporary service bridge would require clearing vegetation for construction staging areas where materials and equipment could be stored. These areas would be reseeded or replanted with native vegetation or allowed to regrow naturally. Impacts to vegetation would be negligible or minor.

Cumulative Impacts. Vegetation in the region has been significantly altered to allow for urban and suburban growth over the past century and more. Changes over the years to the original Ellis Island

have likely resulted in the near or complete elimination of that 3-acre site of native vegetation. However, some of the native vegetation in the study area has been restored with the ongoing restoration of the nearly 1,200-acre Liberty State Park, which includes wetlands, early and successional old-field plant communities and wooded thickets.

Conclusions. Negligible to minor impacts to vegetation from clearing for construction staging associated with stabilization efforts and removal of the temporary bridge are likely. No impacts to threatened or endangered vegetation are expected, and no impairment to park vegetation would take place.

FISH

The use and importance of the aquatic habitat between Liberty State Park and Ellis Island as a nursery area varies by season, with the number and diversity of species highest in June through November (NPS 1995a). Juvenile striped bass are found in the shallows of the harbor in winter and early spring.

Construction may require work in the channel to remove existing pilings and other materials, and may cause increases in erosion and suspension of marine sediments. This in turn would increase turbidity, as well as concentrations of some toxins such as organic pesticides and heavy metals. Aquatic invertebrates, fish, and wildlife that feed on marine organisms could experience an increased uptake of these toxins if they remain in the area during construction. It is possible that the presence of either organics or heavy metals could be biomagnified in the food chain, as both are stored rather than eliminated when exposure takes place. The degree to which this phenomenon would take place is unknown, but would not likely be more than negligible or minor (e.g., slight, but detectable in the long-term).

If construction activities are timed to avoid periods when diversity is high or the channel is used as a nursery, direct impacts to adults or juveniles could be reduced. However, if this is not possible, impacts to striped bass and other fish, including anadromous species, using the channel between the park and Ellis Island could be severe for the period of time during removal of the temporary service bridge. Because this is a short-term, localized impact, the effect to fisheries overall from construction would be short term and moderate. Eventually, bottom habitat may also be restored, and long-term impacts are not likely to be more than negligible.

Cumulative Impacts. Fish species in the harbor are subject to a number of other stressors, including pollutants, fishing, dredging, and natural forces such as predation and weather and current related impacts. Nursery habitat, which is usually shallow water with emergent vegetation, is also the same areas historically filled to extend land surfaces. The combination of these impacts has had negligible or minor impacts on some species and more severe impacts on others.

Conclusions. Removal of the temporary service bridge could result in minor to moderate short-term impacts to fish in the immediate area of construction from direct activity, as well as increases in turbidity and the suspension of toxins. No impairment of park fisheries resources would occur.

WILDLIFE / THREATENED AND ENDANGERED WILDLIFE SPECIES

Short-term disturbance or displacement of wildlife related to noise and the presence of humans and equipment would occur on both Ellis Island and at Liberty State Park. Ellis Island provides minimal habitat for terrestrial wildlife. There are very few natural areas to provide shelter and food. Even so, during construction activities associated with removal of the temporary service bridge and stabilization of buildings on Ellis Island, birds and other wildlife could be disturbed and displaced. Because these impacts are temporary, the effect would be negligible or minor overall.

Birds using the shore environment of the state park or the near-shore marine environment would be unlikely to remain in the area during removal of the temporary bridge. Depending on the species in the area, the displacement could be temporary or long-term, as some individuals and some species are more susceptible to noise and the presence of humans than others. At noise levels associated with the removal of bridge piles (76 to 101 decibels at a distance of between 50 and 800 feet), wildlife would not be able to habituate. At levels of 30 to 70 decibels, most species of wildlife would continue to avoid the noise or suffer secondary effects such as impacts to their ability to communicate (Bowles 1995).

The protected species most likely to be adversely affected by bridge removal is the state threatened Savannah sparrow, as it is a year-round resident of the state park. This species nests in open fields and thickets in the project area very near to where construction is likely to take place. Because the impact would be temporary, the effect on Savannah sparrows would be no more than a minor one.

Other seasonal residents in the state park include the northern harrier, peregrine falcon, great blue heron, short-eared owl, and long-eared owl. The northern harrier hawk, a New Jersey state endangered (breeding population) species, utilizes undisturbed fields and shoreline for feeding in both summer and winter. Long-eared and short-eared owls are also winter residents of the park, and peregrine falcons are summer residents. If construction occurs during the time they are present in the park, these species could suffer negligible or minor impacts.

Several bird species also migrate through Liberty State Park in the spring or fall, including several which are state listed (see the "Affected Environment" chapter). It is likely that fewer individuals of these species would use the park during the construction period as a migratory stop. However, because these species utilize a very large area, usually covering several hundred or thousand miles, the loss of habitat during the construction period at Liberty State Park is likely to be no more than a negligible or minor impact.

Cumulative Impacts. Development and alteration of natural areas in the vicinity over the past century (and more) have eliminated habitat for bird species and other wildlife native to the region. In addition, the presence of human activity and noise has displaced sensitive individuals of many species. Liberty State Park is one of very few natural areas where wildlife can exist. Improvements to the park would increase the amount of open space available to birds and other wildlife, and could offset to some small degree the impact of noise and human activities associated with bridge removal.

Conclusions. Minor impacts to nonprotected wildlife from construction are expected, particularly in Liberty State Park. Some protected species could be affected, Savannah sparrows could experience minor effects in the short-term, and other seasonal residents and migrants could experience negligible impacts. No impairment of park wildlife resources would occur.

SURFACE WATER

Removal of footings, pilings, and abutments at the ends of the temporary bridge between Liberty State Park and Ellis Island could result in temporary, localized increases in turbidity in the surface water in the immediate vicinity. Turbidity could increase substantially for the construction period, but would return to current levels relatively quickly following the cessation of bridge removal activities. Some additional slight increases in turbidity may result from stabilization of the buildings, as construction may eliminate vegetation and leave soils vulnerable to erosion.

Heavy equipment used to remove the bridge, or in stabilization of the buildings on Ellis Island, could leak oil or fuels, resulting in small releases into the channel or immediate marine environment. Standard best management practices, such as berms, could reduce these impacts to negligible (e.g., nondetectable) levels. Because the bridge would no longer be available, there would be an increase in the number of boat trips to transport personnel, goods, and services for the National Park Service and its concessioners. Incidental releases of petroleum products and resulting negligible degradation of surface water might also occur from these boats. For the most part, these releases would be diluted sufficiently with harbor water that they would not be detectable.

The removal of pilings in the marine environment could result in the release of trace metals or other pollutants bound to bottom sediments (see the "Hazardous Materials" section below for more information).

Cumulative Impacts. Tourism is expected to increase under the no-action alternative by about 1.4% per year. These visitors would access Ellis Island by ferry, with slight increases in the release of petroleum products into the water column.

Conclusions. Removal of the temporary service bridge could result in minor to major localized increases in turbidity in surface marine water. Fuel leaks or petroleum releases from heavy equipment and ferries could result in negligible degradation of surface water near construction sites or along ferry routes. No impairment of park surface water would occur.

GROUNDWATER

The no-action alternative would have no impact upon groundwater; therefore, no impairment would occur.

AIR QUALITY

A 1995 analysis (NPS 1995a) indicated the expected increases in emissions resulting from a combination of increased visitation, construction traffic to remove the temporary bridge, and decreases resulting from the removal of the bridge under an alternative similar to no-action would result in total combined one-hour maximum carbon monoxide emission of 7.7 mg/kg (7.7 parts per million, or ppm), and an 8-hour maximum of 5.4 ppm. These are both well under the federal standards of 35 ppm (1-hour) and 9 ppm (8-hour). By comparison, emissions at more urban nearby sites (Kennedy Blvd. in Jersey City) ranged from 5.6 to 7.3 ppm as the 8-hour maximum and 7.4 to 11.6 ppm as the 1-hour maximum emissions in the years between 1989 and 1993. Changes in air quality related to the project would not be detectable given this range of existing conditions, or would only be detectable in the immediate area of construction.

Currently, about 50 NPS personnel and 40 concessioner staff use the temporary bridge to commute to work on Ellis Island. The bridge also provides access for over 800 trips each year for the delivery of supplies and removal of wastes from the island, as well as for construction contractors and maintenance work. Removal of the bridge would eliminate car and truck traffic on the bridge itself, but would increase the number of ferries. A 1995 analysis (1995a) indicated the number of vehicles would decrease by 3,400 per year. The increase in ferry or barge trips needed to supply goods for the park concessioner would be about 200 trips per year. In addition, delivery of supplies for normal NPS operation of the island would require about 100 trips per year. Compared to the current 1,800 ferry trips per year bringing supplies to Ellis Island (NPS 1995a), this is an 11% increase. Despite this moderate increase in ferry traffic, air quality in the vicinity of Ellis Island and Liberty State Park would likely experience a minor relative benefit from the elimination of bridge traffic, especially if a portion of the traffic is from trucks or heavy duty vehicles.

Cumulative Impacts. Visitation is expected to increase on Ellis Island by about 1.4% per year. Since 85% of visitors from New Jersey access the ferry terminal via private cars, parking and congestion at intersections, with resulting increases in pollutants, are likely. These cumulative impacts are added into the emission totals above.

Conclusions. Compared to existing conditions, emissions related to this project would probably not be detectable any further than the immediate construction area. A minor benefit to air quality from the reduction in truck traffic is possible. No impairment of air quality would occur.

NOISE

As noted above under "Wildlife," noise levels during bridge removal could be as high as 100 decibels for short periods of time for workers or visitors close (within 50 feet) to heavy equipment. Construction barriers would be used to reduce noise levels so they remain below 90 dBA. However, this is still an increase of up to 75% over current noise conditions and a potentially severe, short-term effect, with impacts comparable to a chain saw at 3 feet or a railroad horn at 100 feet. These noise levels may exceed FHWA and Hudson County noise standards at certain times of day and on certain days. While workers would likely be protected from the effects of noise, visitors may not. However, it is unlikely that visitors would be exposed to such loud noise for more than a few minutes, perhaps as they board the ferry or walk along the shore of Liberty State Park. It is only through extended exposure to noise levels above 80–85 dBA that noise-induced hearing loss results.

Cumulative Impacts. Noise levels from increased traffic and growth in the region, as well as increases in visitors to the state park and to the ferry terminal are expected to minimally increase noise levels in the area as well by 0.4 to 0.6 decibel (NPS 1995a). This is less than a 1% increase and a negligible impact.

Conclusions. Long-term increases in noise are expected to be negligible; however, noise during construction may be severe on a short-term basis. No impairment of the park wildlife or visitor experience would occur as a result of noise.

HAZARDOUS MATERIALS

The continuation of the current stabilization activities presents the potential for exposure to lead-based paint

and asbestos-containing materials in the existing buildings on Ellis Island. Workers would be required to take standard precautions when working in these areas to properly protect themselves and to contain and dispose of these materials so as to prevent airborne exposure to these materials. Impacts are, therefore, expected to be negligible. Because ongoing work only targets stabilization of the existing structures, paint that is not flaking would not be removed; therefore, this could present a future risk of exposure to lead-based paint. Because paint is not flaking, the risk to public or staff exposure is negligible.

Bridge removal may dredge contaminated marine sediments and result in their suspension in the water column. The resuspension of this material could mean trace metals, polychlorinated biphenyls (PCBs), or polycyclic aromatic hydrocarbons (PAH), which can be carcinogenic, are present for some period of time in surface water. The primary impact from resuspension is likely to be to aquatic life (see the discussions above under "Fish"). However, they will likely settle to the bottom again in a short period of time and would not present a significant concentration when they are in the water column.

Contaminated soils at Liberty State Park would not likely be disturbed by bridge removal. This is because soils in the vicinity of the bridge landings have been treated with the clean fill-cap method of encapsulating the historic fill with at least one foot of clean sand or soil. No exposure from this source is expected under no action.

Cumulative Impacts. As described in the "Affected Environment" chapter, soils in parts of Liberty State Park, in particular the railroad freight yard, have been found to contain several contaminants, including organics, pesticides, and metals. Chromium has also been found in fill materials at sites near the state park.

Conclusions. Resuspension of marine sediments during pile removal could result in negligible to minor increases in concentrations of toxic or carcinogenic chemicals in surface water. The impact would decrease when the sediments resettle. Possible impacts to workers from asbestos during removal would be reduced to negligible by following standard procedures. No impairment of park resources from exposure to hazardous materials would occur.

SOCIAL AND ECONOMIC ENVIRONMENT

TOURISM

Under this alternative, it is anticipated that the number of people visiting Ellis Island could reach 2.396 million by 2005, even without the proposed additional Ellis Island attractions in alternatives 2 and 3. Visitors would be attracted to the island by the same attractions and amenities as currently provided. The no-action alternative would have neither a beneficial nor adverse impact on Ellis Island tourism.

PARK ADMINISTRATION

Under the no-action alternative, no additional employees would be required for administration and coordination of the south-side activities.

No immediate changes to the administration of emergency services would occur under this alternative. However, after the temporary service bridge is removed, emergency services would be affected. In the absence of a bridge, Emergency Medical Technicians (EMT) would treat medical emergencies on site and then transport patients via the first available ferry to either New Jersey or New York, adding an additional 30 minutes to the current response time.

Similarly, police and fire would have a significantly longer response time. Ellis Island would have to rely on New York City's fire boats based in Brooklyn. Response time from Brooklyn is approximately 20 to 30 minutes, but it could be longer depending on the location of the fire boat when the emergency call is placed. When compared to the current response time of 3 to 4 minutes, the bridge removal proposed under the no-action alternative would result in significantly increased fire response times and, consequently, a higher risk to visitors, staff, and cultural resources.

Under the no-action alternative, the impact on park administration regarding the provision of emergency services is considered adverse, and could be major in intensity depending on the event and need for such services.

Cumulative Impacts. Tourism is anticipated to increase by 1.4% per year annually. This increase is not related to this project, but simply the anticipated increase in park visitorship regardless of improvements or the lack of them.

Conclusions. Tourism at Ellis Island would likely continue to increase by a negligible to minor amount each year over the life of the plan.

Park administration would experience a potentially major adverse impact in its ability to provide emergency services quickly once the temporary bridge is removed. No impairment of park resources would occur.

TRANSPORTATION AND CIRCULATION

ACCESS TO ELLIS ISLAND

Trucks and cars would be able to use the temporary service bridge for approximately 10 years if the no-action alternative were chosen in the NPS record of decision on this environmental impact statement. After this, Ellis Island would only be accessible by boat or barge. As noted above under "Air Quality," the increase in ferry or barge trips needed to supply goods for the park concessioner would be about 200 trips per year. In addition, delivery of supplies for normal NPS operation of the island would require about 100 trips per year. Compared to the current 1,800 ferry trips per year bringing supplies to Ellis Island (NPS 1995a), this is an 11% increase and a minor to moderate impact.

Removal of the existing bridge would open up the entire width of the channel between the island and the New Jersey shoreline to small marine craft. Because this is not an area used frequently by marine vessels, the impact of opening it up to increased use would be a negligible or minor one.

The number of vehicles entering the state park to deliver goods and services to the island by way of the existing service bridge would decrease by about 3,400 vehicles per year when the bridge is removed. However, some traffic from NPS staff traveling to the island, or from the delivery of goods to the ferry terminal for use on the island, is likely to continue.

ACCESS TO FERRY TERMINALS

Access to Liberty State Park ferry terminal is not expected to change, although traffic on roads leading to the terminal or competing for parking may increase.

PARKING

Visitation would continue to increase by approximately 1.4% annually. Assuming 85% of the visitors to the New Jersey ferry terminal continue to drive, an addition of approximately 40 cars may require parking in the vicinity of Liberty State Park by 2005. A 1995 analysis (NPS 1995a) indicated these cars could be accommodated by existing lots in the state park or nearby, and that only a negligible impact to parking would occur.

CIRCULATION

Despite decreases in visitation related to the events of September 11, 2001, long-term trends indicate the number of people visiting Ellis Island and Liberty State Park would continue to increase by about 1%-2% per year. Since 85% of visitors access the ferry terminal from New Jersey by private vehicle, it is likely that the number of vehicles attributable to visitation would also increase.

Several intersections identified in the "Affected Environment" chapter (Audrey Zapp Drive and Phillip Drive in Liberty State Park, and Morris Pesin Drive / Bayview Avenue at Caven Point Road, and Bayview Avenue at the New Jersey Turnpike exit outside the state park) already have a level of service at or above capacity. Level of service at these intersections would likely continue to deteriorate with the increases in visitors.

Cumulative Impacts. Area-wide growth and other projects in the study area are expected to also add traffic.

Conclusions. In the long-term, minor to moderate increases in ferry traffic and decreases in car and truck traffic to Ellis Island could result under the no-action alternative. Negligible impacts to parking may occur at Liberty State Park. Increases in visitation to both Liberty State Park and Ellis Island could add to deterioration in traffic conditions at some intersections. No impairment of park resources or

values resulting from these increases in traffic would occur as a result of this alternative.

VISITOR EXPERIENCE

Under the no-action alternative, visitor access to Ellis Island would continue via ferryboat. Boats would continue to dock along the south side of the Main Building where visitors directly enter the Main Building, much as early immigrants did. Many visitors have stated that the ferry ride and associated views of the harbor were an important and memorable part of their visit to Ellis Island (see the "Affected Environment" chapter).

Under this alternative, visitor flow and use patterns would remain substantially the same, with visitation focused on a number of existing interpretive displays and exhibits offered in the Immigration Museum. As a result of the limited public access to the majority of the historic structures on Ellis Island, the historic scene would remain diminished and demand abstract interpretation. The south side of the island would be experienced essentially through photographs and models in exhibits on the north side. Even during the period of stabilization, the buildings would be off-limits, and spatial relationships would not be experienced directly. It is possible that some interpretive exhibits and programs may be provided for visitors in the Ferry Building and the Hospital Outbuilding and Laundry. As long as it is deemed safe, limited tours of some of the exterior grounds may be provided to visitors.

The possibility of improving access to other structures/areas on Ellis Island (Ferry Building and Hospital Outbuilding and Laundry) is considered a minor benefit to the visitor experience on Ellis Island. However, in more general terms, the continuing lack of access to the larger experience of Ellis Island's historic structures and landscape is considered a minor adverse impact to the visitor experience under the no-action alternative. When compared to the enhanced visitor access proposed under alternatives 2 and 3, the no-action alternative would provide significantly fewer visitor opportunities and experiences. However, compared to existing conditions, some small benefit from rehabilitating the Ferry Building and Hospital Outbuilding and Laundry. Construction noise and dust associated with bridge removal and stabilization of buildings on Ellis Island would result in negligible to minor impacts to the visitor experience.

Cumulative Impacts. The visitor experience at Ellis Island is not expected to vary significantly from what exists today under this alternative. Consequently, no cumulative impacts to visitor experience are expected under the no-action alternative.

Conclusions. The no-action alternative would perpetuate significantly restricted public access to the majority of Ellis Island, which is considered a minor adverse impact to the visitor experience. In comparison to alternatives 2 and 3, under which most of Ellis Island would be opened to the public, the visitor experience under the no-action alternative is notably restricted and diminished.

ELLIS ISLAND INFRASTRUCTURE

Under the no-action alternative, the existing utility services and systems would be adequate to maintain the existing active facilities. This alternative would have neither a beneficial nor adverse impact on utilities located on or around Ellis Island. Without action, the following deficiencies would continue to exist. First, Ellis Island's stormwater system releases untreated stormwater into the Hudson River without the benefit of any detention basins or treatment. Second, existing fire hydrants on the south side and related underground piping require replacement. Third, it appears that the central chilled-water plant's refrigerant monitoring system was not operational at the time of the site visit. Fourth, the original cooling towers and associated pumps, while operational, are in poor condition and would require upgrades in the near future, especially if demand increases on Ellis Island. In addition, regular, ongoing maintenance of these systems will be required.

Cumulative Impacts. The existing utilities on Ellis Island are expected to function much as they do today under this alternative. No cumulative impacts to utilities are expected under the no-action alternative.

Conclusions. Deficiencies in the utilities would continue to exist.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The *National Environmental Policy Act* requires agencies to consider irretrievable (short-term or reversible) and irreversible (long-term or permanent) commitments of resources from proposed actions. The stabilization of buildings and the temporary bridge under this alternative would be a short-term commitment of time and money over a period of a few years; no other commitment of resources would take place. Eventually, this lack of commitment of resources would mean the ultimate loss of many of the historic buildings on Ellis Island and the integrity of the cultural landscape (see the "Unavoidable Adverse Impacts" discussion below).

LOSS IN LONG-TERM AVAILABILITY OR PRODUCTIVITY OF RESOURCES TO ACHIEVE SHORT-TERM GAIN

This section is meant to address agency decisions that are made for short-term benefits at the cost of long-term gains or productivity. Although there are no actions that fall specifically into this category, the no-action alternative would include short-term stabilization of both the temporary bridge and some of the historic structures. Neither effort is expected to last much beyond 10 years. It is believed that stabilization will not be repeated, as it is ongoing now to stem emergency deterioration and to allow for proper long-term planning.

UNAVOIDABLE ADVERSE IMPACTS

Stabilization activities of historic structures proposed would result in only short-term benefits to the resources, and long-term preservation of cultural resources is not expected. The eventual loss of many, if not all, of the eligible properties on Ellis Island is possible. Although it may not happen in the 15- to 20-year life of this plan, eventually the loss of such significant cultural resources is expected to result in impairment of NPS resources. The same is true for the cultural landscape.

Associated with eventual bridge removal, historic properties on Ellis Island would be placed at higher risk of fire damage/loss due to longer response times and less efficient methods of fire-fighting, a potentially major adverse impact not expected under alternatives 2 and 3.

Small losses of soil are expected from grading for construction, and disturbance to marine sediments and associated increases in turbidity and impacts on aquatic life are expected during removal of the temporary service bridge. The sediments may temporarily suspend heavy metals, organics, or other toxins. Long-term increases in noise are expected to be negligible; however, noise during construction may be severe on a short-term basis and have adverse effects on visitors and wildlife. Removing the temporary bridge could increase emergency response by an order of magnitude, with possible major adverse impacts on the ability of the NPS staff to maintain safety. Minor adverse impacts to the visitor experience could result from the lack of access to the larger experience of the island's historic structures and cultural landscapes, as well as from noise and dust associated with bridge removal and building stabilization activities.

IMPACTS OF ALTERNATIVE 2: ELLIS ISLAND PARTNERS — DAY USE ONLY

CULTURAL RESOURCES

HISTORIC ARCHITECTURAL RESOURCES

Under alternative 2, long-term preservation of all or most of the currently vacant historic structures on Ellis Island would occur through adaptive reuse for purposes complementary to the island's historic themes and related issues. Exterior treatments of historic structures would be conducted in accordance with *The Secretary of the Interior's Standards for Rehabilitation*. The general campus environment of Ellis Island would be preserved and its character-defining features retained. Rehabilitation actions for Ellis Island's historic structures would focus on supporting new uses of the structures proposed under this alternative.

Adaptive reuse would preserve the historic structures of Ellis Island as witness to one of the largest migrations in human history. Many of the cultural resources linked to Ellis Island would benefit from preserving the view among sites such as Castle Clinton, U.S. Custom House, Governors Island, Liberty State Park Interpretive Center, and the immigrant destinations themselves (CRRNJ Terminal and Lower Manhattan).

Historic structures would undergo a variety of rehabilitation methods under alternative 2. For instance, some walls would be eliminated and restructured as small chambers in the former hospital buildings, and wards would be opened up. Large dormitory spaces in the former Baggage and Dormitory Building may be subdivided, and ceilings and soffits may be lowered. Traditional materials may be used, but many new materials, fixtures, and features could replace deteriorated and obsolete materials. Distinctive spaces and elements would be retained and incorporated into the mix. Interpretive materials and access would be afforded where today there are none.

Proposed uses would undergo review for compatibility with scale and other distinctive characteristics of the property. This review would be aided by the Historic Structure Reports (Unrau 1981; Beyer et al. 1988) and this environmental impact statement. An updated inventory of resources would be compiled for the evaluation of impacts of proposals on specific historic structure.

As proposed under this alternative, historic structure rehabilitation is considered a moderate long-term benefit, with regional and possibly national, implications.

Cumulative Impacts. Rehabilitation of all Ellis Island structures listed on the National Register of Historic Places is proposed under alternative 2, ultimately providing for their preservation. These multi-year actions offer significant positive cumulative benefits to the historic structures of Ellis Island.

Conclusions. The proposed rehabilitation and reuse of the National Register structures on Ellis Island would ensure the preservation of National Register cultural resource. The ultimate effect of alternative 2, the avoidance of the loss of Ellis Island's historic structures to unchecked deterioration (which is the expected result under the no-action alternative), would be a moderate, decidedly positive, long-term benefit to cultural resources. This positive effect would also be realized under alternative 3.

CULTURAL LANDSCAPE

The National Park Service has identified the landscape of Ellis Island as important to the public's understanding of the purpose and significance of Ellis Island. Under alternative 2, the cultural landscape would be rehabilitated and interpreted to promote a broad understanding of its historic appearance and use. All exterior grounds would be included in these efforts. Important cultural landscape characteristics of Ellis Island have been identified as spatial organization, circulation, vegetation, and, to a lesser degree, small-scale features (see the "Affected Environment" chapter).

Regarding spatial organization, alternative 2 would result in the preservation of existing open spaces on the island, such as individual courtyards between buildings, former recreation areas behind the new Immigration Building, former recreation areas around the Powerhouse on Island 1, and the expansive recreation yard between Islands 2 and 3. New buildings or the removal of existing historic structures, either of which could negatively affect the spatial organization of Ellis Island, are not proposed under this alternative. Installation or rehabilitation of

above-ground utilities on Ellis Island has the potential to visually impact the cultural landscape. To ensure historic compatibility, consideration would be given to the design and location of such utilities to avoid negative visual impacts to the spatial organization of the historic landscape.

Future development would not significantly alter the circulation system's character or features. Care would be taken to preserve historic sidewalks and corridors in place if possible. Any new circulation features would be designed to complement the established geometric layout and would not encroach on the island's remaining open space. It is especially important to maintain the existing pattern of sidewalks surrounding the recreation yard between Islands 2 and 3, because these walks have remained relatively unaltered since their initial installation.

Established planting and vegetation patterns would be preserved and/or rehabilitated. Mature historic trees, including the *Platanus acerifloia* on Island 1, and other identified historic species on Islands 2 and 3, are significant contributors to the island's historic character. Consequently, steps would be taken during proposed development to protect and preserve these specimens. Replacement trees and shrubs would be of the same species to maintain consistency with the island's historic planting palette. New species would not be introduced.

To the greatest extent possible, extant small-scale features would be preserved. However, many of these features are in poor condition and preservation of individual items may not be feasible. If extant features cannot be preserved in place, preservation of a particular item style or type, such as a historic light post, may be achieved by placing the item in curatorial storage and installing a replacement feature in the landscape. To maintain cultural integrity, replacement features would be compatible, yet distinguishable, from historic features in style and scale.

The rehabilitation and reuse of the cultural landscape proposed under alternative 2 would result in a moderate, site-specific benefit to cultural resources on Ellis Island. When compared to the no-action alternative, under which the cultural landscape would be significantly compromised over time, alternative 2 is notably beneficial in its effects.

Alternative 2 also proposes that the current temporary bridge linking Ellis Island and New Jersey be replaced with a permanent structure and security facility. Environmental review of design and location of the proposed bridge is not included in this environmental impact statement, but it is planned for the future. Final alignment and design would seek to mitigate environmental, visual, and traffic impacts on Ellis Island and at Liberty State Park.

The proposed new permanent bridge would be used for operations, construction activities, maintenance, and deliveries, as well as for emergency vehicles and evacuation, much as is the case today. General vehicular and pedestrian access would not be permitted. The presence of a bridge could potentially bring pressure from special interests to allow expanded use of the bridge, such as for park staff, concession staff, and after-hours use. This could result in the need for additional parking on Ellis Island. The historic landscape of the landing site on Ellis Island would not be restored but would be rehabilitated to as compatible a manner as possible. Any new bridge alignment would require some disturbance of the 1930s seawall at the touchdown point on Ellis Island.

Construction of a new bridge would perpetuate the existing link (temporary service bridge) between Ellis Island and New Jersey, affecting its state of isolation that was a key factor in the selection of the island first as the site of Fort Gibson and, later, as the Ellis Island Immigration Station. Views from the historic structures and the designed landscape on the island would continue to be obstructed by a bridge, reinforcing an artificial, nonhistoric link between the island and Liberty State Park. The views of Liberty State Park, Liberty Walk, and the CRRNJ Terminal from the west side of Ellis Island would continue to be interrupted, as would the sense of the island in views toward Ellis Island from the historic structures along the New York / New Jersey harbor region. A permanent bridge would maintain the nonhistoric visual intrusion for both the Statue of Liberty and the CRRNJ Terminal, which are the nearest National Register properties to Ellis Island and the proposed bridge. The historic uninterrupted views of the waterspace between Ellis Island and the mainland from these two properties would continue to be compromised.

The construction of a new bridge proposed under alternative 2 is believed to have long-term, moderate adverse impacts to the cultural resources of Ellis Island and several surrounding National Register properties. The impacts are believed to be regional

(harbor-wide) in nature. While no measures could fully mitigate the adverse effects of a new bridge, a structure located along the shortest alignment, with a narrow width, low profile, and constructed of materials that blend with the landscape, would minimize the visual impact. The potential for adverse effects to cultural resources related to new bridge construction is significantly greater under alternative 2 when compared to the no-action alternative (eventual removal of the temporary bridge / restoration of historic setting).

From a positive perspective, construction of a permanent bridge would allow for the continued rapid vehicular access to the island by emergency vehicles, resulting in a potential benefit to the cultural resources of Ellis Island. Response time of the Jersey City Fire Department via the temporary bridge is currently 3 to 4 minutes, versus a minimum of 20 to 30 minutes expected under no action. Land-based engines are typically more effective in fire fighting because they are able to reach all structures on the island, something fire boats cannot always accomplish. The continuation of efficient fire-fighting methods expected with the presence of a bridge (proposed under alternative 2), would result in a benefit of unknown intensity to the cultural resources of Ellis Island, a marked advantage over the no-action alternative.

Cumulative Impacts. The rehabilitation of Ellis Island's cultural landscape proposed under alternative 2 would ultimately ensure its historic preservation. This multi-year effort offers significant positive cumulative benefits to the cultural landscape of Ellis Island which, without such actions, would most likely deteriorate to the point of possible impairment.

Conclusions. Cultural landscape rehabilitation efforts under alternative 2 would provide moderate, site-specific benefits to cultural resources, as is the case under alternative 3. Comparatively, the no-action alternative proposes no such actions, posing much higher risks to the cultural resources of Ellis Island. The bridge proposed under alternative 2 would perpetuate the diminished nature of the waterspace between the island and the mainland, creating long-term moderate adverse impacts to Ellis Island and surrounding National Register properties (Statue of Liberty, CRRNJ Terminal). A similar loss of historic setting/context for Ellis Island is also expected under alternative 3, though not under the no-action alternative, which proposes bridge removal. At the same time, the presence of a bridge under alternative 2 would result in a benefit to the cultural resources of Ellis Island due to the high degree of protection from fire damage/loss. This is a positive effect also provided for under alternative 3, but not under the no-action alternative.

ARCHEOLOGICAL RESOURCES

Alternatives 2 and 3 include proposals for the National Park Service to provide utility infrastructure improvements that would bring basic services to all unrestored buildings on Ellis Island. Utility improvements would include electricity, domestic water, sanitary and storm sewer, fire protection/suppression, communication/data systems, and centralized heating and cooling to all of the buildings. Many of these improvements have the potential to impact buried terrestrial archeological resources through earth disturbance/trenching activities. Most utility improvements will follow existing lines.

Terrestrial Archeological Resources

Archeological remains on Ellis Island have been documented by several researchers over the last 20 years. It is believed that prehistoric use of the area spans from approximately 3,000 to 400 years ago. Detailed information about the prehistoric and historic use of the island is presented in the “Affected Environment” chapter.

Archeological remains connected with the prehistory or history of the island could be encountered during excavations proposed on the north side of Ellis Island, done either for rehabilitation of some of the buildings or in support of the renovation of the south side. Although the entire south side of Ellis Island is constructed of landfill, the potential for the presence of archeological remains cannot be discounted in this area. The fill used to enlarge the island is not believed to be of archeological value, having been derived from deposits disconnected with the island. However, several features and deposits connected with the operation of the second immigration station may remain buried. For example, while conducting stabilization measures in 2000, work crews discovered broken concrete sidewalk slabs that revealed the presence of the island’s storm drainage system and several water collection features. It is possible that such features, as well as others related to the operation of the second immigration station on Ellis, may be encountered during the development of

the buildings on the south side of the island. Prehistoric archeological sites connected with lower water levels that occurred several thousand years ago may also be buried below the fill deposits used to expand the island.

While the known archeological sites on Ellis Island are mapped and documented, there remains the possibility of encountering undiscovered resources during utility-related excavation activities proposed under alternatives 2 and 3, which have the potential for impacting archeological resources more than alternative 1 (no action). Ground-disturbing construction activities, however, will be assessed on a case-by-case basis following established section 106 procedures, as defined in the *National Historic Preservation Act*. By following section 106 procedures and conducting the necessary research and consultation, impact to the archeological resources should be minimal.

Marine Archeological Resources

A number of marine archeological resources have been documented within the waters surrounding Ellis Island (see the "Affected Environment" chapter). One of the most notable is the Ellis Island ferry (1904) that sunk in the Ellis Island ferry slip in 1968 and where it remains today. In addition, remote sensing activities around the island have revealed numerous magnetic anomalies, some of which could be cultural resources. Increased boat traffic for the south side and/or additional dredging in the ferry slip could possibly affect the remains of the sunken ferry. In addition, placing piles for a permanent bridge might affect marine archeological resources, although placing them in such a way as to avoid magnetic anomalies that may be discovered during surveys would prevent impacts from becoming more than minor.

Cumulative Impacts. Alternative 2 is not expected to result in cumulative impacts to archeological resources in or associated with Ellis Island.

Conclusions. Utility-related excavation activities have the potential for minor impacts to terrestrial archeological resources. Dredging and placing bridge piles proposed under alternative 2 have the potential to result in minor, site-specific adverse impacts on marine archeological resources. Similar adverse impacts are possible under alternative 3. No impairment of park resources would occur.

NATURAL RESOURCES

GEOLOGIC RESOURCES AND SOILS

New soil would be required to fill in where the existing bridge touches down on both Ellis Island and in Liberty State Park, and to fill in the break in the seawall at the point where it intersects with the bridge. As with no action, the impact to soils from this activity would be negligible.

Soil would be removed to grade access roads and facilities associated with the new bridge. Depending on the bridge alignment, and the ability to use the existing dirt road, the impact would be negligible to minor.

Creating staging areas and operating machinery during construction of the bridge and rehabilitation of the buildings on the south side could increase soil loss through erosion at both Ellis Island and Liberty State Park. To mitigate construction-related impacts, best management practices, including soil erosion control measures (such as sediment fences, berms, and hay bales) would be employed. If these mechanisms are effective, soil loss would be negligible; without them, they could be minor in the short-term. Re-seeding the areas following the completion of construction would reduce the impact in the long-term to undetectable or negligible levels.

Additional soils may be disturbed during installation of new underground utility connections for the renovated buildings on the south side. Following excavation, exposed soil would be covered with uncontaminated soil and vegetation or a hardened surface such as pavement. In the long-term, impacts would be negligible.

Cumulative Impacts. No additional cumulative impacts beyond those described under the no-action alternative are anticipated.

Conclusions. Negligible to minor impacts to soils would result from filling the seawall after removing the temporary bridge, excavating for new underground utility connections, grading a new access road to the landing at Liberty State Park, and from grading for construction staging areas. No impairment of park soils or geology would occur.

MARINE SEDIMENTS

The existing temporary service bridge rests on piles driven into marine sediments. The removal of these piles would leave holes in the sediment in the channel between the island and the state park and cause the suspension of bottom sediments into the water column. In time, sediments would settle, and over several years, the holes left by the pilings would be filled with marine sediments. New pilings for a permanent bridge would probably be driven into different locations, depending on alignment. This would disturb additional marine sediments compared to no-action. To mitigate impacts, piles for the new bridge would be placed by pre-drilling, and pile caps would be installed above the sediments and mean low-water mark. Both measures are expected to reduce sediment disturbance.

A silt curtain surrounding the area where removal of the temporary bridge, and later where construction of the permanent bridge would take place, could minimize increases in turbidity associated with suspended sediments. The degree of impact to sediments is likely to be negligible or minor and localized, but more severe than no action.

Cumulative Impacts. No additional impacts to marine sediments beyond those described under the no-action alternative are anticipated.

Conclusions. Localized negligible or minor temporary impacts (which would be greater than under no action) to marine sediments in the channel between Ellis Island and the state park would occur from removing pilings for the temporary bridge and installing new pilings for the permanent bridge. Mitigation, such as silt curtains, would reduce impacts to marine sediments. No marine sediments are part of the park; therefore, no impairment of park marine sediments is possible.

FLOODPLAINS

All of Liberty State Park is low lying and subject to flooding, although some would only experience minimal inundation should a flood even occur. A 3.6-foot-high seawall (upon which Liberty Walk rests) protects most of the park, except where the temporary bridge is cut into the seawall at ground level. At this location, water from a 100-year or 500-year flood event could penetrate the seawall and inundate lower-lying parts of the state park immediately to the northwest. As with no action, dismantling the existing temporary bridge and sealing the floodwall is planned, and such actions would eliminate the existing likelihood of damage during an extreme weather event and could have a minor benefit on the impact of flooding.

The replacement bridge would touch down on Ellis Island and Liberty State Park within the 100-year flood level, which is at about 3 feet above mean sea level. Depending on design, the bridge itself would likely be above both the 100- and 500-year floodplains. It is possible that the entry point for vehicles onto the bridge would experience some flooding during an extreme flood event. Since these would occur infrequently, the impact of flooding would be negligible or minor.

Cumulative Impacts. No additional cumulative impacts beyond those under the no-action alternative are expected.

Conclusions. As under no action, removing the temporary bridge and sealing the seawall could result in minor beneficial impacts from flood prevention. Building a permanent bridge could mean negligible impacts to access during extreme flood events. No impairment of park floodplains would occur.

VEGETATION / THREATENED AND ENDANGERED PLANT SPECIES

A small area would be required for landings at Liberty State Park and on Ellis Island for a permanent bridge, resulting in the loss of about 0.1 acre of vegetation. In addition, access roads to and from the bridge could be required, resulting in additional permanent loss of vegetation. If the existing dirt access road is usable, and only a small spur to the state park landing is needed, this loss would be of a negligible amount of vegetation. If an entirely new road is required, the impact could be minor.

Removing the temporary service bridge and installing the permanent bridge could result in the temporary clearing of staging and construction areas on both Ellis Island and in Liberty State Park. The impacts to vegetation in both places are anticipated to be temporary and would be mitigated through appropriate replanting and reseeding of impacted areas. Because of this, and because impacts are likely to take place in open field communities that do not have unique habitat or other value, impacts to

vegetation from construction activities would be negligible or minor.

Landscaping the courtyards and other areas on the south side and maintaining these gardens would help control invasive species, but would also result in the removal or relocation of some individuals of either the Canada hawkweed or Ohio spiderwort, New Jersey State protected plant species.

The Canada hawkweed is typically found in a variety of habitats including woods, beaches, and fields, especially in sandy soils from Newfoundland to New Jersey and west to Illinois and British Columbia. The Ohio spiderwort is typically found in meadows and thickets from Massachusetts to Minnesota, and south to Florida and Texas. Both grow in the abandoned courtyards on Ellis Island. Many or all of these courtyards would be changed in some way as a result of this alternative—either they would be repaired or they would be planted with ornamentals to reflect the cultural landscape at the time the island was used to receive and process immigrants. These actions would eliminate many of the individual plants or patches of plants growing now. It is possible that the park would replant individuals to locations where changes would not take place, or improve growing conditions for hawkweed or spiderwort in an off-island location as mitigation. If so, impacts would be offset, and either no or negligible adverse impacts to these two species would result. If the park is unable to mitigate the impact, the loss of these individuals or patches on Ellis Island would be more serious, and could range from locally minor to moderate. Because the area of the courtyards slated for planting is approximately 3 acres, and these plant species grow over several states, the impact would not be a major one, and no impairment of park resources is expected.

Cumulative Impacts. No additional cumulative impacts beyond those described under the no-action alternative are expected.

Conclusions. Negligible to minor losses of open field vegetation would be likely from the creation of landing sites and access roads and from construction staging areas for removing the temporary bridge, building a permanent bridge, and rehabilitating buildings on Ellis Island. Minor to moderate localized impacts from the loss of two state protected plant species, Canada hawkweed and Ohio spiderwort, are possible from the planting of restored courtyards on Ellis Island. These impacts could be eliminated or reduced to negligible through avoidance or by replanting individuals or improving off-site habitat.

FISH

Removing the temporary bridge and installing a permanent bridge are likely to have short-term minor to moderate localized direct impacts on fish and fish habitat in the channel between Ellis Island and New Jersey. Some in-water activities would be required, including removal and replacement of the existing bridge superstructure, piles, and pile caps. The work would likely be completed by pulling the piles, or cutting them at the mud line, with the assistance of a barge-mounted crane. These activities would displace fish in the channel and alter channel bottom habitat. Construction would require work in the channel to remove existing pilings and other materials. This, in turn, would increase turbidity, as well as concentrations of some toxins such as organic pesticides and heavy metals. Aquatic invertebrates, fish, and wildlife that feed on marine organisms could experience an increased uptake of these toxins if they remain in the area during construction. It is possible that the presence of either organics or heavy metals could be biomagnified in the food chain, as both are stored rather than eliminated when exposure takes place. The degree to which this phenomenon would take place is unknown, but it would not likely be more than negligible or minor (e.g., slight, but detectable in the long-term).

Additional turbidity resulting from soil erosion during construction on either Ellis Island or in Liberty State Park would be controlled through the use of mitigation measures such as silt fences and hay bales. Silt curtains would be used within the bay to contain suspended marine sediments in a defined area.

The use and importance of the aquatic habitat between Liberty State Park and Ellis Island as a nursery area varies by season, with the number and diversity of species highest in June through November (NPS 1995a). Juvenile striped bass are found in the shallows of the harbor in winter and early spring. If construction activities are timed to avoid these periods, direct impacts to adults or juveniles could be reduced. However, if this is not possible, impacts to striped bass and other fish, including anadromous species, using the channel between the park and Ellis Island could be severe for the period of time during temporary bridge removal

and the building of a permanent bridge. Because this is a short-term, localized impact, the effect to fisheries, overall, would be moderate. Compared to the no-action alternative, the period of increased activity in the channel and increased turbidity would be longer. The degree of impact would likely decrease as sediments settle and turbidity decreases following the completion of all construction activities. Eventually, bottom habitat may also be restored, and long-term impacts are not likely to be more than negligible.

A 1995 study (NPS 1995a) indicated the endangered shortnose sturgeon in the Hudson River and estuary of New York Harbor is not likely to be affected by bridge removal or construction, as its habitat is upstream of the project area. In addition, the channel between Ellis Island and New Jersey is too shallow to represent future habitat for this species.

Cumulative Impacts. No additional cumulative impacts beyond those under the no-action alternative are expected.

Conclusions. Removal of the temporary bridge and construction of a permanent one could result in moderate short-term impacts to fish in the channel between Ellis Island and the New Jersey shoreline, with a longer period of impact than under no action. No impairment of park fisheries resources would occur.

WILDLIFE / THREATENED AND ENDANGERED WILDLIFE SPECIES

Short-term disturbance or displacement of wildlife related to noise and the presence of humans and equipment would occur on both Ellis Island and at Liberty State Park. Birds using the shore environment of the state park or the nearshore marine environment would also be unlikely to remain in the area during the 2- to 3-year construction period. Depending on the species in the area, the displacement could be temporary or long-term, as some individuals and some species are more susceptible to noise and the presence of humans than others. At noise levels associated with the removal or replacement of bridge piles (76 to 101 decibels at a distance of between 50 and 800 feet), wildlife would not be able to habituate, which would be a moderate impact. At levels of 30 to 70 decibels, most species of wildlife would continue to avoid the noise or suffer impacts to their ability to communicate and other secondary effects, a minor impact (Bowles 1995).

Short- or long-term post-construction impacts to wildlife are also possible, as habitat may be removed to create access roads and bridge landings on both Ellis Island and in Liberty State Park. The presence of car and truck traffic could also cause some individuals to permanently abandon the adjacent habitat, although some individuals may habituate and remain or re-occupy the area. The long-term impact to unlisted wildlife species is expected to be negligible or minor.

The protected species most likely to be adversely affected by bridge removal and reconstruction is the state threatened Savannah sparrow, a year-round resident of the state park. This species nests in open fields and thickets in the project area very near to where construction is likely to take place. Long-term impacts to the Savannah sparrow are also possible, as relocating the bridge landing could remove sparrow habitat, or permanently locate an area of higher than existing car traffic adjacent to it. Because breeding habitat could be affected, the impact to this species could range from minor to moderate, depending on the location of the access road, construction site, and bridge landing.

Seasonal residents in the state park include the northern harrier, peregrine falcon, great blue heron, short-eared owl, and long-eared owl. The northern harrier hawk, a state endangered (breeding population) species, utilizes undisturbed fields and shoreline for feeding in both summer and winter. Long-eared and short-eared owls are also winter residents of the park, and peregrine falcons are summer residents. Increased traffic, noise, and human presence are likely to discourage all of these species from using the area in and adjacent to the work zone. If construction occurs during the time they are present in the park, these species could suffer minor impacts.

Several bird species also migrate through Liberty State Park in the spring or fall, including several which are state listed (see the "Affected Environment" chapter). It is likely that fewer individuals of these species would use the park during the construction period as a migratory stop. However, because these species utilize a very large area, usually covering several hundred or thousand miles, the loss of habitat during the construction

period at Liberty State Park is likely to be no more than a minor impact.

Ellis Island provides minimal habitat for terrestrial wildlife. There are very few natural areas to provide shelter and food. Even so, during construction activities on Ellis Island associated with bridge removal, bridge reconstruction, and rehabilitation of buildings on the island, birds and other wildlife would be disturbed and displaced. Because these impacts are temporary, the effect would be minor to moderate overall.

Long-term impacts are anticipated due to landscaping of courtyards on the south side. Currently, passerine bird species use these open fields for nesting. This habitat would be removed and revegetated with ornamentals to approximate the cultural landscape when immigration to Ellis Island was taking place. The ornamentals could be attractive to other wildlife, although it is unknown if this would be the case. The increased visitation to buildings on the south side could also disturb and possibly displace wildlife in the area, although birds or other wildlife that are not sensitive to humans or that thrive in human-dominated environments could become established. In the long-term, effects on existing wildlife would be minor (e.g., readily apparent, but localized).

As noted in the "Affected Environment" chapter, habitat apparently does not exist on Ellis Island for any of the 18 species of protected wildlife in Liberty State Park, as inventories have not found them. Therefore, no impacts to any listed or otherwise protected species on Ellis Island is anticipated.

Cumulative Impacts. No additional cumulative impacts beyond those in no-action are expected.

Conclusions. Minor to moderate impacts to nonprotected wildlife from construction are expected, particularly in Liberty State Park. Displacement through habitat removal and increased human activity could also result in negligible to minor long-term effects at both the state park and on Ellis Island. Some protected species could be affected. Savannah sparrows may experience moderate effects in the short-term, and other seasonal residents and migrants could experience minor impacts. Depending on the bridge alignment, Savannah sparrows may suffer minor long-term impacts resulting from loss of habitat and the additional presence of humans and traffic. Landscaping courtyards on Ellis Island would remove habitat for some wildlife species with possible long-term minor adverse impacts. No impairment of park wildlife resources would occur.

SURFACE WATER

The same impacts to surface water as described under the no-action alternative would occur under alternative 2 from the removal of the temporary bridge. These include temporary, localized increases in turbidity in the surface water in the immediate vicinity, possible spills or leaks from heavy equipment, and the release of trace metals of other contaminants from bottom sediments. Because a permanent bridge would then be built, no additional fuel leaks from barges or ferry trips required to substitute for truck or car delivery of goods and services would take place.

However, installation of pilings for the permanent bridge, as well as the bridge itself, is likely to result in increases in turbidity, contaminants, and petroleum products into the channel between the island and state park. Cofferdams of steel sheet pile or a similar substance are likely to be required to dewater areas sufficiently to install pier footings. Dewatering or dredging within the areas confined by the cofferdams would spread turbid and, possibly, contaminated water to the channel, increasing concentrations in that environment. Water within the confines of the cofferdam could be quite turbid or contain high levels of hazardous organics or metals dredged from marine sediments. The impact to surface water could range from minor to moderate during construction.

Some additional erosion and resulting turbidity beyond that described under no action would also result from construction and use of a new access road and from rehabilitation of buildings on the south side. Employing the same mitigation measures (such as silt curtains or hay bales) described in the "Marine Sediments" section under no action could minimize this impact to surface water. With mitigation, the impact would likely be negligible. In the long-term, these and all graded areas that would not be used permanently could be revegetated or surfaced to slow or eliminate erosion.

As with no action, turbidity and concentrations of pollutants would decrease after construction of the permanent bridge is complete.

Cumulative Impacts. No additional cumulative impacts beyond those under the no-action alternative

are expected, and because bridge access remains, no additional pollution from increases in ferry traffic is anticipated.

Conclusions. As in no action, removal of the temporary bridge could result in minor to major increases in turbidity, and petroleum releases from heavy equipment could result in negligible degradation of surface water near construction sites. Additional moderate impacts to surface water quality could result from construction of the permanent bridge, and minor impacts from construction of additional staging areas, roads, and rehabilitation could occur under alternative 2. In the long-term, impacts to surface water would be nonexistent or negligible. No impairment of park surface water would occur.

GROUNDWATER

Depending on the final design of a permanent bridge and ultimate rehabilitation of courtyards, sidewalks, and other areas impervious to surface water infiltration, some negligible decrease in groundwater is a possible outcome under this alternative.

It is unlikely that groundwater would be encountered in the construction of the new bridge. However, if it is, it would be pumped into the channel between Ellis Island and Liberty State Park. A reduction in the level of groundwater beneath Liberty State Park could draw contaminated groundwater or even salt or brackish water toward the area where drawdown is taking place. If large quantities of groundwater require pumping, the aquifer could ultimately be contaminated, although this is not expected to happen. Additional testing to determine groundwater elevations and aquifer conditions may be required to avoid such impacts and would likely be conducted should excess pumping be required. If future design work indicates groundwater would be a problem, site-specific analysis under the *National Environmental Policy Act* (NEPA) would be required.

If disposal of groundwater into the channel is required and the groundwater is contaminated, federal statutes would require it be treated, and a permit under the National Pollution Discharge Elimination System program would be needed.

Cumulative Impacts. Groundwater is often used for drinking water and may be pumped now, or may have been pumped in the past, to supply municipal needs in the region.

Conclusions. Negligible to major impacts to local groundwater supplies are possible if bridge construction requires excavation in an area where groundwater tables are high, and extensive pumping may be needed. Additional testing and NEPA analysis would be required to determine features of the aquifer, mitigation, and level of impairment.

AIR QUALITY

An earlier analysis (NPS 1995a) indicated that increases in emissions could result from a combination of factors such as increased visitation, construction traffic to remove the temporary bridge, and construction of the permanent bridge. Decreases in emissions could occur from the removal of the bridge under an alternative similar to alternative 2. The result would be a total combined 1-hour maximum carbon monoxide emission of 8.1 ppm and an 8-hour maximum of 5.7 ppm. These levels are both well under the federal standards of 35 ppm (1-hour) and 9 ppm (8-hour). By comparison, emissions at the more urban sites nearby (Kennedy Blvd. in Jersey City) ranged from 5.6 ppm to 7.3 ppm as the 8-hour maximum and 7.4 ppm to 11.6 ppm as the 1-hour maximum emissions between the years 1989 and 1993. Compared to no action, this is a 5% increase and a negligible to minor impact.

Cumulative Impacts. Visitation is expected to increase on Ellis Island by about 1.4% per year. Since 85% of visitors from New Jersey access the ferry terminal via private cars, parking and congestion at intersections, with resulting increases in pollutants, is likely. These cumulative impacts are added into the emission totals above.

Conclusions. Compared to the no-action alternative, emissions would be about 5% higher, resulting in a relative negligible to minor impact. Emissions related to alternative 2 would probably not be detectable beyond the immediate construction area.

NOISE

Under this alternative (as with no action), visitors and workers close (within 50 feet) to heavy equipment could be exposed to noise levels during bridge removal activities as high as 100 decibels for short periods of time. Construction barriers would be used to reduce noise levels so they remain below 90 dBA. However, this is still an increase of up to 75% over current noise conditions, and a potentially severe, but short-term effect. Noise levels could be comparable to a chain saw at 3 feet or a railroad horn at 100 feet. Impacts would be similar for the construction of the permanent bridge, but would extend for at least twice as long as under no action. Visitors along Liberty Walk and other outdoor areas on Ellis Island would be most affected by noise increases during bridge construction.

Additional noise from rehabitation of buildings on the south side would occur. Given that noise levels are currently quite low, even this addition of construction noise could have major short-term impacts.

Cumulative Impacts. Noise levels from increased traffic and growth in the region, as well as increases in visitors to the state park and to the ferry terminal are expected to minimally increase noise levels in the area by 0.4 to 0.6 decibel (NPS 1995a). This is less than a 1% increase and a negligible impact.

Conclusions. Long-term increases in noise are expected to be negligible; however, noise during construction may be severe on a short-term basis. These impacts would continue at least twice as long under alternative 2 as under no action. No impairment of the park wildlife or visitor experience would occur as a result of noise.

HAZARDOUS MATERIALS

As under the no-action alternative, removal of the existing temporary bridge would involve soil disturbance at the ends of the bridge on both Ellis Island and Liberty State Park. Because clean fill had been used to backfill the existing temporary bridge touchdown areas when the bridge was constructed, no exposure from contaminated soils is expected.

On Ellis Island and at Liberty State Park, installation of a new bridge would require excavation activities to build new landings and access roads. A small parking area on either or both sides may also be needed. New underground utilities and/or potable (drinking) water lines to the rehabilitated buildings on the south side may also be needed. Although subsurface disturbance would be limited to the upper 3 feet of soil for the roads, the potential exists for exposure to organic compounds and heavy metals as described in the "Affected Environment" chapter.

Based on a risk assessment performed for the Science Technology Center, the New Jersey Department of Environmental Protection determined that, although the total human exposure risk of developing cancer from contact with soils containing contaminants similar to those in the fill at Liberty State Park and Ellis Island is above the optimum level, the risk to workers is within the EPA acceptable range (NPS 1995a). Risk is primarily from exposure to heavy metals, such as chromium. Because this environmental impact statement is programmatic for the building of the permanent bridge, future NEPA documents would need to include specific mitigation measures to protect workers and visitors from the health effects of these contaminants. Worker and visitor health and safety plans to mitigate impacts prior to construction are required by the New Jersey Division of Parks and Forestry. Examples of mitigation measures required by the state's existing plan for smaller-scale construction include protective equipment such as face masks, synthetic gloves, tyvek coveralls, and disposable booties.

Additional mitigation measures could include subsurface investigations prior to construction in all areas of proposed disturbance to characterize potential contaminants, containment of the material in a separate area prior to disposal to prevent surface water contamination, protection of workers potentially exposed via skin contact or respiratory contact to contaminants through the use of personal protective equipment in accordance with the New Jersey Division of Parks and Forestry procedures, and best management practices, including covering exposed soils during construction. With these measures in place, impacts to workers would be minor to moderate. Visitors would likely be kept away from the site during construction.

Following the completion of construction, the clean fill cap method of encapsulating contaminated fill would likely be used to eliminate exposure. One foot of clean fill is placed on top of exposed contaminated material; this can be further sealed with pavement. The clean fill cap method has been used successfully

in other areas of Liberty State Park, and if properly applied, would eliminate the risk to visitors or staff of long-term exposure to contaminants.

Removal of the temporary bridge and construction of a new bridge would also disturb marine sediments and could result in increased suspension of organics and metals contained in those sediments. These potential contaminants include heavy metals, polychlorinated biphenyls (PCB), polycyclic aromatic hydrocarbons (PAH), and other volatile and semi-volatile organics documented in the sediments of New York Harbor and the nearby Morris Canal Basin. Impacts would be somewhat mitigated by the measures identified above in the "Marine Sediments" section, including the use of pre-drilled piles, silt curtains, and cofferdams to limit the time needed to install piles and contain contaminated surface water. Impacts to surface water from the suspension of hazardous materials would be minor to moderate during construction and fall to negligible over the long-term.

It is unlikely that groundwater would be encountered by construction of the new bridge; however, if it is, groundwater could be contaminated and require proper treatment and approval prior to discharge. Because treatment is required, impacts would be negligible.

Vacant and stabilized buildings would be rehabilitated to be generally suitable for a range of day uses, including administrative and operational support, historic interpretation, and cultural and educational uses. Asbestos abatement and removal of lead-based paint to the extent required to make the buildings safe would be required. Workers conducting the removal would be well trained and would take all necessary precautions to protect themselves and to properly contain and dispose of these materials so as to prevent airborne exposure. Impacts would, therefore, be negligible.

Cumulative Impacts. No cumulative effects beyond those described under the no-action alternative are anticipated.

Conclusions. Workers could encounter contaminated soils in constructing landings and access roads for the permanent bridge. If a mitigation plan is put into place and followed, impacts would be no more than moderate. Encapsulating contaminated fill following construction would eliminate the risk of exposure in the long-term. Construction activities could also suspend organics and heavy metals in marine sediments, resulting in minor to moderate impacts to surface water from contamination. These would fall to negligible shortly after construction is complete. Asbestos and lead-paint removal would eliminate risk of exposure to visitors, and with the use of standard precautions, pose a negligible risk to workers. No impairment of park resources would occur.

SOCIAL AND ECONOMIC ENVIRONMENT

TOURISM

Under alternative 2, 2.526 million visitors are projected to visit Ellis Island in the year 2005, an increase of 5.4% over the projected 2.396 million visitors without the proposed additional Ellis Island attractions. Without significantly increasing the number of visitors, this alternative seeks to increase the number and type of attractions and activities on the island to attract visitors who otherwise would not visit Ellis Island. A primary goal of the reuse of the existing buildings is to preserve and enhance the island's cultural history and resources while strengthening Ellis Island's economic self-sustainability through increased revenue.

Under alternative 2, a variety of uses would be allowed as part of building rehabilitation. These uses include museum-type exhibits and presentations; theatrical events; festivals and celebrations (which would allow use of outdoor spaces); research and learning centers for a range of for-profit and not-for-profit organizations; educational facilities for various school groups (elementary through high school); university-sponsored inquiry and study programs; genealogical research; and administrative, meeting, or event spaces supporting cultural and educational purposes. Spaces within this category would be a combination of public and limited-public, depending on the specific nature of use.

Although the additional exhibits and activities proposed under this alternative may not, in and of themselves, attract more visitors to Ellis Island, the combination of the Statue of Liberty, Ellis Island Immigration Museum, and the additional exhibits may provide a critical mass of attractions to entice visitors to lodge nearby in order to complete the entire tour of exhibits at the Statue of Liberty National Monument. Under these alternatives, the multi-day conferences and special events are

anticipated to result in more off-site lodging nights in the region.

Extended programming and activities offered under alternative 2 would result in a minor benefit to tourism in increased visitorship to and around Ellis Island, as well as increased demand for lodging in the New Jersey / New York area.

PARK ADMINISTRATION

Under alternative 2, it is anticipated that 21 additional NPS employees would be required for administration and coordination of south-side activities, programs, security, and other services. Vendors or service operators, similar to arrangements currently in place with Circle Line and food vendors, would likely have to hire additional employees.

The construction of the permanent bridge proposed under alternative 2 would allow continued vehicular access for emergency service personnel (fire, police, ambulance) to Ellis Island, as well as an expeditious pedestrian evacuation route should the need arise. Medical emergencies would be evacuated swiftly to the mainland without the dependence on ferries. Under the no-action alternative, following bridge removal, transport of medical emergencies could take more than 30 minutes. Response times for fire and police would continue at the current 3 to 4 minutes, versus the minimum 30-minute response time predicted after the removal of the bridge under the no-action alternative. The bridge would ensure continued rapid evacuation of Ellis Island in emergency situations, a concern that has been heightened since the events of September 11, 2001. Other operations of the National Park Service that now benefit from the bridge include deliveries of materials, supplies, parcels, and access for park and concession personnel. These conveniences would be terminated with the loss of the bridge. When compared to lengthy emergency response times and lack of a pedestrian evacuation route predicted under the no-action alternative, alternative 2 provides a benefit of unknown intensity, possibly major, to park administration. The convenience the bridge offers regarding non-emergency access is considered a minor benefit to park administration.

Cumulative Impacts. Under alternative 2, tourism could experience a positive cumulative benefit with the potential increased demand for lodging in areas surround Ellis Island as a result of the expanded cultural programming and activities proposed under this alternative. Comparatively, the no-action alternative is not anticipated to result in similar benefits to tourism.

Conclusions. Extended programming and activities offered under alternative 2 would result in a minor benefit to tourism in increased visitorship to and around Ellis Island, as well as increased demand for lodging in the New Jersey / New York area. When compared to lengthy emergency response times and lack of a pedestrian evacuation route predicted under the no-action alternative, alternative 2 provides a benefit of unknown intensity, possibly major, to park administration. The convenience the bridge offers regarding non-emergency access is considered a minor benefit to park administration. No impairment of park resources would occur.

TRANSPORTATION AND CIRCULATION

ACCESS TO ELLIS ISLAND

Under this alternative, the existing temporary service bridge would be replaced with a new limited-access bridge at a location to be determined. As is the case with the temporary bridge, authorized users of the permanent bridge would only include construction vehicles, emergency vehicles, delivery vehicles, official vehicles, and others requiring access to the facilities. A security guard house would be permanently located at the mainland side of the bridge and would be secured during nondelivery or visitation hours. Members of the general public would continue to arrive by ferry service. All delivery services would continue to use the bridge. Because access to Ellis Island is from Liberty State Park, deliveries may have to be restricted to business hours. Given the need to maintain island security, a permit process for delivery of goods that support the proposed functions would have to be established.

The level of impacts to Ellis Island access during removal of the temporary bridge depends on the sequencing of construction. If a new bridge is built before the temporary bridge is removed, no more than negligible impacts related to the presence of construction vehicles and staging areas are expected. However, if the temporary bridge is removed first, moderate impacts for the length of the construction period are possible. Compared to no action, these impacts would be beneficial.

ACCESS TO FERRY TERMINALS

Ellis Island visitors who may wish to stay overnight would likely lodge at hotels in Jersey City, other nearby local New Jersey locations, or in New York City. As described in the "Affected Environment" chapter, most of these locations are well served by public transportation or private services, including the Bergen-Hudson Light Rail, New Jersey Transit buses, taxi, shuttle buses from some of the local hotels, and ferry service from several locations adjacent to the Hudson River. Guests to Ellis Island from New York City are anticipated to utilize the city's extensive mass transit system and taxi service to get to any of the ferry terminals serving Ellis Island. Some visitors would continue to arrive at the ferry terminal by private vehicle.

PARKING

This alternative includes special-event uses of buildings and spaces on Ellis Island for as many as 500 visitors. If the New Jersey Transit Authority continues to allow the use of its light rail parking lot for overflow parking at Liberty State Park, parking for these events can be accommodated. Also, given current trends, most of the visitors arriving from New York would use mass transit options available to them.

Because about 85% of New Jersey visitors and a small portion of New York visitors use private cars to access the ferry terminals, an increase in visitor growth by about 5% could result in as many as 50 new cars attempting to find parking at Liberty State Park (assuming 21% of the increase occurs at the New Jersey terminal, 85% still drive cars, and 1.5 passengers per car). Given current and future projected conditions in some of the lots at the state park, and in particular lot 6, the addition of 50 cars over the existing 900 spots in the lot would result in minor impacts. It is unlikely that additional cars could be accommodated on busy summer days, and they may need to be directed to more distant lots in the state park or use lots outside the park. Visitors may have to rely on buses. As noted in the "Affected Environment" chapter, no regular transit service exists between the West Side Avenue park-and-ride lot in Jersey City and the ferry terminal inside Liberty State Park. If the New Jersey Transit Authority continues to allow the use of its light rail parking lot for overflow parking on crowded days, no impact to existing parking facilities in the study area is expected.

CIRCULATION

Under this alternative, it is assumed that a 5.4% increase in visitation beyond the figures under the no-action alternative would occur following rehabilitation of the south-side buildings. Since 85% of visitors access the ferry from New Jersey by private vehicle, it is likely that the number of vehicles attributable to visitation would also increase.

Several intersections identified in the "Affected Environment" chapter (Audrey Zapp Drive and Phillip Drive in Liberty State Park; Morris Pesin Drive / Bayview Avenue at Caven Point Road; and Bayview Avenue at the New Jersey Turnpike exit outside the state park) are already at level of service at or above capacity. Level of service at these intersections would likely continue to deteriorate with the increases in visitors. However, an earlier analysis of impacts that expected a 10% increase in visitors to Ellis Island (NPS 1995a) indicated no changes in level of service would result directly from this increase. Rather, deterioration of conditions at all intersections in the study area would continue because of growth in the area and increased visitors to Liberty State Park. Therefore, impacts to circulation from alternative 2 would be greater than under no action, but would also be either undetectable or negligible.

Cumulative Impacts. Area-wide growth and/or increased visitation to Liberty State Park would increase the use of existing public transportation and continue to add traffic at intersections already at capacity. It could also be harder to find parking spots inside Liberty State Park, as well as in the Battery Park area where the existing ferry terminals to Ellis Island are located.

Conclusions. Negligible to moderate short-term impacts to access for staff and delivery vehicles could result from bridge removal and reconstruction. Compared to no action, the impact would be relatively beneficial because it would only be temporary. Minor impacts to parking in Liberty State Park could occur from increases in visitation expected from this alternative compared to no action. Undetectable to negligible impacts to levels of service at intersections in the area are attributable to

increased visitation that could occur under alternative 2.

VISITOR EXPERIENCE

Construction activities associated with the removal of the temporary bridge, installation of the permanent bridge, and rehabitation of buildings on the south side could have a temporary impact on the visitor experience at Ellis Island through increases in noise and a scene inconsistent with the cultural landscape. However, this impact would be short lived and outweighed by the permanent improvements this alternative would provide to the visitor experience.

Since September 11, 2001, tourism and visitation to the region have been critically reexamined. Particularly for Lower Manhattan, linkages are being reestablished within the nation's gateway. The enhancements of adaptive reuse and day use for Ellis Island proposed under alternative 2 come at a critical time in the planning and consideration of new initiatives for visitation.

Alternative 2 would create a campus of nonprofit and institutional day uses that complement the purposes, themes, and significance of Ellis Island. Visitor programs and exhibits relating to immigration, ethnic diversity, refugees, public health, and other topics relating to the island significance would be offered (see the "Alternatives" chapter for more detail). Most programs/exhibits would be open to all. A variety of dining and food service uses would be developed in support of the culinary and economic needs of diverse visitors. No overnight lodging would be provided on Ellis Island.

Access to Ellis Island for the public would continue to be provided via existing ferry service. Boats would continue to dock along the south side of the Main Building where visitors directly enter the Main Building, much as early immigrants did. Many visitors have stated that the ferry ride and associated views of the harbor were important and memorable parts of their visit to Ellis Island (see the "Affected Environment" chapter).

Visitor flow and use patterns would be significantly expanded when compared to the no-action alternative. Access would be permitted to most structures and exterior spaces of the island, with the exception of those included in a more restricted use area (park administration facilities). Such increased access would improve the visitor experience by enhancing the understanding of the history, architecture, and landscape of Ellis Island.

Proposed activities under alternative 2 would increase visitor options and experiences and, therefore, the number of visitors to Ellis Island. The greater number of new visitors to Ellis Island would be for planned outdoor events. Due to the island site and transportation controls, these numbers would be restricted to a reasonable capacity. Availability of bridge access provided under this alternative could become an important factor in the quick evacuation of large numbers of visitors in an emergency.

Additional interpretive and museum space proposed under alternative 2 would add only slightly to the duration of visitation of those coming to the Main Building. Visitation to new venues, while adding to the total number, would be limited by the relative small building area available, as well as by considerations for sustainability in the cost basis for rehabilitation.

The combination of significantly increased visitor access to the majority of Ellis Island and the expansion of interpretive offerings under alternative 2 would result in a major benefit to the visitor experience at Ellis Island, an effect similar to that of alternative 3. When compared to the no-action alternative, where both access and interpretive offerings are limited, alternative 2 would provide a significantly more enhanced visitor experience.

Cumulative Impacts. The multi-year efforts of historic structure / landscape rehabilitation would provide cumulative benefits to visitor experience through the ever increasing (at least for the first 10 to 20 years) access to areas of Ellis Island from which the public is currently restricted. As restored structures and landscapes are opened to visitors, so too are associated interpretive exhibits and displays that will increase visitor options and experiences over time. Similar cumulative benefits are expected under alternative 3; comparatively, the no-action alternative would offer no such benefits.

Conclusions. This alternative would result in minor adverse impacts to the visitor experience during construction, but would provide a significantly more enhanced and a major long-term benefit to the visitor experience at Ellis Island compared to the no-action alternative. No impairment of park resources or values would occur.

ELLIS ISLAND INFRASTRUCTURE

The main utility connections provided to Ellis Island as part of the prior renovations are adequate to service all of the buildings on Ellis Island under alternative 2. As such, the need to install new submarine utilities beneath the Hudson River is not anticipated.

However, while generally adequate, several infrastructure components could benefit from upgrades or improvements because (1) Ellis Island's stormwater system releases untreated stormwater into the Hudson River without the benefit of any detention basins or treatment; (2) existing fire hydrants on the south side and related underground piping require replacement, including appropriate positive backflow prevention devices to protect the water supply system; (3) the central chilled-water plant's refrigerant monitoring system is not operational or consistently operational; and (4) the original cooling towers and associated pumps, while operational, are in poor condition and would require upgrades in the near future, especially if demand increases on Ellis Island. In addition, regular, ongoing maintenance of these systems would be required.

The installation of new underground and above-ground utilities on the south side to service the buildings proposed for renovation would disturb soils on Ellis Island. Upgrades may be required within the Powerhouse for proper distribution of utilities. Additional provisions for emergency power would be required. Above-ground utility structures would be designed and installed so as to minimally impair the island.

The upgrading and improvement of utilities proposed under alternative 2 are considered moderate benefits to the Ellis Island infrastructure and would complement the rehabilitation efforts of historic structures proposed for reuse under these alternatives.

Cumulative Impacts. Under alternative 2, existing utilities would be upgraded and improved to facilitate the rehabilitation of historic structures on Ellis Island. These actions are expected to result in cumulative benefits to the utility infrastructure of the island, which is also true under alternative 3. The no-action alternative would offer no such benefits.

Conclusions. The upgrading and improvement of utilities proposed under alternative 2 are considered moderate benefits to the Ellis Island infrastructure and would complement the rehabilitation efforts of historic structures proposed for reuse under these alternatives.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The *National Environmental Policy Act* requires agencies to consider irretrievable (short-term or reversible) and irreversible (long-term or permanent) commitments of resources from proposed actions. Under this alternative, the National Park Service would make an irreversible commitment of staff, money, and time to rehabilitate the deteriorating 30 buildings that contribute to the overall cultural landscape of the island. The expected cost of rehabilitation is over $150 million; this does not include annual operating and maintenance costs. In return, the nation would experience major benefits from restoring the integrity of these very significant structures and the Ellis Island cultural landscape.

LOSS IN LONG-TERM AVAILABILITY OR PRODUCTIVITY OF THE RESOURCES TO ACHIEVE SHORT-TERM GAIN

No losses in long-term availability or productivity of resources would be realized to achieve a short-term gain under alternative 2. In fact, the focus of this alternative is long-term gain or productivity of the site.

UNAVOIDABLE ADVERSE IMPACTS

Small losses of soil are expected from grading for construction. Disturbance to marine sediments and associated increases in turbidity and impacts on aquatic life are expected during removal of the temporary bridge and construction of a new permanent bridge. The sediments may temporarily suspend heavy metals, organics, or other toxins. The concentrations of these chemicals may be quite high in areas contained by cofferdams. Replanting the courtyards associated with buildings that are slated for rehabilitation could adversely effect or eliminate patches of two state protected plant species. Long-term increases in noise are expected to be negligible; however, noise during construction may be severe on a short-term basis and have adverse effects on visitors and wildlife. The Savannah sparrow, a state protected species and year-round resident of Liberty State Park, could experience additional minor long-term effects from removing habitat and the presence of traffic accessing a landing site in Liberty State Park. Groundwater dewatering or contamination is a possible outcome if building a landing requires pumping of an aquifer to reduce the water table. In addition to the mobilization of toxins in marine sediments, locating a bridge landing in Liberty State Park could involve digging in soils contaminated with chromium and other dangerous toxins. A mitigation plan could reduce impacts to workers and visitors from this activity. Minor impacts to parking availability at Liberty State Park are expected from increases in visitation.

IMPACTS OF ALTERNATIVE 3: ELLIS ISLAND INSTITUTE WITH OVERNIGHT ACCOMMODATIONS (PREFERRED ALTERNATIVE)

CULTURAL RESOURCES

HISTORIC ARCHITECTURAL RESOURCES

Similar to alternative 2, alternative 3 would provide for the long-term preservation of all or most of the currently vacant historic structures on Ellis Island through adaptive reuse for purposes complementary to the island's historic themes and related issues. The general campus environment of Ellis Island would be preserved, and its character-defining features retained (refer to alternative 2 for more detail on the rehabilitation of historic structures). As proposed under this alternative, historic structure rehabilitation is considered a moderate, long-term benefit, with regional and, possibly, national implications.

Cumulative Impacts. Rehabilitation of all National Register structures on Ellis Island is proposed under alternative 3, ultimately providing for their preservation. These multi-year actions offer significant positive cumulative benefits to the historic structures of Ellis Island.

Conclusions. The proposed rehabilitation and reuse of the National Register structures on Ellis Island would ensure the preservation of National Register cultural resources. The ultimate effect of alternative 3, the avoidance of the loss of Ellis Island's historic structures due to unchecked deterioration (the expected result of the no-action alternative), is decidedly positive. This positive effect is similar under alternative 2.

CULTURAL LANDSCAPES

Similar to alternative 2, alternative 3 proposes the rehabilitation and interpretation of the cultural landscape to promote a broad understanding of its historic appearance and use (see the "Affected Environment" chapter; also see alternative 2 for additional detail on impacts to the cultural landscape).

The rehabilitation and reuse of the cultural landscape proposed under alternative 3 would result in a moderate, site-specific benefit to cultural resources on Ellis Island, similar to benefits provided under alternative 2. When compared to the no-action alternative under which the cultural landscape would be significantly compromised over time, alternative 3 is notably beneficial in its effects.

As under alternative 2, alternative 3 proposes that the current temporary bridge linking Ellis Island and New Jersey be replaced with a permanent bridge and security facility. Construction of a new bridge would perpetuate the existing link (temporary service bridge) between Ellis Island and New Jersey, affecting its state of isolation as well as some historic views to and from the island. The construction of a new bridge proposed under alternative 3 is believed to have long-term, moderate adverse impacts to the cultural resources of Ellis Island and several surrounding National Register properties. The impacts are believed to be regional (harbor-wide) in nature (refer to alternative 2 for more detail on the proposed bridge and its impacts on the cultural landscape). In comparison, the no-action alternative would enhance the cultural landscape of Ellis Island by the removal of the existing bridge.

From a positive perspective, construction of a permanent bridge would allow for the continued rapid vehicular access to the island by emergency vehicles, resulting in a potential benefit to the cultural resources of Ellis Island (see alternative 2 for more detail). The maintenance of efficient fire-fighting methods expected with the presence of a bridge proposed under alternative 3 would result in a benefit of unknown intensity to the cultural resources of Ellis Island, a marked advantage over the no-action alternative. Similar benefits are provided under alternative 2.

Cumulative Impacts. The rehabilitation of Ellis Island's cultural landscape proposed under alternative 3 would ultimately ensure its historic preservation. This multi-year effort offers significant positive cumulative benefits to the cultural landscape of Ellis Island which, without such actions, would most likely deteriorate to the point of possible impairment (see the no-action alternative).

Conclusions. Rehabilitation efforts under alternative 3 would provide moderate, site-specific benefits to the cultural resources, as is the case under alternative 2. Comparatively, the no-action alternative proposes no such actions, posing much higher risks to the cultural resources of Ellis Island. The bridge proposed under

alternative 3 would perpetuate the diminished nature of the waterspace between the island and the mainland, creating long-term moderate adverse impacts to Ellis Island and surrounding National Register properties (Statue of Liberty, CRRNJ Terminal). A similar loss of historic setting / context for Ellis Island is expected under alternative 2, though not under the no-action alternative, which proposes bridge removal. At the same time, the presence of a bridge under alternative 2 would result in a benefit to the cultural resources of Ellis Island due to the high degree of protection from fire damage/loss. This is a decidedly positive effect also provided for under alternative 3, but not under the no-action alternative.

ARCHEOLOGICAL RESOURCES

As is the case under alternative 2, utility infrastructure improvements proposed in alternative 3 have the potential to impact buried terrestrial archeological resources through earth disturbance / trenching activities (see alternative 2 for detail on impacts to archeological resources associated with utility improvements).

Terrestrial Archeological Resources

Alternatives 2 and 3 have the potential to impact archeological resources more than alternative 1 (no action). Ground-disturbing construction activities, however, will be assessed on a case-by-case basis following established section 106 procedures as defined in the *National Historic Preservation Act*. By following section 106 procedures and conducting the necessary research and consultation, the impact to the archeological resources should be minimal.

Marine Archeological Resources

Increased dredging in the vicinity of the ferry slip under alternative 3 has the potential to impact marine archeological resources, as does placing pilings for the permanent bridge. However, by using existing information and following section 106 guidelines, the impact to marine archeological resources should be no more than minor.

Cumulative Impacts. Alternative 3 is not expected to result in cumulative impacts to archeological resources in or associated with Ellis Island.

Conclusions. Utility infrastructure improvements may have minor impacts on terrestrial resources. Bridge-related excavation and maintenance dredging activities proposed under alternative 3 have the potential for no more than minor impacts to marine archeological resources. Similar adverse impacts are possible under alternative 2. No impairment of park resources would occur.

NATURAL RESOURCES

GEOLOGIC RESOURCES AND SOILS

No impacts (beyond those described in alternative 2) to geology or soils are anticipated under alternative 3. These include grading soils to create access roads and construction staging areas and to install underground utilities. Digging may uncover contaminated fill, and this is analyzed in the "Hazardous Materials" section.

Cumulative Impacts. No additional cumulative impacts beyond those described under the no-action alternative are anticipated.

Conclusions. Negligible to minor impacts to soils would result when filling the seawall after removing the temporary bridge, excavating for new underground utility connections, grading a new access road to the landing at Liberty State Park, and from grading for construction staging areas. No impairment of park geology or soils would occur.

MARINE SEDIMENTS

Impacts to marine sediments under this alternative would be the same as those described under alternative 2. These include holes in the channel sediments from removing pilings for the existing bridge and the disturbance and displacement of sediments to drive new piles.

Cumulative Impacts. No additional impacts to marine sediments beyond those described under the no-action alternative are anticipated.

Conclusions. Localized negligible or minor temporary impacts (slightly greater than under no action) to marine sediments in the channel between Ellis Island and the state park would occur during removal of temporary bridge pilings and installation of new pilings for the permanent bridge. Mitigation would likely reduce impacts to marine sediments, comparable to the

no-action alternative. No marine sediments are part of the park; therefore, no impairment of park marine sediments is possible.

FLOODPLAINS

No differences between alternatives 2 and 3 are anticipated for flood risk. As described under impacts of alternative 2, dismantling the existing temporary bridge and sealing the floodwall would eliminate the existing likelihood of damage during an extreme weather event and would have a minor benefit on the impact of flooding.

The replacement bridge would touch down at points in the floodplain on both Ellis Island and Liberty State Park; therefore, these landings could experience some flooding during extreme flood event.

Cumulative Impacts. No additional cumulative impacts beyond those described under the no-action alternative are anticipated under alternative 3.

Conclusions. As with no action, removing the temporary bridge and sealing the seawall could result in minor beneficial impacts from flood prevention. Building a permanent bridge may mean negligible impacts to access during extreme flood events. No impairment of park floodplains would occur.

VEGETATION / THREATENED AND ENDANGERED PLANT SPECIES

No changes to impacts on vegetation from those described under alternative 2 are anticipated. These include the permanent loss of a small area of vegetated land to build bridge landings and access roads at Liberty State Park and on Ellis Island, and the temporary clearing of vegetation for construction staging areas. These areas would be replanted following construction, and impacts would be negligible or minor as a result.

Landscaping the courtyards and other areas on the south side and the maintenance of these gardens would help control invasive species, but would also result in the removal or relocation of some individuals of either the Canada hawkweed or Ohio spiderwort, New Jersey state protected plant species. If the park can mitigate impacts to these protected species by replanting individuals to locations where changes will not take place, or improve growing conditions for hawkweed or spiderwort in an off-island location, impacts could fall to negligible. If not, impacts would be locally minor to moderate. Because the area of the courtyards slated for planting is only approximately 3 acres, and these plant species grow over several states, the impact would not be a major one, and no impairment of park resources is expected.

Cumulative Impacts. No cumulative impacts beyond those identified under the no-action alternative would occur under alternative 3.

Conclusions. Negligible to minor losses of open field vegetation are likely from the creation of landing sites and from constructing staging areas for removing the temporary bridge, building a permanent bridge, and rehabilitating buildings on Ellis Island. Minor to moderate localized impacts from the loss of two state protected plant species (Canada hawkweed and Ohio spiderwort) are possible from the planting of restored courtyards on Ellis Island. These impacts could be eliminated or reduced to negligible through avoidance, replanting individuals, or improving off-site habitat.

FISH

No impacts (beyond those identified under alternative 2) to fish species are expected. These include direct impacts to fish and fish habitat from removal and replacement of the existing bridge superstructure, piles, and pile caps, as well as associated increases in turbidity and suspension of pollutants now in marine bottom sediments. The impacts of construction to fish could range to moderate, but would fall to negligible after construction is complete. Construction-related impacts would continue in the moderate range for a longer period of time than under no action.

Cumulative Impacts. No additional cumulative impacts beyond those described under the no-action alternative are expected.

Conclusions. Removal of the temporary service bridge and construction of a permanent one could result in moderate short-term impacts to fish in the channel between Ellis Island and the New Jersey shoreline, with a longer period of impact than under no action. No impairment of park fisheries resources would occur.

WILDLIFE / THREATENED AND ENDANGERED WILDLIFE SPECIES

Wildlife impacts under alternative 3 would be similar to those described for alternative 2. These noise-related effects include short-term disturbance or displacement of wildlife. The presence of humans and equipment during construction (on both Ellis Island and at Liberty State Park) could also affect wildlife. Short- or long-term post-construction impacts to wildlife from the removal of habitat or proximity of car and truck traffic may also occur.

The protected species most likely to be adversely affected by bridge removal and reconstruction is the state threatened Savannah sparrow, a year-round resident of the state park. This species nests in open fields and thickets in the project area very near to where construction is likely to take place. Long-term impacts to the Savannah sparrow are also possible, because relocating the bridge landing could remove sparrow habitat or could force some sparrows to permanently relocate to an adjacent area that might be subject to greater vehicular traffic.

Other seasonal residents in the state park would be disturbed or displaced during construction if it occurs during the season that wildlife normally occupy habitat in the park: the winter for long-eared and short-eared owls and the northern harrier; the summer for peregrine falcons and northern harrier. Several bird species also migrate through Liberty State Park in the spring or fall, including several that are state listed (see the "Affected Environment" chapter). Construction may also mean fewer individuals of these species would use the park in a given year.

Long-term impacts to some bird species using open fields in courtyards are anticipated due to landscaping of these courtyards. The increased visitation to buildings on the south side would also disturb, and possibly displace, wildlife in the area. Alternative 3 is also likely to have additional adverse impacts on wildlife on Ellis Island because visitors would be allowed to spend the night. This would disturb night-feeding animals, such as owls, and could also cause some species to abandon habitat in the area because of the continual human presence, night lighting, and other unnatural conditions. Because this impact is limited to Ellis Island, where wildlife habitat is currently sparse, the impact is likely to be negligible or minor.

Cumulative Impacts. No additional cumulative impacts beyond those identified for the no-action alternative are anticipated.

Conclusions. Minor to moderate impacts to nonprotected wildlife from construction are expected, particularly in Liberty State Park. Displacement through habitat removal and increased human activity may also result in negligible to minor long-term effects at both the state park and on Ellis Island. Additional negligible to minor impacts from the continual presence of humans throughout the night may also occur to Ellis Island wildlife. Some protected species would be affected; Savannah sparrows may experience moderate effects in the short-term, and other seasonal residents and migrants could experience minor impacts. Depending on the bridge alignment, Savannah sparrows may suffer minor long-term impacts resulting from loss of habitat and the additional presence of humans and traffic. Landscaping courtyards on Ellis Island could remove habitat for some wildlife species with possible long-term minor adverse impacts. No impairment of park wildlife resources would occur.

SURFACE WATER

No changes to surface water, other than those described under alternative 2, are expected. These include temporary, localized increases in turbidity in the surface water in the immediate vicinity, possible spills or leaks from heavy equipment, and the release of trace metals or other contaminants from bottom sediments during removal of the temporary bridge and construction of the new bridge. The use of cofferdams to install new pilings could increase turbidity and suspended pollutants inside the confines of the dam, but result in decreases in concentrations outside it. Erosion from construction sites and the new access road would be effectively mitigated with the use of best management practices.

Cumulative Impacts. No cumulative impacts beyond those described under the no-action alternative are anticipated.

Conclusions. As with no action, removal of the temporary bridge could result in minor to moderate increases in turbidity, and petroleum releases from heavy equipment could result in negligible degradation of surface water near construction sites. Additional

moderate impacts to surface water quality would result from construction of the permanent bridge, and minor impacts from construction of additional staging areas, roads, and rehabilitation could occur under alternative 2. In the long-term, impacts to surface water would be nonexistent or negligible. No impairment of park surface water would occur.

GROUNDWATER

No impacts (beyond those described under alternative 2) to groundwater are expected for this alternative. These include possible high water tables encountered during construction and the need to pump groundwater. There is some small chance that the groundwater could be contaminated, or that pumping could bring contaminated groundwater into contact with a clean aquifer. Additional testing to determine groundwater elevations and aquifer conditions may be required to avoid such impacts, and would likely be conducted should excess pumping be required. If future design work indicates groundwater would be a problem, site-specific analysis under the *National Environmental Policy Act* would be required.

If disposal of groundwater into the channel is necessary, and the groundwater is contaminated, federal statutes would require it be treated, and a permit under the National Pollution Discharge Elimination System program would be needed.

Cumulative Impacts. No additional cumulative impacts beyond those described under alternative 2 would occur.

Conclusions. Negligible to major impacts to local groundwater supplies are possible if bridge construction requires excavation in an area where groundwater tables are high, and extensive pumping may be needed. Additional testing and NEPA analysis would be required to determine features of the aquifer, mitigation, and level of impairment.

AIR QUALITY

Impacts to air quality from actions under alternative 3 would not be different than those under alternative 2. These include an approximately 5% increase in emissions, compared to no action, from bridge-related construction and increased visitation by car to the New Jersey ferry terminal in Liberty State Park. Compared to existing conditions, this increase would be undetectable in the study area except in the immediate area of the construction site.

Cumulative Impacts. No cumulative impacts (beyond those described for the no-action alternative) are expected.

Conclusions. Emissions would be about 5% higher than under the no-action alternative, and a relative negligible to minor impact compared to no action. Compared to existing conditions, emissions related to this alternative would probably not be detectable any further than the immediate construction area.

NOISE

Impacts would be the same as under alternative 2, where visitors and workers close (within 50 feet) to heavy equipment could be exposed to noise levels as high as 100 decibels for short periods of time. The period of construction would be at least twice as long as under the no-action alternative.

Additional noise from rehabilitation of buildings on the south side would occur. Given that noise levels are currently quite low, even this additional construction noise could have major short-term impacts.

Cumulative Impacts. No cumulative impacts (beyond those described for the no-action alternative) are expected.

Conclusions. Long-term increases in noise are expected to be negligible; however, noise during construction may be severe on a short-term basis. These impacts would continue at least twice as long under alternative 2 as under no action. No impairment of park wildlife or visitor experience would occur as a result of noise.

HAZARDOUS MATERIALS

Impacts from exposure to hazardous materials would be the same as those described under alternative 2. These include excavation activities on both Ellis Island and in Liberty State Park to build new landings, access roads, and parking areas and to install underground utilities and/or potable (drinking) water lines to the rehabilitated buildings on the south side. Although subsurface disturbance for the roads would be limited

to the upper 3 feet of soil, the potential exists for exposure to organic compounds and heavy metals, as described in the "Affected Environment" chapter.

Because this environmental impact statement analysis is programmatic for the building of the permanent bridge, future site-specific NEPA analysis would need to develop specific mitigation measures to protect workers and visitors from the health effects of these contaminants. In addition to protective clothing, mitigation could include subsurface investigations prior to construction in all areas of proposed disturbance to characterize potential contaminants; containment of the material in a separate area prior to disposal to prevent surface water contamination; protection of workers potentially exposed via skin contact or respiratory contact to contaminants through the use of personal protective equipment, in accordance with New Jersey Division of Parks and Forestry procedures; and best management practices, including covering exposed soils during construction. With these measures in place, impacts to workers would be minor to moderate. Visitors would likely be kept away from the site during construction.

Following the completion of construction, the clean fill cap method of encapsulating contaminated fill would likely be used to eliminate exposure.

Removal of the temporary bridge and construction of a new bridge would also disturb marine sediments and result in increased suspension of organics and metals contained in those sediments.

Vacant and stabilized buildings would be rehabilitated to be generally suitable for a range of day uses. To get to that point, asbestos abatement and removal of lead-based paint would occur to the extent required to make the buildings safe. Workers conducting the removal would be well trained and would take all necessary precautions to protect themselves and to properly contain and dispose of these materials so as to prevent airborne exposure to these materials. Impacts would, therefore, be negligible.

Cumulative Impacts. No cumulative effects beyond those described under the no-action alternative are anticipated.

Conclusions. Workers could likely encounter contaminated soils during construction of landings and access roads for the permanent bridge. If a mitigation plan is put into place and followed, impacts would be moderate. Encapsulating contaminated fill following construction could eliminate the risk of exposure in the long-term. Construction activities could also suspend organics and heavy metals in marine sediments, resulting in minor to moderate impacts to surface water from contamination. These would fall to negligible shortly after construction is complete. Asbestos and lead-paint removal would eliminate risk of exposure to visitors, and with the use of standard precautions, would pose a negligible risk to workers. No impairment of park resources would occur.

SOCIAL AND ECONOMIC ENVIRONMENT

TOURISM

Without significantly increasing the number of visitors, alternative 3 would increase the number and type of attractions and activities on the island to attract visitors who otherwise might not visit Ellis Island. As discussed under alternative 2, the reuse of the existing buildings is designed to preserve and enhance the island's cultural history and resources while strengthening Ellis Island's economic self-sustainability through increased revenue. Alternative 3 would provide for a variety of uses of rehabilitated structures (see alternative 2 for additional detail on impacts to tourism). The additional opportunities proposed under alternative 3 would likely provide a critical mass of visitor attractions to encourage an increase in nearby overnight stays.

Extended programming and activities offered under alternative 3 would result in a minor benefit to tourism in increased visitorship to and around Ellis Island, as well as increased demand for lodging in the New Jersey / New York area. Alternative 2 would provide similar benefits, while the no-action alternative predicts a smaller increase in visitorship to the island with no concomitant increase in lodging demand.

PARK ADMINISTRATION

Under alternative 3, it is anticipated that additional National Park Service and vendor employees would be required for administration and coordination of the south side activities. As under alternative 2, the construction of the permanent bridge would allow continued vehicular access for emergency service personnel (fire, police, ambulance) to Ellis Island, as

well as an expeditious pedestrian evacuation route should the need arise (see alternative 2 for additional detail on impacts to park administration).

When compared to lengthy emergency response times and lack of a pedestrian evacuation route predicted under the no-action alternative, alternative 3 provides a benefit of unknown intensity, possibly major, to park administration, similar to that under alternative 2. The convenience the bridge offers regarding nonemergency access is considered a minor benefit to park administration, one that would not be available under the no-action alternative.

Cumulative Impacts. Under alternative 3, tourism could experience a positive cumulative benefit, with a potential increased demand for lodging in areas surrounding Ellis Island as a result of the expanded cultural programming and activities proposed under this alternative.

Conclusions. Extended programming and activities, including conference and retreat facilities offered under alternative 3, could result in a minor benefit to tourism in increased visitorship to and around Ellis Island, as well as increased demand for lodging in the New Jersey / New York area. When compared to lengthy emergency response times and lack of a pedestrian evacuation route predicted under the no-action alternative, alternative 3 provides a benefit of unknown intensity, possibly major, to park administration. The convenience the bridge offers for nonemergency access is considered a minor benefit to park administration. No impairment of park resources would occur.

TRANSPORTATION AND CIRCULATION

ACCESS TO ELLIS ISLAND

The level of impacts to Ellis Island access during removal of the temporary service bridge would be the same as under alternative 2, and would depend on the sequencing of removing the temporary bridge and building a permanent one. If a new bridge is built before the temporary bridge is removed, no more than negligible impacts related to the presence of construction vehicles and staging areas are expected. However, if the temporary bridge is removed first, moderate impacts for the length of the construction period are possible. Compared to no action, these impacts would be beneficial.

ACCESS TO FERRY TERMINALS

No impacts to public transportation to access ferry terminals is expected.

PARKING

Impacts to parking would be similar to alternative 2, although 250 guests would be able to stay overnight at Ellis Island. Assuming these are not visitors who would also participate in special day events, and so are additive in their impacts, an additional approximately 20 cars could require parking in Liberty State Park. Given current and future projected conditions in some of the lots at the state park, and in particular lot 6, the addition of 70 cars (or a 7.8% increase over the existing 900 spots in the lot) would result in minor impacts. It is unlikely the additional cars could be accommodated on busy summer days, and the cars may need to be directed to more distant lots in the state park or use lots outside the park. Visitors may have to rely on buses. As noted in the "Affected Environment" chapter, no regular transit service currently exists between the West Side Avenue park-and-ride lot in Jersey City and the ferry terminal inside Liberty State Park. If the New Jersey Transit Authority continues to allow the use of its light rail parking lot for overflow parking on crowded days, no impact to existing parking facilities in the study area is expected.

CIRCULATION

Impacts to circulation from this alternative are expected to be indistinguishable from those in alternative 2. Although some increase in traffic attributable to increased visitors driving to ferry terminals is likely, compared to existing conditions or no action, the changes would barely be detectable.

Cumulative Impacts. No cumulative impacts beyond those described under the no-action alternative are anticipated.

Conclusions. Negligible to moderate short-term impacts to access for staff and delivery vehicles could result from bridge removal and reconstruction. Compared to no action, the impact would be relatively beneficial because it would only be temporary. Minor impacts to parking in Liberty State Park could occur

from increases in visitation expected from this alternative compared to no action. These impacts would be slightly worse than under alternative 2. Undetectable to negligible impacts to levels of service at intersections in the area are attributable to increased visitation resulting from alternative 3. No impairment of park resources would occur.

VISITOR EXPERIENCE

Alternative 3 proposes many of the same types of enhanced interpretive / cultural / educational visitor options as does alternative 2. Under all alternatives, access to Ellis Island for the public would continue to be provided via existing ferry service (see alternative 2 for more detail on uses proposed under both alternatives 2 and 3).

Unique to alternative 3 are a proposed small retreat / conference facility with overnight lodging, a policy research center, and administrative and study spaces. Ellis Island would provide an exceptional setting for meetings, workshops, and symposia on a wide range of national and international issues. These topics might include the history and meaning of Ellis Island as a gateway to the United States and as an important location in the history of public health. Potential activities could include academic retreats, "think-tank" policy meetings, training programs, and family reunions. The anticipated meeting size for the retreat would range up to 300 persons.

In conjunction with the conference facility, alternative 3 proposes the provision of a maximum of 250 overnight guestrooms on Ellis Island. Lodging and dining could take a number of forms, depending on the overall facility design. The visitor's overnight experience would not only evoke the immigrants' experience but would also provide a contemporary experience in affirmation of their legacy. Nighttime experiences would be pleasant, with city and harbor views dominating. No other land site provides such proximate and dramatic perspectives of the Statue of Liberty.

As with alternative 2, visitor flow and use patterns would be expanded under this alternative, with significantly increased access to the structures, landscapes, and spaces of Ellis Island (see alternative 2 for detail). This increased access is considered a significant benefit over the limited access expected under the no-action alternative.

Cumulative Impacts. The multi-year efforts of historic structure / landscape rehabilitation would provide cumulative benefits to visitor experience through the ever-increasing (at least for the first 10 to 20 years) access to areas of Ellis Island from which the public is currently restricted. As restored structures and landscapes are opened to visitors, so too are associated interpretive exhibits and displays that will increase visitor options and experiences over time. Similar cumulative benefits are expected under alternative 2; comparatively, the no-action alternative would offer no such benefits.

Conclusions. The combination of significantly increased visitor access to the majority of Ellis Island, the expansion of interpretive offerings, and the provision of a conference facility with overnight lodging under alternative 3 would result in a major benefit to the visitor experience at Ellis Island. With the exception of overnight lodging accommodations, similar benefits to visitor experience are expected under alternative 2. When compared to the no-action alternative, where both access and interpretive offerings are limited, alternative 3 would provide a significantly more enhanced visitor experience.

ELLIS ISLAND INFRASTRUCTURE

The main utility connections provided to Ellis Island as part of the prior renovations are adequate to service all of the buildings on Ellis Island under alternative 3. As such, the need to install new submarine utilities beneath the Hudson River is not anticipated (refer to alternative 2 for more detail on impacts related to utility improvements).

The upgrading and improvement of utilities proposed under alternative 3 are considered moderate benefits to the Ellis Island infrastructure and would complement the rehabilitation efforts of historic structures proposed for reuse under these alternatives. Alternative 2 would result in similar benefits.

Cumulative Impacts. Under alternative 3, existing utilities would be upgraded and improved to facilitate the rehabilitation of historic structures on Ellis Island. These actions are expected to result in cumulative benefits to the utility infrastructure of the island.

Conclusions. The upgrading and improvement of utilities proposed under alternative 3 are considered moderate benefits to the Ellis Island infrastructure and would complement the rehabilitation efforts of historic structures proposed for reuse under these alternatives.

SECTIONS REQUIRED UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The *National Environmental Policy Act* requires agencies to consider irretrievable (short-term or reversible) and irreversible (long-term or permanent) commitments of resources from proposed actions. In this alternative, the National Park Service would make an irreversible commitment of staff, money, and time to rehabilitate the deteriorating 30 buildings that contribute to the overall cultural landscape of the island. The expected cost of rehabilitating structures not associated with the institute or conference facility is over $50 million, and the conference facility itself would require an estimated $100 million in private investments; this does not include annual operating and maintenance costs. In return, the nation would experience major benefits from restoring the integrity of these very significant structures and the Ellis Island cultural landscape, including the chance to study, research, and relax overnight at this significant landmark.

LOSS IN LONG-TERM AVAILABILITY OR PRODUCTIVITY OF THE RESOURCES TO ACHIEVE SHORT-TERM GAIN

No losses in long-term availability or productivity of resources would be realized to achieve a short-term gain under alternative 3. In fact, the focus of this alternative is long-term gain or productivity of the site.

UNAVOIDABLE ADVERSE IMPACTS

Small losses of soil are expected from grading for construction. Disturbance to marine sediments and associated increases in turbidity and impacts on aquatic life are expected during removal of the temporary service bridge and construction of a new permanent bridge. The sediments may temporarily suspend heavy metals, organics, or other toxins. The concentrations of these chemicals may be quite high in areas contained by cofferdams. Replanting the courtyards associated with buildings that are slated for rehabilitation could adversely effect or eliminate patches of two state protected plant species. Long-term increases in noise are expected to be negligible; however, noise during construction may be severe on a short-term basis and have adverse effects on visitors and wildlife. The Savannah sparrow, a state protected species and year-round resident of Liberty State Park, could experience additional minor long-term effects from removing habitat and the presence of traffic accessing a landing site in Liberty State Park. Wildlife may experience additional adverse impacts from the presence of humans and lighting 24 hours a day on the island. Groundwater dewatering or contamination is a possible outcome if building a landing requires pumping of an aquifer to reduce the water table. In addition to the mobilization of toxins in marine sediments, locating a bridge landing in Liberty State Park could involve digging in soils contaminated with chromium and other dangerous toxins. A mitigation plan could reduce impacts to workers and visitors from this activity. Minor impacts to parking availability at Liberty State Park are expected from increases in visitation.

Consultation and Coordination

HISTORY OF PUBLIC INVOLVEMENT

SCOPING PROCESS AND PUBLIC MEETINGS

The National Park Service retained an independent consultant to assist the agency in preparing this *Development Concept Plan / Draft Environmental Impact Statement.* Background data were collected, applicable agencies were contacted, issues and regulatory requirements were identified, and alternatives were screened by the consultant and NPS staff specialists. Together, these staff formed an interdisciplinary team. The team relied upon much of the information contained in the 1995 Statue of Liberty and Ellis Island–Ellis Island Bridge and Access Alternatives Draft Environmental Impact Statement (unreleased) by Goodkind & O'Dea, Inc. (NPS 1995a). Since the preparation of that draft environmental impact statement, the events of September 11, 2001, occurred, solidifying the need for a permanent, controlled vehicular access bridge to Ellis Island.

In 1999 a consultant was retained to prepare the Market and Financial Feasibility Analysis of the Preservation and Reuse of Ellis Island's South Side and Baggage and Dormitory Buildings (see "Appendix C: Analysis of Relative Financial Feasibility and Economic Sustainability of EIS Alternatives"). Information workshops to discuss this project with a variety of stakeholders were held in 1999 and 2000.

PUBLIC SCOPING FORUMS

The National Park Service hosted three public meetings to discuss the preservation and reuse of the south-side buildings. These public scoping forums were held in December 2000 in Trenton, Manhattan, and on Ellis Island. In addition, the Park Service hosted an Ellis Island Development Concept Plan / Environmental Impact Statement Alternatives Analysis Workshop on February 28, 2002, at NPS offices in New York City. The organizations in attendance at the workshop included the National Park Service and New York and New Jersey State Historic Preservation Office representatives.

The following entities publicly expressed support for the preservation and reuse of Ellis Island during the December 2000 scoping sessions: New Jersey General Assembly, City of Jersey City, Liberty Science Center, New Jersey State Historic Preservation Officer, Governor's Advisory Committee on the Preservation and Use of Ellis Island, Preservation New Jersey, New York Landmarks Conservancy, Liberty State Park Development Corporation, and the New Jersey Department of Health.

The issues and concerns arising from the public scoping forums are summarized below. Additional information is available in appendix A.

New Jersey General Assembly — The assembly issued a resolution urging the National Park Service to include a permanent pedestrian or public access bridge between Liberty State Park and Ellis Island in the restoration plans. Both action alternatives include a bridge, but not for pedestrian or general public access.

Jersey City Director of Economic Development — The director issued a statement encouraging a thorough study that addresses access issues and provides a market and financial sustainability analysis. As noted above, a market and financial feasibility analysis (appendix C) of reuse options was performed prior to preparation of this environmental impact statement.

Liberty Science Center — The president and chief operating officer of the center presented written comments in support of the reuse of structures on Ellis Island. Ellis Island's role as completing a major cultural attraction with the Statue of Liberty, Liberty State Park, and Liberty Science Center was stressed. Flooding, and particularly threats of tidal surge, were identified for consideration in the planning process.

New Jersey State Historic Preservation Officer — The state historic preservation officer presented comments on behalf of the governor and the Advisory Committee on the Preservation and Use of Ellis Island in support of reuse. Topics of concern included preservation and stabilization, honoring history, affordable access, economic self-sustainability, rehabilitation rather than restoration, recognition of public health, and use as an international or regional history conference center. These concerns are addressed in the range of alternatives.

Preservation New Jersey — A member of this organization presented testimony in support of the stabilization efforts for protection of the resources on Ellis Island.

New York Landmarks Conservancy — A member of the conservancy presented a statement supporting the stabilization efforts. Topics of concern included historic preservation with no demolition and minimal new construction, economic feasibility, excellence in design, transportation study, and accurate cost estimates.

Liberty State Park Development Corporation — A representative from the corporation voiced support for the Governor's Advisory Committee. Comments focused on transportation (access/parking/transit) and bridge issues. A suggestion was made to link the development and history of the CRRNJ Terminal and Liberty State Park with Ellis Island.

New Jersey Department of Health — The department presented comments regarding the unique role of Ellis Island in the history of public health and suggested that reuse plans consider the development of a Public Health Learning Center that would provide a national venue on the history of health care.

Other general public comments suggested that a Center for Immigrant Contributions be developed on Ellis Island. The need for inclusion of Section 106 and Section 4(f) in the environmental impact statement was raised. Commenters indicated that the institutional architecture of south-side buildings should be restored to preserve the immigrant history without over-emphasizing the "darker side." The National Park Service is documenting the progress of stabilization efforts and chronicling an oral history.

Commenters noted that the issuance of a Request for Proposals (RFP) for the rehabilitation of Ellis Island should ensure that interested parties embrace preservation qualities. Using the RFP process, the National Park Service would solicit a development partner to finance, develop, and manage a small conference facility with overnight accommodations. In selecting a development partner, National Park Service would give preference to the smallest (as in the number of overnight rooms), most economically feasible proposal that meets the park's goals, and that best supports the mission and operation of the non-profit institute.

ALTERNATIVES ANALYSIS WORKSHOP

As noted above, on February 28, 2002, the National Park Service held an internal alternatives analysis workshop that provided a venue for interested individuals, agencies, businesses, and organizations to learn about the proposed alternatives, offer ideas and suggestions, and voice concerns about various aspects of the proposed alternatives. Concerns surrounding each alternative are summarized below.

Alternative 1

No action — There is concern that under this alternative stabilization would only last for 10 to 15 years, and no annual maintenance funds would be allocated. Therefore, the process of deterioration would continue as soon as stabilization work was completed. By definition, the stabilization only slows the deterioration process. Perpetual stabilization is not an option. In time, resources would be permanently lost.

Loss of resources — The irreversible loss of resources is of primary concern. Economically, no funding is available for another round of stabilization. The controlled removal of asbestos and lead would be required as buildings deteriorate or are left unabated. Re-stabilization would ultimately increase the cost of any other action or alternative that would be undertaken in the next 10 to 15 years due to the delay in permanently addressing historic resources. Operating costs to maintain the buildings also increase the overall cost. After 10 to 15 years the investment for stabilization would be lost along with the historic resources. Although no funds would be needed to maintain a vacant island, environmental and safety hazards, such as fire, may result. Therefore, removal of the buildings must be considered. Deterioration of the Baggage and Dormitory Building is a safety risk and a visual detriment to visitor experience due to its prominent location near the renovated buildings.

The loss of the historic resources may be potentially mitigated by means of building documentation, interpretive programs, and displays. If the proposed building uses are deemed undesirable or disrespectful to the Ellis Island history, deterioration of the resources may be the preference of some individuals. With respect to archeological concerns, there would be no disturbance to potentially significant historical resources below the surface.

The loss of the bridge would result in increased safety and security concerns due to the inability to transport visitors and employees off Ellis Island during natural disasters, medical emergencies, or other circumstances requiring evacuation.

Alternative 2

Loss of historic resources — Although stabilization, rehabilitation, and reuse actions are preferred, minor demolition and new construction could be viable options as part of renovation efforts. Although historic archeological resources could be damaged, the reuse should result in overall positive effects with little or no adverse effects. Potential adverse effects on landscape could occur during rehabilitation.

Sunken ferry – Disposition of the sunken ferry in the slip remains unresolved. Recent underwater documentation of the structure has determined that it is substantially deteriorated and raising it is not feasible or appropriate. The mostly submerged sides of the ferry will likely collapse outward in a more prone position upon the bottom as the remaining cross-timbers deteriorate further. For the time being, the ferry remains an impediment to boat access at the western end of the ferry slip and precludes water access to the Ferry Building.

Visitor access - The number of ferry trips would not increase dramatically. Pedestrian use of a new service bridge was dismissed because of security concerns that dictate limiting the number of access points to the island, undesirable visitor experience due to lack of historical perspective and interpretive opportunities, and the lack of parking available at Liberty State Park. Mitigation of environmental justice and free access issues may be addressed with "free visitation days" or "free access times" during regular visiting hours.

Alternative 3

The issues and concerns raised with respect to alternative 2 are also applicable to alternative 3. The only additional concern related to alternative 3 is the access to certain areas of Ellis Island outside of the normal visitor hours, because of the overnight accommodations.

Access to Ellis Island has been a controversial issue for over a decade. On one side of the access issue, Jersey City and many other local jurisdictions in New Jersey have called for pedestrian access from Liberty State Park. The need for pedestrian access is driven by the desire to have "affordable" access to the island. The cost of ferry service prevents some low- and moderate-income people from visiting the island. Other access-related issues include the frequency of ferry service and the large number of visitors who want to come to the island. On the other side of the access issue is the preservation community that sees the bridge as an intrusion on the park's historic scene and is calling for its removal. This perspective considers continued arrival by ferry as the only appropriate means of visitor access to Ellis Island.

The events of September 11, 2001, have further complicated the access issue by highlighting the need for secure access to and from Ellis Island and the importance of a direct-access route for emergency response and evacuation.

Concern was expressed regarding the need for review and approval of the rehabilitation work to be undertaken by the private development partner, and specifically the role of the State Historic Preservation Offices in this process. It was suggested that this *Draft Environmental Impact Statement* include a specific programmatic agreement between the National Park Service and the New York and New Jersey State Historic Preservation Officers setting out, in detail, their consultation and approval role throughout the rehabilitation process. A draft programmatic agreement is contained in appendix D. Environmentally sustainable materials should be considered in new bridge design.

PUBLIC NOTIFICATION

The National Park Service followed its policies and procedures for public notification concerning this planning effort. The National Park Service and the Environmental Protection Agency published a notice of intent and notice of availability in the *Federal Register.* Letters were sent to the New York and New Jersey State Historic Preservation Officers, as well as the Advisory Council on Historic Preservation. Press releases or articles were published in local and regional newspapers. These publications include *The New York Times*, *Newark Star Ledger*, and the *Jersey Journal*. The "Executive Summary" for this *Development Concept Plan / Draft Environmental Impact Statement* has been posted on the park's website (http://www.nps.gov/elis). The entire

document is also available on the park's website, plus the NPS planning website at http://www.planning.nps.gov. The National Park Service will brief area elected officials and stakeholders upon request to the superintendent.

AGENCIES AND ORGANIZATIONS PARTICIPATING DURING THE SCOPING PROCESS

Advisory Council on Historic Preservation

Advocates for New Jersey History

Aramark, Inc.

Battery Park City Broadsheet

Circle Line Statue of Liberty-Ellis Island Ferry, Inc.

Guides Association of New York

Jersey City Office of Economic Development

Liberty Science Center

Liberty Sate Park

Liberty State Park Development Corporation

New Jersey Department of Environmental Protection-Natural Heritage Program

New York Landmarks Conservancy

Preservation New Jersey

Save Ellis Island! Inc.

U.S. Department of the Interior, Fish and Wildlife Service

MAILING LIST

Federal, state, and local government agencies; organizations; and special interest groups will be notified by mail of the availability of this document. During the course of agency consultations and numerous public meetings, the National Park Service has tracked all contacts and also has included individuals who requested they be on the mailing list, or requested a copy of this *Development Concept Plan / Draft Environmental Impact Statement.* The "Executive Summary" for this document is available on the park's website at http://www.nps.gov/elis. The entire document is also available on the park's website, plus the NPS planning web site which is http://www.planning.nps.gov.

FEDERAL AGENCIES

Advisory Council on Historic Preservation

National Marine Fisheries Service

National Trust for Historic Preservation

U.S. Army Corps of Engineers, New York District

U.S. Coast Guard

U.S. Environmental Protection Agency

U.S. Department of the Interior, Fish and Wildlife Service

U.S. Department of Transportation, Federal Highway Administration

STATE OF NEW JERSEY

New Jersey Department of Commerce and Economic Development

New Jersey Department of Environmental Protection

- Division of Parks and Forestry
- Historic Preservation Office
- Land Use Regulation Program
- Natural Heritage Program
- Office of Coastal Planning and Program Coordination

New Jersey Department of Parks and Recreation

New Jersey Department of Transportation

New Jersey Economic Development Authority

New Jersey Transit

STATE OF NEW YORK

Department of Economic Development

Department of Environmental Conservation

Department of Parks and Recreation

Department of State

Division of Tourism

Department of Transportation

Historic Preservation Office

ELECTED OFFICIALS

Governor James McGreevy

Governor George Pataki

Senator John Corzine

Senator Frank Lautenberg

New York City Mayor Michael Bloomberg

Jersey City Mayor Glenn Cunningham

CITY AND COUNTY AGENCIES

Battery Park City Authority

City of Jersey City

Hudson County

Hudson County Department of Engineering and Planning

Jersey City Economic Development Commission

Jersey City Traffic Department

Manhattan Borough President's Office

New York City Convention and Visitor's Bureau

New York City Department of Consumer Affairs

New York City Department of Environmental Protection

New York City Department of Parks and Recreation

New York City Department of Planning

New York City Department of Transportation

New York City Department of Transportation, Region 11

Port Authority of New York and New Jersey

Organizations and Special Interest Groups

Advocates for New Jersey History

American Institute of Architects

Historic Building Committee
New Jersey Preservation of Historic Resources Committee

American Institute of Architects, New Jersey Chapter

Coalition for Liberty State Park

Community Board #1 of New York City

Committee for the New York Bight

Council on the Environment of New York

Environmental Action Coalition

Environmental Defense Fund

Friends of Liberty State Park

Guides Association of New York City

Guides Association of New York State

Hudson County Chamber of Commerce

Hudson County Cultural Affairs

Hudson County Planning and Economic Development

Hudson River Waterfront Conservancy

Jersey City Historical Society

League of Women Voters for New York City

Liberty Park Guardian Association

Liberty Science Center

Liberty State Park Commission

Liberty State Park Development Corporation

Lower Manhattan Cultural Council

Maritime Association

Meadowlands Regional Chamber of Commerce

New Jersey Chamber of Commerce

New Jersey Historical Society

New Jersey Landmarks Conservancy

New Jersey League of Historic Societies

New Jersey Municipal Arts Society

New York City Audubon Society

New York City Chamber of Commerce

New York City Downtown Alliance

New York City Economic Development Corporation

New York City Landmarks Preservation Commission

New York City Office of Economic Development

New York Historical Society

New York Landmarks Conservancy

New York League of Conservation Voters

New York Municipal Arts Society

Parks Council

Preservation New Jersey

Regional Plan Association

Save Ellis Island! Inc.

Sierra Club (New York and New Jersey chapters)

Statue of Liberty/Ellis Island Foundation

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Years of Experience: 17

Appendixes

APPENDIX A: SCOPING MEETINGS SUMMARY FOR THE DEVELOPMENT CONCEPT PLAN / DRAFT ENVIRONMENTAL IMPACT STATEMENT

The National Park Service held scoping meetings on this *Development Concept Plan / Draft Environmental Impact Statement*. Forty-four people attended the three meetings. During the three public forums, people's concerns, issues, and ideas were recorded on flip charts and are summarized below.

***December 6, 2000* – Meeting was held at the New Jersey Department of Environmental Protection in Trenton, NJ; 13 people attended.**

State Historic Preservation Office

- Preservation and stabilization
- Honoring history
- Access for all (affordable)
- Self-sustaining economically
- Majority of New Jersey residents feel strongly about Ellis Island
- Rehabilitate rather than restore
- Recognize public health role
- International conference center
- Regional history conference center

Liberty State Park Development Corporation

- "Blessed plots"
- Supports Governor's report
- 8 million immigrants from railroad terminal
- Link development and history of park with Ellis Island
- Access/parking/transportation/mass transit concerns
- Signage program in place
- Jersey City = exciting destination
- Pedestrian land bridge
- Support for waterborne access for visitors to preserve immigrant experience
- Bridge: affordable and considerate of Liberty State Park

New Jersey Governor's Advisory Committee

- Respectful of history
- Economically viable/sustaining
- Save Ellis Island! Inc. to work with NPS to secure money for rehabilitation of south-side buildings
- Must be saved now

New Jersey Department of Health

- Unique role in the history of public health
- Public Health Learning Center
  - Screening
  - Treatment
  - Individual health
- "Living History"
- Disease-reducing technology
- Education
- National venue
  - History of health care
  - National/global awareness
  - Interactive opportunities
  - Repeat visits
  - Artifacts that support themes

Liberty Science Center

- "Reflection and inspiration" for others
- Cluster of unique attractions
  - Statue of Liberty
  - Ellis Island
  - Liberty Science Center (most visited in New Jersey)
- Thematically linked attractions
- One-third of visitors to harbor area start in New Jersey
- Planning must include traffic/access/parking/etc. in Liberty State Park area
- Carrying capacity of Ellis Island
- Natural disaster studies
- Supports quality of research in the December 1999 report to the governor
- U.N.E.S.C.O site potential; could help to expedite the planning process

Other Comments

- Permanent bridge
- Center of Immigrant Contributions
- Ellis Island International Conference Center; revenue to support other uses
- Public Health Learning Center
- Conservation and Preservation Center
- Regional History Center (New Jersey and New York)

***December 7, 2000* – Meeting was held at the Ellis Island Main Building; 16 people attended.**

Preservation of New Jersey

- "Going well so far"
- Supports Governor's report
- Investment tax credit/long-term lease
- New financial partnership?
- Access (particularly from New Jersey)
- Land use relationship
- Emergency response
- Long-term maintenance ($!)

Other Comments

- Is section 106 included?
- Is a section 4(f) statement required?
- What is the overall plan?
- Will existing uses remain?
- NPS response:
  - There currently is no plan
  - The exteriors will be preserved
  - Interiors will be rehabilitated and adaptively reused
- Health museum potential? Other uses should be limited to historical resonance
- Does Ellis Island currently get enough visitors via New Jersey?
- NPS response: needs to be studied seriously in accordance with the New Jersey Governor's report

***December 7, 2000* – Meeting was held at the Customs House, New York City; 15 people attended.**

New York Landmarks Conservancy

- South-side buildings and Baggage and Dormitory Building
- Stabilization = time to plan
- Highest preservation standards
- No demolition and minimal new construction
- Economically feasible in the broadest terms
- Interpretative issues paramount
- Excellence in design
  - "Green" design
  - Life safety

  - *Americans With Disabilities Act*

- Transportation study (all modes)
  - Bridge

- Accurate cost estimates
  - Capital and operational
  - Reflect inflation, etc.

Other Comments

- Immigration museum only for certain time period?
- NPS response: there will be potential to increase interpretive experiences on south side; diversity of theme
- Public health theme?
- "Institutional architecture" a growing interest; chance to show the "darker side" of immigrant experience
- Look at larger view of immigration history (present and past)
- BBB: public groups to use time now to develop possible reuse ideas
- South-side = "story of healing" (i.e., should not be too much emphasis on "darker side")
- "New York versus New Jersey"
- NPS response: have been working with both sides toward similar goals
- Public should voice opinion regarding the "evocative spaces" (e.g., view from psychiatric wards)
- "Preserving the Ghosts" was part of the New Jersey governor's report
- Documentation of existing conditions?
  - NPS: currently documenting the stabilization progress; updates on the website
  - BBB: completed Historic Structure Report in late-80s; full documentation on six buildings and partial documentation on the remaining
- Oral history (immigrants and employees)
  - NPS: currently has a program and is hoping to expand
- Oral history available online? Good idea for schools.
  - NPS: there is potential to expand with the technology
- Library of Congress Digital Collections?
  - "American Memory Program"
  - www.loc.gov
- Ws medical area used for immigrants only? (seamen too?)
  - BBB: was used for military circa 1919
- Any opportunities for volunteerism?
  - Yes, but it's specialized
  - Lots of opportunities...

- What are some of the reuse ideas?
- New Jersey governor's report response:
  - "Nation of immigrants"
  - Center for Immigration and Ethnic Learning
  - Public Health focus
  - International Conference Center
  - National Historic Preservation Center
  - Regional history context
  - Respect history
  - Better access to the south side
  - Economic sustainability
- Buildings important as a whole
- NPS: there are a number of "character defining" spaces that suggest interpretive experience (e.g., mortuary, autoclave)
- "Stabilization as a relic" related to economic viability
- RFP: must get interested parties to embrace preservation qualities
- Federal government to be the decision maker
- The National Park Service should tell the story of New Jersey / New York conflict as part of exhibits
- Similar issues at Governors Island
  - Transportation
  - Competition of uses
- NPS: looking at all parks in the harbor; common interpretive themes
- Need for understanding immigration on both coasts (i.e., national)
- Dialogue with other areas, which are less expensive to visit (e.g., Fire Island)
- Circle Line only?
  - NPS: currently exclusive, but expires in 2004; therefore, will open the competition

APPENDIX B: LETTERS TO STATE HISTORIC PRESERVATION OFFICES AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

December 6, 2000

Don Klima, Director
Office of Planning and Review
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Attn: Ms. Martha Catlin

Dear Ms. Catlin:

The National Park Service is preparing a Development Concept Plan (DCP) for the rehabilitation of 29 historic buildings located on the south side of Ellis Island and the Baggage and Dormitory building on the north side. This plan will establish the criteria for evaluating development proposals for these historic buildings and also evaluate alternative modes of appropriate, safe, and economically viable access to Ellis Island to utilize the rehabilitated facilities.

Pursuant to 36 CFR 800.8 (a)(3)(c), providing for early coordination of section 106 with the NEPA process, the park is notifying the Council for the intention to prepare an Environmental Impact Statement (EIS) and to use this document and the NEPA process in lieu of the procedures set forth in Sec. 800.3 through 800.6 for the stabilization of these historic buildings on Ellis Island and evaluating safe, affordable access.

The park intends to prepare the EIS so that it meets the standards described in 36 800.8(a)(3)(c)(1) and to submit the EIS to consulting parties prior to making the document available for public review.

The public meetings scheduled for December (see attached schedule) are scoping meetings to begin the public review process and provide the initial public involvement.

Thank you for your continued support for the Statue of Liberty National Monument and Ellis Island.

Sincerely,

(*signed*) Cynthia R. Garrett

Diane H. Dayson
Superintendent

Cc: Commissioner Bernadette Castro
Dorothy Guzzo
Paul Weinbaum

Attachment

December 6, 2000

Ms. Dorothy P. Guzzo
Administrator
State of New Jersey
Department of Environmental Protection
Division of Parks and Forestry
Historic Preservation Office
CN-404
Trenton, NJ 08625-0404

Dear Ms. Guzzo:

The National Park Service is preparing a Development Concept Plan (DCP) for the rehabilitation of 29 historic buildings located on the south side of Ellis Island and the Baggage and Dormitory building on the north side. This plan will establish the criteria for evaluating development proposals for these historic buildings and also evaluate alternative modes of appropriate, safe, and economically viable access to Ellis Island to utilize the rehabilitated facilities.

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The public meetings scheduled for December (see attached schedule) are scoping meetings to begin the public review process and provide the initial public involvement.

Thank you for your continued support for the Statue of Liberty National Monument and Ellis Island.

Sincerely,

(*signed*) Cynthia R. Garrett

Diane H. Dayson
Superintendent

Cc: Commissioner Bernadette Castro
Paul Weinbaum
Martha Catlin

Attachment

December 6, 2000

Commissioner Bernadette Castro
New York State Office of Parks
Recreation and Historic Preservation
Peebles Island
P.O. Box 189
Waterford, New York 12188-0189

Dear Commissioner Castro:

The National Park Service is preparing a Development Concept Plan (DCP) for the rehabilitation of 29 historic buildings located on the south side of Ellis Island and the Baggage and Dormitory building on the north side. This plan will establish the criteria for evaluating development proposals for these historic buildings and also evaluate alternative modes of appropriate, safe, and economically viable access to Ellis Island to utilize the rehabilitated facilities.

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The public meetings scheduled for December (see attached schedule) are scoping meetings to begin the public review process and provide the initial public involvement.

Thank you for your continued support for the Statue of Liberty National Monument and Ellis Island.

Sincerely,

(*signed*) Cynthia R. Garrett

Diane H. Dayson
Superintendent

Cc: Dorothy Guzzo
Paul Weinbaum
Martha Catlin

Attachment

Appendix C

Draft

Analysis of Relative Financial Feasibility and Economic Sustainability of EIS Alternatives

August 26, 2002

BACKGROUND, PURPOSE AND DEFINITION

During 1999 and 2000, Sedway Group assisted the NPS, the Statue of Liberty Ellis Island Foundation (SLEIF) and Save Ellis Island! (SEI!) in an examination of the market and financial feasibility of numerous proposed reuses for a group of historically significant, but badly deteriorating buildings on Ellis Island. At that time, six proposed reuses were defined, and then arrayed in different combinations in three alternative development scenarios, or Options. At that time, NPS architects, working with expert cost estimators and engineers, attempted to fit the three Options into the historic structures, specifying particular uses in particular locations. Once workable site plans and layouts were formulated, they were costed out and became the basis for the costs assumed in the financial feasibility analysis. The purpose of that analysis was to determine the relative financial feasibility of those reuse options. The conclusions of these analyses were presented in Sedway Group's February 15, 2000 report, "Ellis Island Reuse Study, Phase 3-4 Workshop Financial Feasibility of Reuse Options," and in a subsequent August, 2000 report to Cynthia Garrett. Variants of those reuse options are the basis for the current EIS alternatives.

The purpose of this analysis is to examine the relative financial feasibility and economic sustainability of the various EIS alternatives. For the purposes of this analysis and discussion, it is worth noting exactly what is meant, and not meant, by financial feasibility and economic sustainability in this context.

In a conventional private development scenario, a project is considered financially feasible if the amount of net income or revenue generated by the project justifies the amount of investment required to build it, based on the developer/investor's investment criteria. For example, if a developer's investment criterion were a 12% return on costs, then the justified investment for a project that is expected to generate $12 million in net operating income, would be $100 million. In recent years, such "threshold" returns across the country have generally been in the 8-14% range depending on the location, type of project and perceived risk of a given project. The higher the risk, the higher would be the threshold return requirement.

In this conventional context, financial feasibility and economic sustainability are essentially synonymous.

Given the extraordinary costs of rehabilitating the historic structures on Ellis Island, as well as the limits on what are considered appropriate uses, it is not anticipated that any of the defined EIS Options would be financially feasible from such a conventional, private investment perspective – meaning that profit-motivated investors and/or lenders would be interested in providing the needed capital for the entire reuse program. This was certainly the case in the earlier financial feasibility analysis, which anticipated a potential capital shortfall on the order of $150 million (Phase 5: Laying a Foundation for the Future, August 2000). However, here, as in that analysis, a different, broader notion of financial feasibility or economic sustainability is employed; and one in which the feasibility of raising the necessary capital to construct, may be largely separated from the issue of sustaining the operations once built.

In this context, a project can be considered potentially feasible if, through a combination of actual project revenues and public/private sector fundraising, it can generate sufficient capital funds for its construction, <u>and</u> enough ongoing revenue to sustain its operation. In the earlier analysis, it was concluded that approximately 15% or $25-30 million of the redevelopment cost could be generated from conventional private sources; and that the chances of raising the balance based on the attractiveness and power of the reuse ideas and concepts were reasonably good. The same approach is used here in order to evaluate the relative financial feasibility and economic sustainability of the Options.

In this EIS analysis, Sedway Group has been asked to analyze the relative financial feasibility of two reuse alternatives that were among those reviewed in the earlier reuse analysis. Whereas the previous financial feasibility analysis allocated specific uses to each building, the options examined in the EIS are more conceptual in nature, and the uses are not programmed to specific buildings. Rather, the uses defined in the EIS are non-location specific in order to allow for maximum flexibility for future redevelopment.

Many of the assumptions used in the analysis are based on the August 2000 feasibility analysis, updated based on changes in market conditions, construction costs, and general inflation, as appropriate. Development costs used in the previous analysis were updated and peer-reviewed by Federman. The rehabilitation cost of the Baggage and Dormitory building was re-estimated by Federman, since the earlier work had assumed that the cost of the basic structural rehabilitation work on the B&D Building was to have been paid by the Celebration of the American Family Project.

The following briefly summarizes the assumptions, methodology and conclusions of the analysis.

SUMMARY OF REUSE ALTERNATIVES

Exhibit 1 lists the buildings included in the analysis. The inventory includes all of the buildings on Islands 2 and 3 and the Baggage and Dormitory (B&D) building on Island 1, for a total of 309,755 square feet. For purposes of this feasibility analysis, it is assumed that all of this space is renovated for adaptive reuse, even if there are not yet specific identified uses for all the space.

The EIS considers three alternatives: a No Action Alternative and two Reuse Alternatives. The two reuse options are described as Alternative 2: Ellis Island Partners; and Alternative 3: Ellis Island Retreat Center. The financial feasibility of Alternative 1, No Action, was not analyzed because it is, by definition, unsustainable in that the structures will eventually deteriorate to the point where they will become a hazard and be taken down, constituting a loss of the resource.

The uses programmed in each of the reuse alternatives are as follows:

> *Cultural/Education/Interpretive Uses*: areas set aside for strict interpretation and minimal, but authentic restoration; a bundle of Cultural and Educational program facilities which are anticipated to include permanent exhibit space, substantial space for temporary exhibits and shows, indoor and outdoor space for a range of "themed festivals", related classroom, meeting and office spaces, and a small theater.
>
> *Hotel/Retreat Center*: A 250-room high-end retreat and conference center with 25,000 square feet of meeting facilities and a 10,000 square foot dining facility.

An additional use, not included in our previous analysis, is described as:

> *Non-Profit/Institutional Office and Program Uses*: 225,000 square feet set aside as a campus of non-profit and institutional uses that compliment the historic themes of Ellis Island. Approximately 115,000 square feet would be used as office and administrative space by non-profit organizations affiliated with Ellis Island Partners, with the balance of the space for other non-profit or institutional program uses.

Exhibit 2 summarizes the development program for each Alternative. As indicated, all of the redeveloped spaces in both alternatives are planned for reuse. The amount of cultural/educational/interpretive space in Alternative 3 (84,695 square feet) was estimated by first determining the space required for the 250 room hotel/retreat center (225,000 square feet) and subtracting this from the total redeveloped building area (309,755 square feet). This amount of cultural/educational use is of the same order of magnitude as the roughly 71,000 sf of such space identified in the earlier study.

The same amount of cultural/educational/interpretive space (84,695 square feet) was assumed for Alternative 2. The balance of the space (225,060 square feet) would be used for non-profit and institutional uses, with about half of the space used as office and administrative space, with the balance reserved for other non-profit/institutional uses.

Whereas the previous analysis assumed a reuse program with specific uses assigned to each building, this analysis assumes that the building program will be accommodated in some combination of buildings, without being specific.

SUMMARY OF KEY ASSUMPTIONS

Key Revenue Side Assumptions - The level of operating revenues is assumed to be derivative of 1) the inherent demand for a particular activity, e.g. the fees paid for Hotel/Retreat Center; or rent paid by non-profits for office space; and 2) the existing and anticipated level of visitation at Ellis, e.g. that a certain percentage of visitors will elect to pay for the guided audio tour; or will want to patronize a special traveling exhibit, etc.

Key Cost Side Assumptions - Development costs for all elements except for a small portion of the "cultural/educational/interpretive" component are based on rehabilitation for "adaptive reuse", rather than strict historic restoration. The building shell and core costs were estimated for each building individually and then aggregated to calculate a weighted average per square foot cost for all buildings included in the analysis. This same weighted average cost per square foot is applied to the square footage required for each component in each alternative. Thus, both alternatives have the same shell/core and infrastructure/site work development costs. The differences between costs in the two alternatives is due to varying interior finishing costs associated with the different uses programmed in each alternative.

Attendance Assumptions - It is assumed that Ellis Island's visitation will increase both absolutely and relative to that of the Statue of Liberty, as additional venues and activities become available on the Island. The attendance projections are based on those in our previous analysis for 2005, the presumed year of stabilized operations. Annual visitation to Ellis Island in 2005 is projected at 2.526 million. The figure has not been adjusted post-September 11 to reflect possible mandated restrictions on visitation to the Island.

Programmed Space for Cultural/Educational/Interpretive Uses. Both Alternatives 2 and 3 include the same amount of space (84,695 square feet) dedicated to these uses. This is approximately equivalent to the space needs for these uses in our February 2000 analysis (71,000 square feet for cultural/education/exhibition and 12,555 for the "Sanctuary of Souls"). This analysis assumes similar programmed elements for these cultural/educational/interpretive uses as did the previous analysis.

"Non-Programmed" Non-Profit Space. Alternative 2 includes a significant amount of space (110,060 square feet) with no specific defined use. The analysis assumes that this space will require the same shell and core renovation standards as the other programmed space. Even though there are not presently identified programs to use all the space, an interior finishing cost equivalent to the cultural/education/interpretive costs are included in the analysis for analytical purposes.

ESTIMATES OF DEVELOPMENT COSTS AND OPERATING ASSUMPTIONS

A. Alternative 2 (Ellis Island Partners)

Alternative 2 includes 84,695 square feet of cultural/educational/interpretive uses, and 225,060 square feet of non-profit/institutional space comprised of 115,000 square feet off office space and the balance for other non-profit uses.

Alternative 2 Capital Costs

The overall cost of Alternative 2 is estimated to be $155.6 million, or about $502 per square foot. These costs do not include the costs of needed off site infrastructure or landscaping and site development, which are estimated at $22.5 million, indicating a total development cost of this alternative of $178.1 million. The estimated cost of developing these uses and programs is summarized by program component in Exhibit 3. The detailed assumptions supporting this summary are provided on page 1 of Exhibits 7 and 8 for the non-profit and cultural/educational facilities, respectively. Detailed shell and core and interior finishing costs are provided in Exhibits 11 and 12, respectively.[1]

Interior finishing costs for the office component of the non-profit space are based on a cost of $36 per square foot, to provide interior walls, carpeting, lighting, bathrooms, etc. This cost includes an "island premium" of 20 percent of costs to account for the additional construction costs associated with the remote location. The cultural/educational/interpretive finishing costs of $93 per square foot includes permanent and temporary exhibition space, educational/cultural space, theater, and hardware and software for the interpretive space. This interior finishing cost per square foot is also assumed for the un-programmed non-profit/institutional space, for analytic purposes.

Alternative 2 Operating Projections

Exhibit 3 summarizes operating results by component, while page 2 of Exhibits 7 and 8 provide more detailed operating projections for the non-profit and cultural/educational facilities, respectively. Briefly, these very preliminary projections indicate that:

- The Office component of the non-profit/institutional facility can be expected to generate a net operating income of about $2.0 million per year, based on an annual NNN lease rate of $18 per square foot paid by the non-profit organizations occupying the space. This

[1] Even more detailed supporting shell and core cost information for both alternatives is available in the January 27, 2000 "Ellis Island South Side Rehabilitation Cost Estimate prepared by the NPS in association with Hanscomb Inc (cost estimators) and Einholm Yaffee Prescott (architects and engineers). These cost estimates have been inflated to 2002 dollars, based on construction cost inflation experienced in the New York/New Jersey market area, and peer reviewed for reasonableness by Federman (cost estimators).

income could justify investment of about $18.6 million, about 35 percent of the estimated development cost of this component of the non-profit facility.

- No revenue is assumed for the 110,000 square feet of non-programmed space associated with the non-profit facility. However, the cost to finish out the interior of this space to a relatively high standard ($93 per square foot) is included in the analysis. Future uses could potentially generate some income to offset a portion of these costs.

- The Cultural/Educational/Interpretive programs, if well produced and operated, could generate operating surpluses in the order of $1.0 million annually, but not nearly enough to justify conventional financing of the development costs (see page 2 of Exhibit 8). It represents a diverse set of proposed uses (most of which are very conceptual) that often require subsidies. The predominant experience around the country has been such that a break-even would probably be considered a success. Due to these factors, we have not assumed that the projected operating surplus would actually be realized in this analysis. *It is important to note that this component is the same in both EIS alternatives; hence this conservative assumption does not affect their relative feasibility.*

B. Alternative 3 (Ellis Island Retreat Center)

Alternative 3 features a 250-room conference hotel in 225,060 square feet and 84,695 square feet of cultural/educational/interpretive uses.

Alternative 3 Capital Costs

The overall cost of Alternative 3 is estimated to be $146.9 million, or about $474 per square foot. These costs do not include the costs of needed off site infrastructure or landscaping and site development, which are estimated at $ 22.5 million, indicating a total development cost of this alternative of $169.5 million. The estimated cost of developing these uses and programs is summarized by program component in **Exhibit 3**. The detailed assumptions supporting this summary are provided on page 1 of Exhibits 8 and 9. Detailed shell and core and interior finishing costs are provided in Exhibits 11 and 12.

Interior finishing costs for the hotel/conference center include state of the art telephony, conferencing, and Internet communications, with the lodging, dining and meeting areas assumed to be finished out and furnished to a high quality standard. The cultural/educational/interpretive finishing costs include permanent and temporary exhibition space, educational/cultural space, theater, and hardware and software for the interpretive space.

Alternative 3 Operating Projections

Exhibit 3 summarizes operating results by component, while page 2 of Exhibits 8 and 9 provide more detailed operating projections for the non-profit and cultural/educational facilities, respectively. Briefly, these very preliminary projections indicate that:

- The Hotel/Conference component can be expected to generate a net operating income of $4.8 million per year, which could justify private investment of about $48 million, about half of its estimated development cost.

- The Cultural/Educational/Interpretive programs, if well produced and operated, could generate operating surpluses in the order of $1.0 million annually, but not nearly enough to justify conventional financing of the development costs (see page 2 of Exhibit 8). It represents a diverse set of proposed uses (most of which are very conceptual) that often require subsidies. The predominant experience around the country has been such that a break-even would probably be considered a success. Due to these factors, we have not assumed that the projected operating surplus would actually be realized in this analysis. *It is important to note that this component is the same in both EIS alternatives; hence this conservative assumption does not affect their relative feasibility.*

FINANCIAL FEASIBILITY IN THE ELLIS ISLAND CONTEXT

Neither of the Alternatives (at least as presently defined) would justify investment of private, profit-driven capital in sufficient amounts to completely pay for the capital costs of the rehabilitation for adaptive reuse. The "order of magnitude" results presented in Exhibits 3, 4, 5 and 6 can be summarized as follows:

1. The estimated rehabilitation costs of the two reuse alternatives, including site work, landscaping, and infrastructure (gas water, sewer electric, telecommunications), range from about $169 million to $178 million (see Exhibits 3 and 4).

2. The only components that should be expected to secure some level of conventional private financing are the Hotel/Conference Center and the office component of the non-profit facility.

3. If the project as defined in Alternative 3 (Ellis Island Retreat Center) were to qualify for historic tax credits, that could effectively reduce the total cost by about $16.4 million, or about 9.7% of the total $169.5 million cost (see Exhibit 4).

4. Because non-profit entities would occupy all of the space in Alternative 2, and they do not qualify for historic tax credits, tax credits associated with the preservation costs are not included in the analysis of Alternative 2.

5. The analysis assumes an annual net rental rate of $18 per square foot for the non-profit office space in Alternative 2, with these non-profit tenants also paying for all operating costs. This rate is based on current rates for Class B space in the Jersey City market area. If non-profit tenant rental rates are higher, the capital shortfall will be reduced. Likewise, lower projected rents or lower than projected demand for the space would increase the capital shortfall.

6. The most difficult component to estimate on an operating basis is the Cultural and Educational Facilities common to both alternatives. It represents a diverse set of proposed uses (most of which are very conceptual) that often require subsidies. The museum/exhibitions and the theater, if well programmed and marketed, are capable of generating significant revenue, as shown in the projections (Exhibit 8). However, the predominant experience around the country has been such that to break-even on an operating basis should probably be considered a success. As noted earlier, this conservative assumption is the same for both Alternatives.

7. Alternative 3 (Ellis Island Retreat Center), with an estimated $104.5 million capital shortfall, is likely to prove more financially sustainable than Alternative 2 (Ellis Island Partners), which has an estimated $159.5 million capital shortfall (see Exhibit 4). The capital shortfall is calculated based on the total development cost, less "investment value" of the revenue-generating uses, less any historic restoration tax credits. The investment value is calculated by assuming a 10 percent required investor return applied to the net income (net income/10% = investment value).

8. Sedway Group also estimated the hypothetical annual operating shortfall of the alternatives, assuming that all capital costs were conventionally financed. On an annual operating basis, Alternative 3's operating income is projected to cover about 40% of its debt service, producing a shortfall of $6.7 million annually. Alternative 2 is estimated to produce an annual shortfall of $10.3 million, with income covering about 15% of the annual debt service (see Exhibit 5). This estimated annual shortfall assumes 70% of the development costs are financed; the annual shortfall would be even more pronounced if all of the costs were financed. *It is important to note that this analysis is for comparative analytic purposes. In reality, it is probable that only a portion of the project's capital costs (the revenue-generating uses) would be conventionally financed, and that the balance of the capital costs would be covered by philanthropic donations, grants, and public sector appropriations.*

9. To reflect this more likely scenario, Sedway Group also estimated the hypothetical annual operating shortfall of the alternatives, <u>assuming only the capital costs associated with the income-generating uses (non-profit office in Alternative 2 and hotel/conference in Alternative 3) were conventionally financed (see Exhibit 6)</u>. In this scenario, the balance of the capital costs (for non-programmed non-profit space and cultural/education space) are assumed to be covered by philanthropic donations, grants, public sector appropriations, totaling $124.5 million in Alternative 2, and $66.9 million in Alternative 3. On an annual operating basis, Alternative 3's operating income is projected to cover about 70% of its debt service, producing a shortfall of $2.1 million annually. Alternative 2 is estimated to produce an annual shortfall of $1.8 million, with income covering about 51% of the annual debt service (see Exhibit 6). The results of this analysis indicate that income is insufficient to cover the debt service on the cost of building only the income-generating space. This estimated annual shortfall assumes 70% of the development costs are financed; the annual shortfall would be even more pronounced if all of the costs were financed.

10. Sedway Group also estimated the operating shortfall <u>assuming only the *interior finishing* costs</u> associated with the income-generating uses (non-profit office in Alternative 2 and hotel/conference in Alternative 3) were conventionally financed. On an annual operating basis, Alternative 3's operating income would more than cover the debt service associated with the $5.8 million interior finishing cost, leaving a surplus of $4.4 million, which could be used to pay for a portion of the hotel/conference space capital costs. Leveraging the annual $4.4 million surplus implies a $46 million loan could be supported.[2] On an annual operating basis, Alternative 2's operating income would more than cover the debt service associated with the $4.1 million interior finishing cost, leaving a surplus of $1.6 million, which could be used to pay for a portion of the non-profit office space capital costs. Leveraging the $1.6 million surplus implies support of about a $16.3 million loan.

[2] Assuming 100% debt service coverage ratio, 9% interest rate and a 30-year loan.

Our analysis indicates that either alternative would require a major capital campaign for their development costs; and probably some level of operating subsidy. These are major funding gaps that will have to be dealt with through a range of private and public funding mechanisms.

Exhibit 1
Building Inventory Summary
Ellis Island EIS

#	Building	Building Area Square Feet
Island 1 Buildings		
7	Baggage and Dormitory	125,000
	Sub-total - Island 1	125,000
Island 2 Buildings		
17	Ferry Building	4,800
20	Laundry Building/Hosp. Outbldg.	3,967
21	Psychopathic Ward	2,814
22	Main Hospital Building	33,604
23	Administration Building	14,969
24	New Hospital Extension	29,441
25	Interactive Theater - Rec. Building	6,300
26	Shelter - Circulation, Support	320
	Sub-total - Island 2	96,215
Island 3 Buildings		
27	Morturary	247
28	Powerhouse and Laundry	7,330
29	Office Building and Lab	2,143
30	Measles Ward G	4,978
31	Measles Ward E	4,978
32	Measles Ward C	4,978
33	Measles Ward A	4,978
34	Measles Ward B	4,978
35	Measles Ward D	4,978
36	Measles Ward F/J	4,978
37	Measles Ward H	4,978
38	Kitchen	1,002
39	Admin Building/Nurses Quarters	12,090
40	Isolation Ward 27/28	7,213
41	Isolation Ward 31/32	7,213
42	Isolation Ward 29/30	7,213
43	Staff House	4,265
	Sub-total - Island 3	88,540
	TOTAL	**309,755**
	Total Excluding B&D Building	184,755
Passageways		
	Total Island 2 and 3 Pasageways	14,426

Sources: National Park Service; Beyer Blinder Belle; Sedway Group.

Exhibit 2

Ellis Island EIS

SUMMARY of EIS Alternatives

Component	Ellis Island Partners Alternative 2	Ellis Island Retreat Center Alternative 3
Hotel/Conference Facility		
Size (Gross Sq.Ft.)	NA	225,060
Total Lodging Rooms	NA	250
Non-Profit/Institutional Uses		
Office/Administrative Space	115,000	
Non-Programmed Space	110,060	
Total Size (Gross Sq.Ft.)	225,060	NA
Cultural/Education/Interpretive		
Size (Gross Sq.Ft.)	84,695	84,695
Total Developed Program Space	309,755	309,755
Passageways		
Size (Gross Sq.Ft.)	14,426	14,426

See Exhibit 10 for detail.

Sources: National Park Service; Hanscomb Inc.;Beyer Blinder Belle; Sedway Group.

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Exhibit 3

Ellis Island EIS
SUMMARY of DEVELOPMENT PROGRAM, DEVELOPMENT COSTS, and OPERATING REVENUE

Component	Ellis Island Partners Alternative 2	Ellis Island Retreat Center Alternative 3
Hotel/Conference Facility		
Size (Gross Sq.Ft.)	NA	225,060
Total Lodging Rooms	NA	250
Total Development Cost	NA	$102,623,874
Cost Per Sq.Ft.	NA	$456
Cost Per Room	NA	$410,495
Net Operating Income (NOI)	NA	$4,855,040
NOI as % of Development Cost	NA	4.7%
Cultural/Education/Interpretive		
Size (Gross Sq.Ft.)	84,695	84,695
Total Development Cost	$44,349,225	$44,349,225
Cost Per Sq.Ft.	$524	$524
Operating Surplus/Deficit (1)	$0	$0
Non-Profit/Institutional Uses		
Office/Administrative Space		
Size (Gross Sq.Ft.)	115,000	NA
Total Dev. Cost	$53,625,772	NA
Cost Per Sq.Ft.	$466	NA
Net Operating Income (NOI)	$1,863,000	NA
NOI as % of Development Cost	3.5%	NA
Non-Programmed Space		
Size (Gross Sq.Ft.)	110,060	NA
Total Dev. Cost	$57,631,274	NA
Cost Per Sq.Ft.	$524	NA
Operating Surplus/Deficit	$0	NA
TOTAL (Excl. Infrastructure)		
Total Developed Space (Gross Sq.Ft.)	309,755	309,755
Total Dev. Cost (excl. infrastructure & site)	$155,606,271	$146,973,099
Net (of Infrastructure) Dev. Cost per Sq.Ft.	$502	$474
Total Operating Surplus/Deficit	$1,863,000	$4,855,040
Infrastructure and Site Work		
Site Prep, Site Development, Landscaping	$11,369,066	$11,369,066
Infrastructure (gas,water,sewer,elec,phone)	$8,792,732	$8,792,732
Heating and Cooling	$2,344,446	$2,344,446
Total Infrastructure Development Cost	$22,506,244	$22,506,244
Total Cost Including Infrastructure	**$178,112,515**	**$169,479,343**

(1) Although net income for these facilities is estimated at about $1.0 million per year, typical experience for these types of operations is break-even at best. Thus, income for the cultural/educational/interpretive facilities is assumed to be $0.

Sources: National Park Service; Hanscomb Inc.;Beyer Blinder Belle; Sedway Group.

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Exhibit 4

Ellis Island EIS
ESTIMATED CAPITAL SHORTFALL

Component	Estimated Total Cost	Less Investment Value (1)	Less Tax Credits (2)	TOTAL CAPITAL SHORTFALL
Alternative 2: Ellis Island Partners				
Hotel/Conference Facility	NA	NA	NA	NA
Cultural/Education/Interpretive (3)	$44,349,225	NA	NA	$44,349,225
Non-Profit/Institutional Uses - Office/Admin	$53,625,772	($18,630,000)	NA	$34,995,772
Non-Profit/Instit. Uses - Non-Programmed	$57,631,274	NA	NA	$57,631,274
Infrastructure and Site Work	$22,506,244	NA	NA	$22,506,244
TOTAL ALTERNATIVE 2 (rounded)	**$178,113,000**	**($18,630,000)**	**$0**	**$159,483,000**
Alternative 3: Ellis Island Retreat Center				
Hotel/Conference Facility	$102,623,874	($48,550,397)	($16,463,791)	$37,609,686
Cultural/Education/Interpretive (3)	$44,349,225	NA	NA	$44,349,225
Non-Profit/Institutional Uses - Office/Admin	NA	NA	NA	$0
Infrastructure and Site Work	$22,506,244	NA	NA	$22,506,244
TOTAL ALTERNATIVE 3 (rounded)	**$169,479,000**	**($48,550,000)**	**($16,464,000)**	**$104,465,000**

(1) Investment value is estimated based on a 10% return applied to the hotel/conference facility and the office component of the non-profit/institutional use net operating income (NOI/10%).

(2) Tax credits estimated based on 20% of qualified development costs for the hotel/conference facility. It is assumed that the equity value of tax credits is based on a 15% discount.

(3) Although net income for these facilities is estimated at about $1.0 million per year, typical experience for these types of operations is break-even at best. Thus, income for the cultural/educational/interpretive facilities is assumed to be $0.

Sources: National Park Service; Hanscomb Inc.; Federman; Beyer Blinder Belle; Sedway Group.

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Exhibit 5

Ellis Island EIS

SUMMARY of DEVELOPMENT COSTS AND OPERATING REVENUE AND FINANCIAL FEASIBILITY ANALYSIS

Component	Estimated Total Cost (1)	Estimated Annual Operating Income (1)	Return on Cost (2)	Estimated Annual Debt Service (3)	Estimated Annual Shortfall (4)
Alternative 2: Ellis Island Partners	$178,112,515	$1,863,000	1.0%	$12,135,776	($10,272,776)
Alternative 3: Ellis Island Retreat Center	$169,479,343	$4,855,040	2.9%	$11,547,551	($6,692,511)

General Note: The purpose of this analysis is to demonstrate, analytically, the relative feasibility of the two alternatives from a conventional real estate perspective. That is to say, the analysis calculates and compares the ratio of revenues to development cost, and conventionally financed debt service hypothetically supported by the project. In reality, it is likely that only the revenue-generating component (hotel/conference and non-profit office) capital costs could be conventionally financed, with the balance of the space's capital costs covered by philanthropic donations, grants, appropriations, etc. Thus, the analysis presented above is only for comparative analytic purposes, and

components of each alternative.

(1) See Exhibit 3.
(2) Typical private investment return on cost threshold is 9% to 13%.
(3) Hypothetical debt service is estimated based on the following parameters:

Loan to Cost Ratio	70.0%	of entire project cost
Interest Rate	9.0%	
Term (years)	30	

(4) Difference between debt service and annual operating income.

Sources: National Park Service; Hanscomb Inc.; Federman; Beyer Blinder Belle; Sedway Group.

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Exhibit 6

Ellis Island EIS
SUMMARY of DEVELOPMENT COSTS AND OPERATING REVENUE AND FINANCIAL FEASIBILITY ANALYSIS
(Revenue-Generating Uses Only)

Component	Estimated Total Cost (1)	Estimated Annual Operating Income (1)	Return on Cost (2)	Estimated Annual Debt Service (3)	Estimated Annual Shortfall (4)	Implied Amount Funded Through Philanthropy (5)
Alternative 2: Ellis Island Partners (Office/Administrative Space)	$53,625,772	$1,863,000	3.5%	$3,653,816	($1,790,816)	$124,486,743
Alternative 3: Ellis Island Retreat Center (Hotel/Conference Space)	$102,623,874	$4,855,040	4.7%	$6,992,323	($2,137,284)	$66,855,469

General Note: The purpose of this analysis is to demonstrate, analytically, the relative feasibility of the two alternatives from a conventional real estate perspective. In this analysis, only the revenue-generating uses are analyzed, assuming that these uses could be conventionally financed due to their income-generating potential. This analysis assumes that the balance of the space is funded through philanthropic donations, grants, appropriations, etc.

(1) See Exhibit 3. Includes only the revenue-generating uses (non-profit office in Alternative 2, and hotel/conference in Alternative 3).
(2) Typical private investment return on cost threshold is 9% to 13%.
(3) Debt service is estimated based on the following parameters:

Loan to Cost Ratio	70.0%
Interest Rate	9.0%
Term (years)	30

(4) Difference between debt service and annual operating income.
(5) Difference between total development cost and cost of revenue-generating space.

Sources: National Park Service; Hanscomb Inc.; Federman; Beyer Blinder Belle; Sedway Group.

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Exhibit 7
Ellis Island Non-Profit/Institutional Uses - Alternative 2
DEVELOPMENT COST ASSUMPTIONS

Assumption					Comments/Source
Physical Specifications					
Non-Profit/Institutional Uses - Office/Admin.				115,000	See Exhibit 2.
Non-Profit/Inst. Uses - Non-Programmed				110,060	
Total				225,060	
Development Costs					
Cost Component - Office/Admin.	Per Unit		Units	Total Cost	See Exhibits 10 and 11. Interior finishing costs for the non-office/admin space is assumed to be the same as the cost for the cultural/educational uses. Office TI cost includes an "island factor" cost premium of 20% Excludes financing cost, infrastructure, landscaping, heating and cooling allocation.
Shell Cost	$430	Per Sq.Ft.	115,000	$49,485,772	
Interior Finishing Cost - Office/Admin	$36	Per Sq.Ft.	115,000	$4,140,000	
Total Development Costs				$53,625,772	
Total Cost/Sq.Ft.				$466	
Cost Component - Non-Programmed	Per Unit		Units	Total Cost	
Shell Cost	$430	Per Sq.Ft.	110,060	$47,360,057	
Interior Finishing Cost - Non-Prog.	$93	Per Sq.Ft.	110,060	$10,271,217	
Total Development Costs				$57,631,274	
Total Cost/Sq.Ft.				$524	
Total Development Costs				$111,257,046	
Total Cost/Sq.Ft.				$494	
Historic Tax Credit Adjustment					
Qualifying Costs				$0	
Tax Credit (20% of qualified cost)				$0	
Net Equity Value of Tax Credit (85% of Tax Credit)				$0	
Net Total Development Cost				$111,257,046	
Net Total Cost/Sq.Ft.				$494	

Sources: Hanscomb; Federman; NPS; Sedway Group.

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Exhibit 7
Ellis Island Non-Profit/Institutional Uses - Alternative 2
OPERATING PROJECTIONS
(Page 2 of 2)

Assumption			Comments/Source
Operating Assumptions			
Revenue			Note: NNN rental rates are based on Jersey City Class B office building average lease rates, per CB Richard Ellis. Full service lease rates were converted to NNN terms and exclude property tax expenses, under the assumption that non-profit tenants would be exempt from taxes.
Non-Profit Office/Administrative Space (square feet)		115,000	
Annual NNN Rent per Sq.Ft.		$18.00	
Potential Gross Income		$2,070,000	
Operating Projections			
Revenues			
Potential Gross Income		$2,070,000	
Less Vacancy Loss	10.0%	($207,000)	
Total Annual Revenue		**$1,863,000**	
Expenses			
Operating Expenses		$0	Assumes that all operating expenses are the responsibility of the individual non-profit organizations occupying the space.
Total Expenses		**$0**	
Net Operating Income (NOI)		**$1,863,000**	
Percent of Net Development Cost		1.7%	
Capitalized Value of NOI at 10% (NOI/10%)		$18,630,000	

Sources: Hanscomb; Federman; NPS; Sedway Group.

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Exhibit 8
Cultural/Educational/Interpretive Uses - Alternatives 2 and 3
DEVELOPMENT COST ASSUMPTIONS
(Page 1 of 2)

Assumption				Option 1 (Island II)	Source/Comments	Key Assumptions
Physical Specifications						
Total Building Area (Sq.Ft.)				84,695	Beyer Blinder Belle	See Exhibit 2.
Development Costs	Measure		Units	Total Cost		
Shell Construction and Exterior Co	$430	per sq.ft.	84,695	$36,445,174	Hanscomb Inc. & NPS See Exhibit 10.	Includes direct and indirect
Interior Finishing Costs	$93	per sq.ft.	84,695	$7,904,051	Lord. See Exhibit 11.	
Total Development Costs				$44,349,225		Excludes financing cost, infrastructure, landscaping, heating and cooling allocation.
Total Cost/Sq.Ft.				$524		
Historic Tax Credit Adjustment						
Qualifying Costs				$36,445,174	Hanscomb Inc. & NPS	Excludes infrastructure, FF&E
Tax Credit (20% of qualified cost)				$7,289,035		
Net Equity Value of Tax Credit (85% of Tax Credit)				$6,195,680		
Net Total Development Cost				$38,153,546		Net of tax credit equity
Net Total Cost/Sq.Ft.				$450		

Exhibit 8
Cultural/Educational/Interpretive Uses - Alternatives 2 and 3
OPERATING PROJECTIONS
(Page 2 of 2)

Assumption			Option 1 (Island II)	Source/Comments	Key Assumptions
Physical Specifications					
Total Building Area (Sq.Ft.)			84,695	Hanscomb Inc. & NPS	
Visitor Projections		***Note: visitor projections are pre 9/11/01 estimates.***			
Total Ellis Island Visitors (2005)			2,396,530		Lord/Sedway/NPS
Exhibit Utilization		50.0%	1,198,265	potential annual visitors to shows (assumes open for shows 50% of	
Annual Average Patronage to Blockbuster Show		12.5%	149,783	the time) assumes 25% of visitors view blockbuster show every	
Annual Average Patronage to Regular Show		10.0%	119,826	other year, or 12.5% per year	
Theater		200 sea	6	shows per day	
Weekend Show Utilization		50.0%	62,400	visitors per year	
Weekday Show Utilization		25.0%	78,000	visitors per year	
Total Decision Theater Paying Visitors/Year			140,400		
Interpretive Space					
Percent/Total Island Visitors to Interpretive Space		20.0%	479,306		
Percent/Total Interp. Visitors Paying for Audio Tours		50.0%	239,653		
Operating Projections					
Revenue		Revenue per			
Exhibits	Annual Visitors	Visitor			
Blockbuster Show	149,783	$8.44	$1,264,169	Lord/Sedway/NPS	Blockbuster ticket price
Regular Show	119,826	$5.28	$632,085	Lord/Sedway/NPS	weighted based on $10
Decision Theater	140,400	$8.44	$1,184,976	Lord/Sedway/NPS	adult (50%), $7 group
Interpretive					(25%) and $5 kids (25%)
Audio Tours	239,653	$3.43	$821,710	NPS Staff (Harper's Ferry) and	Antenna Audio is foremost
Total Annual Revenue			$3,902,940	Antenna Audio	provider of audio tours.
Expenses					inflated from 2000
Exhibits					analysis to 2002$s at
Blockbuster Guest Curator			$263,750	Lord	5.5%, per CPI inflation
Blockbuster Extraordinary Loans			$263,750	Lord	data for New York.
Staff Costs			$944,225	Lord	
Program Costs			$944,225	Lord	
Interpretive					
Interpretive Staff			$274,300	Cynthia Garrett, NPS.	2 guides, 1 ranger, 1 museum
Maintenance			$105,500	Staffing based on NPS	2 maintenance personnel
Unit Manager			$105,500	guidelines per the NPS	1 unit manager
Program Expenses			$26,375	Superindendent and Director	
Marketing			$42,200	of Ellis Island Museum.	
Total Annual Expenses			$2,969,825		
Operating Surplus/Deficit			$933,115		

Sources:Lord; NPS; Hanscomb; Sedway Group. 02:32 PM

Exhibit 9
Hotel/Conference Center - Alternative 3
ESTIMATED DEVELOPMENT COSTS
(Page 1 of 2)

Assumption					Comment/Source
Physical Specifications					
Total Number of Hotel Rooms	250				BB&B and NPS
Gross Building Areas					
Hotel Rooms (Gross Sq.Ft.)	190,060				See Exhibit 2 and 10.
Dining Facility (Gross Sq.Ft.)	10,000				
Conference Facility (Gross Sq.Ft.)	25,000				
Total Gross Building Area (Sq.Ft.)	225,060				BB&B and NPS
Development Costs					
	Measure		**Units**	**Total Cost**	
Shell, Core, Exterior Construction Cost	$430	Per Sq.Ft.	225,060	$96,845,829	Hanscomb Inc. and NPS, see
FF&E Allowance - Rooms	$11,567	Per Room	250	$2,891,700	Exhibits 11 and 12.
FF&E Allowance - Conference Space	$40	Per Sq.Ft.	25,000	$1,012,095	
FF&E Allowance - Dining Facilities	$107	Per Sq.Ft.	10,000	$1,071,000	
Advertising Promo/Pre Opening	$3,213	Per Room	250	$803,250	
Total Development Costs				$102,623,874	Excludes financing cost,
Total Cost/Sq.Ft.				$456	infrastructure, landscaping,
Total Cost/Room				$410,495	heating and cooling allocation.
Historic Tax Credit Adjustment					
Qualifying Costs				$96,845,829	NPS; Excl. infrastructure, FF&E,
Tax Credit (20% of qualified cost)				$19,369,166	heating and cooling
Net Equity Value of Tax Credit (85% of Tax Credit)				$16,463,791	
Net Total Development Cost				$86,160,083	Net of tax credit equity
Net Total Cost/Sq.Ft.				$383	
Net Total Cost/Room				$344,640	

Exhibit 9
Hotel/Conference Center - Alternative 3
OPERATING PROJECTIONS
(Page 2 of 2)

Assumption			Comment/Source
Physical Specifications			
Total Number of Hotel Rooms	250		Hanscomb Inc. and NPS
Gross Building Areas			
Hotel Rooms (Gross Sq.Ft.)	190,060		
Dining Facility (Gross Sq.Ft.)	10,000		
Conference Facility (Gross Sq.Ft.)	25,000		
Total Gross Building Area (Sq.Ft.)	225,060		Hanscomb Inc. and NPS
Summary Operating Projections			
Revenue	Weighted Avg. Daily CMP Rate	Total	
Corporate and Ellis Island Institute CMF	$413	$18,768,750	Rates have been updated to
Weekend CMP	$303	$3,342,625	2002$s based on estimated 10%
Other Conference Revenue	See Exhibit 13	$2,291,460	room rate increase from
TOTAL REVENUE		$24,402,835	1999-2000 to 2002.
			See Exhibit 13 for detail
Expenses	% of Total Revenue		
Departmental Expenses	-43.6%	($10,640,761)	PKF 2001 Conference Center
Undistributed Operating Expenses	-26.0%	($6,344,737)	Report and Sedway Group
Other Deductions from Income	-10.5%	($2,562,298)	
TOTAL EXPENSES	-80.1%	($19,547,795)	
NET OPERATING INCOME (NOI)		**$4,855,040**	
NOI as Percent of Development Cost		5.6%	
Capitalized Value of NOI at 10% (NOI/10%)		$48,550,397	

Sources: PKF; National Park Service; Hanscomb Inc.; Sedway Group.

Exhibit 10
Development Program Summary
Ellis Island EIS

	Building Area Square Feet	Notes
Building Area Summary		
Island 1	125,000	See Exhibit 1.
Island 2	96,215	
Island 3	88,540	
TOTAL Building Area (excl. passageways)	309,755	
Alternative 2 Uses - Ellis Island Partners		
Non-Profit/Institutional Uses - Office/Admin	115,000	
Non-Profit/Inst. Uses - Non-Programmed	110,060	
Interpretive/Cultural/Educational Uses	84,695	Same as Alt 3, see below.
TOTAL Building Area	309,755	
Alternative 3 Uses - Ellis Island Retreat Center		
Hotel/Conference Uses		
Number of Hotel Rooms	250	Room efficiency based on
Hotel Room Efficiency (sq.ft. per room)	760	BB&B 10/18/01 Lodging room
Building Area Required for Hotel Rooms	190,060	count memo.
Conference Space (sq.ft. per Hotel Room)	100	
Total Conference Space	25,000	
Dining/Restaurant	10,000	
Total Hotel/Conference Building Area	225,060	
Interpretive/Cultural/Educational Uses	84,695	Total building area (309,755) less hotel space.
TOTAL Building Area	309,755	

Sources: National Park Service; Beyer Blinder Belle; Hanscomb Inc.; Marshall and Swift; Sedway Group.

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Exhibit 11
Construction Cost Summary - Building Shell and Core and Exterior Costs
Ellis Island EIS

#	Building	Building Area Square Feet	Total Cost (2000$s) (1)	Total Cost (2002$s) (2)	Cost/Sq.Ft. (2002$s)	Notes
Island 1 Buildings						
7	Baggage and Dormitory	125,000	NA	$64,000,000	$512	Per Federman (5/02)
	B&D Stabilization Cost		NA	$3,200,000	$26	Per Oehrlein Assc. (2/02)
	Sub-total - Island 1	125,000	NA	$67,200,000	$538	
Island 2 Buildings						
17	Ferry Building	4,800	NA	$1,646,400	$343	based on bldng.2&3 cost.
20	Laundry Building/Hosp. Outbldg.	3,967	$2,099,418	$2,248,477	$567	
21	Psychopathic Ward	2,814	$1,419,640	$1,520,434	$540	
22	Main Hospital Building	33,604	$8,682,147	$9,298,579	$277	
23	Administration Building	14,969	$3,740,450	$4,006,022	$268	
24	New Hospital Extension	29,441	$9,343,987	$10,007,410	$340	
25	Interactive Theater - Rec. Building	6,300	$2,645,917	$2,833,777	$450	
26	Shelter - Circulation, Support	320	$55,536	$59,479	$186	
	Sub-total - Island 2	96,215	$27,987,095	$31,620,579	$329	
Island 3 Buildings						
27	Mortuary	247	$57,594	$61,683	$250	
28	Powerhouse and Laundry	7,330	$2,216,175	$2,373,523	$324	
29	Office Building and Lab	2,143	$959,698	$1,027,837	$480	
30	Measles Ward G	4,978	$1,410,111	$1,510,229	$303	
31	Measles Ward E	4,978	$1,871,593	$2,004,476	$403	
32	Measles Ward C	4,978	$1,951,413	$2,089,963	$420	
33	Measles Ward A	4,978	$1,949,876	$2,088,317	$420	
34	Measles Ward B	4,978	$1,949,876	$2,088,317	$420	
35	Measles Ward D	4,978	$1,949,876	$2,088,317	$420	
36	Measles Ward F/J	4,978	$1,908,480	$2,043,982	$411	
37	Measles Ward H	4,978	$1,913,194	$2,049,031	$412	
38	Kitchen	1,002	$308,571	$330,480	$330	
39	Admin Building/Nurses Quarters	12,090	$3,146,685	$3,370,100	$279	
40	Isolation Ward 27/28	7,213	$2,158,819	$2,312,095	$321	
41	Isolation Ward 31/32	7,213	$2,072,887	$2,220,062	$308	
42	Isolation Ward 29/30	7,213	$2,079,547	$2,227,195	$309	
43	Staff House	4,265	$1,166,421	$1,249,237	$293	
	Sub-total - Island 3	88,540	$29,070,816	$31,134,844	$352	
Passageways						
	Island 2 and 3 Pasageways		$3,114,454	$3,335,580		Cost for approx. 14k sq.ft. of passageways
	TOTAL Islands 1, 2, 3	**309,755**	**$60,172,365**	**$133,291,003**	**$430**	includes passageways cost
Site Infrastructure (Site Work and Landscaping, Utilities, Internal Infrastructure)						
	Site Prep, Site Development, Landscaping		$10,615,374	$11,369,066		
	Sewer/Storm Drainage		$881,199			
	Utility Service to Island #2		$2,365,077			
	Utility Service to Island #3		$4,963,558			
	Subtotal - Infrastructure		$8,209,834	$8,792,732		
	Heat Generation		$621,000			
	Chilled Water Generation		$947,025			
	Power Plant Building		$621,000			
	Subtotal - Heating and Cooling		$2,189,025	$2,344,446		
	Total Infrastructure	NA	$21,014,233	$22,506,244	NA	

Notes:

(1) Cost estimates are based on National Park Service cost estimates from January 2000, which were based on Hancomb Inc. 10/99 cost estimates. Above total estimates include the following (expressed as a percentage of costs) : 10% design contingency, 15% general conditions, 20% overhead and profit, 17% advance, planning and design, 10% construction contingency, 8% construction supervision.

(2) Total 2000 cost estimates inflated to 2002 dollars, based on average cost increase in the New York City markets of 10.5%, per Federman. Federman also suggested to reduce the contractor overhead and profit by 3.4%, resulting in a net adjustment of 7.1% (10.5%-3.1%).

Sources: National Park Service; Hanscomb Inc.; Marshall and Swift; Beyer Blinder Belle; Oehrlein Associates; Federman; Sedway Group.

Exhibit 12
Interior Construction Cost Summary
Costs per Sedway and Other Sources January 2000, Updated to 2002$s

Use	Cost per Unit 2000$s		Cost per Unit 2002$s (1)		Source
Hotel/Conference					
Hotel FF&E	$10,800	Per Room	$11,567	Per Room	Sedway Group
FF&E Allowance - Conference	$38	Per Sq.Ft.	$40	Per Sq.Ft.	
FF&E Allowance - Dining Facilities	$100	Per Sq.Ft.	$107	Per Sq.Ft.	
Advertising Promo/Pre Opening	$3,000	Per Room	$3,213	Per Room	
Cultural/Educational/Interpretive Facility Development Costs					
Cultural/Educational					
Decision Theater Costs	$1,775,000		$1,901,025		Lord
Permanent Exhibitions	$2,000,000		$2,142,000		
Temporary Exhibitions	$1,000,000		$1,071,000		
Cultural/Educational Space	$161,000		$172,431		
Festival Space (incl. outdoor theming)	$350,000		$374,850		
Exhibition Support Cost	$330,000		$353,430		
Exhibition Storage Cost	$375,000		$401,625		
Subtotal Interior Finishing Costs	$5,991,000		$6,416,361		
Building Area - sq.ft. (in Option 1)	70,544				
Cost per square foot	$84.93	Per Sq.Ft.	*$90.96*	Per Sq.Ft.	
Sanctuary of Souls (Interpretive Space)					
Hardware and Software Costs	$1,250,000		$1,338,750		Lord
Building Area - sq.ft.	12,555				
Cost per square foot	$99.56	Per Sq.Ft.	*$106.63*	Per Sq.Ft.	
Total Cultural/Educational/Interpretive Cost			**$93.32**	Per Sq.Ft.	

Notes:

(1) Total 2000 cost estimates inflated to 2002 dollars, based on average cost increase in the New York City markets of 10.5%, per Federman. Federman also suggested to reduce the contractor overhead and profit by 3.4%, resulting in a net adjustment of 7.1% (10.5%-3.1%).

Sources: National Park Service; Hanscomb Inc.; Lord & Associates; Michael Whiteman; Sedway Group.

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Exhibit 13
Hotel/Conference Center - Alternative 3
OPERATING ASSUMPTIONS
(Page 1 of 2)

Operations Component | **Sources/Notes**

I. Revenues

CMP Conference Operations

Weekday	Avg. Daily Rate per Room (2002$)	Utilization of Facility	Occupancy	Weighted Occupancy	Weighted Overall Occupancy
Corporate and Ellis Island Institute					
Market Rate	$412.50	100.0%	70.0%		
Discounted	$275.00	0.0%	0.0%		
WEIGHTED AVERAGE WEEKDAY	$412.50			70.0% of weekday	50.0% of overall
Weekend					
Market Rate	$302.50	100.0%	85.0%		
Discounted	$275.00	0.0%	0.0%		
Weighted Average Daily CMP Rate	$302.50	100.0% of weekend use	85.0%	42.5% of weekend	12.1% of overall
TOTAL Weighted Average Rate	**$391.01**				62.1%

Sedway Group, based on survey of comparable facilities. Institute room rates based on Naomi Porat survey. Rates have been updated to 2002$s based on estimated 10% room rate increase from 1999-2000 to 2002.

Note: Weekend weighted occupancy based on 8 fair weather months, one night average stay.

Allocation to Room and Facility Fees	58.8%	$229.91
Allocation to Food and Beverage	29.2%	$114.17
Allocation to Conference	12.0%	$46.92

Source: PKF 2001 Conference Center Report and Sedway Group

Other Conference Revenue

Conference/Meeting Facility Size 25,000 sq.ft.

Type of Event	# Events/Year	PP/Event
Dinner Meeting	56	75
Lunch Meeting	140	50
Meeting	26	75
Wedding	112	125
Total/Average	334	81
Total People Per Year (at stabilized occ.)	27,150	
Gross Revenue per Person Per Event	$84.40	
Total Average Revenue per Event (stabilized)	$6,861	

Sedway Group, PKF, Michael Whiteman Report. 2000 figure inflated to 2002$s at 5.5%, per NY CPI increase.

II. Expenses

Departmental Expenses

CMP Expenses

Rooms and Facility	25.0%	of room and facility revenue
Food and Beverage	80.0%	of Food and Beverage Revenue
Conference Services	45.0%	of Conference Revenue
Weighted Average Expense	43.5%	of CMP Revenue

Source: PKF 2001 Conference Center Report and Sedway Group

Conference Facility Expenses

Weighted Average Expense	45.0%	of Conference Revenue

Undistributed Operating Expenses

General and Administrative	9.5%	of total revenue
Sales and Marketing	6.5%	of total revenue
Property Operation and Maintenance	5.0%	of total revenue
Energy Expenses	5.0%	of total revenue

Other Expenses

Replacement Reserves	6.0%	of total revenue
Insurance	1.0%	of total revenue
Management Fee	3.5%	of total revenue
Franchise Fee	0.0%	of total revenue

Sources: PKF; National Park Service; Hanscomb Inc.; Sedway Group.

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Exhibit 13
Hotel/Conference Center - Alternative 3
STABILIZED OPERATING STATEMENT and RETURN MEASURES
(Page 2 of 2)

		% Total Revenue
Revenues		
Corporate and Ellis Island Institute CMP - Weekday		
Annual Occupancy	50.0%	
Average Daily Rate	$412.50	
Sub-Total Revenue	$18,768,750	
Weekend CMP		
Annual Occupancy	12.1%	
Average Daily Rate	$302.50	
Sub-Total Revenue	$3,342,625	
Other Conference Revenue		
Total Conference Events (non - CMP)	334	
Average Revenue per Event	$6,861	
Sub-Total Revenue	$2,291,460	
Complete Meeting Package Revenue	$22,111,375	90.6%
Other Conference Revenue	$2,291,460	9.4%
TOTAL REVENUE	**$24,402,835**	
Expenses		
Departmental Expenses		
CMP Expenses (at 43% of CMP Revenue)	($9,609,604)	-39.4%
Conference Facility Expenses (at 45% of Conference Revenu	($1,031,157)	-4.2%
Total Department Expenses	($10,640,761)	-43.6%
Undistributed Operating Expenses		
General and Administrative (at 10% of total revenue)	($2,318,269)	-9.5%
Sales and Marketing (at 7% of total revenue)	($1,586,184)	-6.5%
Property Operation and Maintenance (at 5.0% of total revenu	($1,220,142)	-5.0%
Energy Expenses (at 5% of total revenue)	($1,220,142)	-5.0%
Total Undistributed Operating Expenses	($6,344,737)	-26.0%
Total Expenses	**($16,985,498)**	-69.6%
Gross Operating Income	**$7,417,337**	30.4%
Other Deductions from Income		
Replacement Reserves (at 6% of total revenue)	($1,464,170)	-6.0%
Insurance (at 1.0% of total revenue)	($244,028)	-1.0%
Management Fee (at 3.5% of total revenue)	($854,099)	-3.5%
Franchise Fee (at 0.0% of total revenue)	$0	0.0%
Total Deductions From Income	($2,562,298)	-10.5%
NET OPERATING INCOME (NOI)	**$4,855,040**	19.9%
NOI as Percent of Development Cost	**5.6%**	
Capitalized Value of NOI at 10% (NOI/10%)	**$48,550,397**	

Sources: PKF; National Park Service; Hanscomb Inc.; Sedway Group.

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APPENDIX D

I. DRAFT PROGRAMMATIC AGREEMENT
AMONG
THE NATIONAL PARK SERVICE
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICER
NEW YORK STATE HISTORIC PRESERVATION OFFICER
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE REHABILITATION OF ELLIS ISLAND'S STRUCTURES AND LANDSCAPE

WHEREAS, The National Park Service (NPS) proposes to lease a portion of Ellis Island through the historic leasing program for the purpose of rehabilitating and reusing currently vacant and deteriorating buildings which are surplus to NPS needs; and

WHEREAS, the approach of utilizing the historic lease program on Ellis Island was the preferred NPS alternative in the 1982 General Management Plan (GMP) and will incorporated within the new GMP which is currently in development; and

WHEREAS, the NPS has prepared a Development Concept Plan/Environmental Impact Statement (DCP/EIS) for this PROJECT which includes the NPS goals for rehabilitation, the structures which will be made available for rehabilitation, and the justification for a permanent managed access bridge to New Jersey; and

WHEREAS, the NPS has defined the Area of Potential Effect (APE) for this undertaking to be Ellis Island and the view sheds as depicted within DCPEIS, as part of the Statue of Liberty National Monument, listed on the National Register of Historic Places (NRHP) as nationally significant; and

WHEREAS, the NPS has consulted with the New Jersey State Historic Preservation Officer (NJSHPO), the New York State Historic Preservation Officer (NYSHPO), Army Corps of Engineers (ACE), and the Advisory Council on Historic Preservation (ACHP), and the interested public pursuant to 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and Sections 110(f) and 110(k) of the same Act (16 U.S.C. 470h2(f)); and

WHEREAS, the NPS intends to seek one or more development partners to participate in the implementation of the long-term rehabilitation and compatible reuse of Ellis Island; and

WHEREAS, development partner(s) may be identified through a broad solicitation of for-profit developers, i.e., Request for Proposals (RFP) whose proposed development plans will be evaluated on the basis of their feasibility and compatibility with the Mission and Purpose Statement contained in the Development Concept Plan and Environmental Impact Statement (DCP/EIS); and

WHEREAS, the NPS may also negotiate with one or more not-for-profit organizations to evaluate the feasibility of their proposed development plans and compatibility with the Mission and Purpose Statement contained in the DCP/EIS; and

NOW THEREFORE, the NPS, NJSHPO, NYSHPO and the ACHP agree that the PROJECT shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

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STIPULATIONS

The NPS shall ensure that the following measures are carried out as part of the PROJECT. Failure to meet these stipulations will constitute a violation of this Agreement.

I. GENERAL APPROACH

A. The NPS will solicit, through the issuance of a RFP, proposals from private for-profit developers for uses that are consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36 CFR 68), the DCP/EIS, and as approved by the NPS.

B. All solicitations, negotiations and conditions regarding leasing with not-for-profit organizations and for-profit entities will be guided by and administered under the auspices of the NPS' historic leasing program (36 CFR18).

II. APPLICABLE STANDARDS

- Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 68) with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings
- Secretary of the Interior's Standards for Rehabilitation (36 CFR 67)
- Secretary of the Interior's Standards and Guidelines for the Treatment of Cultural Landscapes (1996)
- Secretary of the Interior's Standards for Archeology and Historic Preservation [As amended and annotated by the NPS] (1995)
- Secretary of the Interior's Profession Qualification Standards (48 FR 22716, 1983)
- Secretary of the Interior's Standards and Guidelines for Identification (48 FR 44720-23)
- Protection of Archeological Resources (46 CFR 7)
- Curation of Archeological Collections (36 CFR 79)
- Leases and Exchanges of Historic Property (36 CFR 18)
- NPS, in consultation with the SHPOs, will develop Historic Structures and Cultural Landscape Treatment requirements.

III. RFP REQUIREMENTS

A. The RFP will include:

1. NPS' Program Goal as stated in the DCP for the rehabilitation and reuse of Ellis Island; and
2. NPS' Historic Preservation Goals as stated in the DCP that shall be wholly consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating Restoring and Reconstructing Historic Buildings*; and
3. A summary of Historic Structure and Cultural Landscape Treatment Requirements that shall be developed by the NPS in consultation with the SHPOs; and

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4. A listing of all of the properties and associated cultural landscape features included within the lease offering; and

5. Identification of any and all improvements that will be carried out by the NPS or other entities and therefore not the responsibility of the development partner(s)

6. A statement indicating that limited new construction may be proposed when such construction is in direct support of the overall rehabilitation plan. Applicable standards for new construction within a National Historic Landmark (NHL) district will apply; and

7. A statement outlining the applicability of the Historic Tax Credit Program in the rehabilitation of Ellis Island; and

8. Building Maintenance and Occupancy goals; and

9. Minimum Business Terms and Conditions of the rehabilitation and occupancy of historic properties; and

10. An outline of submission requirements and proposed schedule for review; and

11. The selection factors to be used by the NPS to evaluate proposals.

B. The NPS will emphasize to all respondents that the proposals should be persuasive as to their feasibility and should reflect a realistic understanding of Ellis Island's historic structures and cultural landscape, including their potential and limitations for adaptive reuse.

C. The substance of the selected proposal, as approved by the NPS, will be incorporated in the lease, the performance of which in all significant regards will be the basis for determining effective compliance.

D. The final acceptance of any proposal will be conditioned upon satisfactory negotiation and execution of the lease and approved by the Director, Northeast Region, NPS

E. Prior to the execution of a historic lease with a development partner(s) pursuant to the RFP described in III.3, the NPS will consult with the SHPOs to amend and update this PA to reflect the actual rehabilitation plan, a detailed time schedule for the submission, review and approval of construction documents, and establish a standing procedure for routine SHPOs' review and comment throughout design and construction.

F. Prior to construction of the permanent controlled access bridge, the NPS will consult with the SHPOs and ACE and others to mitigate any adverse effects that may include but not be limited to the bridge's use, sitting and design profile, etc.

IV. SCOPE OF SERVICES FOR PROJECT MANAGEMENT SERVICES

Following execution of a historic lease between the NPS and a development partner(s), and before undertaking any onsite work, said partner(s) will provide NPS with a detailed proposal for the implementation of the rehabilitation of the leased structures and associated landscape on Ellis Island. The proposal will include the anticipated sequence or phasing of actions with responsible individuals identified by name or position, a description of all tasks, intermediate completion points, estimated costs and identification of operational or programmatic priorities.

The complete scope of services for project management services will be developed by the development partner(s) in consultation with the NPS for approval by the NPS and the SHPOs. At a minimum, the Scope of Work will include:

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A. A plan of work that details the scope of preservation/rehabilitation work to be undertaken including both interior and exterior work, new construction, demolition, and site work and any activity that will or might impact architectural, archeological and cultural landscape resources.

B. Procedures for direct communication on technical issues between the NPS and those providing project management services and architectural, cultural landscape and archeological expertise as determined necessary by the NPS and Park 106 Advisors.

C. Provision for direct involvement by these 106 Advisors in the development of the plans and specifications for all aspects of work on the site to ensure that all appropriate steps are taken to integrate the preservation of cultural resources including landscape elements into these plans at the project development stage.

D. Provision for informing all development partner (s)' staff, contractors and subcontractors about the Protection of Archeological Resources regulation (43CFR7, 1997) including penalties for unauthorized removal of Federal property.

E. The requirements and qualification criteria for conducting archeological monitoring of the site throughout construction activities; this work will be conducted under contract with the development partner(s).

F. The authority for the NPS to halt work on the site if any activity conflicts with the Secretary of the Interior's "Standards for Treatment of Historic Properties"

V. QUALIFICATION OF PERSONNEL

A. The NPS shall ensure that qualified professionals meeting the NPS professional qualifications for the appropriate discipline [National Park Service Professional Qualification Standards, Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44738-39)] are used in this project, to include archeological surveys and testing, historic structure inventories and documentation, and cultural landscape documentation.

B. On site Work:

1. Prior to the initiation of any work on site, the development partner(s) will contract for the professional services of a firm to act as project manager to develop plans for and oversee all execution of site clearing, archeology monitoring, hazardous materials abatement, stabilization and protection of contributing structures and landscape elements, and preparation for construction for all work covered under this PA; the project manager will also oversee the construction covered under this PA.

2. Prior to any negotiations by the development partner(s) to contract for these services, the NPS and Park 106 advisors will verify that the firms submitting proposals to the development partner(s) have the requisite expertise to conduct all activities regarding or having the potential to affect historic structures or the cultural landscape pursuant to this PA. This work must be carried out by, or be under the direct supervision of, a person or persons meeting at a minimum, the Secretary of the Interior's "Professional Qualifications – Standards for Historic Architect" (48 CFR 44738-9) and NPS cultural landscape professional qualifications. All activities regarding or having the potential to affect archeological resources pursuant to this PA are carried out under the direct supervision of a person or persons meeting at a minimum the Secretary of the Interior's "Professional Qualifications – Standards for Archeology" (48 CFR 44738-9), with at least 5 years experience in historical archeology.

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VI. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

A. Archeological Sites:

The NPS shall ensure that archeological surveys within any uninvestigated and under investigated portions of the APE are conducted in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Identification (48 FR 44720-23) and take into account the NPS publication The Archeological Survey: Methods and Uses (1978) and the state guidelines for conducting archeological surveys. The survey shall be conducted following consultation with the SHPOs, and a report of the survey, consistent with the SHPOs' Guidelines for Preparing Cultural Resource Management Archaeological Reports Submitted to the SHPO (December 1994), shall be submitted to the SHPO for review and consultation.

For areas that have been previously surveyed to the depth of the proposed impact or otherwise examined by archeological investigations, monitoring during construction should be done provided that:

- background investigation or pertinent historical documents show no cultural or archeological resources in the APE; and
- the results of the archeological survey or previous archeological investigation showed no significant archeological remains.

If potentially significant archeological resources are discovered during monitoring, ground-disturbing activities in the area of the resource shall cease. Consultation between the NPS and the SHPOs shall begin at the time of discovery. Attempts should be made to avoid impacting the resource, preserving it in place. If avoidance is impossible, data recovery will be implemented as described in Section VII B1 (and following) in this PA.

B. The NPS shall consult with the SHPOs in the evaluation of the significance of the cultural landscape to Ellis Island. The objective is to identify National Register listed or potentially eligible cultural landscapes and affected view sheds within the project area that may be affected by the Project implementation, and to determine whether they meet the National Register criteria set forth in 36 CFR 60.4.

The NPS shall ensure that the identification and evaluation of historic properties that may be effected by each phase of the Project activities is completed prior to the initiation of any formal action by the development partner(s) including rehabilitation, demolition, new construction, etc. The NPS and the SHPOs shall consider the views of the public and interested parties in completing the identification and evaluation responsibilities.

VII. TREATMENT OF HISTORIC PROPERTIES

The preferred treatment for rehabilitation is to preserve the historic character of historic properties. Deteriorated historic materials and features should be repaired and severely deteriorated features should be replaced, using to the greatest extent possible, matching new materials. The NPS shall, to the extent feasible, avoid adverse effects to historic properties either through project design changes, interim protection measures, realignments, landscaping, or other measures that will protect historic properties. If, in consultation with the SHPOs, avoidance of adverse effects is determined to be infeasible, the NPS shall develop and implement mitigation plans.

The NPS shall explore preservation in place, where possible. Preservation in place may entail partial avoidance or protection of historic properties against project related activities in proximity to the property. The NPS shall preserve properties in place through project design, i.e. incorporating color, texture, scale, materials that are compatible with the architectural or historic character of the historic property, preservation of vegetation

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including mature trees, landscaping and planting. If the NPS, in consultation with the SHPOs, determines that preservation in place is infeasible, the NPS shall develop and implement mitigation plans.

A. Buildings and Structures:

1. Rehabilitation: The NPS shall ensure that plans and specifications for rehabilitation activities for historic buildings and structures shall adhere to the recommended approaches in *The Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 68) with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings* and other standards.

2. New Additions/Alterations: The NPS shall ensure that the design of new additions and alterations to historic buildings do not destroy historic materials and are compatible with the architectural character, scale, setting, massing, size and color, of the historic buildings on the site. New work should be differentiated from the old, yet compatible. If the NPS and the SHPOs concur that the addition may affect a building or structure that is part of a view shed, then the NPS shall document the relationship between the historic building and its view shed and, as appropriate, consider additional mitigation measures to preserve the view shed.

B. Archaeological Sites

1. The NPS shall develop a data recovery plan for archeological remains that the NPS and SHPOs agree cannot be avoided or appropriately preserved in place. The data recovery plan to retrieve significant archeological information, will be developed and implemented by the NPS or its representative(s), following approval from the SHPOs and prior to the mitigation of project-related activities within or in the vicinity of the archaeological sites.

2. The NPS shall ensure that the data recovery plan for each eligible site addresses substantive research questions developed in consultation with the SHPOs. The plan shall be consistent with the *Secretary of the Interior's Standards and Guidelines for Archeological Documentation [as amended and annotated by the NPS]* (48 FR 44734-37) and take into account the ACHP's publication, Treatment of Archeological Properties. Each plan shall specify, at a minimum, the following:

   a) The property, properties, or portions of properties where data recovery is to be carried out; and

   b) The research questions to be addressed through the data recovery, with an explanation of their relevance and importance; and

   c) The methods to be used, with an explanation of their relevance to and effectiveness in addressing the research questions; and

   d) A discussion of the potential research value of any human remains that may be encountered, as well as a process for consultation with the SHPOs, the ACHP, any descendent communities, and any persons or groups that have expressed an interest, to develop a treatment plan for human remains; and

   e) A proposed schedule for the submission of progress reports and the draft data recovery report to the SHPOs.

3. The NPS shall submit data recovery plans to the SHPOs for review and approval. They will consult to resolve any objections to the data recovery plan as proposed. The data recovery plan shall be implemented by the NPS once approved by the SHPOs. If no response is received from

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the SHPOs after 30 days of receipt of adequate documentation, the NPS may assume the SHPOs' concurrence and proceed with implementation of the plan submitted.

4. The NPS shall ensure that the data recovery plan(s) will be carried out by or under the direct supervision of an archeologist(s) who meets, at minimum, the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).

5. The NPS, in consultation with the SHPOs, shall develop adequate provisions for site security during data recovery to avoid vandalism.

6. The NPS or its designee, in consultation with the SHPOs shall ensure that all materials and records resulting from the survey, evaluation, and data recovery conducted for the Project will be curated in accordance with Curation of Federally-Owned and Administered Archaeological Collections (36 CFR Part 79).

7. The NPS shall ensure that all final reports resulting from actions pursuant to this PA will be provided, to the SHPOs, and upon request, to other interested parties. All such plans shall be responsive to contemporary standards. Final plans shall be submitted to SHPOs for review and approval. The NPS shall implement approved final plans.

C. Cultural Landscapes

1. Rehabilitation: The NPS shall ensure that rehabilitation activities and treatment for cultural landscapes shall adhere to the recommended approaches in *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (1996) and *Protecting Cultural Landscapes*, National Park Service Preservation Brief Number 36.

2. New Additions/Alterations: The NPS shall ensure that the design of new additions and alterations to historic buildings is compatible with the character, scale, and setting of the cultural landscape.

VIII. DOCUMENTATION

A. Prior to the initiation of any work, the development partner(s) will contract for professional photographic services to document every structure (interior and exterior) and landscape area that will be affected by the project. The photographic documentation will be done to Secretary of the Interior's Standards for Architectural and Engineering Documentation and be carried out by an experienced individual or firm approved by the NPS. A complete set of photographs will be furnished to the NPS at the conclusion of the project.

B. During the course of construction, the development partner will retain the services of a professional photographer to routinely document the rehabilitation process. Particular care will be taken to document architectural details and portions of buildings not normally visible, where unusual or unexpected conditions are encountered during construction. Landscape elements uncovered during the project will be documented. The NPS will be notified for further documentation/recovery.

IX. PUBLIC PARTICIPATION

A. In consultation with the SHPOs, the NPS shall develop a plan to inform the interested public about the project and the existence of this PA. Copies of this PA and relevant documentation prepared pursuant to the terms of this PA shall be made available for public inspection (information regarding the locations of archeological sites will be withheld in accordance with the Freedom of Information Act and National Register Bulletin 29, if it appears that this information could jeopardize archeological sites). Any comments received from the public under this PA shall be taken into account by the NPS.

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B. Public Objections. The NPS shall review and resolve timely and substantive public objections. Public objections shall be considered timely when they are provided within the review periods. The NPS shall consult with the SHPOs, and as appropriate with the ACHP, to resolve objections. Project actions that are not the subject of the objection may proceed while the consultation is conducted.

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X. GENERAL PROVISIONS

A. Reporting

On or before October 1 and April 1 of each year commencing after executing of a RFP with the developing partner(s) until the NPS, the ACHP and the SHPOs agree in writing that the terms of this agreement have been fulfilled, the development partner(s) shall prepare and provide a report as a summary of the completed activities and proposed activities for the next six months to NPS addressing at a minimum, the following topics:

- Progress in the rehabilitation of the site
- Progress in site preparation
- Progress in design and construction
- Status of any interim protection of historic properties
- Progress in archeological monitoring and data recovery
- Any problems or unexpected issues encountered during the report period

The NPS will submit these reports to the SHPOs and consulting parties until the project-related activities are complete. The SHPOs may request a site visit to follow up information in the report or to monitor activities carried out pursuant to this PA, at their discretion.

B. Resolving Objections

1. Should any signatory (as defined in the ACHP's regulations, 36CFR Section 800.6.c) to this agreement object to any action carried out or proposed by another signatory with respect to the development of the site or to the implementation of this PA, the NPS shall consult with the objecting party to resolve the objection. If after initiating such consultation, the NPS determines that the objection cannot be resolved through consultation, the NPS shall forward all documentation relevant to the objection to the SHPOs , including the NPS's proposed response to the objection. Within 30 days after receipt of all pertinent documentation, the SHPOs shall exercise one of the following options:

   a) Advise the NPS that the SHPOs concur in the NPS's proposed final decision, whereupon the NPS will respond to the objection accordingly; or

   b) Provide the NPS with a recommendation, that the NPS shall take into account in reaching a final decision regarding its response to the objection; or

   c) Notify the NPS that the objection will be referred for comment to the Council, pursuant to 36CFR Section 800.6(b), and proceed to refer the objection and comment to the ACHP.

2. Should the SHPOs not exercise one of the above options within 30 days after receipt of all pertinent documentation, the NPS may assume the SHPOs' concurrence in its proposed response to the objection.

3. The NPS shall take into account the SHPOs' recommendations or comments provided in accordance with this stipulation with reference only to the subject of the objection. All responsibilities under this agreement that are not the subject of an objection shall remain unchanged.

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4. At any time during the implementation of the measures stipulated in the agreement, should an objection pertaining to the agreement be raised by a member of the public, the NPS shall notify the signatories to this PA and take the objection into account, consulting with the objector and with any of the signatories to this PA to resolve the objection. Upon receipt of such notification, should a signatory agree with the objection raised, the signatory will notify the NPS. The NPS will then follow the process in Stipulation 10.a. All responsibilities under this PA that are not the subject of an objection shall remain unchanged

C. Review of Implementation

All plans, documents, reports, and materials shall be submitted to the NPS 106 advisors for review and comment. Following revision of said plans, documents reports and other materials to the satisfaction of the NPS 106 advisors, NPS shall submit said materials to the SHPOs for a 30-day review period unless otherwise stipulated. If the SHPOs fail to comment within the specified time, the NPS shall request the ACHP`s comments except when this PA provides for the NPS to assume the SHPOs' concurrence when the 30-day review period has elapsed.

When consulting parties are participating in the review of activities or actions, outlined in this PA, the NPS shall ensure that all consulting parties are provided documentation at the time it is forwarded to the SHPOs and afforded a 30-day review period. As appropriate, the NPS shall submit the comments of consulting parties to the SHPOs to facilitate further consultation.

D. Dispute Resolution

The SHPOs shall have 30 days to object to determinations, evaluations, plans, and

documents submitted by the NPS . The NPS and the SHPOs shall attempt to resolve any disagreement arising from implementation of this PA. If there is a determination that the disagreement cannot be resolved, any of the parties shall request the ACHP's recommendations or request the comments of the ACHP in accordance with 36 CFR Part 800.6(b).

Any ACHP recommendations or comments provided in response will be considered in accordance with 36 CFR 800.6(c), with reference only to the subject of the dispute. The NPS shall respond to the ACHP recommendations or comments indicating how the NPS has taken the ACHP's recommendations or comments into account and complied with same comments prior to proceeding with Project activities that are subject to dispute. Responsibility to carry out all other actions under this PA that are not the subject of the dispute will remain unchanged.

E. Amendments

Any signatory to this agreement may propose to NPS that the agreement be amended, whereupon NPS shall consult with the other signatories to this agreement to consider such an amendment. 36 CFR Part 800.5(c) shall govern the execution of any such amendment.

F. Termination

Any signatory to this PA may terminate it by providing thirty days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the NPS will comply with 36 CFR Sections 800.4 through 800.6 with regard to individual undertakings covered by this PA.

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G. Sunset Clause

This PA will continue in full force and effect until the construction of the Project is complete and all terms of this PA are met, unless the Project is terminated or authorization is rescinded.

Execution and implementation of this PA evidences that the NPS has satisfied its Section 106 responsibilities for all individual undertakings of the Project, and that the NPS has afforded the SHPOs an opportunity to comment on the project and its effects on historic properties.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed by their authorized representatives the day and year last written below.

NATIONAL PARK SERVICE

By_____ Date:_____

Cynthia Garrett, Acting Superintendent,
Statue of Liberty NM and Ellis Island Immigration Museum

NEW JERSEY STATE HISTORIC PRESERVATION OFFICER

By_____ Date:_____

Dorothy P. Guzzo, Administrator

NEW YORK STATE HISTORIC PRESERVATION OFFICER

By_____ Date:_____

Bernadette Castro, Commissioner

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By_____ Date:_____

John Fowler, Executive Director

ARMY CORPS OF ENGINEERS

By_____ Date:_____

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APPENDIX E: LETTER FROM NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SPECIES LIST

State of New Jersey

Department of Environmental Protection

DONALD T. DIFRANCESCO
Acting Governor

Robert C. Shinn, Jr.
Commissioner

Division of Parks and Forestry
Office of Natural Lands Management
Natural Heritage Program
P.O. Box 404
Trenton, NJ 08625-0404
Tel. #609-984-1339
Fax. #609-984-1427

August 20, 2001

David Griggs
P.O. Box 214
Bellvale, NY 10912

Re: Ellis Island

Dear Mr. Griggs:

Thank you for your data request regarding rare species information for the above referenced project site in Jersey City, Hudson County.

The Natural Heritage Data Base does not have any records for rare plants, animals, or natural communities on the site.

Attached is a list of rare species and natural communities that have been documented from Hudson County. This county list can be used as a master species list for directing further inventory work. If suitable habitat is present at the project site, these species have potential to be present. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend you contact the Division of Fish and Wildlife, Endangered and Nongame Species Program.

PLEASE SEE THE ATTACHED 'CAUTIONS AND RESTRICTIONS ON NHP DATA'.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Thomas F. Breden
Administrator

cc: Lawrence Niles
NHP File No. 01-4007461

New Jersey is an Equal Opportunity Employer
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LIST OF ENDANGERED PLANT SPECIES AND PLANT SPECIES OF CONCERN

SEPTEMBER 2001

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Acer Nigrum	Black Maple	G5	S2			
Acorus Americanus	American Sweetflag	G5	S1			
Actaea Rubra var. *Rubra*	Red Baneberry	G5T5	S3			
Adlumia Fungosa	Climbing Fumitory	G4	S2			
Aeschynomene Virginica	Sensitive Joint-Vetch	G2	S1	LT	E	LP
Agalinis Auriculata	Ear-Leaf False Foxglove	G3	SX			
Agalinis Fasciculata	Pine Barren Foxglove	G5	S3			
Agalinis Paupercula var. *Paupercula*	Small-Flower False Foxglove	G5T?	S3			
Agalinis Setacea	Thread-Leaf False Foxglove	G5?	S3S4			
Agastache Nepetoides	Yellow Giant-Hyssop	G5	S2			
Agastache Scrophulariifolia	Purple Giant-Hyssop	G4	S2			
Agrimonia Microcarpa	Small-Fruit Grooveburr	G5	S2			
Agrimonia Striata	Britton's Grooveburr	G5	S3S4			
Agrostis Geminata	Ticklegrass	G5	S1			
Alisma Triviale	Large Water-Plantain	G5	S1	E		
Alnus Incana Ssp Rugosa	Speckled Alder	G5T5	S3S4			
Alopecurus Aequalis var. *Aequalis*	Short-Awn Meadow-Foxtail	G5T?	S2			
Alopecurus Carolinianus	Tufted Meadow-Foxtail	G5	S3S4			
Amaranthus Pumilus	Seabeach Amaranth	G2	S1	LT	E	
Amelanchier Humilis	Low Service-Berry	G5	S1			
Amelanchier Sanguinea	Round-Leaf Service-Berry	G5T5	S1.1	E		
Amelanchier Stolonifera	Running Service-Berry	G5	S3			
Amianthium Muscitoxicum	Fly Poison	G4G5	S2			
Ammannia Latifolia	Koehn's Toothcup	G5	S1	E		
Andromeda Glaucophylla	Bog Rosemary	G5T5	S1	E		
Andropogon Glomeratus var. *Hirsutior*	Hairy Beardgrass	G5T5	SH.1			
Andropogon Gyrans	Elliott's Beardgrass	G5	S2			
Andropogon Ternarius var. *Ternarius*	Silvery Beardgrass	G5T?	S2			
Anemone Canadensis	Canada Anemone	G5	SX			
Anemone Cylindrica	Long-Head Anemone	G5	S1	E		
Anemone Virginiana var. *Alba*	Riverbank Anemone	G5T4T5	S2			
Angelica Venenosa	Hairy Angelica	G5	S2			
Antennaria Neglecta var. *Canadensis*	Canada Pussytoes	G5T?	S1	E		
Aplectrum Hyemale	Puttyroot	G5	S1	E		
Arabis Drummondii	Drummond's Rockcress	G5	S1.1	E		
Arabis Hirsuta var. *Pycnocarpa*	Western Hairy Rockcress	G5T5	S2			

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Aralia Hispida	Bristly Sarsaparilla	G5	S3S4			
Aralia Racemosa Ssp Racemosa	American Spikenard	G4G5T4 T5	S3S4			
Arceuthobium Pusillum	Dwarf Mistletoe	G5	S1	E		
Arenaria Stricta	Rock Sandwort	G5T5	SH	E		
Arethusa Bulbosa	Dragon Mouth	G4	S2			
Arisaema Dracontium	Greendragon	G5	S3S4			
Arisaema Triphyllum ssp. *Stewardsonii*	Northern Jack-In-The-Pulpit	G5T4	S2			
Aristida Dichotoma var. *Curtissii*	Curtiss' Three-Awn Grass	G5T5	S2			
Aristida Lanosa	Woolly Three-Awn Grass	G5	S1	E		
Aristida Longispica var. *Geniculata*	Plains Three-Awn Grass	G5T5?	S3S4			
Aristida Oligantha	Prairie Three-Awn Grass	G5	S3S4			
Aristida Virgata	Wand-Like Three-Awn Grass	G5T4T5	S2			
Aristolochia Serpentaria	Virginia Snakeroot	G4	S3			
Armoracia Lacustris	Lake Water-Cress	G4?	SH	E		
Arnica Acaulis	Leopardbane	G5	SX.1			
Arnoglossum Muehlenbergii	Great Indian Plantain	G4	SX.1			
Artemisia Campestris ssp. *Caudata*	Beach Wormwood	G5T5	S2			
Asarum Canadense var. *Acuminatum*	Long-Tipped Wild Ginger	G5T?Q	S2			
Asclepias Exaltata	Tall Milkweed	G5	S3S4			
Asclepias Lanceolata	Smooth Orange Milkweed	G5	S2			
Asclepias Purpurascens	Purple Milkweed	G4G5	S3S4			
Asclepias Rubra	Red Milkweed	G4G5	S2	LP		
Asclepias Variegata	White Milkweed	G5	S2			
Asclepias Verticillata	Whorled Milkweed	G5	S2			
Asclepias Viridiflora	Green Milkweed	G5	S3S4			
Asimina Triloba	Pawpaw	G5	S1	E		
Asplenium Bradleyi	Bradley's Spleenwort	G4	S1	E		
Asplenium Montanum	Mountain Spleenwort	G5	S2	E		
Asplenium Pinnatifidum	Lobed Spleenwort	G4	S1			
Asplenium Ruta-Muraria var. *Cryptolepis*	Wall-Rue	G5T5	S3			
Asplenium Trichomanes ssp. *Trichomanes*	Maidenhair Spleenwort	G5T5	S2S4			
Aster Borealis	Rush Aster	G5	S1	E		
Aster Concolor	Eastern Silvery Aster	G4?	S2	LP		
Aster Ericoides var. *Ericoides*	White Heath Aster	G5T5	S1			
Aster Ericoides var. *Prostratus*	Prostrate White Heath Aster	G5T?	S3			
Aster Firmus	Shining Aster	G5T5	SH.1	E		
Aster Lanceolatus var. *Interior*	Inland Tall White Aster	G5T5	S1S2			
Aster Lateriflorus var. *Horizontalis*	Spreading Calico Aster	G5T4T5	S2S3			

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Aster Novi-Belgii var. *Elodes*	Marsh New York Aster	G5T?	S2			
Aster Patens var. *Phlogifolius*	Phlox-Leaf Aster	G5T5	S3			
Aster Praealtus	Willow-Leaf Aster	G5T5?	S1	E		
Aster Prenanthoides	Crooked-Stem Aster	G4G5	S2			
Aster Radula	Low Rough Aster	G5	S1	E		
Aster Tradescantii	Tradescant's Aster	G4Q	S2			
Aster Urophyllus	Arrow-Leaf Aster	G4	S2			
Astragalus Canadensis var. *Canadensis*	Canadian Milk-Vetch	G5T5	SX.1			
Athyrium Pycnocarpon	Glade Fern	G5	S1	E		
Atriplex Subspicata	Saline Orache	G5	S1.1	E		
Azolla Caroliniana	Eastern Mosquito-Fern	G5	S1			
Betula Papyrifera var. *Papyrifera*	Paper Birch	G5T5	S2			
Betula Pumila var. *Pumila*	Swamp Birch	G5T?	S2			
Bidens Beckii	Water-Marigold	G4G5	S1	E		
Bidens Bidentoides	Estuary Burr-Marigold	G3	S2			
Bidens Comosa	Leafy-Bract Beggar-Ticks	G5	S3S4			
Bidens Eatonii	Eaton's Beggar-Ticks	G2	S1.1	E		
Bidens Mitis	Small-Fruit Beggar-Ticks	G4?	S1			
Boltonia Asteroides var. *Asteroides*	Aster-Like Boltonia	G5T4T5	S2			
Botrychium Lanceolatum var. *Angustisegmentum*	Lance-Leaf Moonwort	G5T4	S3			
Botrychium Multifidum	Leathery Grape Fern	G5	S1	E		
Botrychium Oneidense	Blunt-Lobe Grape Fern	G4Q	S2			
Botrychium Simplex var. *Laxifolium*	Upland Least Moonwort	G5T?	S1			
Botrychium Simplex var. Simplex	Least Moonwort	G5T5	S1.1			
Botrychium Simplex var. *Tenebrosum*	Slender Least Moonwort	G5T4?Q	S2			
Bouteloua Curtipendula	Side-Oats Grama Grass	G5T5	S1	E		
Brachyelytrum Septentrionale	Northern Shorthusk	G4G5	S3S4			
Bromus Ciliatus var. *Ciliatus*	Fringed Brome	G5T5	S2			
Bromus Kalmii	Kalm's Brome	G5	S2			
Bromus Latiglumis	Early Brome	G5	S2S3			
Buchnera Americana	Bluehearts	G5?	SX			
Cacalia Atriplicifolia	Pale Indian Plantain	G4G5	S1	E		
Calamagrostis Pickeringii	Pickering's Reed Grass	G4	S1	E		
Calla Palustris	Wild Calla	G5	S3			
Callitriche Palustris	Marsh Water-Starwort	G5	S2			
Callitriche Terrestris	Austin's Terrestrial Water-Starwort	G5	S3S4			
Calystegia Sepium ssp. *Angulata*	Angled Bindweed	G5T5	S2S4			

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Calystegia Sepium ssp. *Appalachiana*	Appalachian Bindweed	G5T4?	SH			
Calystegia Sepium ssp. *Erratica*	Occluded Bindweed	G5T?	SH.1	E		
Calystegia Spithamaea	Erect Bindweed	G4G5T4 T5	S1	E		
Cardamine Angustata	Slender Toothwort	G5	S3			
Cardamine Diphylla	Two-Leaf Toothwort	G5	S3			
Cardamine Douglassii	Purple Bittercress	G5	S2			
Cardamine Longii	Long's Bittercress	G3	SH	E		
Cardamine Maxima	Large Toothwort	G5Q	S1.1	E		
Cardamine Pratensis var. *Palustris*	Meadow Cuckoo-Flower	G5T5	S3			
Cardamine Rotundifolia	Round-Leaf Bittercress	G4	S1	E		
Carex Aggregata	Glomerate Sedge	G5	S1			
Carex Albursina	White Bear Lake Sedge	G5	S1	E		
Carex Alopecoidea	Foxtail Sedge	v	S1	E		
Carex Amphibola var. *Amphibola*	Narrow-Leaf Sedge	G5T4Q	S1	E		
Carex Appalachica	Appalachian Sedge	G4	S3S4			
Carex Aquatilis	Water Sedge	G5	S1	E		
Carex Arctata	Drooping Wood Sedge	G5?	S1.1	E		
Carex Argyrantha	Hay Sedge	G5	S3S4			
Carex Backii	Back's Sedge	G4	SH.1	E		
Carex Bebbii	Bebb's Sedge	G5	S2			
Carex Bicknellii var. *Bicknellii*	Bicknell's Sedge	G5T5	S2			
Carex Brunnescens	Round-Spike Brownish Sedge	G5T5	S1	E		
Carex Bushii	Bush's Sedge	G4	S1	E		
Carex Buxbaumii	Brown Sedge	G5	S3			
Carex Canescens var. *Canescens*	Silvery Sedge	G5T5	SH			
Carex Caroliniana	Carolina Sedge	G5	S3			
Carex Cephaloidea	Thin-Leaf Sedge	G5	S2			
Carex Complanata	Flattened Sedge	G5	S3S4			
Carex Conjuncta	Soft Fox Sedge	G4G5	S3			
Carex Conoidea	Field Sedge	G5	S2			
Carex Crawei	Crawe's Sedge	G5	S1	E		
Carex Crawfordii	Crawford's Sedge	G5	S2			
Carex Cryptolepis	Small Yellow Sedge	G4	S2			
Carex Cumulata	Clustered Sedge	G4?	SH	E		
Carex Deweyana	Dewey's Sedge	G5T5	S1	E		
Carex Diandra	Lesser Panicled Sedge	G5	S2			
Carex Disperma	Soft-Leaf Sedge	G5	S1			
Carex Eburnea	Ebony Sedge	G5	S2			
Carex Emoryi	Emory's Sedge	G5	S3S4			
Carex Formosa	Handsome Sedge	G4	S1.1	E		

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Carex Frankii	Frank's Sedge	G5	S3			
Carex Granularis var. *Haleana*	Hale's Meadow Sedge	G5T4	S2S3			
Carex Haydenii	Cloud Sedge	G5	S1	E		
Carex Hitchcockiana	Hitchcock's Sedge	G5	S2			
Carex Hyalinolepis	Shore-Line Sedge	G4G5	SX.1			
Carex Jamesii	James' Sedge	G5	S1	E		
Carex Joorii	Cypress-Swamp Sedge	G4G5	S1.1	E		
Carex Lasiocarpa var. Americana	American Slender Sedge	G5T5	S2			
Carex Laxiculmis var. *Copulata*	Coupled Sedge	G5T?	SH			
Carex Leavenworthii	Leavenworth's Sedge	G5	SH			
Carex Leptalea var. *Harperi*	Harper's Sedge	G5T4T5	S2S3			
Carex Leptonervia	Fine-Nerve Sedge	G4	S1	E		
Carex Limosa	Mud Sedge	G5	S1	E		
Carex Lonchocarpa	Southern Long Sedge	G5	SH.1			
Carex Louisianica	Louisiana Sedge	G5	S1	E		
Carex Lupuliformis	Hop-Like Sedge	G4	S1	E		
Carex Meadii	Mead's Sedge	G4G5	SX.1			
Carex Mesochorea	Midland Sedge	G4G5	S1			
Carex Mitchelliana	Mitchell's Sedge	G3G4	S2			
Carex Molesta	Troublesome Sedge	G4	S2S3			
Carex Oligocarpa	Few-Fruit Sedge	G4	S1	E		
Carex Pallescens	Pale Sedge	G5	S2			
Carex Peckii	Peck's White-Tinged Sedge	G4G5	SH	E		
Carex Plantaginea	Plantain-Leaf Sedge	G5	S1.1	E		
Carex Polymorpha	Variable Sedge	G3	S1	E		
Carex Prairea	Prairie Sedge	G5?	S2			
Carex Projecta	Necklace Sedge	G5	S3S4			
Carex Pseudocyperus	Cyperus-Like Sedge	G5	S1	E		
Carex Retroflexa	Reflexed Sedge	G5	S3S4			
Carex Retrorsa	Retrorse Sedge	G5	S2			
Carex Siccata	Hillside Sedge	G5	S1	E		
Carex Silicea	Seabeach Sedge	G5	S2			
Carex Sterilis	Dioecious Sedge	G4	S2			
Carex Stipata var. *Maxima*	Large Awl-Fruit Sedge	G5T?	SH			
Carex Straminea	Straw Sedge	G5	S3S4			
Carex Striatula	Lined Sedge	G4G5	S3S4			
Carex Styloflexa	Bent Sedge	G4G5	S3S4			
Carex Tenera	Quill Sedge	G5	S1			
Carex Trisperma var. *Billingsii*	Billings' Three-Seed Sedge	G5T?	S3S4			
Carex Tuckermanii	Tuckerman's Sedge	G4	S1	E		
Carex Typhina	Cat-Tail Sedge	G5	S3			
Carex Utriculata	Bottle-Shaped Sedge	G5	S2			
Carex Viridula ssp. *Viridula*	Green Sedge	G5T5	S2			

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Carex Willdenowii var. *Willdenowii*	Willdenow's Sedge	G5T5	S2			
Castanea Pumila	Chinquapin	G5	S1	E		
Castilleja Coccinea	Scarlet Indian-Paintbrush	G5	S2			
Celtis Tenuifolia	Dwarf Hackberry	G5	S2			
Centella Erecta	Erect Coinleaf	G5	SX.1			
Centrosema Virginianum	Spurred Butterfly-Pea	G5	SH	E		
Cerastium Nutans var. *Nutans*	Nodding Mouse-Ear Chickweed	G5T5?	S3S4			
Ceratophyllum Echinatum	Spiny Coontail	G4?	S1	E		
Cercis Canadensis	Redbud	G5T5	S1	E		
Chaerophyllum Procumbens var. *Procumbens*	Spreading Chervil	G5T5	S3			
Chamaelirium Luteum	Devil's-Bit	G5	S3			
Chasmanthium Latifolium	Indian Wood-Oats	G5	SX.1			
Cheilanthes Lanosa	Hairy Lipfern	G5	S2			
Chenopodium Berlandieri var. *Macrocalycium*	Large-Calyx Goosefoot	G4	S2			
Chenopodium Pratericola	Narrow-Leaf Goosefoot	G5	S2			
Chenopodium Rubrum	Red Goosefoot	G5	S1	E		
Chenopodium Simplex	Maple-Leaf Goosefoot	G5	S2			
Chenopodium Standleyanum	Stanley's Goosefoot	G5	S2			
Chionanthus Virginicus	Fringetree	G5	S3			
Cinna Latifolia	Slender Wood-Reed	G5	S1	E		
Cirsium Altissimum	Tall Thistle	G5	SH			
Cirsium Virginianum	Virginia Thistle	G3	S1	E		
Claytonia Virginica var. *Hammondiae*	Hammond's Yellow Spring Beauty	G5T1	S1.1	E		
Cleistes Divaricata	Spreading Pogonia	G4	S1	E	LP	
Clematis Occidentalis var. *Occidentalis*	Purple Clematis	G5T5	S2			
Clinopodium Vulgare	Wild Basil	G5	S3S4			
Clintonia Borealis	Yellow Clintonia	G5	S3S4			
Clitoria Mariana	Butterfly-Pea	G5	S1	E		
Coeloglossum Viride var. *Virescens*	Long-Bract Green Orchid	G5T5	S2			
Coelorachis Rugosa	Wrinkled Jointgrass	G5	S1	E		
Commelina Erecta	Slender Dayflower	G5T5	SH.1	E		
Conioselinum Chinense	Hemlock-Parsley	G5	S1	E		
Corallorhiza Trifida	Early Coralroot	G5	S2			
Corallorhiza Wisteriana	Spring Coralroot	G5	SX			
Corema Conradii	Broom Crowberry	G4	S1	E	LP	
Coreopsis Rosea	Rose-Color Coreopsis	G3	S2	LP		
Cornus Amomum var. *Schuetzeana*	Pale Dogwood	G5T?	S1	E		
Cornus Canadensis	Bunchberry	G5	S2			
Cornus Foemina	Stiff Dogwood	G5	S2			

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Corydalis Flavula	Yellow-Harlequin	G5	S3S4			
Corylus Cornuta var. *Cornuta*	Beaked Hazelnut	G5T5	S3S4			
Crataegus Calpodendron	Pear Hawthorn	G5	S1	E		
Crataegus Chrysocarpa var. *Chrysocarpa*	Fireberry Hawthorn	G5T?	S1			
Crataegus Dodgei	Dodge's Hawthorn	G4	S2			
Crataegus Holmesiana	Holmes' Hawthorn	G5	S1			
Crataegus Pedicellata	Scarlet Hawthorn	G5	S1S2			
Crataegus Pennsylvanica	Pennsylvania Hawthorn	G3Q	S1.1			
Crataegus Punctata	Dotted Hawthorn	G5	S2			
Crataegus Succulenta	Fleshy Hawthorn	G5	S1	E		
Croton Willdenowii	Elliptical Rushfoil	G5	S2	LP		
Cryptogramma Stelleri	Slender Rockbrake	G5	SH.1	E		
Cuphea Viscosissima	Blue Waxweed	G5?	S3			
Cuscuta Cephalanthi	Buttonbush Dodder	G5	S1	E		
Cuscuta Coryli	Hazel Dodder	G5	S2			
Cuscuta Indecora	Collared Dodder	G5T2T4	S1.1	E		
Cuscuta Polygonorum	Smartweed Dodder	G5	S2			
Cynoglossum Virginianum var. *Boreale*	*Northern Wild Comfrey*	G5T4	SH.1	E		
Cynoglossum Virginianum var. *Virginianum*	Wild Comfrey	G5T5	S2			
Cyperus Engelmannii	Engelmann's Flat Sedge	G4Q	S2			
Cyperus Hystricinus	Bristly Flat Sedge	G4	SH	E		
Cyperus Lancastriensis	Lancaster Flat Sedge	G5	S1	E		
Cyperus Plukenetii	Plukenet's Flat Sedge	G5	SH	E		
Cyperus Polystachyos	Coast Flat Sedge	G5T5	S1	E		
Cyperus Pseudovegetus	Marsh Flat Sedge	G5	S1	E		
Cyperus Refractus	Reflexed Flat Sedge	G5	SH	E		
Cyperus Retrofractus	Rough Flatsedge	G5	SH	E		
Cyperus Squarrosus	Awned Flat Sedge	G5	S3S4			
Cyperus Tenuifolius	Low Spike Sedge	G5	SH	E		
Cypripedium Candidum	Small White Lady's-Slipper	G4	S1	E		
Cypripedium Parviflorum var. *Makasin*	Fen Small Yellow Lady's-Slipper	G5T4?	S2			
Cypripedium Parviflorum var. *Pubescens*	Large Yellow Lady's-Slipper	G5T4T5	S3S4			
Cypripedium Reginae	Showy Lady's-Slipper	G4	S1	E		
Cystopteris Bulbifera	Bulblet Fern	G5	S3S4			
Cystopteris Protrusa	Lowland Fragile Fern	G5	S2			
Dalibarda Repens	Robin-Run-Away	G5	SH.1	E		
Deschampsia Caespitosa	Tufted Hair Grass	G5	S3			
Desmodium Cuspidatum var. *Cuspidatum*	Toothed Tick-Trefoil	G5T5?	S3			
Desmodium Humifusum	Trailing Tick-Trefoil	G1G2Q	SH	E		
Desmodium Laevigatum	Smooth Tick-Trefoil	G5	S3			

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Desmodium Nuttallii	Nuttall's Tick Trefoil	G5	S3			
Desmodium Ochroleucum	Cream-Flower Tick-Trefoil	G2G3	SX.1			
Desmodium Pauciflorum	Few-Flower Tick-Trefoil	G5	S1	E		
Desmodium Sessilifolium	Sessile-Leaf Tick-Trefoil	G5	S1	E		
Desmodium Strictum	Pineland Tick-Trefoil	G4	S2	LP		
Desmodium Viridiflorum	Velvety Tick-Treefoil	G5?	S2			
Dicentra Canadensis	Squirrel-Corn	G5	S1	E		
Dicentra Eximia	Wild Bleeding-Heart	G4	SH.1	E		
Diodia Virginiana	Larger Buttonweed	G5T5	S1	E		
Dioscorea Villosa var. *Hirticaulis*	Hairy-Stem Wild Yam	G4G5T3Q	S2			
Dirca Palustris	Leatherwood	G4	S2			
Doellingeria Infirma	Cornel-Leaf Aster	G5	S2			
Draba Reptans	Carolina Whitlow-Grass	G5	SH	E		
Dryopteris Celsa	Log Fern	G4	SX			
Dryopteris Clintoniana	Clinton's Woodfern	G5	S3			
Dryopteris Goldiana	Goldie's Wood Fern	G4	S3			
Echinochloa Muricata var. *Microstachya*	Small-Spike Rough Barnyard Grass	G5T5	SH			
Echinodorus Parvulus	Dwarf Burrhead	G3Q	SH.1			
Elatine Americana	American Waterwort	G4	S2			
Elatine Minima	Small Waterwort	G5	S2			
Eleocharis Brittonii	Britton's Spike-Rush	G4G5	S1	E		
Eleocharis Compressa	Flat-Stem Spike-Rush	G4	S1	E		
Eleocharis Elliptica	Elliptic Spike-Rush	G5	S2			
Eleocharis Engelmannii	Engelmann's Spike-Rush	G4?	S3S4			
Eleocharis Equisetoides	Knotted Spike-Rush	G4	S1	E	LP	
Eleocharis Erythropoda	Bald Spike-Rush	G5	S2S3			
Eleocharis Halophila	Salt-Marsh Spike-Rush	G4	S2			
Eleocharis Intermedia	Matted Spike-Rush	G5	S2			
Eleocharis Melanocarpa	Black-Fruit Spike-Rush	G4	S1	E		
Eleocharis Minima	Small Spike-Rush	G4G5	SH.1	E		
Eleocharis Pauciflora	Few-Flower Spike-Rush	G5	S1	E		
Eleocharis Quadrangulata	Angled Spike-Rush	G4	S2			
Eleocharis Tenuis var. *Pseudoptera*	Winged Spike-Rush	G5T?	S3S4			
Eleocharis Tenuis var. *Verrucosa*	Warty Spike-Rush	G5T3T5	S1.1	E		
Eleocharis Tortilis	Twisted Spike-Rush	G5	S1	E		
Elephantopus Carolinianus	Carolina Elephant-Foot	G5	SH	E		
Ellisia Nyctelea	Aunt Lucy	G5	S1	E		
Elymus Hystrix var. *Bigeloviana*	Bigelow's Bottle-Brush Grass	G5T?	S2S3			
Elymus Trachycaulus	Slender Wheatgrass	G5	S1	E		
Elymus Trachycaulus ssp. *Subsecundus*	One-Sided Wheatgrass	G5T5	S1			

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Elymus Trachycaulus ssp. *Trachycaulus*	Slender Wheatgrass	G5T5	S1			
Epilobium Angustifolium ssp. *Circumvagum*	Narrow-Leaf Fireweed	G5T5	S1			
Epilobium Ciliatum var. *Ciliatum*	Northern Willowherb	G5T5	S3S4			
Epilobium Leptophyllum	Bog Willowherb	G5	S2			
Epilobium Strictum	Downy Willowherb	G5?	S2			
Equisetum Pratense	Meadow Horsetail	G5	S1	E		
Equisetum Sylvaticum	Woodland Horsetail	G5	S3			
Equisetum Variegatum	Variegated Horsetail	G5T5	S1	E		
Eragrostis Frankii	Frank's Love Grass	G5	S2			
Eragrostis Hypnoides	Smooth Creeping Love Grass	G5	S3S4			
Erechtites Hieraciifolia var. *Megalocarpa*	Large-Fruit Fireweed	G5T?	SH			
Eriocaulon Parkeri	Parker's Pipewort	G3	S2			
Eriophorum Gracile	Slender Cotton-Grass	G5T?	SH	E		
Eriophorum Tenellum	Rough Cotton-Grass	G5	S1	E		
Eriophorum Vaginatum var. *Spissum*	Sheathed Cotton-Grass	G5T5	SH	E		
Eriophorum Viridicarinatum	Thin-Leaf Cotton-Grass	G5	S3			
Eryngium Aquaticum var. *Aquaticum*	Marsh Rattlesnake-Master	G4T4	S3			
Eryngium Yuccifolium var. *Yuccifolium*	Tall Rattlesnake-Master	G5T5	SX			
Euonymus Atropurpurea var. *Atropurpurea*	Wahoo	G5T5	S1			
Eupatorium Album var. *Vaseyi*	Vasey's Boneset	G5T?	S1			
Eupatorium Altissimum	Tall Boneset	G5	S2			
Eupatorium Aromaticum var. *Aromaticum*	Smaller White Snakeroot	G5T5	S1			
Eupatorium Capillifolium	Dog-Fennel Thoroughwort	G5	S2	E		
Eupatorium Coelestinum	Mist-Flower	G5	S3			
Eupatorium Godfreyanum	Godfrey's Boneset	G4	SH.1			
Eupatorium Hyssopifolium Var. Laciniatum	Torrey's Boneset	G5T4T5	S2			
Eupatorium Maculatum var. *Maculatum*	Spotted Joe-Pye-Weed	G5T5	S3S4			
Eupatorium Resinosum	Pine Barren Boneset	G3	S2	E	LP	
Eupatorium Rotundifolium var. *Cordigerum*	Heart-Leaf Boneset	G5T?	S2			
Eupatorium Sessilifolium var. *Brittonianum*	Britton's Upland Boneset	G5T?	S2			
Euphorbia Corollata	Flowering Spurge	G5	S2			
Euphorbia Purpurea	Darlington's Glade Spurge	G3	S1	E		
Euthamia Caroliniana	Slender Bushy Goldenrod	G5	S3S4			
Filipendula Rubra	Queen-Of-The-Prairie	G4G5	SH	E		
Fimbristylis Caroliniana	Carolina Fimbry	G4	S2			

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Fimbristylis Castanea	Marsh Fimbry	G5	S3			
Fimbristylis Puberula var. *Puberula*	Hairy Fimbry	G5T5?	S2			
Fragaria Vesca var. *Americana*	American Woodland Strawberry	G5T5	S3S4			
Fraxinus Profunda	Pumpkin Ash	G4	S1	E		
Fuirena Squarrosa	Hairy Umbrella-Sedge	G4G5	S3			
Galactia Volubilis	Downy Milk-Pea	G5	SH	E		
Galium Boreale	Northern Bedstraw	G5	S3S4			
Galium Concinnum	Shining Bedstraw	G5	SX.1			
Galium Hispidulum	Coast Bedstraw	G5	S1	E		
Galium Labradoricum	Labrador Marsh Bedstraw	G5	S1	E		
Galium Obtusum Var Filifolium	Thread-Leaf Marsh Bedstraw	G5T?	S2S4			
Galium Palustre	Marsh Bedstraw	G5	S3			
Galium Trifidum	Small Bedstraw	G5T5	S1	E		
Gaultheria Hispidula	Creeping-Snowberry	G5	S1	E		
Gaura Biennis	Biennial Beeblosom	G5	S3			
Gentiana Andrewsii var. *Andrewsii*	Fringed Bottle Gentian	G5?T5?	S2			
Gentiana Autumnalis	Pine Barren Gentian	G3	S3	LP		
Gentiana Catesbaei	Catesby's Gentian	G5	SH.1			
Gentiana Linearis	Narrow-Leaf Gentian	G4G5	SH	E		
Gentiana Saponaria Var Saponaria	Soapwort Gentian	G5T?	S3			
Gentiana Villosa	Striped Gentian	G4	SX.1			
Gentianella Quinquefolia var. *Quinquefolia*	Stiff Gentian	G5T4T5	S2			
Geum Rivale	Chocolate-Root	G5	S3			
Geum Vernum	Spring Avens	G5	S2			
Geum Virginianum	Cream-Color Avens	G5	S3S4			
Glaux Maritima	Sea-Milkwort	G5	SX.1	E		
Glyceria Borealis	Small Floating Manna Grass	G5	SH.1	E		
Glyceria Grandis	American Manna Grass	G5T5	S2	E		
Glyceria Laxa	Northern Manna Grass	G5	S1			
Glyceria Melicaria	Long Manna Grass	G5	S3			
Gnaphalium Helleri	Small Everlasting	G4G5T3?	SH	E		
Gnaphalium Macounii	Winged Cudweed	G5	SH	E		
Gnaphalium Obtusifolium var. *Praecox*	Early Life Everlasting	G5T5	S2S3			
Goodyera Tesselata	Checkered Rattlesnake-Plantain	G5	SH.1	E		
Gratiola Pilosa	Hairy Hedge Hyssop	G5?	S2			
Gratiola Virginiana	Round-Fruit Hedge-Hyssop	G5	S2			
Gymnocarpium Dryopteris	Oak Fern	G5	S2			
Gymnopogon Ambiguus	Bearded Skeleton Grass	G4	S3			
Gymnopogon Brevifolius	Short-Leaf Skeleton Grass	G5	S1	E		

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Hasteola Suaveolens	Sweet-Scent Indian-Plantain	G3	SX.1			
Helianthemum Bicknellii	Hoary Frostweed	G5	S3			
Heliopsis Helianthoides var. *Helianthoides*	Smooth Ox-Eye	G5T?	S3S4			
Heliopsis Helianthoides var, *Scabra*	Rough Ox-Eye	G5T5	S1S2			
Helonias Bullata	Swamp-Pink	G3	S3	LT	E	LP
Hemicarpha Micrantha	Small-Flower Halfchaff Sedge	G4	S1	E		
Heteranthera Multiflora	Bouquet Mud-Plantain	G4	S2			
Hieracium Kalmii	Canada Hawkweed	G5T?	S1	E		
Hieracium Marianum	Maryland Hawkweed	G?	SH			
Hieracium Scabrum var. *Scabrum*	Rough Hawkweed	G5T?	S3S4			
Honckenya Peploides var. *Robusta*	Seabeach Sandwort	G5T4	S2			
Hottonia Inflata	Featherfoil	G4	S1	E		
Houstonia Longifolia	Long-Leaf Summer Bluet	G4G5	SH			
Humulus Lupulus Var Lupuloides	American Hop	G5T5	S3S4			
Hybanthus Concolor	Green Violet	G5	S1	E		
Hydrastis Canadensis	Golden Seal	G4	SH.1	E		
Hydrocotyle Prolifera	Canby's Marsh-Pennywort	G5T5?	S1			
Hydrocotyle Ranunculoides	Floating Marsh-Pennywort	G5	S1	E		
Hydrocotyle Verticillata var. *Verticillata*	Whorled Marsh-Pennywort	G5T5	S2			
Hydrophyllum Canadense	Broad-Leaf Waterleaf	G5	S1	E		
Hypericum Adpressum	Barton's St. John's-Wort	G2G3	S2	E		
Hypericum Dissimulatum	Disguised St. John's-Wort	G5Q	S3S4			
Hypericum Ellipticum	Pale St. John's-Wort	G5	S3			
Hypericum Gymnanthum	Clasping-Leaf St. John's-Wort	G4	S1			
Hypericum Majus	Larger Canadian St. John's Wort	G5	S1	E		
Hypericum Prolificum	Shrubby St. John's-Wort	G5	S1	E		
Hypericum Pyramidatum	Great St. John's-Wort	G4	S3			
Ilex Montana	Large-Leaf Holly	G5	S1	E		
Isanthus Brachiatus	False Pennyroyal	G4G5	S1	E		
Isoetes Lacustris	Lake Quillwort	G5	S1.1	E		
Isoetes Melanopoda	Black-Base Quillwort	G5	SH	E		
Isoetes Riparia var. *Riparia*	Shore Quillwort	G5?T5?Q	S3			
Isoetes Tuckermanii	Tuckerman's Quillwort	G4?	SH.1	E		
Isotria Medeoloides	Small Whorled Pogonia	G2	S1	LT	E	
Jeffersonia Diphylla	Twinleaf	G5	S1	E		
Juglans Cinerea	Butternut	G3G4	S3S4			
Juncus Articulatus	Jointed Rush	G5	S2			
Juncus Brachycarpus	Short-Fruit Rush	G4G5	SH	E		
Juncus Brachycephalus	Fen Rush	G5	S3			

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Juncus Brevicaudatus	Narrow-Panicle Rush	G5	S2			
Juncus Caesariensis	New Jersey Rush	G2	S2	E	LP	
Juncus Coriaceus	Awl-Leaf Rush	G5	S1	E		
Juncus Dudleyi	Dudley's Rush	G5	S3			
Juncus Elliottii	Elliott's Rush	G4G5	SH.1	E		
Juncus Greenei	Greene's Rush	G5	S2			
Juncus Nodosus var. *Nodosus*	Knotted Rush	G5T?	S3S4			
Juncus Torreyi	Torrey's Rush	G5	S1	E		
Juniperus Communis var. *Depressa*	Dwarf Juniper	G5T5	S3			
Kalmia Polifolia	Pale-Laurel	G5	S1	E		
Kosteletzkya Virginica	Virginia Seashore-Mallow	G5	S3S4			
Krigia Dandelion	Potato Dwarf-Dandelion	G5	SH.1	E		
Kuhnia Eupatorioides	False Boneset	G5T5	S1	E		
Lactuca Floridana var. *Floridana*	Florida Blue Lettuce	G5T5?	S3S4			
Lactuca Graminifolia var. *Graminifolia*	Grass-Leaf Lettuce	G5?T3T5	S1			
Lactuca Hirsuta var. *Sanguinea*	Red-Stem Hairy Lettuce	G5?T5?	S3			
Larix Laricina	American Larch	G5	S3S4			
Lathyrus Japonicus var. *Maritimus*	Smooth Beach-Pea	G5T4T5	SH			
Lathyrus Ochroleucus	Cream Vetchling	G4G5	SH	E		
Lathyrus Palustris	Marsh Vetchling	G5	S3S4			
Lathyrus Venosus	Veiny Vetchling	G5	SH	E		
Lechea Intermedia var. *Intermedia*	Large-Pod Pinweed	G5T4T5	S2			
Lechea Pulchella var. *Pulchella*	Leggett's Pinweed	G5T4	S3S4			
Lechea Tenuifolia	Narrow-Leaf Pinweed	G5	S1	E		
Ledum Groenlandicum	Labrador Tea	G5	S1			
Lemna Perpusilla	Minute Duckweed	G5	S1	E		
Lemna Trisulca	Star Duckweed	G5	S3			
Lemna Valdiviana	Pale Duckweed	G5	S1	E		
Leptochloa Fascicularis var. *Maritima*	Long-Awn Sprangletop	G5T3T4Q	S2			
Lespedeza Stuevei	Stueve's Downy Bush-Clover	G4?	S2			
Lespedeza Violacea	Violet Bush-Clover	G5	S3S4			
Liatris Pilosa var. *Lasia*	Pine Barren Blazing-Star	G5?T?	S3			
Liatris Scariosa var. *Novae-Angliae*	Northern Blazing-Star	G5?T3	SH	E		
Liatris Spicata var. *Spicata*	Blazing-Star	G5T5?	S3S4			
Lilium Philadelphicum var. *Philadelphicum*	Wood Lily	G5T4T5	S3			
Limosella Subulata	Awl-Leaf Mudwort	G4G5	S1	E		
Linnaea Borealis	Twinflower	G5T5	SH	E		

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Linum Intercursum	Sandplain Flax	G4	S1	E		
Linum Sulcatum	Grooved Yellow Flax	G5T5	S1	E		
Linum Virginianum	Woodland Flax	G4G5	S3S4			
Liparis Lilifolia	Lilia-Leaf Twayblade	G5	S3S4			
Listera Australis	Southern Twayblade	G4	S2	LP		
Listera Cordata	Heartleaf Twayblade	G5T5	S1	E		
Listera Smallii	Appalachian Twayblade	G4	S1.1	E		
Lithospermum Canescens	Hoary Puccoon	G5	SX			
Lobelia Boykinii	Boykin's Lobelia	G2G3	S1	E	LP	
Lobelia Canbyi	Canby's Lobelia	G4	S3	LP		
Lobelia Dortmanna	Water Lobelia	G4	SH	E		
Lobelia Kalmii	Kalm's Lobelia	G5	S3S4			
Lobelia Puberula var. *Puberula*	Downy Lobelia	G5T5	S3S4			
Lonicera Canadensis	American Fly-Honeysuckle	G5	S1	E		
Lonicera Dioica	Smooth-Leaf Honeysuckle	G5	S3S4			
Lonicera Sempervirens var. *Sempervirens*	Trumpet Honeysuckle	G5T5	S3S4			
Ludwigia Brevipes	Tucker's Island Primrose-Willow	G4G5	SX.1			
Ludwigia Hirtella	Hairy Primrose-Willow	G5	S2	LP		
Ludwigia Linearis	Narrow-Leaf Primrose-Willow	G5	S2	LP		
Lupinus Perennis	Wild Lupine	G5	S3			
Lupinus Perennis var. *Occidentalis*	Hairy Sundial Lupine	G5T?	S2			
Lupinus Perennis var. *Perennis*	Sundial Lupine	G5T?	S3			
Luzula Acuminata	Hairy Wood-Rush	G5T4T5	S2	E		
Luzula Bulbosa	Bulblet Wood-Rush	G5	S3S4			
Lycopodiella Caroliniana var. *Caroliniana*	Carolina Club-Moss	G5T4	S3S4			
Lycopodiella Inundata	Northern Bog Club-Moss	G5	S2			
Lycopodium Annotinum	Stiff Club-Moss	G5	S1	E		
Lycopodium Hickeyi	Hickey's Ground-Pine	G5	S1S2?			
Lycopodium Tristachyum	Wiry Ground-Cedar	G5	S3S4			
Lycopus Americanus var. *Longii*	Long's Bugleweed	G5T?	S2S3			
Lycopus Rubellus	Stalked Water-Hoarhound	G5	S2			
Lygodium Palmatum	Climbing Fern	G4	S2	LP		
Lysimachia Hybrida	Lowland Loosestrife	G5	S3			
Lysimachia Lanceolata	Lance-Leaf Loosestrife	G5	SH			
Lysimachia Thyrsiflora	Tufted Loosestrife	G5	S3			
Lythrum Alatum var. *Alatum*	Winged Loosestrife	G5T5	S3			
Lythrum Lineare	Narrow-Leaf Loosestrife	G5	S3			
Maianthemum Canadense var. *Interius*	Western False Lily-Of-The-Valley	G5T4	S1.1	E		
Maianthemum Stellatum	Star-Flower Spikenard	G5	S3S4			

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Malaxis Bayardii	Bayard Long's Adder's-Mouth	G2	SH	E		
Malaxis Monophyllos	White Adder's-Mouth	G4Q	SH	E		
Malaxis Unifolia	Green Adder's-Mouth	G5	S2			
Malus Angustifolia var. *Puberula*	Spiny Wild Crabapple	G5?T2T4	S2			
Malus Coronaria	American Crabapple	G5	S3S4			
Melanthium Latifolium	Broad-Leaf Bunchflower	G5	S3S4			
Melanthium Virginicum	Virginia Bunchflower	G5	S1	E		
Menyanthes Trifoliata	Buck-Bean	G5	S3			
Mertensia Virginica	Virginia Bluebells	G5	S3S4			
Micranthemum Micranthemoides	Nuttall's Mudwort	GH	SH	E		
Milium Effusum	Tall Millet Grass	G5	SH.1	E		
Mimulus Alatus	Winged Monkey-Flower	G5	S3			
Mimulus Moschatus var. *Moschatus*	Muskflower	G4G5T?	S2			
Mitella Prostrata	Creeping Bishop's-Cap	G2G4Q	SH.1			
Monarda Clinopodia	Basil Beebalm	G5	SH	E		
Monarda Didyma	Oswego-Tea	G5	S2			
Monarda Media	Purple Bergamot	G4?	SH			
Monotropa Hypopithys	Pinesap	G5	S3S4			
Morella Caroliniensis Sensu Stricto	Evergreen Bayberry	G?	S2S4			
Muhlenbergia Capillaris	Long-Awn Smoke Grass	G5T?	S1	E		
Muhlenbergia Glomerata	Eastern Smoke Grass	G5	S2			
Muhlenbergia Sylvatica var. *Robusta*	Large Woodland Dropseed	G5T?	S2			
Muhlenbergia Sylvatica var. *Sylvatica*	Woodland Dropseed	G5T?	S3			
Muhlenbergia Torreyana	Pine Barren Smoke Grass	G3	S3	LP		
Myosotis Verna	Spring Forget-Me-Not	G5	S3S4			
Myrica Gale	Sweetgale	G5	S3			
Myriophyllum Heterophyllum	Variable-Leaf Water-Milfoil	G5	S2			
Myriophyllum Pinnatum	Cutleaf Water-Milfoil	G5	S1	E		
Myriophyllum Sibiricum	Common Water-Milfoil	G5	S1	E		
Myriophyllum Tenellum	Slender Water-Milfoil	G5	S1	E		
Myriophyllum Verticillatum	Whorled Water-Milfoil	G5	SH	E		
Najas Gracillima	Thread-Nymph	G5?	S3S4			
Najas Guadalupensis var. *Guadalupensis*	Southern Water-Nymph	G5T5	S3			
Narthecium Americanum	Bog Asphodel	G2	S2	C	E	LP
Nelumbo Lutea	American Lotus	G4	S1	E		
Nuphar Lutea Ssp Rubrodisca	Red-Disk Yellow Pond-Lily	G5T3T5	S3			
Nuphar Microphyllum	Small Yellow Pond-Lily	G5T4T5	SH	E		
Nymphaea Odorata Ssp Tuberosa	Tuberous White Water-Lily	G5T5	S2			
Nymphoides Cordata	Floatingheart	G5	S3	LP		

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Obolaria Virginica	Virginia Pennywort	G5	S2			
Oenothera Fruticosa ssp. *Glauca*	Common Sundrops	G5T5	S3S4			
Oenothera Humifusa	Sea-Beach Evening-Primrose	G5	S2	E		
Oenothera Nutans	Nodding Evening-Primrose	G4	S2S4			
Oenothera Oakesiana	Oakes' Evening-Primrose	G4G5Q	S2			
Oenothera Parviflora	Northern Evening-Primrose	G4?	S3S4			
Oenothera Perennis	Small Sundrops	G5	S3S4			
Oenothera Villosa Ssp Villosa	Hairy Evening-Primrose	G5T?	S1			
Oldenlandia Uniflora	Clustered-Bluets	G5	S3			
Onosmodium Virginianum	Virginia False-Gromwell	G4	S1	E		
Ophioglossum Pusillum	Northern Adder's-Tongue	G5	S3			
Ophioglossum Vulgatum var. *Pycnostichum*	Southern Adder's-Tongue	G5	SH	E		
Orobanche Uniflora	Naked Broom-Rape	G5	S3S4			
Orthilia Secunda	Sidebells	G5	S2			
Oryzopsis Asperifolia	White-Grained Mountain-Rice Grass	G5	S1	E		
Oryzopsis Pungens	Slender Mountain-Rice Grass	G5	SH.1	E		
Osmunda Cinnamomea var. *Glandulosa*	Glandular Cinnamon Fern	G5T?	S2			
Oxalis Violacea	Violet Wood-Sorrel	G5	S3S4			
Panax Quinquefolius	American Ginseng	G3G4	S2			
Panicum Aciculare	Bristling Panic Grass	G4G5	S1	E		
Panicum Acuminatum var. *Acuminatum*	Walter Benner's Panic Grass	G5T5	SH			
Panicum Amarum var. *Amarulum*	Southern Seabeach Grass	G5TU	S3			
Panicum Anceps	Beaked Panic Grass	G5	S3S4			
Panicum Boreale	Northern Panic Grass	G5	S1	E		
Panicum Dichotomum var. *Roanokense*	Bluish Panic Grass	G5T4?	SH			
Panicum Dichotomum var. *Yadkinense*	Spotted-Sheath Panic Grass	G5T3T4 Q	SH			
Panicum Flexile	Wiry Panic Grass	G5	S1	E		
Panicum Gattingeri	Gattinger's Witch Grass	G4	S1S2			
Panicum Hemitomon	Maiden-Cane	G5?	S2	LP		
Panicum Hirstii	Hirst Brothers' Panic Grass	G1	S1	C	E	LP
Panicum Leucothrix	Rough Panic Grass	G4?Q	S2			
Panicum Linearifolium	Linear-Leaf Panic Grass	G5	S3S4			
Panicum Longiligulatum	Coastal-Plain Panic Grass	G4G5Q	SH.1			
Panicum Oligosanthes var. *Oligosanthes*	Few-Flower Panic Grass	G5T5?	S1S2			
Panicum Oligosanthes var. *Scribnerianum*	Scribner's Panic Grass	G5T5	S2			
Panicum Rigidulum var. *Condensum*	Dense Panic Grass	G5T?	S2			

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Panicum Sabulorum var. *Patulum*	Hemlock Witchgrass	G5T5	S3S4			
Panicum Scabriusculum	Sheathed Panic Grass	G4	S2			
Panicum Sphaerocarpon var. *Isophyllum*	Small Round-Fruit Panic Grass	G5T5	S3S4			
Panicum Tenue	White-Edge Panic Grass	G5T4T5	SH			
Panicum Wrightianum	Wright's Panic Grass	G4	S2			
Panicum Xanthophysum	Slender Panic Grass	G5	SH.1	E		
Parietaria Pensylvanica	Pennsylvania Pellitory	G5	S3S4			
Paronychia Fastigiata var. *Paleacea*	Chaffy Forked Nailwort	G5T3T5	S3S4			
Paronychia Montana	Mountain Nailwort	G4	SH			
Parthenocissus Vitacea	Thicket Creeper	G5	S3S4			
Paspalum Dissectum	Mudbank Crown Grass	G4?	S2			
Paspalum Floridanum	Florida Crown Grass	G5	S3			
Paspalum Laeve var. *Pilosum*	Long-Hair Crown Grass	G4T?Q	S3S4			
Paspalum Setaceum var. *Ciliatifolium*	Ciliate-Leaf Crown Grass	G5T5Q	S2			
Paspalum Setaceum var. *Psammophilum*	Prostrate Crown Grass	G5T4?	S2S3			
Pedicularis Lanceolata	Swamp Lousewort	G5	S3			
Pellaea Glabella var. *Glabella*	Smooth Cliffbrake	G5T5	S2			
Penstemon Laevigatus	Smooth Beardtongue	G5	S1	E		
Phaseolus Polystachios var. *Polystachios*	Wild Kidney Bean	G4T?	S2			
Phegopteris Connectilis	Northern Beech Fern	G5	S2			
Phlox Divaricata	Wild Blue Phlox	G5T?	S1	E		
Phlox Maculata var. *Maculata*	Spotted Phlox	G5T?	S3			
Phlox Pilosa	Downy Phlox	G5T5	SH	E		
Phoradendron Leucarpum	American Mistletoe	G5	S2	LP		
Phyla Lanceolata	Fogfruit	G5	SH	E		
Physalis Grisea	Strawberry-Tomato	G?	S1			
Physalis Longifolia var. *Subglabrata*	Smooth Ground-Cherry	G5T4T5	S3S4			
Physalis Pubescens var. *Integrifolia*	Husk-Tomato	G5T5?Q	SH			
Picea Mariana var. *Mariana*	Black Spruce	G5T5	S3S4			
Picea Rubens	Red Spruce	G5	S1	E		
Pilea Fontana	Lesser Clearweed	G5	S3S4			
Pinus Pungens	Table Mountain Pine	G4	S1.1	E		
Pinus Resinosa	Red Pine	G5	S1.1	E		
Pinus Serotina	Pond Pine	G5	S2			
Pinus Taeda	Loblolly Pine	G5	S2			
Pityopsis Falcata	Sickle-Leaf Golden-Aster	G3G4	S3	LP		
Plantago Major var. *Scopulorum*	Salt-Marsh Plantain	G5T?	S3			

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Plantago Maritima var. *Juncoides*	Seaside Plantain	G5T5	S2			
Plantago Pusilla	Dwarf Plantain	G5	SH	E		
Platanthera Ciliaris	Yellow Fringed Orchid	G5	S2	LP		
Platanthera Cristata	Crested Yellow Orchid	G5	S3	LP		
Platanthera Flava var. *Flava*	Southern Rein Orchid	G4T4?Q	S1	E		
Platanthera Flava Var. *Herbiola*	Tubercled Rein Orchid	G4T4Q	S2			
Platanthera Grandiflora	Large Purple Fringed Orchid	G5	S2			
Platanthera Hookeri	Hooker's Orchid	G5	S1	E		
Platanthera Hyperborea var. *Hyperborea*	Leafy Northern Green Orchid	G5T5	SX			
Platanthera Integra	Yellow Fringeless Orchid	G3G4	S1	E	LP	
Platanthera Nivea	Snowy Orchid	G5	SH	E		
Platanthera Orbiculata	Round-Leaf Orchid	G5?	S1	E		
Platanthera Peramoena	Purple Fringeless Orchid	G5	S1	E		
Platanthera Psycodes	Purple Fringed Orchid	G5	S2			
Pluchea Camphorata	Camphorweed	G5	SX.1			
Pluchea Foetida	Stinking Fleabane	G5T5	S1	E		
Poa Autumnalis	Flexuous Spear Grass	G5	SH.1	E		
Poa Languida	Drooping Spear Grass	G3G4Q	S2			
Poa Saltuensis	Old-Pasture Spear Grass	G5	SH	E		
Poa Sylvestris	Woodland Spear Grass	G5	SH			
Podostemum Ceratophyllum	Threadfoot	G5	S3			
Polanisia Dodecandra ssp. *Dodecandra*	Clammy-Weed	G5T?	S1			
Polemonium Reptans	Greek-Valerian	G5	S1	E		
Polemonium Vanbruntiae	Jacob's Ladder	G3	SX.1			
Polygala Ambigua	Loose-Spike Milkwort	G5?	S2			
Polygala Incarnata	Pink Milkwort	G5	SH	E		
Polygala Mariana	Maryland Milkwort	G5	S2	LP		
Polygala Paucifolia	Fringed Milkwort	G5	S3S4			
Polygala Polygama	Racemed Milkwort	G5	S2			
Polygala Ramosa	Low Pine Barren Milkwort	G5	SX.1			
Polygala Senega	Seneca Snakeroot	G4G5	S1.1	E		
Polygala Verticillata var. *Isocycla*	Fernald's Whorled Milkwort	G5T5	S3S4			
Polygonatum Biflorum var. *Commutatum*	Giant Solomon's-Seal	G5T5	S3S4			
Polygonum Amphibium var. *Stipulaceum*	Water Smartweed	G5T5	S3S4			
Polygonum Buxiforme	Small's Knotweed	G5	S2			
Polygonum Cilinode	Fringed Black-Bindweed	G5	S3			
Polygonum Densiflorum	Dense-Flower Knotweed	G5	S1	E		
Polygonum Erectum	Erect Knotweed	G5	S1			
Polygonum Glaucum	Sea-Beach Knotweed	G3	S1	E		

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Polygonum Hydropiperoides Var. Opelousanum	Opelousas Water-Pepper	G?Q	S2			
Polygonum Robustius	Stout Smartweed	G4G5	S3S4			
Polygonum Setaceum var. *Setaceum*	Bristly Smartweed	G5T3T5	S2			
Polygonum Tenue	Slender Knotweed	G5	S3S4			
Polymnia Uvedalia	Bear's-Foot	G4G5	S1	E		
Populus Heterophylla	Swamp Cottonwood	G5	S2			
Porteranthus Trifoliatus	Indian Physic	G4G5	S2			
Potamogeton Alpinus	Northern Pondweed	G5	S1	E		
Potamogeton Confervoides	Algae-Like Pondweed	G4	S3			
Potamogeton Illinoensis	Illinois Pondweed	G5	S1	E		
Potamogeton Natans	Floating Pondweed	G5	S3S4			
Potamogeton Nodosus	Long-Leaf Pondweed	G5	S3S4			
Potamogeton Oakesianus	Oakes' Pondweed	G4	S2			
Potamogeton Obtusifolius	Blunt-Leaf Pondweed	G5	S1	E		
Potamogeton Praelongus	White-Stem Pondweed	G5	S1	E		
Potamogeton Pulcher	Spotted Pondweed	G5	S3S4			
Potamogeton Robbinsii	Robbin's Pondweed	G5	S2	E		
Potamogeton Spirillus	Spiral Pondweed	G5	S3S4			
Potamogeton Vaginatus	Sheathed Pondweed	G5	SH			
Potamogeton Zosteriformis	Eel-Grass Pondweed	G5	S1	E		
Potentilla Arguta var. *Arguta*	Tall Cinquefoil	G5T?	S3			
Potentilla Palustris	Marsh Cinquefoil	G5	S1	E		
Potentilla Tridentata	Three-Toothed Cinquefoil	G5	S1.1	E		
Prenanthes Autumnalis	Pine Barren Rattlesnake-Root	G4G5	S2	LP		
Prenanthes Racemosa	Smooth Rattlesnake-Root	G5T?	SH	E		
Proserpinaca Intermedia	Mackenzie's Mermaidweed	G3G4Q	S3			
Prunus Alleghaniensis	Allegheny Plum	G4T4	S1	E		
Prunus Angustifolia	Chickasaw Plum	G5T4T5	S2	E		
Prunus Pumila var. *Depressa*	Low Sand Cherry	G5T5	S2			
Prunus Pumila var. *Susquehanae*	Appalachian Cherry	G5T4	S3			
Ptelea Trifoliata	Wafer-Ash	G5T5	S1	E		
Puccinellia Fasciculata	Saltmarsh Alkali Grass	GU	S2			
Pycnanthemum Clinopodioides	Basil Mountain-Mint	G2	S1	E		
Pycnanthemum Setosum	Awned Mountain-Mint	G3?	S3			
Pycnanthemum Torrei	Torrey's Mountain-Mint	G2	S1	E		
Pyrola Chlorantha	Greenish-Flower Wintergreen	G5	S1	E		
Quercus Imbricaria	Shingle Oak	G5	S1.1	E		
Quercus Lyrata	Overcup Oak	G5	S1	E		
Quercus Michauxii	Basket Oak	G5	S3			
Quercus Muehlenbergii	Yellow Oak	G5	S3			
Quercus Nigra	Water Oak	G5	S1	E		
Quercus Prinoides	Dwarf Chestnut Oak	G5	S3S4			

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Ranunculus Allegheniensis	Allegheny Mountain Buttercup	G4G5	S1.1	E		
Ranunculus Ambigens	Water-Plantain Spearwort	G4	S2			
Ranunculus Cymbalaria	Seaside Buttercup	G5	SH	E		
Ranunculus Fascicularis	Early Buttercup	G5	S1	E		
Ranunculus Flabellaris	Yellow Water Buttercup	G5	S3			
Ranunculus Longirostris	Long-Beak Water Buttercup	G5	S2			
Ranunculus Micranthus	Rock Buttercup	G5	S2			
Ranunculus Pensylvanicus	Bristly Buttercup	G5	S3			
Ranunculus Pusillus var. *Pusillus*	Low Spearwort	G5T4?	S2			
Ranunculus Reptans	Creeping Spearwort	G5T5	SH	E		
Ranunculus Trichophyllus var. *Trichophyllus*	Thread-Leaf Water Buttercup	G5T5	S2			
Rhamnus Alnifolia	Alder-Leaf Buckthorn	G5	S3S4			
Rhexia Aristosa	Awned Meadow-Beauty	G3	S1	E	LP	
Rhexia Interior	Showy Meadow-Beauty	G5T4T5	S1	E		
Rhododendron Atlanticum	Dwarf Azalea	G4G5	S1	E		
Rhododendron Canadense	Rhodora	G5	S1	E		
Rhododendron Prinophyllum	Mountain Azalea	G5	S3			
Rhynchospora Capillacea	Capillary Beaked-Rush	G5	S1	E		
Rhynchospora Cephalantha	Large-Head Beaked-Rush	G5	S3	LP		
Rhynchospora Filifolia	Thread-Leaf Beaked-Rush	G5	S1	E		
Rhynchospora Globularis	Coarse Grass-Like Beaked-Rush	G5?	S1	E		
Rhynchospora Glomerata	Clustered Beaked-Rush	G5T5?	SH	E		
Rhynchospora Inundata	Slender Horned-Rush	G3G4	S2	LP		
Rhynchospora Knieskernii	Knieskern's Beaked-Rush	G1	S1	LT	E	LP
Rhynchospora Microcephala	Small-Head Beaked-Rush	G5T5	S1	v		
Rhynchospora Nitens	Short-Beaked Bald-Rush	G4?	S2			
Rhynchospora Oligantha	Few-Flower Beaked-Rush	G4	S2			
Rhynchospora Pallida	Pale Beaked-Rush	G3	S3			
Rhynchospora Rariflora	Rare-Flower Beaked-Rush	G5	S1	E		
Rhynchospora Scirpoides	Long-Beak Bald-Rush	G4	S2			
Ribes Cynosbati	Prickly Gooseberry	G5	SH			
Ribes Glandulosum	Skunk Currant	G5	S1.1	E		
Ribes Missouriense	Missouri Gooseberry	G5	S1	E		
Ribes Triste	Swamp Red Currant	G5	S1			
Rosa Blanda var. *Blanda*	Smooth Rose	G5T?Q	SH			
Rotala Ramosior	Toothcup	G5	S3			
Rubus Alumnus	Oldfield Blackberry	G5	S2			
Rubus Andrewsianus	Andrew's Blackberry	G4?	S3			
Rubus Argutus	Saw-Tooth Blackberry	G5	S1			
Rubus Ascendens	Clausen's Dewberry	G?	S1			
Rubus Canadensis	Smooth Blackberry	G5	S1	E		
Rubus Depavitus	Aberdeen Blackberry	G5?Q	S1S2			

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Rubus Elegantulus	Showy Blackberry	G4?Q	S1			
Rubus Enslenii	Southern Dewberry	G4G5Q	S2S3			
Rubus Gnarus	Pollock's Mill Blackberry	G3?	SH.1			
Rubus Hypolasius	Pineland Dewberry	G1?Q	S1			
Rubus Longii	Long's Blackberry	G4?Q	S1			
Rubus Michiganensis	Michigan Dewberry	G5?Q	S2S3			
Rubus Novocaesarius	New Jersey Dewberry	G1?	SH.1			
Rubus Originalis	Cold Spring Blackberry	G3?	S2			
Rubus Ostryifolius	Highbush Blackberry	G3?Q	SH.1			
Rubus Parcifrondifer	Silver Creek Blackberry	GUQ	SH			
Rubus Pervarius	Davis' Dewberry	G4?	SH.1			
Rubus Plicatifolius	Plait-Leaf Dewberry	G5	S2S3			
Rubus Recurvicaulis	Blanchard's Dewberry	G4?	S1.1			
Rubus Roribaccus	Lucretia Blackberry	G4?Q	S2S3			
Rubus Setosus	Bristly Blackberry	G5	SH.1			
Rudbeckia Fulgida	Orange Coneflower	G5T4?	S1	E		
Rudbeckia Fulgida var. *Speciosa*	Showy Coneflower	G5T4?	SH.1			
Ruellia Caroliniensis	Carolina Petunia	G5	SH	E		
Ruellia Strepens	Limestone Petunia	G4G5	SX.1			
Rumex Hastatulus	Engelmann's Sorrel	G5	SH			
Sabatia Campanulata	Slender Marsh-Pink	G5	S3			
Sabatia Dodecandra var. *Dodecandra*	Large Marsh-Pink	G5?T4T5	S2			
Saccharum Alopecuroidum	Silver Plume Grass	G5	SH			
Saccharum Giganteum	Giant Plume Grass	G5	S3S4			
Sacciolepis Striata	American Cupscale	G5	SH	E		
Sagittaria Australis	Southern Arrowhead	G5	S1	E		
Sagittaria Calycina var. *Calycina*	Mississippi Arrowhead	G5T5?	S2			
Sagittaria Calycina var. *Spongiosa*	Tidal Arrowhead	G5T4	S3			
Sagittaria Cuneata	Arum-Leaf Arrowhead	G5	S1	E		
Sagittaria Filiformis	Narrow-Leaf Arrowhead	G4G5	SH			
Sagittaria Latifolia var. *Pubescens*	Hairy Arrowhead	G5T5	SH			
SAGITTARIA SUBULATA	AWL-LEAF ARROWHEAD	G4	S2			
Sagittaria Teres	Slender Arrowhead	G3	S1	E		
Salix Candida	Hoary Willow	G5	S2			
Salix Humilis var .*Tristis*	Dwarf Upland Willow	G5T4T5	S3S4			
Salix Lucida Ssp Lucida	Shining Willow	G5T5	S1			
Salix Pedicellaris	Bog Willow	G5	S1	E		
Salix Petiolaris	Meadow Willow	G5	S3S4			
Salix Serissima	Autumn Willow	G4	S2			
Sambucus Racemosa var. *Pubens*	Red Elderberry	G5T5	S3S4			

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Sanicula Trifoliata	Large-Fruit Black-Snakeroot	G4	S1	E		
Saxifraga Pensylvanica	Swamp Saxifrage	G5	S3S4			
Scheuchzeria Palustris	Arrow-Grass	G5T5	SH	E		
Schizachne Purpurascens	Purple Oat	G5	S1	E		
Schizaea Pusilla	Curly Grass Fern	G3	S3	LP		
Schoenoplectus Acutus var. *Acutus*	Hard-Stem Bulrush	G5	S3			
Schoenoplectus Novae-Angliae	New England Bulrush	G5	S2			
Schoenoplectus Smithii	Smith's Club-Rush	G5?	S2			
Schoenoplectus Torreyi	Torrey's Bulrush	G5?	S1	E		
Schwalbea Americana	Chaffseed	G2	S1	LE	E	LP
Scirpus Atrocinctus	Black-Girdle Woolgrass	G5	S1			
Scirpus Expansus	Woodland Bulrush	G4	S3S4			
Scirpus Longii	Long's Woolgrass	G2	S2	E	LP	
Scirpus Maritimus	Saltmarsh Bulrush	G5	SH	E		
Scirpus Microcarpus	Barberpole Bulrush	G5	S1	E		
Scirpus Pedicellatus	Stalked Woolgrass	G4	SH	E		
Scirpus Pendulus	Reddish Bulrush	G5	S3			
Scleria Pauciflora var. *Caroliniana*	Carolina Nut-Rush	G5T4T5	S2			
Scleria Pauciflora var. *Pauciflora*	Papillose Nut-Rush	G5T?	S1			
Scleria Verticillata	Whorled Nut-Rush	G5	S1	E		
Sclerolepis Uniflora	Bog Buttons	G4	S2	LP		
Scutellaria Leonardii	Small Skullcap	G4T4	S1	E		
Scutellaria Nervosa	Veined Skullcap	G5	S2			
Sedum Telephioides	Allegheny Stonecrop	G4	SX.1			
Selaginella Rupestris	Rock Spike-Moss	G5	S2			
Senecio Anonymus	Small's Groundsel	G5	SH			
Senecio Pauperculus	Balsam Ragwort	G5	S3			
Senecio Tomentosus	Woolly Ragwort	G4G5	S2			
Senna Hebecarpa	Northern Wild Senna	G5	S3S4			
Sesuvium Maritimum	Seabeach Purslane	G5	S2			
Setaria Magna	Giant Fox-Tail	G4G5	S2			
Silene Caroliniana var. *Pensylvanica*	Wild-Pink	G5T4	S3			
Silene Nivea	Snowy Catchfly	G4?	S1	E		
Sisyrinchium Fuscatum	Sand-Plain Blue-Eyed Grass	G5?	S2			
Sisyrinchium Montanum	Strict Blue-Eyed Grass	G5T4	S2	E		
Smilacina Trifolia	Three-Leaf False Solomon's-Seal	G5	S1	E		
Smilax Hispida	Bristly Greenbrier	G5	S3			
Smilax Laurifolia	Laurel-Leaf Greenbrier	G5	S3S4			
Smilax Pseudochina	Bamboo Vine	G4G5	S3			
Smilax Pulverulenta	Downy Carrion-Flower	G4G5	S3			

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Smilax Walteri	Coral Greenbrier	G5	S3S4			
Solidago Elliottii	Elliott's Goldenrod	G5	S3			
Solidago Hispida var *Hispida*	Hairy Goldenrod	G5T5	SH			
Solidago Rigida	Prairie Goldenrod	G5T5	S1	E		
Solidago Rugosa Ssp Rugosa var. *Sphagnophila*	Summer Goldenrod	G5T?	S3			
Solidago Speciosa var. *Speciosa*	Showy Goldenrod	G5T5?	S3			
Solidago Squarrosa	Stout Ragged Goldenrod	G4?	S3S4			
Solidago Stricta	Wand-Like Goldenrod	G5	S3	LP		
Solidago Tarda	Late Goldenrod	G4?Q	S3			
Solidago Uliginosa var *Linoides*	Flax-Leaf Bog Goldenrod	G4G5T?	S3			
Solidago Uliginosa var. *Uliginosa*	Bog Goldenrod	G4G5T?	S2S3			
Sorbus Americana	American Mountain-Ash	G5	S3S4			
Sparganium Angustifolium	Narrow-Leaf Burr-Reed	G5	SH	E		
Sparganium Chlorocarpum	Green-Fruited Bur-Reed	G5	S3			
Sparganium Eurycarpum	Large Burr-Reed	G5	S3S4			
Sparganium Minimum	Small Burr-Reed	G5	S1	E		
Sphagnum Angustifolium	Sphagnum	G5	S1	E		
Sphagnum Austinii	Sphagnum	G4	SH	E		
Sphagnum Capillifolium	Sphagnum	G5	S2			
Sphagnum Carolinianum	Sphagnum	G3	S2			
Sphagnum Centrale	Sphagnum	G5	S1	E		
Sphagnum Contortum	Sphagnum	G5	S1	E		
Sphagnum Cyclophyllum	Sphagnum	G3	S2			
Sphagnum Fuscum	Sphagnum	G5	S2			
Sphagnum Macrophyllum	Sphagnum	G3	S2			
Sphagnum Macrophyllum var. *Floridanum*	Sphagnum	G3T3	S1	E		
Sphagnum Majus ssp. *Norvegicum*	Sphagnum	G5?T?	S1.1	E		
Sphagnum Perichaetiale	Sphagnum	G5	S2			
Sphagnum Platyphyllum	Sphagnum	G5	SH.1	E		
Sphagnum Portoricense	Sphagnum	G5	S2			
Sphagnum Quinquefarium	Sphagnum	G5	S1	E		
Sphagnum Riparium	Sphagnum	G5	S1	E		
Sphagnum Squarrosum	Sphagnum	G5	S2			
Sphagnum Strictum	Sphagnum	G5	S1	E		
Sphagnum Subfulvum	Sphagnum	G?	S1.1	E		
Sphagnum Subsecundum	Sphagnum	G5	S1	E		
Sphagnum Subtile	Sphagnum	G5?Q	S2			
Sphagnum Tenellum	Sphagnum	G5	S2			
Sphagnum Teres	Sphagnum	G5	S2			
Sphagnum Warnstorfii	Sphagnum	G5	S2			

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Sphenopholis Pensylvanica	Swamp Oats	G4	S2			
Spiraea Alba var. *Alba*	Narrow-Leaf Meadow-Sweet	G5T5	S1			
Spiranthes Laciniata	Lace-Lip Ladies'-Tresses	G4G5	S1	E		
Spiranthes Lucida	Shining Ladies'-Tresses	G5	S2			
Spiranthes Ochroleuca	Yellowish Nodding Ladies'-Tresses	G4	S3			
Spiranthes Odorata	Fragrant Ladies'-Tresses	G5	S2			
Spiranthes Tuberosa	Little Ladies'-Tresses	G5	S3	LP		
Spiranthes Vernalis	Spring Ladies'-Tresses	G5	S3S4			
Sporobolus Clandestinus	Rough Rush-Grass	G5	S3			
Sporobolus Compositus var. *Compositus*	Long-Leaf Rush-Grass	G5T5	S2			
Sporobolus Neglectus	Small Rush-Grass	G5	S1	E		
Stachys Hyssopifolia	Hyssop Hedge-Nettle	G5	S2			
Stachys Palustris var. *Homotricha*	Hairy Hedge-Nettle	G5T?	SH	E		
Stachys Tenuifolia	Smooth Hedge-Nettle	G5	S3			
Stellaria Alsine	Bog Chickweed	G5	S3S4			
Stellaria Borealis	Boreal Starwort	G5T5	S1	E		
Stellaria Pubera	Star Chickweed	G5	SH	E		
Streptopus Amplexifolius	White Twisted-Stalk	G5T5	S1	E		
Streptopus Roseus	Rosy Twisted-Stalk	G5T5?	S1	E		
Stylisma Pickeringii var. *Pickeringii*	Pickering's Morning-Glory	G4T2T3	S1	E	LP	
Stylosanthes Biflora	Pencil-Flower	G5	S3			
Suaeda Calceoliformis	American Seablite	G5	S2			
Suaeda Rolandiiia Integerrima	Yellow-Pimpernel	G5	S3S4			
Taxus Canadensis	American Yew	G5	S2			
Teucrium Canadense var. *Canadense*	American Germander	G5T5	S3S4			
Teucrium Canadense var. *Occidentale*	Hairy Germander	G5T5?	SH			
Thalictrum Revolutum	Waxy Meadow Rue	G5	S3S4			
Thaspium Barbinode	Hairy-Joint Meadow-Parsnip	G5	SX			
Thaspium Trifoliatum var. *Trifoliatum*	Purple Meadow-Parsnip	G5T5	S3			
Thuja Occidentalis	Arborvitae	G5	S1	E		
Tiarella Cordifolia	Foamflower	G5T5	S1	E		
Tipularia Discolor	Cranefly Orchid	G4G5	S3			
Tofieldia Racemosa	False Asphodel	G5	S1	E	LP	
Torreyochloa Pallida var. *Fernaldii*	Fernald's False Manna Grass	G5?T4Q	S1			
Toxicodendron Pubescens	Poison-Oak	G5	S3			
Tradescantia Ohiensis	Ohio Spiderwort	G5	S2			
Triadenum Fraseri	Fraser's St. John's-Wort	G4G5	S3			
Triadenum Walteri	Walter's St. John's-Wort	G5	S1	E		
Trichomanes Intricatum	Weft Fern	G3G4	S1.1	E		

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Trichostema Setaceum	Narrow-Leaf Bluecurls	G5	S2			
Tridens Flavus var. *Chapmanii*	Chapman's Redtop	G5T?	SH	E		
Trifolium Reflexum	Buffalo Clover	G5	SX			
Triglochin Maritima	Seaside Arrow-Grass	G5	S1	E		
Trillium Erectum	Red Trillium	G5	S3S4			
Trillium Undulatum	Painted Trillium	G5	S3			
Triosteum Angustifolium	Narrow-Leaf Horse-Gentian	G5	S1	E		
Triphora Trianthophora	Three Birds Orchid	G3G4	S1	E		
Trollius Laxus ssp. *Laxus*	Spreading Globe Flower	G4T3	S1	E		
Ulmus Thomasii	Rock Elm	G5	SX.1			
Utricularia Biflora	Two-Flower Bladderwort	G5	S1	E		
Utricularia Gibba	Humped Bladderwort	G5	S3	LP		
Utricularia Inflata	Large Swollen Bladderwort	G5	S1			
Utricularia Intermedia	Flat-Leaf Bladderwort	G5	S3			
Utricularia Minor	Lesser Bladderwort	G5	S1			
Utricularia Olivacea	Dwarf White Bladderwort	G4	S1.1	E	LP	
Utricularia Purpurea	Purple Bladderwort	G5	S3	LP		
Utricularia Radiata	Small Swollen Bladderwort	G4	S3S4			
Utricularia Resupinata	Reversed Bladderwort	G4	S1	E	LP	
Uvularia Puberula var. *Nitida*	Pine Barren Bellwort	G5T3?	S2	E		
Vaccinium Oxycoccos	Small Cranberry	G5	S2			
Valerianella Chenopodiifolia	Goose-Foot Cornsalad	G5	SH.1			
Valerianella Radiata	Beaked Cornsalad	G5	S1	E		
Valerianella Umbilicata	Navel Cornsalad	G3G5	SH	E		
Verbena Simplex	Narrow-Leaf Vervain	G5	S1	E		
Verbena Urticifolia var. *Leiocarpa*	Smooth-Fruit White Vervain	G5T?	S3S4			
Vernonia Glauca	Broad-Leaf Ironweed	G5	S1	E		
Veronica Catenata	Sessile Water-Speedwell	G5	S1	E		
Veronicastrum Virginicum	Culver's-Root	G4	S3S4			
Viburnum Alnifolium	Witch-Hobble	G5	S1	E		
Viburnum Dentatum var. *Venosum*	Veiny-Leaf Arrow-Wood	G5T4T5	S2			
Viburnum Opulus var. *Americanum*	Highbush-Cranberry	G5T5	S3			
Vicia Americana var. *Americana*	American Purple Vetch	G5T5	S2			
Vicia Caroliniana	Carolina Wood Vetch	G5	S1	E		
Viola Blanda var. Palustriformis	Large-Leaf White Violet	G4G5T4 T5	S3			
Viola Brittoniana var. *Brittoniana*	Britton's Coast Violet	G4G5T4 T5	S3			
Viola Brittoniana var. *Pectinata*	Cut-Leaf Coast Violet	G4G5T3 ?Q	SH.1			
Viola Canadensis	Canadian Violet	G5T?	S1	E		
Viola Hirsutula	Southern Wood Violet	G4	S2			

Species Name	Common Name	Global Rank	State Status	Federal Status	State Status	Other Rank
Viola Lanceolata var. *Vittata*	Southern Lance-Leaf Violet	G5T?	S2S4			
Viola Rostrata	Long-Spur Violet	G5	S3S4			
Viola Rotundifolia	Round-Leaf Violet	G5	S3S4			
Viola Septentrionalis	Northern Blue Violet	G5	S1	E		
Viola Triloba var. *Dilatata*	Dilated Violet	G5T?	S1.1			
Vitis Aestivalis var. *Bicolor*	Blue Grape	G5T4T5	S3S4			
Vulpia Elliotea	Squirrel-Tail Six-Weeks Grass	G5	S1	E		
Vulpia Octoflora var. *Glauca*	Slender Six-Weeks Grass	G5T5	SU			
Waldsteinia Fragarioides var. *Fragarioides*	Barren-Strawberry	G5T5	S2			
Wolffia Brasiliensis	Pointed Watermeal	G5	S3S4			
Wolffiella Floridana	Sword Bogmat	G5	S1	E		
Woodsia Ilvensis	Rusty Cliff Fern	G5	S3S4			
Xanthium Strumarium var. *Glabratum*	American Cockleburr	G5T?	S3S4			
Xyris Caroliniana	Sand Yellow-Eyed-Grass	G4G5	S1	E	LP	
Xyris Fimbriata	Fringed Yellow-Eyed-Grass	G5	S1	E		
Xyris Jupicai	Richard's Yellow-Eyed-Grass	G5	S1			
Xyris Montana	Northern Yellow-Eyed-Grass	G4	S1.1	E		
Zigadenus Leimanthoides	Death-Camus	G4Q	S1	E		

ENDANGERED AND THREATENED WILDLIFE OF NEW JERSEY

ENDANGERED AND NONGAME SPECIES PROGRAM
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
DIVISION OF FISH, GAME AND WILDLIFE

Endangered Species are those whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination. Assistance is needed to prevent futurec extinction in New Jersey. For more information, visit the Endangered and Nongame Species Program web site. Threatened Species are those who may become endangered if conditions surrounding them begin to or continue to deteriorate.

BIRDS

Species Name	Common Name
Birds Endangered	
Podilymbus podiceps[a]	Pied-billed grebe
Botaurus lentiginosus[a]	American bittern
Haliaeetus leucocephalus[b]	Bald eagle
Circus cyaneus[a]	Northern harrier
Accipiter gentilis[a]	Northern goshawk
Buteo lineatus[a]	Red-shouldered hawk
Falco peregrinus	Peregrine falcon
Charadrius melodus[b]	Piping plover
Bartramia longicauda	Upland sandpiper
Sterna dougallii[b]	Roseate tern
Sterna antillarum	Least tern
Rynchops niger[a]	Black skimmer
Asio flammeus[a]	Short-eared owl
Cistothorus platensis	Sedge wren
Lanius ludovicianus	Loggerhead shrike
Pooecetes gramineus[a]	Vesper sparrow
Ammodramus henslowii	Henslow's sparrow
Birds Threatened	
Nycticorax nycticorax[a]	Black-crowned night heron
Nyctanassa violaceus	Yellow-crowned night heron
Haliaeetus leucocephalus[b,c]	Bald eagle
Calidris canutus[c]	Red knot
Pandion haliaetus[a]	Osprey
Buteo lineatus[c]	Red-shouldered hawk
Accipiter cooperii	Cooper's hawk
Laterallus jamaicensis	Black rail
Asio otus	Long-eared owl
Strix varia	Barred owl
Melanerpes erythrocephalus	Red-headed woodpecker

Species Name	Common Name
Rynchops niger[c]	Black skimmer
Passerculus sandwichensis[a]	Savannah sparrow
Ammodramus savannarum[a]	Grasshopper sparrow
Dolichonyx oryzivorus[a]	Bobolink
Pooecetes gramineus[c]	Vesper sparrow

a. Only Breeding population considered endangered or threatened.
b. Federally endangered or threatened.
c. Nonbreeding population only.

REPTILES

Species Name	Common Name
Rebtiles Endangered	
Clemmys muhlenbergi[a]	Bog turtle
Eretmochelys imbricata[a]	Atlantic hawksbill
Caretta caretta[a]	Atlantic loggerhead
Lepidochelys kempi[a]	Atlantic ridley
Dermochelys coriacea[a]	Atlantic leatherback
Elaphe g. guttata	Corn snake
Crotalus h. horridus	Timber rattlesnake
Reptiles Threatened	
Clemmys insculpta	Wood turtle
Chelonia mydas[a]	Atlantic green turtle
Pituophis m. melanoleucus	Northern pine snake

a. Federally endangered or threatened.

AMPHIBIANS

Species Name	Common Name
Amphibians Endangered	
Ambystoma tremblayi	Tremblay's salamander
Ambystoma laterale	Blue-spotted salamander
Ambystoma t. tigrinum	Eastern tiger salamander
Hyla andersonii	Pine Barrens treefrog
Hyla chrysoscelis	Southern gray treefrog
Amphibians Threatened	
Eurycea longicauda	Long-tailed salamander
Pseudotriton montanus	Eastern mud salamander

MAMMALS

Species Name	Common Name
Mammals Endangered	
Myotis sodalis[a]	Indiana bat
Lynx rufus	Bobcat
Neotoma floridan[a]	Eastern woodrat
Physeter macrocephalus[a]	Sperm whale
Balaenoptera physalus[a]	Fin whale
Balaenoptera borealis[a]	Sei whale
Balaenoptera musculus[a]	Blue whale
Megaptera novaeangliae[a]	Humpback whale
Balaena glacialis[a]	Black right whale

a. Federally endangered or threatened.

INVERTEBRATES

Species Name	Common Name
Invertebrates Endangered	
Alasmidonta heterodon[a]	Dwarf wedgemussel (mussel)
Alasmidonta varicosa	Brook Floater (mussel)
Lasmigona subviridis	Green Floater (mussel)
Cicindela d. dorsalis[a]	Northeastern beach tiger beetle
Nicrophorus americanus[a]	American burying beetle
Neonympha m. mitchellii[a]	Mitchell's satyr (butterfly)
Pyrgus wyandot	Appalachian Grizzled Skipper (butterfly)
Atrytone arogos arogos	Arogos Skipper (butterfly)
Lycaena hyllus	Bronze Copper (butterfly)
Invertebrates Threatened	
Lampsilis radiata	Eastern Lampmussel (mussel)
Leptodea ochracea	Tidewater Mucket (mussel)
Lampsilis cariosa	Yellow Lampmussel (mussel)
Alasmidonta undulata	Triangle Floater (mussel)
Ligumia nasuta	Eastern Pondmussel (mussel)
Pontia protodice	Checkered White (butterfly)
Callophrys irus	Frosted Elfin (butterfly)
Bolaria selene myrina	Silver-bordered Fritillary (butterfly)

a. Federally endangered or threatened.

FISH

Species Name	Common Name
Fish Endangered	
Acipenser brevirostrum[a]	Shortnose sturgeon

a. Federally endangered or threatened.

List revisions:

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic 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.

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