The federal TSA conducted an emergency response review and issued a concurrence with this recommendation.

5.0 ENVIRONMENTAL CONSEQUENCES

This section describes the environmental consequences associated with each alternative to the proposed action.

Summary of Environmental Regulations

- **National Environmental Policy Act (NEPA), 1969:** 42 U.S.C. Section 432f et seq. Recognizing the profound impact of man's activity on the social, economic, and natural environment, Congress directs all agencies of the federal government to report on actions affecting the environment and include:

  (i) The environmental impact of the proposed action.
  (ii) Any adverse environmental effects which can not be avoided should the proposal be implemented.
  (iii) Alternatives to the proposed action.

- **The Council on Environmental Quality (CEQ) Regulations:** 40 CFR 1500–1508. provide guidance to implement the provisions of NEPA.

- **NPS Organic Act, August 25, 1916:** Public Law 64-235. Congress created the NPS within the Department of Interior to:

  ... conserve the scenery and the natural and historic objects and the wild life therein, and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

- **NPS Director's Order 12:** *Conservation Planning, Environmental Impact Analysis, and Decision Making* (2001), and its accompanying handbook, includes procedures to comply with NEPA and CEQ regulations.

- **NPS Management Policies, 2006:** Park managers must preserve park resources "unimpaired;" qualifying impairment to mean reaching a level that violates the Organic Act. "That level is reached when an action that is taken would permanently impair essential park resources that are fundamental to the values and purposes for which a park was established."

- **National Historic Preservation Act (NHPA) of 1966:** The nation's primary historic preservation law (16 U.S. C. 470). The Act was designed to bolster the preservation and wise use of our historic resources, and set forth the policy of the federal government regarding historic preservation, encouraging conditions in which historic properties can be preserved in harmony with modern society while fulfilling modern society's needs.

The Act created the NRHP, the nation's official list of districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and cultures and are worthy of preservation.

General Methodology for Analyzing Impacts

To determine impacts, methodologies were identified to measure the change in park resources that would occur with the implementation of the alternatives. Impact thresholds were established to help understand the extent and magnitude of changes in resource conditions. In the absence of quantitative data, best professional judgment was used to determine impacts.

Potential impacts are described in terms of:

- Type – are the effects beneficial or adverse.
- Context – are the effects site-specific, local, or regional.
- Duration – are the effects short-term (lasting during construction activities, one year or less) or long-term (longer than one year).
- Intensity – are the effects negligible, minor, moderate, or major.
- Impairment – would the effects permanently impair park resources or values.

The terms "impact" and "effect" are used interchangeably throughout this document.

Impairment Analysis

The NPS Management Policies (2006) require an analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, as established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the NPS the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.

Although Congress has given the NPS the management discretion to allow certain impacts within a park system unit, that discretion is limited by the statutory requirement that the agency must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to cause impairment to the extent that it has a major or severe adverse effect upon a resource or value which conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park. (The Capper-Cramton Act of 1930, as amended, was the establishing legislation for the George Washington Memorial Parkway, including JPP).
- Key to the natural or cultural integrity of the park.
- Identified as a goal in the park's general management plan or other relevant NPS planning documents. (JPP does not have a general management plan – for this document, the 2001 JPP EA, which contained alternative park design concepts, was used).

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by maintenance personnel, contractors and others operating in the park. The following process was used to determine whether the various action alternatives had the potential to impair park resources and values:

1. Reviewed JPP planning documents with regard to the park's purpose and significance, resource values, and resource management goals or desired future conditions.
2. Identified NPS management objectives specific to resource protection goals at JPP.
3. Determined the type, context, intensity and duration of impacts, as defined above.
4. Determined if the magnitude of impact reached the level of impairment as defined by NPS Management Policies.

The impact analysis for each alternative includes any findings of impairment to park resources and values.

Mitigation Measures

The Code of Federal Regulations (40 Code of Federal Regulations (CFR) 1508.20) defines mitigation as:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

The discussion of each resource topic includes mitigation measures for potential effects, if applicable.

Impacts Common to Action Alternatives

The access road to JPP (and associated parking) would be located north of the new WWB. Although the park configurations would be slightly modified, the general forms and amenities presented in the WWB FSEIS (April 2000) and 2001 JPP site plan would remain intact. Therefore, all of the action alternatives contain similar impacts associated with construction of the following proposed improvements in JPP: a park manager's office/comfort station, a promenade/boardwalk, shoreline stabilization, proposed bulkhead, a canoe/kayak launch area, a fishing pier, and the rehabilitation and preservation of the Jones Point Lighthouse and the D.C. South Cornerstone. In addition, the No-Action Alternative and all of the action alternatives will result in impacts to individual trees (one tree greater than 24 inch dbh and 13 trees less than 24 inch dbh along Jones Point Park Drive as a result of the construction of the new inner loop span of the WWB.

Each action alternative contributes to the achievement of the Purpose and Need for the project (refer to Chapter 1.0 of this document), the NPS resource management goals for JPP (refer to Chapter 2.0 of this document), and conditions relevant to JPP as stated in the MOA and the ROD for the WWB Replacement Project (refer to the Appendix).

A. Neighborhoods, Community Facilities, and Services

Guiding Regulations and Policies

The National Environmental Policy Act (NEPA) of 1969, as amended, required all agencies of the federal government to consider and document potential social, economic and environmental impacts of projects eligible for federal funding. The FHWA's *Community Impact Assessment: A Quick Reference for Transportation* (September 1996) provided guidance in assessing impacts on community resources.

Methodology and Assumptions

JPP does not contain neighborhoods and community facilities and services (e.g.: fire, emergency, places of worship) within its boundaries, with the exception of two community gardens and a recycling center. Therefore, the potential impacts from the project are limited in scope and many of the community impact categories were determined not to be applicable. However, the NPS has received several written comments from citizens that identified visual, noise, and traffic and parking as concerns. The nature and importance of community effects focused on identifying:

1. Social Aspects –
    - Would certain people or residences be displaced?
    - Would certain people or neighborhoods be separated or set apart from others?

2. Public Facilities –

   - Would the project result in relocation or displacement of the community gardens and/or recycling center?

3. Mobility and Access –

   - How does the project affect short- and long-term vehicular access to public services, and other park facilities? How does it affect parking availability?
   - How does the project affect access to adjacent schools and other facilities?

Visual, noise, environmental justice, visitor experience and use, and safety and security considerations were analyzed and discussed in separate sections of this document.

Impacts on Neighborhoods, Community Facilities, and Services

The following thresholds were used to determine the magnitude of effects on neighborhoods, community facilities and services:

Negligible: Neighborhoods, community facilities and services would not be affected, or changes would be below the level of detection.

Minor: Changes in neighborhoods, community facilities and services would be detectable, although the changes would be slight. May or may not require mitigation.

Moderate: Changes in neighborhoods, community facilities and services would be readily apparent. Impact can be mitigated within 5 years using conventional practices.

Major: High level of permanent change such as: displacement of residences; increased separation or unintended isolation of neighborhoods and/or activities; elimination of automobile or pedestrian access to public services and facilities; or more circuitous routing for emergency vehicles.

The No-Action Alternative

The No-Action Alternative does not include improvements to JPP. When construction on the WWB is complete and the bridge contractors have vacated the staging areas in JPP, it is expected that the park, itself, would be restored to its pre-WWB construction condition and vehicular traffic associated with the previous park activities would resume. These activities include:

- Vehicular access to the park from Royal Street following construction of the WWB. (However, the existing vehicle access road within the park, approximately 300 feet from the closest residence in the Yates Gardens neighborhood, would have to be relocated since it is within the 80-foot distance surrounding the WWB).
- Fishing activities from the two piers and along the bulkhead (which have remained in use during the construction of the WWB).

- Public access to the Jones Point Lighthouse and the D.C. South Cornerstone.
- Vehicular access by joggers and cyclists who often took advantage of the free parking in JPP while they used the Mt. Vernon Trail.
- Vehicular access to the recycling center, comprised of drop-off containers (which has remained in use during the construction of the WWB).
- Vehicular access to the community gardens (which have remained in use during the construction of the WWB).
- The Seaport Foundation, which encompassed boat building and boat repair activities, may still operate after completion of the new WWB.

All of the above activities would generate traffic through the local neighborhood to access the park and would be nearly the same amount of traffic to and from the park as before the WWB Replacement Project (traffic generated by the former U.S. Army Reserve Building is the exception since it was removed due to construction of the new WWB). The potential traffic impacts on local streets under the No-Action Alternative are expected to be negligible.

The No-Action Alternative does not fulfill the Purpose and Need for the project (refer to Chapter 1.0 of this document), the NPS resource management goals for JPP (refer to Chapter 2.0 of this document), conditions relevant to JPP as stated in the MOA, the ROD for the WWB Replacement Project (refer to the Appendix), or the security measures recommended by the federal TSA. As previously stated, the No-Action Alternative is not being considered for improvements to JPP (refer to Chapter 3.0, Section A).

Impacts Common to Action Alternatives

Analysis: The action alternatives would not require any displacements from the Yates Gardens neighborhood nor disrupt community cohesion, community facilities or services (including emergency services). Potential visual and noise effects are discussed in separate sections of this document. Access to the recycling center would be maintained and relocated to the new end of Royal Street. The new location for recycling center access would have a beneficial, local, long-term, minor effect for residents by providing more direct and closer access in the park. Moving the recycling center access would not impair park resources or values since it would be relocated adjacent to an existing roadway (Royal Street).

In addition to serving as the vehicular entrance point to JPP, Royal Street serves as a staging area for pick-up/drop-off of students that attend St. Mary's School. The City of Alexandria would be responsible for identifying alternate access locations for St. Mary's School.

The traffic generating activities listed under the No-Action Alternative are applicable under the five action alternatives (with the exception of the Seaport Foundation which would no longer exist in the park under the action alternatives). However, the action alternatives would include additional and enhanced destination activities which would likely generate more vehicular trips to the park.

For example, fishing activities would continue but could be more popular due to the enhanced conditions of the park. Visits to the Jones Pont Lighthouse and D.C. South Cornerstone could increase due to the improvements made to these historical features. Use of the Mt. Vernon Trail could increase due to the improvements with the WWB Replacement Project and in the park. Use of the community gardens would likely stay the same as before since the gardens have limited area and that area appears to be regularly used to capacity.

The recreational enhancements and new facilities under the action alternatives would generate additional vehicular trips to the park. The new facilities include play courts, a canoe/kayak launch, a tot lot, playground, an event lawn, and historical interpretive features. Four of the five action alternatives (Alternatives 1, 2, 3, and 4A) include two multi-use fields. Since the multi-use fields would be of higher quality and better maintained compared to existing conditions, the frequency of use could possibly increase which may, in turn, add vehicular trips to the park. (Alternative 4 includes one multi-use field which would generate fewer trips than the two multi-use fields under the other action alternatives). All of the new and improved park facilities, combined, are expected to result in a minor increase in vehicular trips to the park. .It is not anticipated that the additional traffic generated by the above park improvements would exceed the capacity of the local two-way residential roadway system.

Public vehicular access to the soccer fields located south of the WWB would be restored following construction of the WWB. However, prior to the WWB construction, the two soccer fields were infrequently used because they were small and not well maintained. With the planned improvements to the multi-use field south of the WWB, and the new multi-use fields to be located north of the WWB, vehicular traffic could increase. Potential traffic impacts due to the multi-use fields would be minor.

The most stress that park access traffic would put on the local roadway system is anticipated to occur when there is an overlap of incoming and outgoing traffic for games being played at the multi-use fields. City recreational officials have estimated potentially 40 cars could attend each field event and, when two fields are exchanging both incoming and outgoing vehicles, there could be up to approximately 160 cars, at one time, using the local roadways generated by the multi-use field activities. This worst-case scenario of peak traffic volumes in the park would likely be less disruptive to the local roadways than the twice daily drop-off and pick-up of the hundreds of students at St. Mary's School directly across Royal Street from JPP. It is unlikely that the multi-use field events would coincide with the St. Mary's School traffic as they would occur at different days and times. Peak traffic volumes, associated with St. Mary's School, occur during mornings and afternoons each weekday compared with the peak traffic volumes associated with the multi-use fields that are expected to occur during late afternoons and early evenings on weekdays and weekends.

The improvements at JPP would increase traffic on the local roadways by virtue of the enhanced nature of the facilities; however, the increase in traffic would not exceed the capacity of the roadway to handle the traffic. This additional traffic would result in an adverse, local, long-term, minor impact on roadways in the surrounding community.

The potential impacts of the vehicle access road and parking areas within JPP are discussed under each action alternative, below.

Alternative 1 *(Alexandria City Council's "Scheme A" dated 6/28/05)*

Analysis: In addition to the impacts common to all action alternatives, Alternative 1 would place the vehicle access road approximately 100 feet from the closest residence in the Yates Gardens neighborhood. The westernmost parking area under Alternative 1 would be approximately 90 feet from the neighborhood. However, a tree buffer would remain between the access road/parking area and the neighborhood.

Alternative 1 would not impact either the Royal Street or Lee Street community gardens.

Conclusion: Relocating the vehicle access road and parking area would have an adverse, site-specific, long-term, minor effect on neighborhoods and community gardens. Although the existing tree buffer would be reduced, it would continue to shield the neighborhood from park activities. Alternative 1 would result in no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 2 *(VDOT "Access Option 5" dated 9/28/04)*

Analysis: In addition to the impacts common to all action alternatives, Alternative 2 would place the access road within approximately 65 feet of the closest residence in the Yates Gardens neighborhood. The westernmost parking area under Alternative 2 would be approximately 260 feet from the neighborhood. A tree buffer would remain between the access road/parking area and the neighborhood.

Construction of the vehicle access road proposed under Alternative 2 would impact approximately 170 square feet (0.0039 acre) of the Royal Street community garden and approximately 11,875 square feet (0.27 acre) of the Lee Street community garden. However, the access road would not affect any portion of the Lee Street garden property that is currently being cultivated. The Lee Street garden property would need to be reconfigured and extended north to maintain the same amount of land available for public gardening activities.

Conclusion: Relocating the vehicle access road and parking area would have an adverse, site-specific, long-term, minor effect on neighborhoods and a larger impact on the Lee Street community garden than Alternative 1. Although the existing tree buffer would be reduced, it would continue to shield the neighborhood from the park activities.

Relocating the vehicle access road would have an adverse, site-specific, minor effect on the community gardens since the potential effects would total less than one acre for each garden and the effects to the Lee Street garden would occur to property that is not currently cultivated.

Alternative 2 would result in no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 3 *(Based on "Alternative 2" from JPP EA dated 9/10/01)*

Analysis: In addition to the impacts common to all action alternatives, Alternative 3 would place the access road within approximately 65 feet of the closest residence in the Yates Gardens neighborhood (similar to Alternative 2). A tree buffer would remain between the access road and the neighborhood.

Construction of the vehicle access road proposed under Alternative 3 would impact approximately 170 square feet (0.0039 acre) of the Royal Street community garden (similar to Alternative 2) and 11,875 square feet (0.27 acre) of the Lee Street community garden (similar to Alternative 2). The Lee Street community garden property would be reconfigured and extended north to maintain the same amount of land available for public gardening activities.

Conclusion: Relocating the vehicle access road in the park would have an adverse, site-specific, long-term, minor effect on neighborhoods and a larger impact on the Lee Street community garden than Alternative 1 (and similar to Alternative 2). Although the existing tree buffer would be reduced, it would continue to shield the neighborhood from park activities. Relocating the vehicle access road would have an adverse, site-specific, long-term, minor effect on the community gardens since the potential effects would total less than one acre for each garden and the effects to the Lee Street garden property occurs on land not currently cultivated. Alternative 3 would result in no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4 *(One multi-use field south of the WWB)*

Analysis: In addition to the impacts common to all action alternatives, Alternative 4 would place the vehicle access road within approximately 65 feet of the closest residence in the Yates Gardens neighborhood (similar to Alternatives 2 and 3). A tree buffer would remain between the access road and the neighborhood. Alternative 4 would impact approximately 170 square feet (0.0039 acre) of the Royal Street community garden (similar to Alternatives 2 and 3). Alternative 4 would impact approximately 10,770 square feet (0.25 acre) of the Lee Street community garden; however, the vehicle access road would not affect any portion of the garden property that is currently being cultivated.

The Lee Street community garden property would be reconfigured and extended north to maintain the same amount of land available for public gardening activities.

Conclusion: Relocating the vehicle access road in the park would have an adverse, site-specific, long-term, minor effect on neighborhoods and a greater impact on the Lee Street community garden than Alternative 1 (similar to Alternatives 2 and 3). Relocating the vehicle access road would have an adverse, site-specific, long-term, minor effect on the community gardens since the potential effects would total less than one acre for each garden and the effects to the Lee Street garden property occurs on land not currently cultivated. Alternative 4 would result in no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4A – Preferred Alternative *(Multi-use fields north and south of the WWB)*

Analysis: Alternative 4A would not require any displacements from the Yates Gardens neighborhood nor disrupt community cohesion, community facilities or services (including emergency services). Potential noise effects from Alternative 4A would be the same as for all action alternatives presented in the JPP EA. Access to the recycling center would be maintained and relocated to the new end of Royal Street. The new location for recycling center access would have a beneficial, local, long-term, minor effect for residents by providing more direct and closer access in the park. Moving the recycling center access would not impair park resources or values since it would be relocated adjacent to an existing roadway (Royal Street).

Royal Street serves as the vehicular entrance point to JPP and a staging area for pick-up/drop-off of students that attend St. Mary's School. The City of Alexandria would be responsible for identifying alternate access locations for St. Mary's School.

In addition to the impacts common to all action alternatives, Alternative 4A would place the vehicle access road (68 feet) and parking area (908 feet) as far away as possible from the closest residence in the Yates Gardens neighborhood. A tree buffer would remain between the access road and the neighborhood. The potential impacts of the vehicle access road and parking areas within JPP are discussed under each resource topic, below. Potential visual effects are discussed in a separate section of this document.

Alternative 4A would impact approximately 170 square feet (0.0039 acre) of the Royal Street community garden (similar to JPP EA Alternatives 2, 3 and 4). Alternative 4A would impact approximately 10,475 square feet (0.24 acre) of the Lee Street community garden; however, this total includes 404 square feet (0.0093 acre) of impact to the garden property that is currently being cultivated. The impact on the cultivated garden area, which is due to the engineering constraints associated with connecting the access road to the new parking area configuration, is a change from the action alternatives presented in the JPP EA. The Lee Street community garden property would be reconfigured and extended north to maintain the same amount of land available for public gardening activities.

Conclusion: Relocating the vehicle access road in the park would have an adverse, site-specific, long-term, minor effect on neighborhoods and a greater impact on the cultivated garden area in the Lee Street community garden (the other action alternatives did not impact the cultivated portion of the Lee Street community garden). Relocating the vehicle access road would have an adverse, site-specific, long-term, minor effect on the community gardens since the potential effects would total less than one acre for each garden.

Alternative 4A would result in no impairment of the park's community facilities and services because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the JPP EA, or other relevant NPS planning documents.

Mitigation Measures

A tree buffer would remain between the vehicle access road in the park and the Yates Gardens neighborhood to reduce potential visual and noise effects. The Lee Street community garden would be reconfigured and extended north to maintain the same amount of land available for public gardening.

Mitigation measures may include scheduling of park construction to occur during times of low usage, scheduling construction during least disruptive hours, and provision of secondary access during construction. Temporary paths to and through the area and detour/guide signs are among the tools available to facilitate pedestrian and vehicle movements during construction. Public information programs would advise area residents and park patrons of the timeframe for construction activities. Notification would occur through press releases; notices on the NPS, City of Alexandria, and WWB Replacement Project websites; and posted signs at the park. The NPS would continue public involvement activities throughout planning and design activities.

B. Visual and Aesthetic Conditions

Guiding Regulations and Policies

The National Environmental Policy Act (NEPA) of 1969, as amended, requires all agencies of the federal government to consider and document potential social, economic and environmental impacts of projects eligible for federal funding. NPS Management Policies (2006) and responsibilities under the 1916 NPS Organic Act are "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Methodology and Assumptions

The approach to impact assessment was based, in part, on the FHWA's *Visual Impact Assessment for Highway Projects* (March 1981) and the USDA Forest Service's *Landscape Aesthetics: A Handbook for Scenery Management* (1995).

Graphics were developed to illustrate example perimeter barrier systems and potential views to and from the barriers (see Figures 11, 12, 13, and 14). The perimeter barrier concepts could be implemented for any of the four potential action alternatives. A series of subjective observations was used to identify and determine impacts and perceived visual changes introduced by the project. Viewer exposure, in terms of distance and duration of exposure, was assessed. The visual impacts of project alternatives were determined by assessing the visual resource changes due to the project and predicting viewer response to those changes. "Viewsheds" were identified on which to base potential impacts. A viewshed is comprised of all the surface areas visible from an observer's viewpoint and includes the locations of viewers likely to be affected by visual changes brought about by project features.

The nature and importance of visual effects were assessed by identifying:

1. The existing visual environment –
    - What are the limits of the visual environment adjoining the project and the distance of existing views?
    - What are the components that characterize the visual environment?
    - What major viewer groups are likely to see the project and from where?
2. Key views of important features –
    - What visually distinct features are in the project area and from where can they been seen?
    - What visual resources and views are recognized as important to park patrons (such as natural areas, historic resources, and monuments)?
3. The visual appearance of project components in relation to important visual resources (renderings and cross-sections were used for illustration, in some instances).

Impacts on Visual and Aesthetic Conditions

The following thresholds were used to determine the magnitude of effects on visual and aesthetic conditions:

Negligible: Visual resources would not be affected, or changes in visual and aesthetic conditions would be below the level of detection.

Minor: Changes in visual resources would be detectable, although the changes would be slight. Low viewer response to change in the visual environment. May or may not require mitigation.

THIS VEHICULAR BARRIER CONCEPT COULD BE IMPLEMENTED FOR ANY OF THE FOUR POTENTIAL ALTERNATIVES

For illustrative purposes ONLY.

Jones Point Park
Environmental Assessment

Perimeter Barrier Concept: Masonry Piers and Hardened (Reinforced) Fence

June, 2006	Not to Scale	Figure 11

ELEVATION

ENTRANCE FEATURE

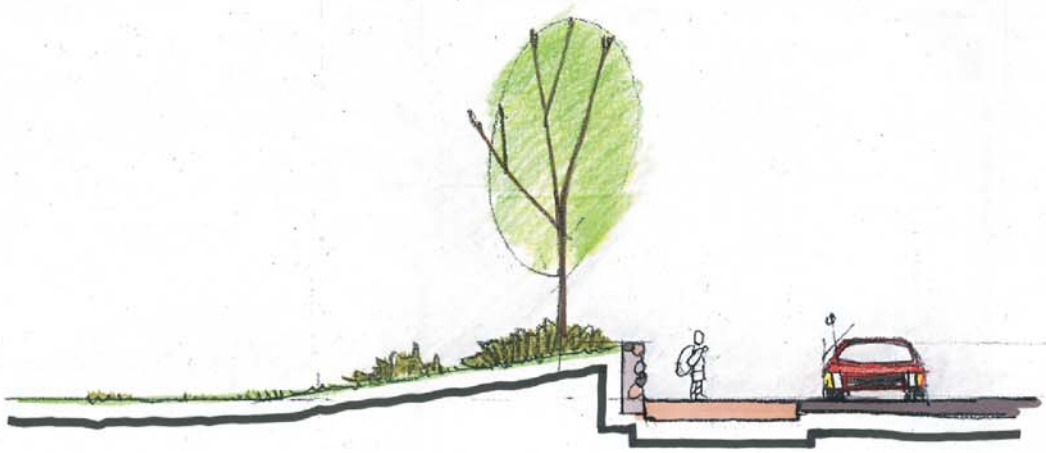
THIS VEHICULAR BARRIER CONCEPT COULD BE IMPLEMENTED FOR ANY OF THE FOUR POTENTIAL ALTERNATIVES

For illustrative purposes ONLY.

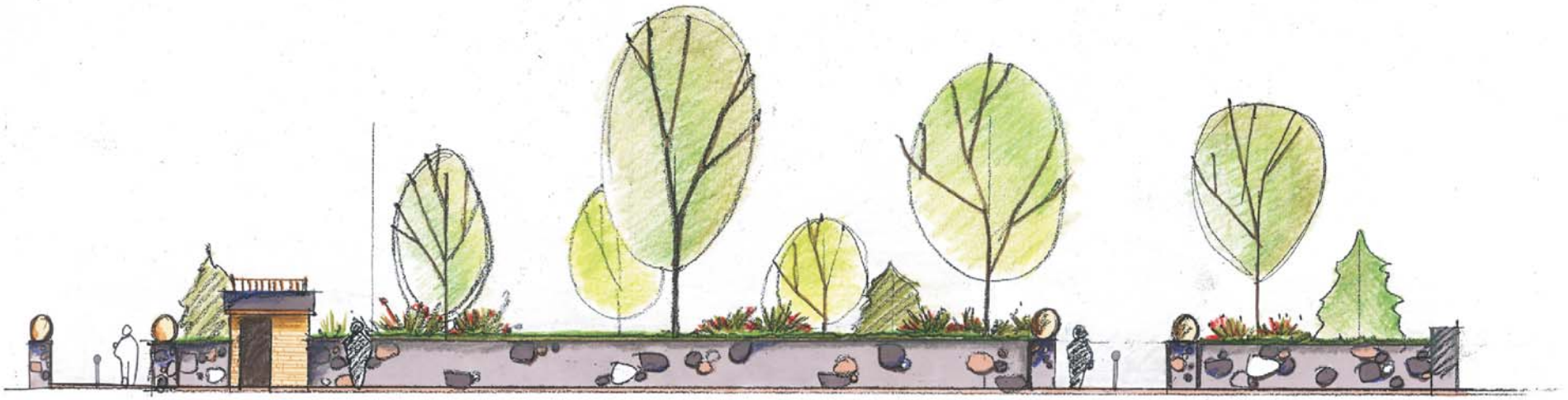
Jones Point Park
Environmental Assessment

Perimeter Barrier Concept:
Masonry Wall

June, 2006	Not to Scale	Figure 12



SECTION



ELEVATION

ENTRANCE FEATURES

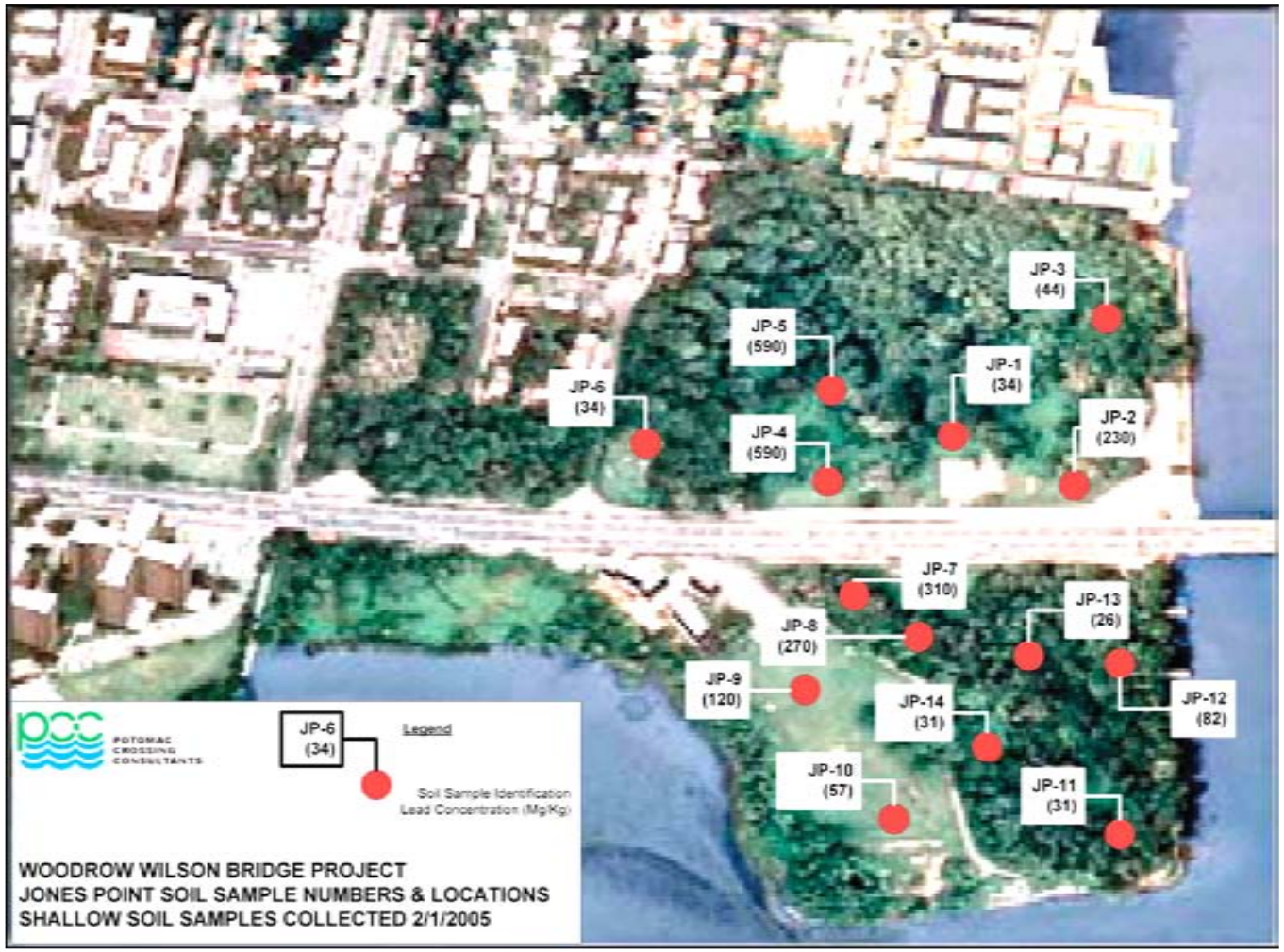
THIS VEHICULAR BARRIER CONCEPT COULD BE IMPLEMENTED FOR ANY OF THE FOUR POTENTIAL ALTERNATIVES

For illustrative purposes ONLY.

Jones Point Park
Environmental Assessment

**Perimeter Barrier Concept:
Masonry Wall with Landform**

June, 2006	Not to Scale	Figure 13



JONES POINT PARK LEAD INVESTIGATION
SOIL SAMPLE RESULTS

Sample Identification	Total Lead Concentration Milligrams/Kilogram (mg/kg) EPA Method 7420
JP-1	34
JP-2	230
JP-3	44
JP-4	590
JP-5	590
JP-6	34
JP-7	310
JP-8	270
JP-9	120
JP-10	57
JP-11	31
JP-12	82
JP-13	26
JP-14	31

1. Voluntary Remediation Program (VRP) Tier II, soil screening level concentration for unrestricted (Residential) land use - **400 mg/kg**.

For illustrative purposes ONLY.

Jones Point Park
Environmental Assessment

Lead Investigation:
Soil Testing Locations

June, 2006 | Scale As Shown | Figure 14

Moderate: Changes in visual resources would be readily apparent. Impact can be mitigated within 5 years using conventional practices.

Major: High level of adverse change such as: removal of features that are important to the park's visual character; project components that contrast with the existing settings or introduce a distracting character or style to a distinctive surrounding environment; project components that create undesirable views. Landscape treatments cannot mitigate the impacts.

The No-Action Alternative

The No-Action Alternative will not affect visual and aesthetic conditions because the park recreational facilities would not be altered.

Alternative 1 *(Alexandria City Council's "Scheme A" dated 6/28/05)*

Analysis: A perimeter barrier system of decorative fencing, masonry piers, bollards, secure parking entrance, and landscape plantings are proposed north of the 80-foot distance of the WWB. This barrier system would provide an aesthetically pleasing gateway to JPP. The turnaround at the end of Royal Street would not impact the Royal Street community garden. Construction of the access drive and parking areas would not impact the existing vegetative buffer located immediately south of the Royal Street community garden.

Views north from within the park, especially from the trail running parallel to the WWB, would be affected. The northern edge of both multi-use fields would require clearing of forested areas and the parallel field would require clearing to the west. Visitors to the park would note the altered forest edge north and west of the fields. A tot lot would be sited east of the perpendicular soccer field. The tot lot would be landscaped with additional trees and plantings between the north-south multi-use field and the Mt. Vernon Trail. Construction of the perimeter barriers and the two multi-use fields would require the removal of existing trees (refer to the Vegetation section of this document).

Users of the Mt. Vernon Trail would have to pass through a perimeter barrier system. This perimeter barrier system would resemble a gateway, potentially comprised of masonry walls, piers and bollards. Minimal vegetation would be impacted and the gateway would be visually appealing through aesthetic building treatments and additional plantings.

Conclusion: Alternative 1 would have an adverse, site-specific, long-term, moderate effect on the aesthetic and visual resources of the park due to the clearing of the forested areas to accommodate the turnaround, access road, parking areas, and multi-use fields. The intensity of the visual effects of the perimeter barrier system would range from minor to moderate. For example, bollards would have a less natural appearance in the landscape than would the dense plantings. However, the perimeter barrier system located south of the turnaround would have a beneficial, site-specific, long-term, minor visual effect that would improve the park's visual resources by adding a welcoming entrance to the park.

The perimeter barrier system in the vicinity of the Mt. Vernon Trail would have a beneficial, site-specific, long-term, minor visual effect that would improve the park's visual resources by adding a welcoming entrance to the park via the bike trail.

Alternative 1 would result in no impairment of the park's visual and aesthetic resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 2 *(VDOT "Access Option 5" dated 9/28/04)*

Analysis: Under Alternative 2, visitors would use Royal Street to enter JPP via a turnaround located approximately 200 feet north of the WWB. The turnaround would impact approximately 170 square feet (0.0039 acre) of the Royal Street community garden. The south portion of the Royal Street community garden and the bamboo plants at the edge of Fairfax Street would be impacted during construction. A perimeter barrier system with landscape plantings would be located just south of Fairfax Street and run parallel to the new access road from Royal Street to approximately 100 feet west of the Lee Street pathway. Views from within the community garden and Fairfax Street looking south would be affected, but the perimeter barrier system and plantings would provide a visual and structural buffer of the access road. Deciduous and evergreen trees would be planted between the perimeter barrier system and access road, providing additional screening and visual interest. Views from the elementary school looking east would be slightly affected.

From the turnaround, motorists could access two parking areas via the access road. The road would run parallel to the Royal Street community garden, gently curve to a point east of the Lee Street pathway and run parallel to the WWB at the 80-foot distance, ending just west of the Potomac River. An approximate 50-foot swath would be cleared from Royal Street to the Lee Street pathway, to accommodate the new access road. A forested buffer between the Yates Gardens neighborhood and the JPP access road would remain, but the density of the visual buffer would be reduced. Construction of the turnaround and access road would require the removal of some existing trees west of the Lee Street pathway. The impact of the turnaround, access road, perimeter barrier system, and plantings would have a long-term, site-specific, moderate effect on the visual and aesthetic quality of the park. Clearing of the forested area just south of the Yates Gardens neighborhood would have an adverse visual effect, while the addition of the perimeter barrier system with plantings on both sides would have a beneficial effect. These additions would not impair the park resources.

The access road would impact the Lee Street community garden property; however, the property would be reconfigured and extended north to maintain the same size as the original. The southern and eastern portions of the garden would experience temporary visual impacts due to construction from both the access road and the adjacent 38-space parking area. Views from within the garden would be altered, especially looking east to the new parking area. Evergreen trees planted at the western edge of the parking area would provide screening of the facility.

A 38-space parking area would be located north of the access road and perpendicular to the bridge deck, approximately 160 feet east of the Lee Street pathway. Two multi-use fields, east of the parking area, would be placed end-to-end, parallel to the bridge deck. The field adjacent to the parking area would require clearing of a partially forested area, while the second field would be located primarily in an existing open area. The access road would terminate at a perpendicular, 74-space parking area east of the second multi-use field. The combination of the two parking areas, two multi-use fields, and access road would create a uniform southern edge to the forested area but would require the removal of some existing trees (refer to the Vegetation section of this document). An adverse, site-specific, moderate impact would occur due to the addition of the 38- and 72-space parking areas in these locations. A long-term impact would result from the placement of the access road, the extension of the garden, and the impact to existing woodlands. Construction for the perimeter barrier system would pose a short-term impact. The addition of multi-use fields and parking areas would not impair the park's resources or values significantly.

A perimeter barrier system potentially comprised of masonry walls and piers, bollards, a secure parking entrance, and landscape plantings would be located just south of the turnaround. These elements would provide an aesthetic gateway to JPP and the Mt. Vernon Trail, welcoming users while providing the required security measures. The perimeter barrier system would be placed along the 80-foot distance surrounding the WWB and continue just southeast of the 72-space parking area, with a dense planting of deciduous trees and evergreen shrubs. The perimeter barrier system would cross the Mt. Vernon Trail to the Potomac River. The addition of the perimeter barrier system, placed at the 80-foot distance surrounding the WWB, would pose site-specific, long-term, minor impacts not impairing the park's resources. The perimeter barrier system would provide a beneficial effect on safety while some security elements, such as bollards, may add a minor adverse, visual effect.

Some viewsheds from the Mt. Vernon Trail north would be affected by the proposed perimeter barrier system. The perimeter barrier system would be visible from the trail, access road, 38-space parking area, and multi-use fields. Landscape plantings would help obscure the perimeter barrier system and provide screening of the 72-space parking area for trail users. Existing forest and additional landscape plantings located to the north would screen most of the perimeter barrier system from the western edge of the access road and residences. Much of the perimeter barrier system would be visible to those using the eastern portion of the access road or the multi-use fields.

Conclusion: Alternative 2 would have an adverse, site-specific, long-term, moderate effect on the aesthetic and visual resources of the park due to the clearing of the forested areas to accommodate the turnaround, access road, parking areas, multi-use fields, and extension of the Lee Street community garden. The visual effects from the perimeter barrier system would be similar to Alternative 1. Alternative 2 would result in no impairment of the park's visual and aesthetic resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 3 *(Based on "Alternative 2" from JPP EA dated 9/10/01)*

Analysis: A turnaround, located north of the 80-foot distance surrounding the WWB, would allow vehicles to enter JPP. An access road, located approximately 150 feet north of the 80-foot distance surrounding the WWB, would lead to two parking areas containing 50 and 60 spaces each. Construction of the access road would impact the Royal Street community garden and existing bamboo plants at Fairfax Street. A perimeter barrier system with landscape plantings would be located just south of Fairfax Street and run parallel to the new access road to approximately 110 feet west of the Lee Street pathway. Views from within the Royal Street community garden and Fairfax Street looking south would be affected, but the perimeter barrier system and plantings would provide a visual and structural buffer of the access road and parking area. This alternative would require the removal of some existing trees from Royal Street to approximately 110 feet west of the Lee Street pathway (refer to the Vegetation section of this document).

Alternative 3 would impact the Lee Street community garden property; however, it would not affect any portion of the property that is currently being cultivated. Although the garden property would be reconfigured and extended north to maintain the same size as the original, this alternative would require the removal of some existing trees (refer to the Vegetation section of this document). One multi-use field would be located north of the WWB and one to the south. The northern field would be oriented parallel to the bridge approximately 30 feet east of the 60-space parking area. The southern field would be smaller at only 80 x 40 yards and constructed at approximately the same location as the existing field.

A perimeter barrier system potentially consisting of masonry walls and piers, bollards, secure parking entrance and landscape plantings would provide the required security along the 80-foot distance surrounding the WWB, just south of the turnaround. Together, the structural elements and landscape plantings would create an aesthetically pleasing entrance to JPP and the Mt. Vernon Trail, while providing the required security measures. A perimeter barrier system, with landscape plantings, would add security to the Lee Street pathway. A combination of walls, piers and bollards would create a secure gateway at the path and transition to bollards around the access road and 60-space parking area, terminating north of the parking area.

A perimeter barrier system would be added in the vicinity of the Mt. Vernon Trail. Trail users would have to pass through the perimeter barrier system, which is proposed to resemble a gateway. Minimal vegetation would be impacted and the gateway would be visually appealing through aesthetic building treatments and additional plantings. The perimeter barrier system would have long-term, site-specific impacts upon the park.

Conclusion: Alternative 3 would have an adverse, site-specific, long-term, moderate effect on the aesthetic and visual resources of the park due to the clearing of the forested areas to accommodate the turnaround, access road, parking areas, one multi-use field (north of the WWB), and extension of the Lee Street community garden. The visual effects from the perimeter barrier system would be similar to Alternative 1.

Alternative 3 would result in no impairment of the park's visual and aesthetic resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4 *(One multi-use field south of the WWB)*

Analysis: A turnaround, located north of the 80-foot distance surrounding the WWB, would allow entry into JPP. An access road, located approximately 150 feet north of the 80-foot distance, would lead to the existing 81-space parking area. Construction for the access road would impact the Royal Street community garden and the existing bamboo plants at Fairfax Street. A perimeter barrier system with landscape plantings would be located just south of Fairfax Street and run parallel to the new access road to approximately 110 feet west of the Lee Street pathway. Views from within the garden and Fairfax Street looking south would be affected, but the perimeter barrier system and plantings would provide a visual and structural buffer of the access road.

No multi-use fields would be sited north of the WWB. One field would be located in approximately the same location as the existing field, south of the bridge. The field would be oriented northwest/southeast and 80 x 40 yards.

The access road would impact the Lee Street community garden and the existing woodlands located west of the Lee Street pathway. Woodlands east of the Lee Street pathway would have little to no impact since the existing parking area would be used.

Conclusion: Alternative 4 would have an adverse, site-specific, long-term, minor effect on the aesthetic and visual resources on the north side of the park due to the turnaround, access road, and one parking area. The proposed parking area would be located in the general vicinity of an existing parking area which lessens its visual impact. The proposed multi-use field would be located in the general vicinity of the existing soccer fields (south of the WWB) which lessens its visual impact. The visual effects from the perimeter barrier system would be similar to Alternative 1.

Alternative 4 would result in no impairment of the park's visual and aesthetic resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4A – Preferred Alternative *(Multi-use fields north and south of the WWB)*

Analysis: A turnaround, located north of the 80-foot distance surrounding the WWB, would allow entry into JPP. An access road, located approximately 150 feet north of the 80-foot distance, would lead to a new 110 space parking area close to the eastern end of the site. A vehicular turnaround would be located immediately east of the parking area. Construction for the access road would impact the Royal Street community garden and the existing bamboo plants at Fairfax Street, as well as the Lee Street community garden. A perimeter barrier system with landscape plantings would be located just south of Fairfax Street and run parallel to the new access road to the eastern edge of the site. Views from within the garden and Fairfax Street looking south would be affected, but the perimeter barrier system and plantings would provide a visual and structural buffer of the access road.

An 80 x 40 yards multi-use field would be sited north of the WWB. The field would be oriented east-west. A second multi-use field, 110 x 60 yards, would be located in approximately the same location as the existing field, south of the bridge. The field would be oriented northwest/southeast. A tot lot would be located immediately west of the northern multi-use field and away from the river.

The access road would impact the Lee Street community garden and the existing woodlands located west of the Lee Street pathway. Woodlands and wetlands east of the Lee Street pathway would be impacted as well.

Conclusion: Alternative 4A would have an adverse, site-specific, long-term, moderate effect on the aesthetic and visual resources on the north side of the park due to the turnaround, access road, tot lot, parking area, and vehicular turnaround. The proposed parking area would be located immediately north of the 80-foot standoff distance and would have a moderate visual impact. The proposed northern multi-use field would be located in the general vicinity of the existing parking lot and would have a minor visual impact. The proposed southern multi-use field would be located in the general vicinity of the existing soccer fields (south of the WWB) which lessens its visual impact. The visual effects from the perimeter barrier system would be moderate since the barrier would traverse across the entire site.

Alternative 4A would result in no impairment of the park's recreational resources because there would not be a major, adverse impact which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the JPP EA, or other relevant NPS planning documents.

Mitigation Measures

Proposed park improvements would avoid effects on park patrons and adjacent residential areas, as much as possible. The following mitigation measures would lessen visual effects to sensitive residential and recreational activities: clearing no more vegetation than necessary, landscaping and planting to screen adjacent activities, using materials and forms for perimeter barriers that complement the character of the park, and landscaping enclosures, as appropriate.

Tree loss would be replaced in-kind incorporating appropriate plantings of native species of trees, shrubs and herbs. The action alternatives maintain a native vegetative buffer between the Yates Gardens neighborhood and the park.

C. Visitor Use and Experience

Guiding Regulations and Policies

The NPS Management Policies (2006) regarding visitor use state:

"Enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks. The Service is committed to providing appropriate, high quality opportunities for visitors to enjoy the parks, and will maintain within the parks an atmosphere that is open, inviting, and accessible to every segment of American society. However, many forms of recreation enjoyed by the public do not require a national park setting, and are more appropriate to other venues. The Service will therefore:

- Provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in the parks.
- Defer to local, state, and other federal agencies; private industry; and non-governmental organizations to meet the broader spectrum of recreational needs and demands.

To provide for enjoyment of the parks, the NPS will encourage visitor activities that:

- Are appropriate to the purpose for which the park was established; and
- Are inspirational, educational, or healthful, and otherwise appropriate to the park environment; and
- Will foster an understanding of, and appreciation for, park resources and values or will promote enjoyment through a direct association with, interaction with, or relation to park resources; and
- Can be sustained without causing unacceptable impacts to park resources or values."

Methodology and Assumptions

The NPS has worked in a careful and thorough manner with the FHWA and VDOT since 1997 to develop a program that achieves the NPS' interrelated goals of conserving parks and monuments and providing for the enjoyment of these resources in ways that preserve and protect important features, including natural and cultural resources. It is NPS' view that the three central issues of park management – (a) to discover the significance and meaning of each resource, (b) to support the use and enjoyment of cultural and natural resources and (c) to minimize negative effects on them – are achieved through the proposed redevelopment of JPP.

The NPS and the City of Alexandria's goal for the redevelopment of JPP is a carefully balanced program of active recreation, passive recreation, and interpretation of archeological, historic, cultural, and natural park features. The NPS believes that the proposed JPP redevelopment plan addresses the broad range of park uses recommended by the citizens of the City of Alexandria and regional park visitors.

Impacts on Visitor Use and Experience

The following thresholds were used to determine the magnitude of effects on visitor use and experience:

Negligible: Visitors would not be affected, or changes in visitor use and/or experience would be below the level of detection. The visitor would not likely be aware of the effects associated with the alternative.

Minor: Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative.

Moderate: Changes in visitor use and/or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.

Major: The effects would be readily apparent, and would result in a substantial change in visitor use and/or experience in a manner noticeable to the public and would be markedly different from existing operations.

The No-Action Alternative

The No-Action Alternative will not affect visitor use and experience in JPP.

Impacts Common to Action Alternatives

Analysis: The project would improve and enhance JPP by adding recreational uses and facilities not currently available within the park. These improvements and enhancements include the construction of parking areas, improved pathways, active hard-surface play areas, a tot lot and play equipment, fishing and kayak boat launch areas, and a park manager's office/comfort station. A grassy area would link recreational facilities both north and south of the new WWB and nature and interpretive trails on the park's historical significance. The action alternatives would incorporate the security measures per TSA's recommendations.

All of the action alternatives would provide the following benefits:

- Expanded recreational opportunities for all citizens.
- Improved quality of recreational opportunities for all citizens.
- Improved safety and security of all park visitors.

- Compliance with current ADA standards.
- Expanded interpretive elements that would provide park visitors with an opportunity to learn about the natural and historic environment of the park.

These improvements would provide recreational opportunities within JPP that currently do not exist and improve the conditions that currently exist under and around the bridge.

There is a pedestrian entrance to the park at the end of South Lee Street. Bicycle access occurs along the Mt. Vernon Trail, extends along the waterfront, and continues along the JPP access road, to Lee Street. All of the action alternatives would maintain vehicle access to JPP from Royal Street. Jones Point Park Drive was closed for construction in May 2006 and a temporary vehicular staging area is available. Each action alternative includes a turnaround at the end of Royal Street and an access road (of various lengths) within the park that would lead park patrons to the parking area(s). Pedestrian and bicycle access would remain unchanged.

Prior to the start of the WWB Replacement Project, two wooden fishing piers projected over the concrete foundations of the VSC shipways along the eastern edge of JPP. Neither of these piers was readily accessible to disabled persons. If a park visitor wanted to fish from these piers, he/she had to follow a narrow path through the woods to get there. The trail through the woods was not "accessible" by ADA standards. One of the fishing piers was removed (as well as the shipways running underneath) to prepare for the new WWB. Under the action alternatives, the remaining fishing pier would be retained (possibly reconstructed based on condition) and another fishing pier would be built in conjunction with the proposed canoe/kayak launch area. The action alternatives would improve fishing opportunities as parking areas, pedestrian paths, and both of the fishing piers would be designed to comply with current ADA regulations.

The existing finishing pier, located north of the new WWB, would be converted to a promenade/boardwalk. Some park visitors have used the finishing pier for fishing activities and it has been reported that some of the park visitors that use this bulkhead for fishing do so from a wheelchair. The proposed conversion of the finishing pier to a promenade/boardwalk would not prevent its use for fishing from either a standing or sitting position. In fact, the conversion would make this area more accessible for the disabled as the proposed promenade/boardwalk, pedestrian paths, and fishing piers would be designed to comply with current ADA regulations.

The action alternatives would increase the distance between the proposed parking areas and the proposed fishing piers located under and south of the new WWB, as discussed in the following sections. These changes could make fishing access more difficult for persons who use a wheelchair since they can currently maneuver close to the existing finishing pier. However, the proposed conversion of the finishing pier to a promenade/boardwalk would not prevent its use for fishing from either a standing or sitting position.

Alternative 1 *(Alexandria City Council's "Scheme A" dated 6/28/05)*

Analysis: Other than the recreational facilities noted above, Alternative 1 contains two perpendicular multi-use fields north of the WWB. These fields increase the number of active recreational facilities available in the park. However, these fields also require the removal of some forests and would reduce the amount of area available for passive recreation (such as bird watching and quiet reflection). The construction of two multi-use fields, access road, and parking areas on the north side of the WWB would remove approximately 5 acres of the total 28 acres of forested area available in JPP.

Alternative 1 provides a maximum 110 parking spaces for park visitors (rather than a total 240 parking spaces under the other action alternatives). Under Alternative 1, there is the possibility of spillover parking in the public right-of-way located outside of JPP during events in which a greater number of visitors is expected.

Park visitors who walk, cycle, or drive to JPP to participate in water recreational activities (canoeing, kayaking, and fishing) would have to transport their equipment for a longer distance to access the Potomac River. Water access is currently approximately 340 feet from the interim parking area located north of the WWB. Alternative 1 would increase the distance to the shoreline by approximately 1,400 feet (for a total of 1,740 feet) between the proposed easternmost parking area and the new fishing pier and canoe/kayak launch area to be located south of the new WWB.

Conclusion: Overall, Alternative 1 would have a beneficial, local, long-term, major effect on visitor use and experience due to the expanded active recreational opportunities that the multi-use fields would provide (in addition to the interpretive elements regarding the natural and historic environment of the park). However, Alternative 1 also would have an adverse, local, long-term, moderate impact associated with the provision of the multi-use fields, access road, and parking areas which would reduce, by 5 acres, the amount of forested area available for passive recreation north of the WWB. Alternative 1 would also require park patrons to transport water gear a much longer distance to access the Potomac River for water recreational uses. Construction activities would have an adverse, site-specific, short-term, moderate effect due to introduction of construction equipment, signage, and pedestrian barriers in active construction areas.

Alternative 1 would result in no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 2 *(VDOT "Access Option 5" dated 9/28/04)*

Analysis: Alternative 2 contains two parallel multi-use fields to be located north of the WWB. Although these fields expand the active recreational facilities available in the park, they also require the removal of some forests and would reduce the amount of area available for passive recreation (such as bird watching and quiet reflection). The construction of two multi-use fields, access road, and parking areas on the north side of the WWB would remove approximately 6 acres of the total 28 acres of forested area available in JPP.

Alternative 2 provides 110 parking spaces for park visitors plus "event parking" under the WWB (for a total 240 parking spaces). If a larger number of visitors is expected, then the City of Alexandria could provide the appropriate security measures and make available the additional event parking spaces under the WWB. Therefore, park visitors are expected to have ample parking opportunities under Alternative 2 (compared with Alternative 1).

Alternative 2 would increase the distance to the shoreline by approximately 220 feet (for a total of 560 feet) between the proposed easternmost parking area and the new fishing piers and canoe/kayak launch area to be located south of the new WWB.

Conclusion: Overall, Alternative 2 would have a beneficial, local, long-term, major effect on visitor use and experience due to the expanded active recreational opportunities that the multi-use fields would provide (in addition to the interpretive elements regarding the natural and historic environment of the park). Compared with Alternative 1, Alternative 2 has one additional acre of forest impact north of the WWB and reduces the distance to less that half of that under Alternative 1 to access the Potomac River for water recreational uses.

Alternative 2 would have an adverse, local, long-term, moderate impact associated with the provision of the multi-use fields, access road, and parking areas which would reduce the amount of forested area available for passive recreation north of the WWB. Construction activities would have an adverse, site-specific, short-term, moderate effect due to introduction of construction equipment, signage, and pedestrian barriers in active construction areas.

Alternative 2 would result in no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 3 *(Based on "Alternative 2" from JPP EA dated 9/10/01)*

Analysis: Alternative 3 contains one multi-use field north of the WWB and one multi-use field south of the WWB. These fields expand the active recreational facilities available in the park. The multi-use field south of the WWB would replace the existing soccer field and would not impact forests/vegetation. However, the multi-use field located north of the WWB would require the removal of some forest habitat and would reduce the amount of area available for passive recreation (such as bird watching and quiet reflection).

The construction of one multi-use field, access road, and two parking areas on the north side of the WWB would remove approximately 5 acres of the total 28 acres of forested area available in JPP. Alternative 3 would increase the distance to the shoreline by approximately 650 feet (for a total of 990 feet) between the proposed easternmost parking area and the new fishing pier and canoe/kayak launch area to be located south of the new WWB.

Alternative 3 provides 110 parking spaces for park visitors plus "event parking" under the WWB (for a total 240 parking spaces). If a larger number of visitors is expected, then the City of Alexandria could provide the appropriate security measures and make available the additional event parking spaces under the WWB. Therefore, park visitors are expected to have ample parking opportunities under Alternative 3 (compared with Alternative 1).

Conclusion: Overall, Alternative 3 would have a beneficial, local, long-term, major effect on visitor use and experience due to the expanded active recreational opportunities that the multi-use fields would provide (in addition to the interpretive elements regarding the natural and historic environment of the park). Alternative 3 allows a shorter distance to access the Potomac River for water recreational uses than under Alternative 1, but a longer distance compared with Alternative 2. Alternative 3 would have an adverse, local, long-term, moderate impact associated with the provision of the multi-use fields, access road, and parking areas which would reduce the amount of forested area available for passive recreation north of the WWB. Construction activities would have an adverse, site-specific, short-term, moderate effect due to introduction of construction equipment, signage, and pedestrian barriers in active construction areas.

Alternative 3 would result in no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4 *(One multi-use field south of the WWB)*

Analysis: Alternative 4 contains one multi-use field south of the WWB that would not require the removal of forests; however, the proposed access road and parking area on the north side of the WWB would remove approximately 3 acres of forest. Alternative 4 minimizes impacts to forests by shifting the proposed parking area east of the major forested area and maximizes the amount of forested area available for passive recreation (such as bird watching and quiet reflection) on the north side of the WWB.

Alternative 4 provides 81 parking spaces for park visitors plus "event parking" under the WWB (for a total 240 parking spaces). If a larger number of visitors is expected, then the City of Alexandria could provide the appropriate security measures and make available the additional event parking spaces under the WWB. Therefore, park visitors are expected to have ample parking opportunities under Alternative 4 (compared with Alternative 1).

Alternative 4 would increase the distance to the shoreline by approximately 600 feet (for a total of 940 feet) between the proposed easternmost parking area and the new fishing pier and canoe/kayak launch area to be located south of the new WWB.

Conclusion: Overall, Alternative 4 would have a beneficial, local, long-term, moderate impact because of the expanded interpretive and recreational opportunities but would decrease the number of active recreational facilities available in the park by eliminating one of the existing two soccer fields. Alternative 4 also reduces the amount of forested area available for passive recreation (due to the access road and parking area) and has a longer distance to access the Potomac River for water recreational uses. However, the proposed parking area would be located in the general vicinity of the existing parking area, which reduces its potential impacts to forests compared with the other action alternatives. Alternative 4 would have an adverse, local, long-term, minor impact associated with the provision of the multi-use field south of the WWB and access road, parking areas north of the WWB. Construction activities would have an adverse, site-specific, short-term, moderate effect due to introduction of construction equipment, signage, and pedestrian barriers in active construction areas.

Alternative 4 would result in no impairment of the park's resources because there would not be a major, adverse impact to resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4A – Preferred Alternative *(Multi-use fields north and south of the WWB)*

Analysis: Alternative 4A would improve and enhance JPP by adding recreational uses and facilities not currently available within the park. These improvements and enhancements include the construction of parking areas, improved pathways, active hard-surface play areas, a tot lot and play equipment, fishing and kayak boat launch areas, and a park manager's office/comfort station. A grassy area would link recreational facilities both north and south of the new WWB and nature and interpretive trails on the park's historical significance. Alternative 4A provides the following benefits:

- Expanded recreational opportunities for all citizens.
- Improved quality of recreational opportunities for all citizens.
- Improved safety and security of all park visitors.
- Compliance with current ADA standards.
- Expanded interpretive elements that would provide park visitors with an opportunity to learn about the natural and historic environment of the park.
- Provision of security measures recommended by the federal TSA.

These improvements would provide recreational opportunities within JPP that currently do not exist and improve the conditions that currently exist under and around the bridge. There is a pedestrian entrance to the park at the end of South Lee Street.

Bicycle access occurs along the Mt. Vernon Trail, extends along the waterfront, and continues along the JPP access road, to Lee Street. Alternative 4A would maintain vehicle access to JPP from Royal Street. Jones Point Park Drive was closed for construction in May 2006 and a temporary vehicular staging area is available. Alternative 4A includes a turnaround at the end of Royal Street and an access road within the park that would lead park patrons to the parking area. Pedestrian and bicycle access would remain unchanged.

Prior to the start of the WWB Replacement Project, two wooden fishing piers projected over the concrete foundations of the VSC shipways along the eastern edge of JPP. Neither of these piers was readily accessible to disabled persons. If a park visitor wanted to fish from these piers, he had to follow a narrow path through the woods to get there. The trail through the woods was not "accessible" by ADA standards. One of the fishing piers was removed (as well as the shipways running underneath) to prepare for the new WWB. Under Alternative 4A, the remaining fishing pier would be retained (possibly reconstructed based on condition) and another fishing pier would be built in conjunction with the proposed canoe/kayak launch area. Alternative 4A would improve fishing opportunities as parking areas, pedestrian paths, and both of the fishing piers would be designed to comply with current ADA regulations.

The existing finishing pier, located north of the new WWB, would be converted to a promenade/boardwalk. Some park visitors have used the finishing pier for fishing activities and it has been reported that some of the park visitors that use this bulkhead for fishing do so from a wheelchair. The proposed conversion of the finishing pier to a promenade/boardwalk would not prevent its use for fishing from either a standing or sitting position. In fact, the conversion would make this area more accessible for the disabled as the proposed promenade/boardwalk, pedestrian paths, and fishing piers would be designed to comply with current ADA regulations. Alternative 4A would decrease the distance between the proposed parking areas and the finishing pier (proposed promenade/boardwalk) and the proposed fishing piers located under and south of the new WWB. These changes would increase fishing access for persons who use a wheelchair since they would be able to maneuver easier between the closer parking areas and the fishing areas.

Alternative 4A increases active recreation by providing two multi-use fields (north and south of the WWB) yet maintains passive recreation areas by minimizing the potential impacts to forests. The multi-use field located south of the WWB would not require the removal of forests; however, the proposed access road and parking area on the north side of the WWB would remove approximately 1.9 acres of forest. Alternative 4A minimizes impacts to forests by shifting the proposed parking area east and south of the major forested area north of the WWB and maximizes the amount of forested area available for passive recreation (such as bird watching and quiet reflection).

Alternative 4A provides 110 parking spaces for park visitors plus “event parking” under the WWB (for a total 240 parking spaces). If a larger number of visitors is expected, then the City of Alexandria could provide the appropriate security measures and make available the additional event parking spaces under the WWB. Therefore, park visitors are expected to have ample parking opportunities under Alternative 4A.

Compared to Alternative 4, Alternative 4A would decrease the distance to the shoreline by approximately 108 feet (for a total of 492 feet) between the proposed parking area and the new fishing pier and canoe/kayak launch area to be located south of the new WWB.

Alternative 4A would not fully address the recommendations of the JPP Development Group (comprised of the NPS, City of Alexandria, and other stakeholders) to provide two recreational fields north of WWB. However, Alternative 4A does provide two recreational fields (one north and one south of the WWB) while minimizing potential community and environmental effects. Alternative 4A achieves a balanced program of active recreation, passive recreation, and interpretation of archaeological, historic, cultural and natural park features (refer to the sections below for discussions of cultural and natural park features).

***Conclusion*:** Overall, Alternative 4A would have a beneficial, local, long-term, minor impact because of the expanded interpretive and recreational opportunities and the slight reduction in the amount of forested area available for passive recreation (due to the access road and parking area). Alternative 4A would benefit access for the disabled and the traditional environmental justice populations that use the park for fishing activities. Changing the finishing pier to a promenade/boardwalk would relocate the fishing activities. However, two replacement piers would be provided along the southeastern edge of the park, within 200 feet of the existing fishing area. Locating the parking lot closer to the shore would decrease the distance to access the Potomac River for water recreational uses. Alternative 4A would have an adverse, local, long-term, minor impact associated with the provision of the multi-use fields north and south of the WWB, and the access road and parking area north of the WWB. Construction activities would have an adverse, site-specific, short-term, moderate effect due to introduction of construction equipment, signage, and pedestrian barriers in active construction areas.

Alternative 4A would result in no impairment of the park's recreational resources because there would not be a major, adverse impact to which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the JPP EA, or other relevant NPS planning documents.

Mitigation Measures

The 2000 ROD contains a Table of Commitments to mitigate the potential impacts of the WWB Replacement Project. The following commitments, contained in the ROD, relate to visitor use and experience. These commitments were incorporated into the design concept plans for the redevelopment of JPP to mitigate the potential impacts of the JPP improvements:

- Incorporate unused portions of land, currently under the existing bridge in JPP, into the recreational/educational aspect of the park. Unused areas under the new bridge are slated for hard-surface recreation uses.
- Provide access to JPP during construction.
- Maintain a single pier on the eastern shore of the park, south of the proposed bridge during and after construction of park improvements.

Access to the Mt. Vernon Trail would remain open to the public during construction of the JPP improvements. The recreation fields, fishing areas, and other park resources would remain open to the extent that they can maintain safe conditions during construction of the improvements. The design concept plan provides temporary parking areas north of the WWB.

Coordination would continue with the NPS, City of Alexandria, JPP Stakeholder Participation Panel, regional and state government agencies; technical consultants; and the general public during the JPP planning process to create a park that fulfills the development goals for JPP.

D. Environmental Justice Populations

Guiding Regulations and Policies

Title VI of the Civil Rights Act of 1964 (and related statutes) require federal agencies to ensure that their programs, policies and activities do not allow populations to benefits from, or subject persons and populations to, discrimination because of race, color, or national origin. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* reaffirms the principles of Title VI. The Executive Order requires that each federal agency identify and address, as appropriate, any disproportionately high and adverse human health and environmental effects of its programs, policies, and activities on minority and/or low income populations and to provide opportunity for participation in the public involvement process.

Disproportionately high and adverse effect on minority and low-income populations means an adverse effect that:

1. Is predominately borne by a minority population and/or a low-income population, or
2. Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

Methodology and Assumptions

There are no environmental justice (minority and/or low-income) populations that live within the boundaries of JPP. Subjective observations were used to identify and determine potential impacts to minority populations that use the existing fishing area.

Impacts to Environmental Justice Populations

The following thresholds were used to determine the magnitude of effects on environmental justice populations:

Negligible: Environmental justice populations would experience little or no effects from a change to park resources.

Minor: Changes in park resources would be detectable, although the changes would be slight. Environmental justice populations would be aware of the effects associated with the alternative.

Moderate: Changes in park resources would be readily apparent. Environmental justice populations would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.

Major: The effects would be readily apparent, and would result in a substantial change to park resources in a manner noticeable to environmental justice populations and would be markedly different from existing operations.

The No-Action Alternative

The No-Action Alternative will not affect environmental justice populations.

Impacts Common to Action Alternatives

Analysis: Under all action alternatives, the current finishing pier would be changed to a promenade/boardwalk and two fishing piers would be provided within 200 feet of the existing fishing area, along the southeastern edge of the park. Providing fishing opportunities on the south side and beneath the new bridge is expected to reduce potential impacts to minority fishing populations. Fishing activities would be temporarily restricted, for safety reasons, during construction of the JPP park improvements. Appropriate signage would direct park patrons to the new access areas for fishing.

Conclusion: There would be no disproportionately high and adverse human health and environmental effects from the action alternatives on minority and/or low-income populations. The impacts of moving the fishing area would be site-specific, long-term, and minor. All park users, including the minority fishing populations, benefit from improved recreational facilities.

There would be no impairment of the park's resources because there would be no major, adverse impacts to resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Mitigation Measures

The 2000 ROD contains a Table of Commitments that lists actions that would mitigate the potential impacts of the WWB Replacement Project as well as the JPP improvements. A copy of the ROD is available for inspection at the NPS and the WWB Replacement Project office. The ROD contains the following commitments to lessen potential effects to environmental justice populations:

- Provide access to JPP during construction.
- Maintain a single pier on the eastern shore of the park, south of the proposed bridge during and after construction of park improvements.

E. Soils

Guiding Regulations and Policies

The Soil and Water Resources Conservation Act of 1977 requires a continuing appraisal of U.S. soil, water and related resources, including fish and wildlife habitats, and a soil and water conservation program to assist landowners and land users in furthering soil and water conservation.

Methodology and Assumptions

The project performed an investigation of lead in shallow soils of JPP in response to concerns by a local resident that high lead levels (originating from historic shipbuilding operations at Jones Point) remain in local soils. Soil samples were collected by hand from a depth of 0 to 0.5-foot below ground surface. Figure 15 shows the locations of the soil testing sites and Table 1 presents the results, which detected lead in every sample at concentrations ranging from 26 milligrams per kilogram (mg/kg) to 590 mg/kg.

TABLE 1
LEAD INVESTIGATION:
SOIL TESTING RESULTS

Sample Identification	Total Lead Concentration Milligrams/Kilogram (mg/kg)
JPP-1	34
JPP-2	230
JPP-3	44
JPP-4	590*
JPP-5	590*
JPP-6	34
JPP-7	310
JPP-8	270
JPP-9	120
JPP-10	57
JPP-11	31
JPP-12	82
JPP-13	26
JPP-14	31

Note: Soil samples collected on February 1, 2005.
**Only soil samples JPP-4 and JPP-5 exceeded the VDEQ Voluntary Remediation Program's maximum safe concentration screening value of 400 mg/kg for soil in unrestricted or residential areas.*

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Alternative 1:
Forest and Wetland Impacts

June, 2006	Scale As Shown	Figure 15

Two soil testing sites (JPP-4 and JPP-5) located north of the WWB in the vicinity of the proposed westernmost multi-use field, contained lead levels of 590 mg/kg which exceeds the Virginia Department of Environmental Quality (VDEQ) maximum safe concentration for soil (400 mg/kg) in unrestricted or residential areas. None of the soil samples contained lead concentrations that exceeded the 800 mg/kg soil screening level for restricted or commercial land uses. VDEQ's Voluntary Remediation Program (VRP) soil screening levels are referenced for guidance and comparison purposes and are not strictly applicable to properties (such as JPP) that are not enrolled in the VRP. If JPP were enrolled in the VRP, it could be regulated as either an unrestricted or restricted property, depending on whether deed restrictions were required by VDEQ.

Impacts to Soils

The following thresholds were used to determine the magnitude of effects on soils:

Negligible: Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soil productivity or fertility would be slight.

Minor: The effects to soils would be detectable. Effects to soil productivity or fertility would be small, as would the area affected. If mitigation were needed to offset adverse effects, it would be relatively simple to implement, and likely successful.

Moderate: The effect on soil productivity or fertility would be readily apparent and would be reflected in a change to the soil character over a relatively wide area. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.

Major: The effect on soil productivity or fertility would be readily apparent and would substantially change the character of the soils over a large area in and outside of the park. Mitigation measures to offset adverse effects would be needed and would be extensive; their success could not be guaranteed.

The No-Action Alternative

The No-Action Alternative will not affect soils in JPP.

Impacts Common to Action Alternatives

Analysis: The lead concentrations in soil samples JPP-4 and JPP-5 exceeded VDEQ's maximum safe concentration for soil in unrestricted or residential areas. The potential lead exposure risk in the area of samples JPP-4 and JPP-5 could include ingestion of lead-containing soils (by children) or inhalation of lead-containing soils as dust. Also, in these locations, the risk of leaching is slightly increased.

Minor grading is anticipated for the construction of the multi-use fields, tot lot, parking areas, promenade/boardwalk, and new access road. However, the action alternatives would not affect the underlying soils. The potential risk of exposing lead-containing soils could be mitigated during the construction of the multi-use fields by placement of clean fill as part of the field construction as a barrier to prevent future lead exposure. This grading activity would primarily result in the placement of clean fill material on top of existing soils, thereby, leaving the existing soils intact.

Conclusion: Impacts to soils would be adverse, site-specific, short-term, and negligible. There would be no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Mitigation

The contractor would implement Best Management Practices (BMPs) during construction. Soil compaction and disturbance would be kept to a minimal amount of area needed for construction activities. Appropriate sediment and erosion control measures (such as the installation of silt fences and inlet protection) would be implemented to reduce soil erosion and runoff from the construction area. Erosion and sediment control measures would comply with the City of Alexandria Standards and the Virginia *Erosion and Sedimentation Control Handbook*. Disturbed soils would be revegetated based on the recommendations of NPS staff and as specified in the construction contracts.

F. Wetlands and Waters of the U.S.

The various action alternatives associated with the proposed JPP improvement plan would result in unavoidable tidal and non-tidal wetland impacts. Depending upon the alternative chosen, these impacts could be caused by construction of a new access road, parking areas, multi-use fields, playground, and promenade.

Guiding Regulations and Policies

Wetlands and other Waters of the U.S. within JPP are regulated at the federal level by the USCOE under Section 404 of the Clean Water Act. At the state level, tidal wetlands are regulated by the Virginia Marine Resources Commission (VMRC) under the Tidal Wetlands Act (Title 28.2, Chapters 12 and 13), while non-tidal wetlands are regulated by the Virginia Department of Environmental Quality (VDEQ) under the Virginia Water Protection Permit program (Virginia Administrative Code 9 VAC 25-210). Section 401 federal water quality certification is administered at the state level under the Virginia Water Protection Permit program. Additional procedures for protecting and managing wetlands on NPS lands are contained within Executive Order 11990: *Protection of Wetlands*, NPS Management Policies (2006), Director's Order 77-1: *Wetland Protection*, and Procedural Manual 77-1: *Wetland Protection*.

NPS wetland protection policies and procedures include a no-net-loss of wetlands provision. Therefore, proposed development projects within NPS lands that have the potential to adversely impact wetlands must follow a sequence of avoiding adverse wetland impacts to the extent practicable, minimizing wetland impacts that could not be avoided, and compensating for unavoidable wetland impacts through restoration of degraded or former wetland habitats at a minimum 1:1 ratio.

Methodology and Assumptions

To analyze potential impacts from the various alternatives on Waters of the U.S., including wetlands within JPP, all Waters of the U.S. resources within the park were delineated and the boundaries verified by a representative of the USCOE. Direct and indirect impacts associated with each alternative were analyzed from an overlay of the proposed project activity onto all mapped Waters of the U.S., including wetlands resources.

Impacts to Wetlands and Waters of the U.S.

The following thresholds were used to determine the magnitude of effects on Waters of the U.S., including wetlands resources:

Negligible: There would be no measurable or observable impacts to Waters of the U.S., including wetlands or their functions and values beyond what would be considered natural fluctuations.

Minor: Impacts would be detectable, but would be expected to be short-term with only minor permanent impacts to wetlands and waterways following project implementation. Principal functions and values of the wetland or waterway system would remain unaffected. Minor impacts to wetlands or waterways may also occur where existing wetland or waterway resources are already disturbed or where the functional capacity or societal values are low. The likelihood of successful compensation for lost wetland and waterway resources would be high and relatively easily accomplished through on-site restoration or enhancement efforts.

Moderate: Impacts would be detectable and permanent, with the permanent loss of some wetland and waterway resources expected. Wetland and waterway functions and values would not be substantially altered. The likelihood of successful compensation for lost wetland and waterway resources would be high and relatively easily accomplished through on-site restoration or enhancement efforts.

Major: Impacts would be detectable and permanent, with losses of wetland and waterway resources occurring over a wide area. Wetland and waterway functions and values would not be substantially altered. The likelihood of successful compensation for lost resources is high, although more complicated, because of possible off-site location needs or complex mitigation requirements.

The No-Action Alternative

The No-Action Alternative will not affect wetlands and or other Waters of the U.S beyond what has already been authorized as part of the construction for the WWB Replacement Project.

Impacts Common to Action Alternatives

Analysis: Figures 16, 17, 18, 19, and 20 illustrate the location of wetland impacts for each action alternative. The proposed promenade/boardwalk would result in approximately 0.2 acre of impact to tidal emergent wetland and the tidal Potomac River.

Proposed shoreline stabilization, the rehabilitation of the D.C. South Cornerstone, the preservation of the Jones Point Lighthouse, the proposed bulkhead, canoe/kayak launch, and a fishing pier would impact approximately 0.5 acre of tidal waterways of the Potomac River. Construction of the new bulkhead, canoe/kayak launch, and piers also would result in the impact of approximately 0.8 acre of subaqueous vegetation (SAV) habitat. These SAV beds are not within JPP, but are located just offshore of the park in the Potomac River and lie beneath the new bridge span. The permit for construction of the WWB Replacement Project accounts for potential impacts to tidal waters and SAVs; therefore, these topics are not discussed further in this EA.

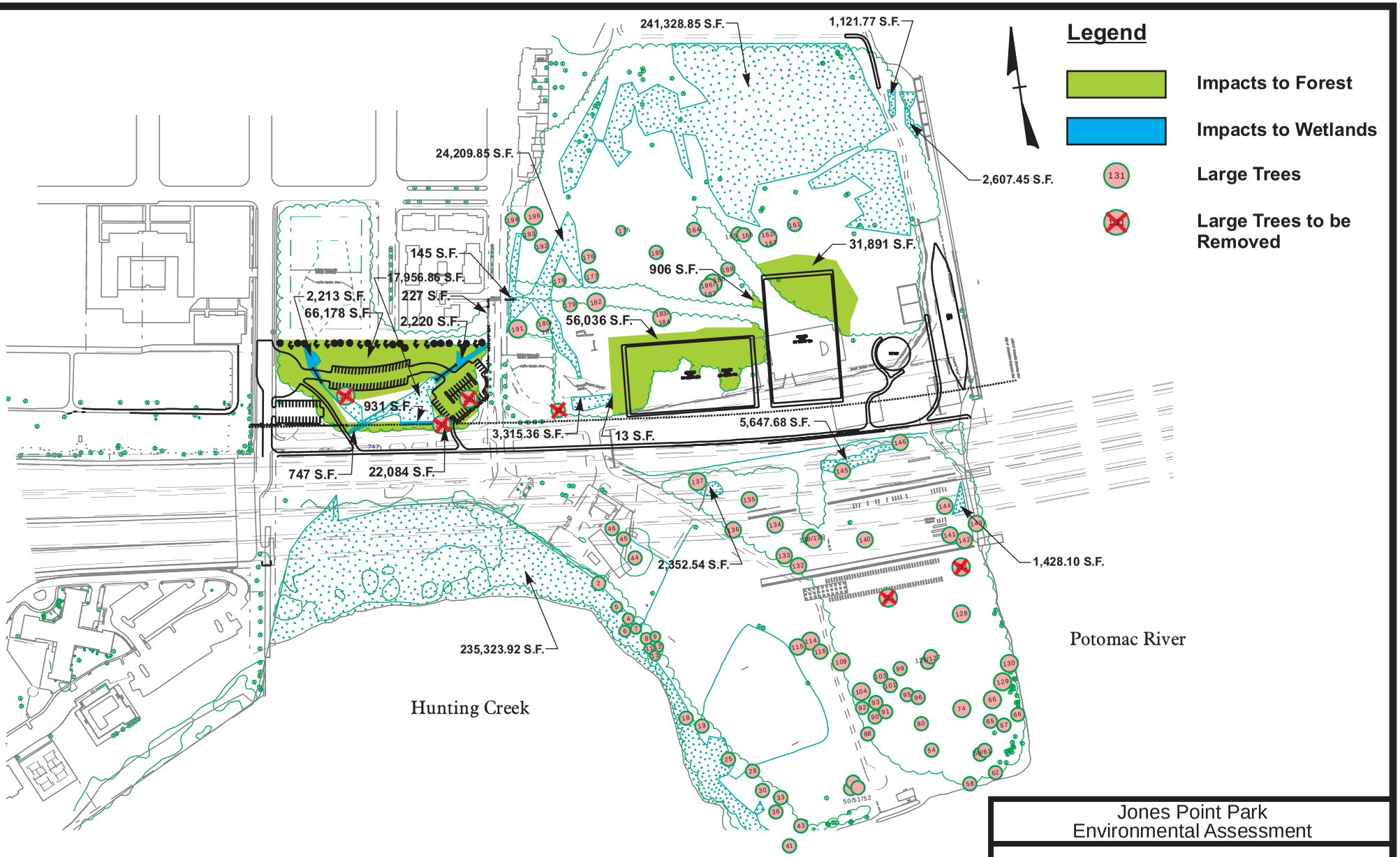
On the south side of JPP, clearing is proposed just south of the new bridge to expose the historic shipway and craneway of the VSC for interpretation purposes. No impacts are anticipated to wetlands as a result of this work.

All action alternatives would impact a total of approximately 0.2 acres of tidal wetlands and Waters of the U.S. for construction of the promenade, plus have the impacts listed under each alternative, below.

There are no anticipated additional impacts to wetlands and Waters of the U.S. from maintenance activities or the use of fertilizers or pesticides. These activities occur to a limited extent under the existing conditions within the park, and should not increase appreciably, following park improvements (i.e., impacts would be so small as to be undetectable).

Alternative 1 *(Alexandria City Council's "Scheme A" dated 6/28/05)*

Analysis: In addition to the impacts common to all action alternatives, Alternative 1 would impact a total of approximately 0.1 acre of non-tidal forested wetlands due to the new access road, parking, and perimeter barriers west of the Lee Street pathway. These wetlands are associated with a drainage swale that discharges into a tidal freshwater marsh south of the existing bridge. Relocation of the proposed multi-use fields and perimeter barriers north of the existing bridge and east of the Lee Street pathway would result in less than one-hundredth of an acre of the total impacts to wetlands.

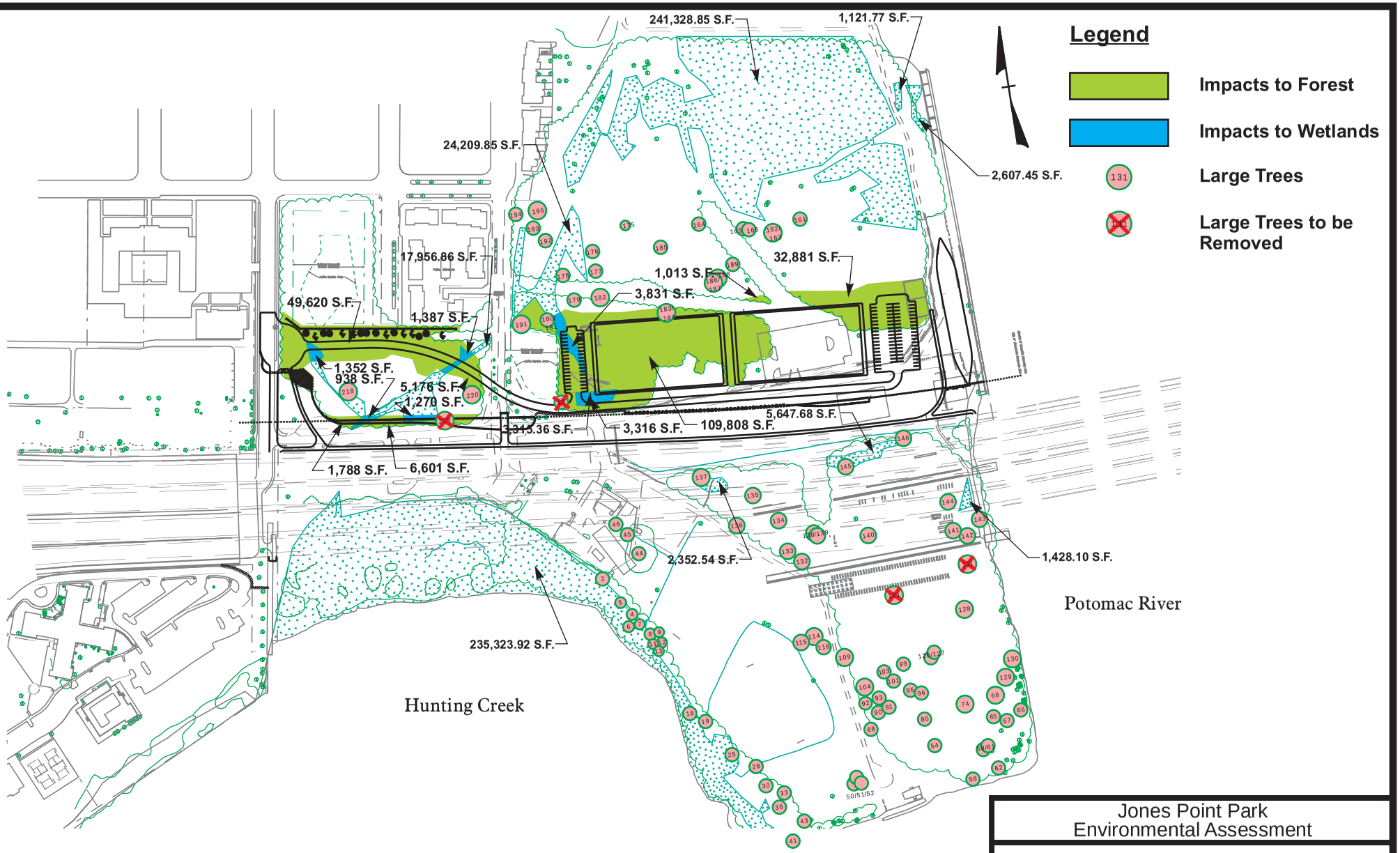


For illustrative purposes ONLY.

Jones Point Park
Environmental Assessment

Alternative 1:
Forest and Wetland Impacts

June, 2007	Scale As Shown	Figure 16



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Jones Point Park
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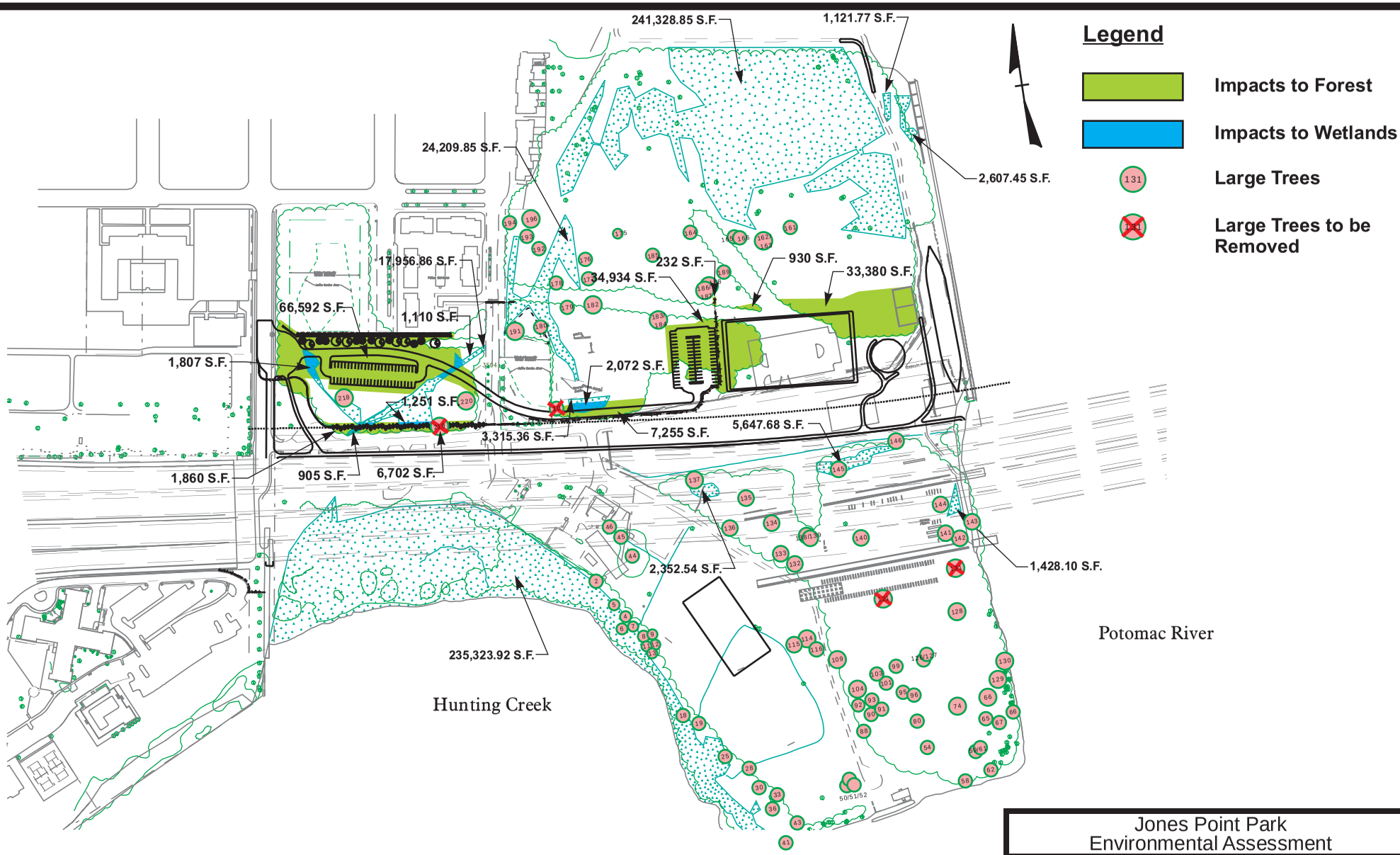
Alternative 2:
Forest and Wetland Impacts

June, 2007	Scale As Shown	Figure 17



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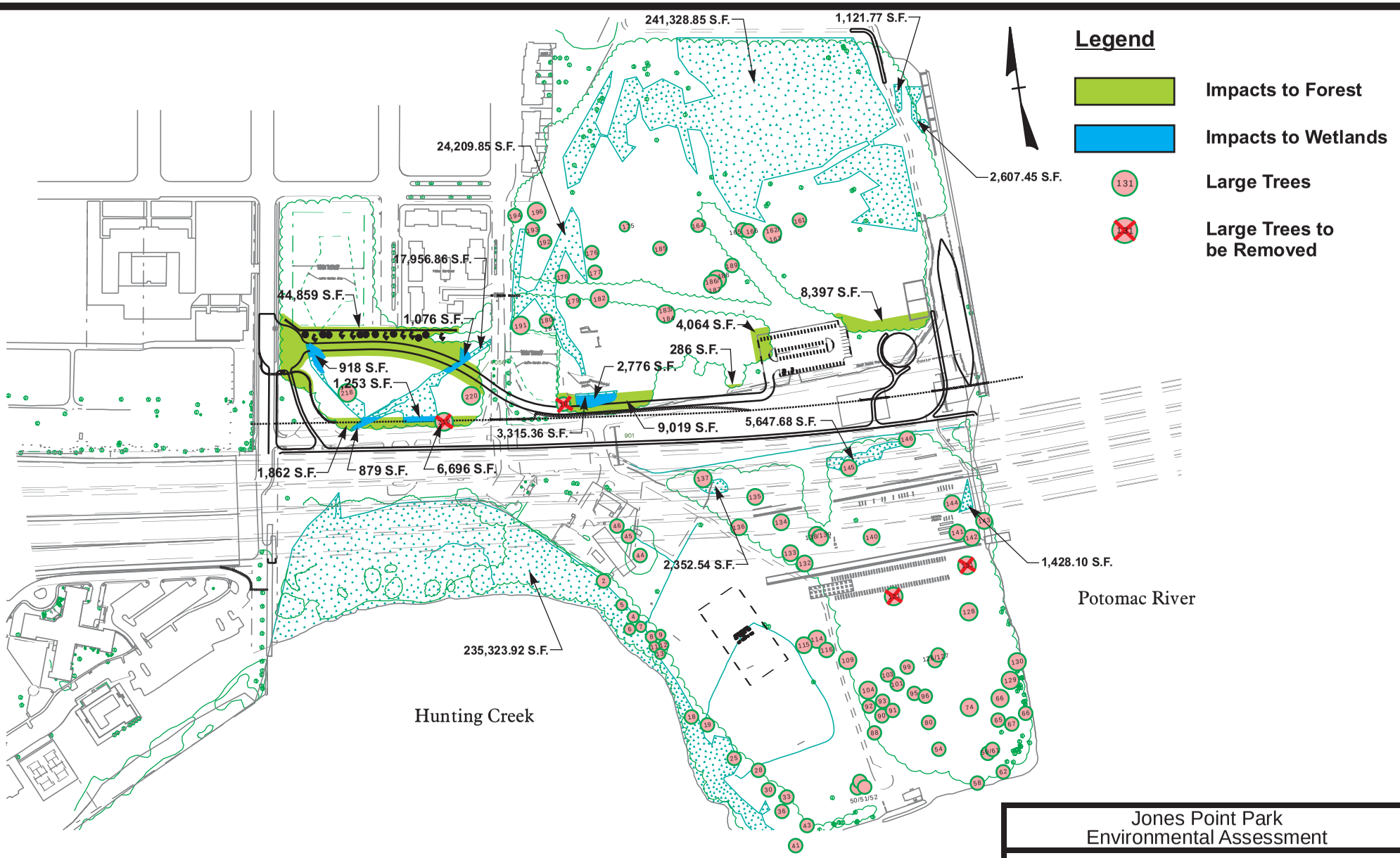
Alternative 3:
Forest and Wetland Impacts

June, 2007	Scale As Shown	Figure 18



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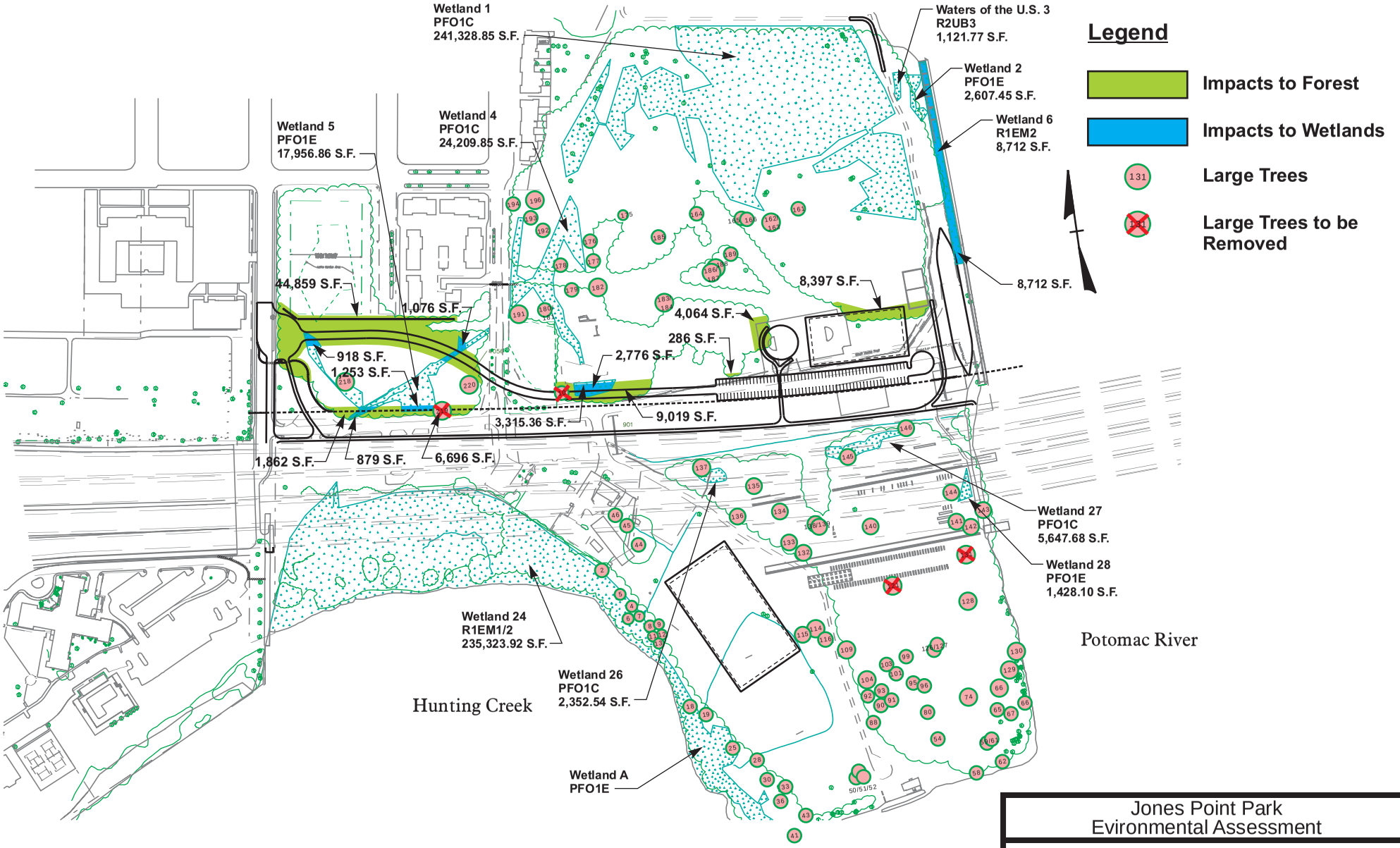
Alternative 4
Forest and Wetland Impacts

June, 2007	Scale As Shown	Figure 19



For illustrative purposes ONLY.

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Alternative 4A - Preferred Alternative: Forest and Wetland Impacts

June, 2007	Scale As Shown	Figure 20

Alternative 1 includes construction of a tot lot and partial relocation of the Mt. Vernon Trail just north of the proposed ship lawn, between the multi-use fields and the Potomac River north of the new bridge. The location of these facilities would not result in impacts to wetlands.

Conclusion: Total direct wetland impacts under Alternative 1 (including those common to all action alternatives) would be approximately 0.3 acre, comprising about 3% of the total wetland area (12 acres) within the park. Wetland impacts would include approximately 0.2 acre of tidal emergent wetlands and approximately 0.1 acre of non-tidal forested wetlands. Tidal emergent wetland impacts would occur within a disturbed area of the Potomac River between deteriorating wooden piers left over from historic ship building activities. The impact would result from construction of a promenade over the old finishing pier remains. This activity is expected to result in adverse, site-specific, long-term, and minor impacts. In comparison, more extensive tidal emergent wetlands occur on the south side of the park, adjacent to Hunting Creek, which would not be impacted.

Non-tidal forested wetland impacts would occur from construction of a new access road, parking areas, perimeter barriers, and multi-use fields. These non-tidal forested wetlands occur within narrow areas of poor drainage resulting from previous disturbances associated with use of the land for ship building operations. These activities are considered to result in minor, long-term, site-specific, adverse impacts. More extensive and less disturbed non-tidal forested wetlands occur in the northeastern corner of the park. This larger forested wetland area would remain undisturbed by park improvements planned under Alternative 1.

Alternative 1 would result in no impairment of the park's wetland resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 2 *(VDOT "Access Option 5" dated 9/28/04)*

Analysis: In addition to the impacts common to all action alternatives, Alternative 2 would impact approximately 0.1 acre of non-tidal forested wetlands from construction of the new access road and perimeter barriers west of the Lee Street pathway. Also, approximately 0.2 acre of non-tidal forest impact would occur from construction of the two multi-use fields and parking areas east of the Lee Street pathway. The total impact to non-tidal wetlands resulting from Alternative 2 is approximately 0.3 acre.

Alternative 2 includes construction of a tot lot beneath the bridge and partial relocation of the Mt. Vernon Trail just north of the proposed ship lawn, between the multi-use fields and the river north of the new bridge. The location of these facilities would not result in impacts to wetlands.

Conclusion: Total direct wetland impacts under Alternative 2 (including those common to all action alternatives) would be approximately 0.5 acre, comprising about 4% of the total wetland area (12 acres) within the park. Wetland impacts would include approximately 0.2 acre of tidal emergent wetlands and approximately 0.3 acre of non-tidal forested wetlands.

Tidal emergent wetland impacts would occur within a disturbed area of the Potomac River between deteriorating wooden piers left over from historical ship building activities. The impact would result from construction of a promenade over the old finishing pier remains. This activity is expected to result in adverse, site-specific, long-term, and minor impacts. In comparison, more extensive tidal emergent wetlands occur within a less disturbed portion of the park on the south side adjacent to Hunting Creek.

Non-tidal forested wetland impacts would occur from construction of a new access road, parking areas, perimeter barriers, and multi-use fields. These non-tidal forested wetlands occur within narrow areas of poor drainage resulting from previous disturbances associated with use of the land for shipbuilding operations. These activities are expected to result in minor, long-term, site-specific, adverse impacts.

More extensive non-tidal forested wetlands occur in the northeastern corner of the park; however, this larger forested wetland area would remain undisturbed by park improvements planned under Alternative 2.

Alternative 2 would result in no impairment of the park's wetland resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 3 *(Based on "Alternative 2" from JPP EA dated 9/10/01)*

Analysis: In addition to the impacts common to all action alternatives, Alternative 3 would result in a total impact of approximately 0.2 acre of forested non-tidal wetlands from the new access road, parking, and perimeter barriers. The relocated multi-use fields and tot lot would not impact wetlands.

Conclusion: Total wetland impacts under Alternative 3 (including those common to all action alternatives) would be approximately 0.4 acre, comprising about 3% of the total wetland area (12 acres) within the park. Wetland impacts would include approximately 0.2 acre of tidal emergent wetlands and approximately 0.2 acre of non-tidal forested wetlands. Tidal emergent wetland impacts would occur within a disturbed area of the Potomac River between deteriorating wooden piers left over from historical shipbuilding activities. The impact would result from construction of a promenade over the old finishing pier remains. This activity is expected to result in adverse, site-specific, long-term, and minor impacts. In comparison, more extensive tidal emergent wetlands occur on the south side of the park, adjacent to Hunting Creek, which would not be impacted.

Non-tidal forested wetland impacts would occur from construction of a new access road, parking areas, and perimeter barriers. These non-tidal forested wetlands occur within narrow areas of poor drainage resulting from previous disturbances associated with use of the land for shipbuilding operations. These activities are expected to result in minor, long-term, site-specific, adverse impacts.

More extensive non-tidal forested wetlands occur in the northeastern corner of the park; however, this larger forested wetland area would remain undisturbed by park improvements planned under Alternative 3.

Alternative 3 would result in no impairment of the park's wetland resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4 *(One multi-use field south of the WWB)*

Analysis: Alternative 4 involves the construction of a new park access road that extends from Royal Street to a proposed parking area east of the Lee Street pathway and north of the WWB. Alternative 4 also includes construction of a single multi-use field within an existing playing field south of the bridge. A tot lot is also proposed between the northern multi-use field and the ship lawn.

In addition to the impacts common to all action alternatives, Alternative 4 would result in a total impact of approximately 0.2 acre of forested non-tidal wetlands from the new access road and perimeter barriers. The relocated multi-use fields, parking area, and tot lot would not impact wetlands.

Alternative 4A – Preferred Alternative *(Multi-use fields north and south of the WWB)*

Analysis: Alternative 4A involves the construction of a new park access road that extends from Royal Street to a proposed parking area east of the Lee Street pathway and north of the WWB. Alternative 4A also includes construction of an 80-foot by 40-foot multi-use field east of the Lee Street pathway and north of the WWB and another 110-foot by 60-foot multi-use field within an existing playing field south of the bridge. A tot lot is also proposed just west of the northern multi-use field and will be located away from the river.

In addition to the impacts common to all action alternatives, Alternative 4A would result in a total impact of approximately 0.2 acre of forested non-tidal wetlands from the new access road and perimeter barriers. The relocated multi-use fields, parking area, and tot lot would not impact wetlands.

Conclusion: Total direct wetland impacts under Alternative 4A (including those common to all action alternatives) would be approximately 0.4 acre, comprising about 3% of the total wetland area (12 acres) within the park. Wetland impacts would include approximately 0.2 acre of tidal emergent wetlands and approximately 0.2 acre of non-tidal forested wetlands. Tidal emergent wetland impacts would occur within a disturbed area of the Potomac River between deteriorating wooden piers left over from historical ship building activities. The impact would result from construction of a promenade over the old finishing pier remains. This activity is expected to result in adverse, site-specific, long-term, and minor impacts.

In comparison, more extensive tidal emergent wetlands occur on the south side of the park, adjacent to Hunting Creek, which would not be impacted.

Non-tidal forested wetland impacts would occur from construction of a new access road (0.1 acre) and perimeter barriers (0.1 acre). These non-tidal forested wetlands occur within narrow areas of poor drainage resulting from previous disturbances associated with use of the land for shipbuilding operations. These activities are expected to result in minor, long-term, site-specific, adverse impacts. More extensive and less disturbed non-tidal forested wetlands occur in the northeastern corner of the park. This larger forested wetland area would remain undisturbed by park improvements planned under Alternative 4A.

Alternative 4A would result in no impairment of the park's wetland resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Mitigation Measures

Complete avoidance of all wetland and waterway resources within JPP is not possible while still accomplishing the Purpose and Need of the proposed project. Because of restrictions on access beneath the WWB brought on by homeland security requirements, the new access road and parking for the planned improvements must be provided in some of the undeveloped portions of the park. Vehicle access would only be available by way of a new entrance road off of Royal Street, and to allow sufficient access and parking, impacts would occur to forested non-tidal wetlands located within the forested area of the park between Royal Street and the Lee Street pathway and just east of the Lee Street pathway. Also, improvements to the finishing pier to create a promenade along the Potomac River would result in unavoidable impacts to tidal emergent wetlands that have formed between the deteriorating piers. While complete avoidance of wetland impacts is not possible, Alternative 1 minimizes wetland impacts by removing the planned parking east of the Lee Street pathway, adjacent to the fields and realigning the playing fields. Alternatives 3 and 4A minimize wetland impacts by shifting some or all of the planned parking east of the Lee Street pathway and providing only a single playing field north of the bridge.

While complete avoidance of all wetland impacts is not possible, impacts can be reduced through wetland mitigation. Wetland mitigation appears feasible north of the bridge and east of the Lee Street pathway within an open power line area and adjacent openings in the forest created by the loss of trees (see Figure 21). The existing trees have recently died and fallen as a result of invasive vines. The mitigation proposal would seek to use the open land now covered in vines and connect the proposed mitigation site to the larger, contiguous, seasonally flooded non-tidal wetland (Area 1 according to the wetland delineation report prepared March 1999). Area 1 is located in the northern portion of JPP and extends from the western park boundary to the footpath in the eastern portion of the park. Although Area 1 is classified as non-tidal it may receive tidal influence from the Potomac River during storm events. Between Area 1 and the proposed mitigation area is an upland forest strip that varies in width from 20-50 feet wide.

The connection of the proposed mitigation site with Area 1 would be accomplished through channels through the upland forest strip. The channels would be designed to avoid impacts to trees and critical root zones.

This proposed mitigation would result in the creation of an approximately 0.5 acre non-tidal forested wetland depression, requiring the removal of less than 3 feet of soil to provide suitable wetland elevations. This wetland creation would be sufficient to compensate for impacts to forested non-tidal wetland impacts under Alternative 4A.

Potential impacts to tidal emergent wetlands, associated with construction of the promenade, could be mitigated within this same non-tidal wetland creation rather than creating tidal emergent wetlands elsewhere. This would be preferable, as the tidal emergent wetlands being impacted are of relatively low quality compared to the much more extensive tidal emergent wetlands along Hunting Creek, and there are insufficient areas onsite to compensate in-kind for the loss of tidal emergent wetlands. According to guidance provided in the NPS *Procedural Manual #77-1: Wetland Protection*, wetland impacts must be replaced at a 1:1 replacement ratio.

The on-site wetland creation area would more than compensate for the total 0.4 acre of wetland impacts under Alternative 4A. An additional benefit from the proposed mitigation option is the removal of the invasive vines that threaten the remainder of the forest within the park.

Guidance contained in the *Procedural Manual #77-1: Wetland Protection* also indicates that wetland compensation typically refers to the restoration of natural wetland functions in degraded or former natural wetland habitats on NPS lands. Much of JPP was historically part of the Potomac River prior to filling in the early 1900s for creation of the shipyard. Therefore, since much of the land now characterized by disturbed forest or open land north of the bridge was originally part of the river, mitigation in the form of wetland creation seems an appropriate form of compensation for minor unavoidable wetland impacts.

The 2000 ROD for the WWB Replacement Project contains a Table of Commitments that would mitigate the potential impacts of the WWB Replacement Project as well as the JPP improvements. A copy of the entire ROD is available for inspection at the NPS and the WWB Replacement Project office. The Table of Commitments indicated that an independent environmental compliance monitor(s) would provide environmental compliance monitoring on all facets of the WWB Replacement Project including improvements to JPP. The monitor(s) have been reporting progress directly to the regulatory agencies and the sponsoring agencies since construction on the WWB Replacement Project began. A separate team of environmental inspectors and state agency representatives has been used to support and assist the sponsoring agencies in their efforts. Additional commitments and environmental compliance protocols would be developed and implemented prior to the start of park improvements.

For illustrative purposes ONLY.

Jones Point Park
Environmental Assessment

Potential Wetland Mitigation and Reforestation Area

June, 2007	Scale As Shown	Figure 21

G. Vegetation, Terrestrial Habitats, and Wildlife

The construction of multi-use fields, parking areas, and a new park access road associated with the action alternatives for planned JPP improvements would result in the loss of terrestrial vegetation, a reduction in size of specific terrestrial habitats, and the potential displacement of wildlife. To enable safe erection of large structural steel for the new inner loop span of the WWB, a large crane will be staged at certain critical lift points along Jones Point Park Drive. This would require removal of one tree greater than 24 inch dbh and trimming or removal of 13 trees less than 24 inch dbh, overhanging Jones Point Park Drive between Royal Street and Lee Street, where potential conflict with construction equipment at certain critical lift points may occur.

Guiding Regulations and Policies

The NPS Management Policies (2006) indicate that the NPS will protect native plants and animals as part of the natural ecosystems of parks. The NPS would achieve this through:

- Preserving and restoring the natural abundance, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and communities and ecosystems in which they occur.
- Restoring native plant and animal populations in parks when they have been destroyed by past human actions.
- Minimizing human impacts on native plants, animal populations, communities, and ecosystems, and the processes that sustain them.

Methodology and Assumptions

While no specific regulations against the clearing of forest or other habitats exists in Virginia, the WWB Replacement Project, under an agreement with the NPS and City of Alexandria, proposed to replace lost forest habitat at a 1:1 ratio. Individual trees removed will be mitigated (inch for inch dbh). Trees trimmed will not require mitigation. To analyze potential impacts from the various alternatives on vegetation, terrestrial habitats, and wildlife within JPP, all terrestrial vegetation cover types within the park were mapped. To assess specific impacts to forest habitat and specimen trees, a forest stand delineation was completed within the park following guidance contained within the Maryland Forest Conservation Act's *Forest Conservation Manual*. Direct and indirect impacts associated with each alternative were analyzed from an overlay of mapped forest limits onto project alternative mapping. In addition, on July 27, 2006, a site visit was conducted to document trees overhanging Jones Point Park Drive to determine potential tree removals that may occur as a result of the large crane needed to construct the new inner loop span of the WWB.

Potential impacts to birds within the park were analyzed through results of a two-year breeding bird study carried out within the park specifically for this project. Findings of the study are described in the Affected Environment section of this document.

An analysis of potential impacts to non-avian wildlife was made based on observations of non-avian wildlife during the two-year bird study and on the potential for wildlife to occur within the habitats likely to be affected by the proposed alternatives.

Impacts to Vegetation, Terrestrial Habitats, and Wildlife

The following thresholds were used to determine the magnitude of effects on vegetation, terrestrial habitats, and wildlife resources within the park:

Negligible: There would be no measurable or observable impacts to native vegetation, terrestrial habitats, or wildlife and the processes that sustain them. Impacts would be of short duration and well within natural fluctuations.

Minor: Impacts would be detectable, but would be expected to be short-term with only minor permanent impacts to vegetation and terrestrial habitats. The likelihood of successful compensation for lost forest habitat would be high and relatively easily accomplished through on-site reforestation efforts. Impacts to wildlife would also be detectable, but short-term and temporary, and well within the range of natural variability. Numbers of individuals, population structure, genetic variability and other demographic factors for species might have small, short-term changes, but long-term characteristics would remain stable and viable. Disruptions to individuals may occur from minor disturbance, but overall characteristics of the population, such as reproduction, foraging behaviors, and other factors would persist. Ecosystem functions would sustain short-term disruptions, but would remain within natural fluctuations. Sufficient habitat would remain functional to sustain all existing species. Disturbances would occur outside of critical reproduction periods of sensitive native wildlife species.

Moderate: Impacts would be detectable and permanent, with the permanent loss of some vegetation and terrestrial habitat expected. The likelihood of successful compensation for lost forest habitat would be high and relatively easily accomplished through on-site reforestation efforts. Impacts to wildlife would also be detectable and permanent, and could be outside the range of natural fluctuations for short periods of time. Mortality or interference with activities necessary for survival could occur to individuals, but is not expected to threaten the continued existence of species within the park. Numbers of individuals, population structure, genetic variability and other demographic factors for species might have small, short-term changes, but long-term characteristics would remain stable and viable.

Disruptions to individuals may occur from minor disturbance, but overall characteristics of the population, such as reproduction, foraging behaviors, and other factors would persist. Ecosystem functions would sustain short-term disruptions that could be outside natural fluctuations.

Sufficient habitat would remain functional to sustain all existing species, though disturbances could occur within critical reproduction periods of sensitive native wildlife species.

Major: Impacts would be detectable and permanent, with losses of vegetation and terrestrial habitats occurring over a wide area. The likelihood of successful compensation for lost forest habitat is high though more complicated because of possible off-site location needs or complex reforestation requirements. Impacts to wildlife would also be detectable and permanent, and occur outside the range of natural fluctuations. Numbers of individuals, population structure, genetic variability and other demographic factors for species might have large, short-term declines, with long-term population numbers being significantly depressed. Ecosystem functions would sustain long-term or permanent disruptions. Loss of habitat may threaten the long-term existence of at least some species.

The No-Action Alternative

Invasive porcelain berry vine continues to spread within existing upland deciduous forest habitat north of the bridge and east of the Lee Street pathway. Coverage by the non-native vine has resulted in the conversion of forest habitat to a dense thicket of vines, reducing vegetation species diversity and likely reducing the diversity of wildlife species using the area. Under the No-Action Alternative, the spread of the vine and further loss of forest habitat would occur without invasive species control efforts conducted by the NPS.

To enable safe erection of large structural steel for the new inner loop span of the WWB, a large crane will be staged at certain critical lift points along Jones Point Park Drive and may require trimming or removal of trees overhanging Jones Point Park Drive between Royal Street and Lee Street. The critical lift plan will not be available until the winter 2006 timeframe so a conservative approach was taken for this EA. This approach assumes that all trees overhanging Jones Point Park Drive would potentially need to be removed. On July 27, 2006, a site visit was conducted to document trees overhanging Jones Point Park Drive and determine the extent that removal of the trees would be required. The worst-case scenario would potentially remove one tree greater than 24 inch dbh and trimming or removal of 13 trees less than 24 inch dbh, with a total of approximately 252 inches dbh.

Impacts Common to Action Alternatives

Analysis: Refer to Figures 16, 17, 18, 19, and 20 which illustrate the location of forest impacts for each action alternative. Vegetation and terrestrial habitat impacts common to all of the action alternatives include approximately one acre of trees, including two trees with a diameter of 24 inches or greater, that would be cleared to allow for the exposure of the shipway and other historic structures for interpretation purposes.

This forest area is comprised of silver maple and box elder in the canopy, with multiflora rose, mulberry, and honeysuckle in the understory. This site is disturbed, contains many invasive non-native plants, and provides declining habitat for forest and forest edge birds and other wildlife. Clearing of trees and understory vegetation within this area would reduce the area of habitat for these wildlife species, but is not expected to result in the loss of native wildlife species.

At the northern edge of the craneway of the VSC, native tree and shrub planting is proposed as a screen from the WWB. These plantings are primarily aesthetic and would not enhance the wildlife habitat of the park. In the area located south of the shipway, the existing forest would be cleared of dead trees and invasive species in the understory vegetation. Pedestrian footpaths are also proposed through this area. Much of the understory is presently comprised of non-native invasive species. However, the habitat is still suitable for a broad range of wildlife use. Following the conversion of the habitat to more of an active setting, wildlife use would be somewhat limited to canopy-nesting birds unless the understory is allowed to regenerate.

Elsewhere on the south side of the park, and to the west, native tree and shrub plantings are proposed along the forested wetland edge adjacent to Hunting Creek. In addition, meadow habitat is also proposed within several swales and on the south side of the park. This enhancement would provide open habitat for butterflies and other species that JPP currently does not provide.

To enable safe erection of large structural steel for the new inner loop span of the WWB, a large crane will be staged at certain critical lift points along Jones Point Park Drive and may require trimming or removal of trees overhanging Jones Point Park Drive between Royal Street and Lee Street. The critical lift plan will not be available until the winter 2006 timeframe so a conservative approach was taken for this EA. This approach assumes that all trees overhanging Jones Point Park Drive would potentially need to be removed. On July 27, 2006, a site visit was conducted to document trees overhanging Jones Point Park Drive and determine the extent that removal of the trees would be required. The worst-case scenario would potentially remove one tree greater than 24 inch dbh and trimming or removal of 13 trees less than 24 inch dbh, with a total of approximately 252 inches dbh.

The action alternatives would contain the spread of invasive porcelain berry vine which would have the beneficial effect on forest habitat. All action alternatives would have a common impact of approximately one acre of forest, including three trees with a diameter of 24 inches or greater, plus have additional impacts as noted under each alternative, below.

Alternative 1 *(Alexandria City Council's "Scheme A" dated 6/28/05)*

Analysis: Relocation of the proposed multi-use fields and construction of the associated access road, parking, tot lot, pedestrian access trail, and perimeter barriers north of the existing bridge would result in forest clearing totaling approximately 4.1 acres, including three trees 24 inches in diameter or larger. The forest area to be removed for the multi-use fields would total approximately 2 acres. This area is comprised of maples, box elder, and sycamore with a dense tangled understory of invasive and exotic multiflora rose, honeysuckle, porcelain berry, and English ivy.

Impacts to wildlife are expected to be minimal due to the disturbed nature of the habitat within the area of the proposed multi-use fields. The loss of some forest cover may eliminate individual territories of some birds and other wildlife, but is not expected to result in the loss of species in the park. Also, native tree and shrub vegetation would be planted along the edge of the multi-use fields and enhance the remaining forested habitat for wildlife.

Deciduous forest impacts west of the Lee Street pathway would occur from the construction of a new access road (0.1 acre), parking (1.6 acres), pedestrian access trail (0.2 acre), and perimeter barriers (0.2 acre) totaling approximately 2.1 acres. Construction of the parking areas would also impact at least one tree 24 inches in diameter or larger, and could possibly impact a second large tree (#218). However, this tree (#218) may be able to be saved if the limit of disturbance for the parking area can be tightened up slightly and the large tree can be carefully root pruned. The perimeter barriers could result in the impact of one additional large tree (#219). However, again, it may be possible to salvage this tree if care is taken during construction of the barriers and the tree is carefully root pruned. The impacted forest stand is dominated by silver maple in the canopy and many non-native, invasive vines in the understory. Construction of Alternative 1 would eliminate much of the existing forested habitat between the Lee Street pathway and Royal Street, forcing the wildlife using this area into a smaller area. This would result in the loss or displacement of some individuals and perhaps some species that require larger areas of habitat to survive.

Conclusion: Total direct forest habitat impacts under Alternative 1 (including those common to all action alternatives) would be approximately 5.1 acres, comprising about 19% of the total forest habitat area (28 acres) within the park. Forest habitat impacts would include approximately one acre south of the bridge for rehabilitation of the shipway and approximately 4.1 acres north of the bridge for construction of the new access road, parking areas, multi-use fields, pedestrian access trail, and perimeter barriers. Impacts include the removal of up to six trees with a diameter of 24 inches or greater. However, as mentioned above, at least two of the trees may be saved by minor adjustments in the limit of disturbance and care taken during construction. All of these impacted forest habitats occur on previously disturbed lands, and are comprised of many non-native invasive plant species. The largest trees within the park occur along the Potomac River shoreline. With the exception of the two large trees proposed for removal with rehabilitation of the shipway south of the bridge, none of these large riparian trees would be disturbed. Alternative 1 is expected to result in adverse, site-specific, long-term, moderate impacts to forested areas.

Impacts to wildlife are likely to occur to those species that are adapted to more urban and suburban settings. Construction of Alternative 1 would be expected to cause the displacement of numbers of individuals and perhaps the loss of some wildlife species from the existing forest habitat between Royal Street and the Lee Street pathway. However, these displaced species would likely persist within undisturbed forest habitat elsewhere within the park. The most sensitive species of wildlife within the park are canopy-nesting FIDS. While JPP is not viable FIDS habitat, some canopy-nesting FIDS do breed within the park primarily within the large contiguous forest areas north of the proposed park development north of the bridge and along the shoreline of the Potomac River both north and south of the WWB.

The canopy vegetation within these areas would remain undisturbed under Alternative 1. Planned activities under Alternative 1 are considered to result in adverse, site-specific, long-term, minor impacts to wildlife.

Alternative 1 would result in no impairment of the park's vegetation, terrestrial habitats, or wildlife resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 2 *(VDOT "Access Option 5" dated 9/28/04)*

Analysis: Impacts to forest from construction of the new access road (1.2 acres), pedestrian access trail (0.01 acre), and perimeter barriers (0.2 acre) west of the Lee Street pathway would total approximately 1.4 acres, less than Alternatives 1 and 3, because of the lack of proposed parking along the access road. The perimeter barriers could also result in an impact to one tree with a diameter of 24 inches or greater. However, as stated above under the discussion for Alternative 1, it may be possible to salvage this large tree during perimeter barrier construction. The forest disturbance associated with this alternative represents an encroachment from the perimeter, rather than a splitting of a larger forest block into smaller units. This type of impact would leave more contiguous forest in the interior of the site providing better habitat for wildlife.

The multi-use fields (2.3 acres), access road (0.1 acre), associated parking areas (0.8 acre), and expansion of the existing community garden east of the Lee Street pathway (0.1 acre) would require the clearing of approximately 3.2 acres of forest. This represents over an acre of additional forest impacts east of the Lee Street pathway as compared to Alternative 1.

Conclusion: Total forest habitat impacts under Alternative 2 (including those common to all action alternatives) would be approximately 5.6 acres, comprising about 21% of the total forest habitat area (28 acres) within the park. Forest habitat impacts would include approximately one acre south of the bridge for rehabilitation of the shipway and approximately 4.6 acres north of the bridge for construction of the new access road, pedestrian access trail, parking areas, multi-use fields, perimeter barriers, and expansion of the community garden just east of the Lee Street pathway. Impacts include the removal of up to four trees with a diameter of 24 inches or greater. All of these impacted forest habitats occur on previously disturbed lands, and are comprised of many non-native invasive plant species. The largest trees within the park occur along the Potomac River shoreline. With the exception of the two large trees proposed for removal with rehabilitation of the shipway south of the bridge, none of these large riparian trees would be disturbed. Alternative 2 is expected to result in adverse, site-specific, long-term, moderate impacts to forested areas.

Impacts to wildlife are likely to occur to those species that are adapted to more urban and suburban settings. Construction of Alternative 2 would be expected to cause the short-term displacement of some individuals from the existing forest habitat between Royal Street and the Lee Street pathway. However, the undeveloped forest habitat in this area should be of sufficient size to harbor all species of wildlife currently using the forest patch.

The most sensitive species of wildlife within the park are canopy-nesting FIDS. While JPP is not viable FIDS habitat, some canopy-nesting FIDS do breed within the park primarily within the large contiguous forest areas north of the proposed park development north of the bridge and along the shoreline of the Potomac River both north and south of the WWB. The canopy vegetation within these areas would remain undisturbed under Alternative 2. Planned activities under Alternative 2 are expected to result in adverse, site-specific, long-term, minor impacts to wildlife.

Alternative 2 would result in no impairment of the park's vegetation, terrestrial habitats, or wildlife resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 3 *(Based on "Alternative 2" from JPP EA dated 9/10/01)*

Analysis: West of the Lee Street pathway, the proposed access road (0.5 acre), parking area (1.0 acre), and perimeter barriers (0.2 acre) would result in forest impacts of approximately 1.7 acres, less than the forest habitat impacts proposed in this area under Alternative 1. Placement of the perimeter barriers within the existing forest parallel to the bridge could result in the loss of one tree 24 inches in diameter or larger. However, as stated above under the discussion for Alternative 1, it may be possible to salvage this large tree during perimeter barrier construction. Alternative 3 would affect wildlife habitat within JPP through the loss of forest and the increase in human activity anticipated from planned improvements.

East of the Lee Street pathway, Alternative 3 would impact approximately 1.8 acres of forest, somewhat less forest habitat impacts than either Alternative 1 or Alternative 2 in this location. Forest clearing would occur for the multi-use fields (1.1 acres), a new access road (0.2 acre), and parking (0.5 acre). The perimeter barriers could also result in an impact to one tree 24 inches in diameter or larger. However, as stated above under the discussion for Alternatives 1 and 2, it may be possible to salvage this large tree during perimeter barrier construction.

Conclusion: Total direct forest habitat impacts under Alternative 3 (including those common to all action alternatives) would be approximately 4.5 acres, comprising about 17% of the total forest habitat area (28 acres) within the park. Forest habitat impacts would include approximately one acre south of the bridge for rehabilitation of the shipway and approximately 3.5 acres north of the bridge for construction of the new access road, parking areas, multi-use fields, perimeter barriers, and expansion of the community garden just east of the Lee Street pathway. Impacts include the removal of up to four trees with a diameter of 24 inches or greater.

All of these impacted forest habitats would occur on previously disturbed lands, and are comprised of many non-native invasive plant species. The largest trees within the park occur along the Potomac River shoreline. With the exception of the two large trees proposed for removal with rehabilitation of the shipway south of the bridge, none of these large riparian trees would be disturbed. Alternative 3 is expected to result in adverse, site-specific, long-term, moderate impacts on forested areas.

Impacts to wildlife are likely to occur to those species that are adapted to more urban and suburban settings. Construction of Alternative 3 would be expected to cause the displacement of numbers of individuals and perhaps the loss of some wildlife species from the existing forest habitat between Royal Street and the Lee Street pathway. However, these displaced species would likely persist within undisturbed forest habitat elsewhere within the park. The most sensitive species of wildlife within the park are canopy-nesting FIDS. While JPP is not viable FIDS habitat, some canopy-nesting FIDS do breed within the park primarily within the large contiguous forest areas north of the proposed park development north of the bridge and along the shoreline of the Potomac River both north and south of the WWB. The canopy vegetation within these areas would remain undisturbed under Alternative 3. Planned activities under Alternative 3 are expected to result in adverse, site-specific, long-term, minor impacts to wildlife.

Alternative 3 would result in no impairment of the park's vegetation, terrestrial habitats, or wildlife resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4 *(One multi-use field south of the WWB)*

Analysis: Impacts to forest from construction of the new access road (1.0 acre) and perimeter barriers (0.2 acre) west of the Lee Street pathway would total approximately 1.2 acres, representing the least forest impact west of the Lee Street pathway of all of the action alternatives. The lower impact results from the lack of proposed parking west of the Lee Street pathway and a slight difference in the proposed construction of the access road. The perimeter barriers could also result in an impact to one tree with a diameter of 24 inches or greater. However, as stated above under the discussion for Alternatives 1, 2, and 3 it may be possible to salvage this large tree during perimeter barrier construction. The forest disturbance associated with this alternative represents an encroachment from the perimeter, rather than a splitting of a larger forest block into smaller units. This type of impact would leave more contiguous forest in the interior of the site providing better habitat for wildlife.

East of the Lee Street pathway, forest habitat impacts would be associated with the access road (0.2 acre) and a single parking area (0.3 acre). The single proposed multi-use field would be located on the south side of the bridge within an existing field. It should be noted that the 0.3 acre for the parking area is a worst-case scenario and could possibly be reduced during construction. Avoidance and minimization will be considered further during final design. This alternative would result in the least amount of forest impacts east of the Lee Street pathway as compared to the other proposed action alternatives.

Conclusion: Total direct forest habitat impacts under Alternative 4 (including those common to all action alternatives) would be approximately 2.7 acres, comprising about 11% of the total forest habitat area (28 acres) within the park. Forest habitat impacts would include approximately one acre south of the bridge for rehabilitation of the shipway and approximately 1.7 acres north of the bridge for construction of the new access road, parking areas, and perimeter barriers.

Impacts include the removal of up to four trees with a diameter of 24 inches or greater. All of these impacted forest habitats occur on previously disturbed lands, and are comprised of many non-native invasive plant species. The largest area of relatively undisturbed forest occurs within the northern portion of the site and is associated primarily with non-tidal wetlands discussed above. Proposed park improvements under Alternative 4 would not disturb this forest stand.

The largest trees within the park occur along the Potomac River shoreline. None of these large riparian trees would be disturbed, with the exception of the two large trees proposed for removal with rehabilitation of the shipway south of the bridge. Alternative 4 is expected to result in adverse, site-specific, long-term, minor impacts to forested areas.

Impacts to wildlife are likely to occur to those species that are adapted to more urban and suburban settings. Construction of Alternative 4 would be expected to cause the short-term displacement of some individuals from the existing forest habitat between Royal Street and the Lee Street pathway. However, the undeveloped forest habitat in this area should be of sufficient size to harbor all species of wildlife currently using the forest patch. The most sensitive species of wildlife within the park are canopy-nesting FIDS. While JPP is not viable FIDS habitat, some canopy-nesting FIDS do breed within the park primarily within the large contiguous forest areas north of the proposed park development north of the bridge and along the shoreline of the Potomac River both north and south of the WWB. The canopy vegetation within these areas would remain undisturbed under Alternative 4. Planned activities under Alternative 4 are expected to result in adverse, site-specific, long-term, minor impacts to wildlife.

Alternative 4 would result in no impairment of the park's vegetation, terrestrial habitats, or wildlife resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Alternative 4A – Preferred Alternative *(Multi-use fields north and south of the WWB)*

Analysis: Impacts to forest from construction of the new access road (0.8 acre), pedestrian access trail (0.1 acre), expansion of the community garden (191 square feet), and perimeter barriers (0.4 acre) west of the Lee Street pathway would total approximately 1.3 acres. This total represents the least forest impacts west of the Lee Street pathway compared to the other three alternatives and would be the same as Alternative 4. The lower forest impacts result from the lack of proposed parking west of the Lee Street pathway and a slight difference in the proposed construction of the access road. The perimeter barriers could also result in an impact to one tree with a diameter of 24 inches or greater. However, as stated above under the discussion for Alternatives 1, 2, 3, and 4 it may be possible to salvage this large tree during perimeter barrier construction. The forest disturbance associated with this alternative represents an encroachment from the perimeter, rather than a splitting of a larger forest block into smaller units. This type of impact would leave more contiguous forest in the interior of the site providing better habitat for wildlife.

East of the Lee Street pathway, forest habitat impacts would be associated with the access road (0.2 acre), a tot lot (0.1 acre), a small multi-use field (0.3 acre), and a single parking area (279 square feet) would total approximately 0.6 acres. The larger proposed multi-use field would be located on the south side of the bridge within an existing field, and would result in no impacts to forest. A group of three significant trees does lie close to the southeastern edge of the playing field. One tree (#115) will be particularly close to the limits of the playing field. Care will be taken to locate the field far enough from the drip line of the tree to protect the roots and save the tree. No impacts to significant trees would result from proposed activities east of the Lee Street pathway. This alternative would result in the least amount of forest impacts east of the Lee Street pathway as compared to the other proposed action alternatives.

Conclusion: Total direct forest habitat impacts under Alternative 4A (including those common to all action alternatives) would be approximately 2.9 acres, comprising about 10 percent of the total forest habitat area (28 acres) within the park. Forest habitat impacts would include approximately one acre south of the bridge for rehabilitation of the shipway and approximately 1.9 acres north of the bridge for construction of the new access road, a pedestrian pathway, a tot lot, parking areas, and perimeter barriers. Impacts include the removal of up to three trees with a diameter of 24 inches or greater.

All of these impacted forest habitats occur on previously disturbed lands, and are comprised of many non-native invasive plant species. The largest area of relatively undisturbed forest occurs within the northern portion of the site and is associated primarily with non-tidal wetlands discussed above. Proposed park improvements under Alternative 4A would not disturb this forest stand.

The largest trees within the park occur along the Potomac River shoreline. None of these large riparian trees would be disturbed, with the exception of the two large trees proposed for removal with rehabilitation of the shipway south of the bridge. Alternative 4A is expected to result in adverse, site-specific, long-term, minor impacts to forested areas.

Impacts to wildlife are likely to occur to those species that are adapted to more urban and suburban settings. Construction of Alternative 4A would be expected to cause the short-term displacement of some individuals from the existing forest habitat between Royal Street and the Lee Street pathway. However, the undeveloped forest habitat in this area should be of sufficient size to harbor all species of wildlife currently using the forest patch. The most sensitive species of wildlife within the park are canopy-nesting FIDS. While JPP is not viable FIDS habitat, some canopy-nesting FIDS do breed within the park primarily within the large contiguous forest areas north of the proposed park development north of the bridge and along the shoreline of the Potomac River both north and south of the WWB. The canopy vegetation within these areas would remain undisturbed under Alternative 4A. Planned activities under Alternative 4A are expected to result in adverse, site-specific, long-term, minor impacts to wildlife.

Alternative 4A would result in no impairment of the park's vegetation, terrestrial habitats, or wildlife resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Mitigation Measures

It would not be possible to completely avoid impacts to all vegetation, terrestrial habitats, and wildlife within JPP and still accomplish the purpose and need of the proposed project. Because of restrictions on access beneath the WWB, the new access road and parking for the planned improvements must be accommodated on some of the undeveloped portions of the park. Vehicle access would only be available by way of a new entrance road off Royal Street. To allow sufficient access and parking, impacts would occur to upland and wetland deciduous forest located within the park east and west of the Lee Street pathway. While complete avoidance of vegetation, terrestrial habitats, and wildlife impacts is not possible, Alternatives 3 and 4A minimize these impacts by shifting some of the planned parking east of the Lee Street pathway and providing only a single multi-use field north of the bridge.

To further minimize impacts to vegetation, terrestrial habitats, and wildlife, efforts will be made during design and construction of the proposed JPP improvements to protect existing forest areas, especially large trees. Maintaining canopy is important particularly for the species of FIDS that were identified in the *Final Supplemental Jones Point Park Consolidated Natural Resources Inventory* (2000) that was completed as part of the FSEIS for the WWB Replacement Project. Two FIDS found at JPP are canopy-nesters, which is why it is critical to maintain canopy wherever possible. This inventory also indicated that JPP provides adequate nesting habitat for numerous Neotropical Migratory Landbird (NML) species as well as Resident Landbirds (RL) who benefit from forest habitat. As available habitat declines, individuals of each of the species observed would also decline. Upland and wetland forest habitats on the northern half of the park, particularly along the Potomac River, provide some of the most important nesting habitat for NML and RL species within the park, including the Baltimore oriole, whose numbers are reportedly declining.

Impacts to valuable forest habitat can be reduced beyond what is proposed through successful compensation in the form of reforestation. Refer to Figure 21 for the locations of potential reforestation areas. The FSEIS referenced reforestation areas for mitigation of forest impacts from the WWB Replacement Project and included compensation for lost forest habitat at a 1:1 replacement ratio. Reforestation mitigation of approximately 0.7 acre may be feasible on-site adjacent to the area proposed for wetland mitigation, however, a detailed assessment would need to be made following completion of more detailed wetland mitigation design plans.

Although the NPS supports Alternative 4A, the alternative with the least forest impact, there would still be a need for an additional 2.2 acres of reforestation and the planting of approximately 252 caliper inches (Example: 252 1-inch caliper trees) for the removal of individual trees along Jones Point Park Drive to satisfy agency requirements.

Other areas within the park that are currently not forested and not proposed for some other park activity would also be assessed for potential use as reforestation land. However, there is a high likelihood that some of the reforestation required to compensate for lost forest habitat would need to occur off-site. Other parklands within the George Washington Memorial Parkway just downstream of JPP would be investigated as potential off-site reforestation lands.

It may also be possible to gain some compensation credit for forest impacts through out-of-kind measures. One such measure may be the eradication of the invasive vines that threaten the remainder of the forest within the park. Removal of these invasive vines would be necessary so that existing and proposed forest areas are not damaged over time by their spread. The vine removal effort would be a long-term maintenance issue that would require a commitment from stakeholders to ensure success. Further negotiations would occur with all stakeholders regarding mitigation for unavoidable forest impacts.

The 2000 ROD for the WWB Replacement Project contains a Table of Commitments that would mitigate the potential impacts of the WWB Replacement Project as well as the JPP improvements. A copy of the Table of Commitments portion of the ROD is available for inspection at the NPS and the WWB Replacement Project office. The ROD contains the following commitments relative to forest impacts:

- Construct trails in JPP with as narrow a path as practical, along an alignment that minimizes the fragmentation of the forest and with minimal tree removal, to maintain habitat for breeding birds.
- Use NPS criteria to mitigate forest impacts at JPP. Replace as much forest mitigation as possible on-site with the remainder off-site.

The Table of Commitments indicated that an independent environmental compliance monitor(s) would monitor all facets of the WWB Replacement Project, including improvements to JPP. The monitor(s) have been reporting progress directly to the regulatory agencies and the sponsoring agencies since construction of the WWB Replacement Project began. A separate team of environmental inspectors and state agency representatives have been assisting the sponsoring agencies in their efforts. Additional commitments and environmental compliance protocols would be developed for the JPP improvement project and implemented prior to the start of park improvements.

H. Noise

Guiding Regulations and Policies

NEPA provides broad authority and responsibility for evaluating and mitigating adverse environmental effects, including highway traffic noise. NEPA directs the federal government to use all practical means and measures to promote the general welfare and foster a healthy environment. A more important federal legislation that specifically involves abatement of highway traffic noise is the Federal-Aid Highway Act of 1970. This law mandates FHWA to develop noise standards for mitigating highway traffic noise.

The law requires promulgation of traffic noise-level criteria for various land use activities. The law further states that FHWA may not approve the plans and specifications for a federally-aided highway project unless the project includes adequate noise abatement measures to comply with the standards. The FHWA has developed and implemented regulations for the mitigation of highway traffic noise in federally-aided highway projects. These regulations were originally published as *Policy and Procedure Memorandum 90-2* dated 1973. This was later refined/revised in the *Federal-Aid Highway Program Volume 7, Chapter 3 Section 3* in 1976, and was later streamlined in 1982 under the Federal Register process and included in the Code of Federal Regulation as 23 CFR Part 772. Pursuant to this document, the VDOT has developed a noise policy, which has been approved by FHWA.

Methodology and Assumptions

Noise generated by vehicular traffic on the WWB has been extensively studied from 1996 through 2005. These studies included the 2000 Draft SEIS, 2000 FSEIS and the 2000 *Highway Noise Evaluation Summary*, all of which were prepared for the WWB Replacement Project. These studies, available for public inspection at the NPS and the WWB Replacement Project offices, included data associated with ambient noise conditions for both traffic and recreational noise within JPP.

An extensive literature search was conducted to evaluate the potential noise levels under the proposed WWB structure. The literature indicates that the proposed steel box-girder structure design features would minimize resonation, thereby reducing the potential structure-borne noise in the overall noise environment.

To assess the potential for daytime noise associated with access to and from the multi-use fields, FHWA's Traffic Noise Model® (TNM v2.5®) was used to predict loudest-hour equivalent sound level (Leq, at 18 modeled receptor locations under each of the action alternatives. Maximum local traffic volumes were assumed to be two times (2x) the automobile parking capacity of each proposed design alternative. The generated noise modeling results for each action alternative was assessed versus the predicted design year noise level from I-495/I-95 as proposed and currently under construction.

The trees within JPP were not included in the noise models developed for the preferred I-495/ I-95 Alternative. The FHWA Traffic Noise Model User's Guide (FHWA-PD-96-009) states the following with regard to including trees in the noise model:

> "TNM computes tree attenuation per the standard of the International Standards Organization ("Acoustics – Attenuation of Sound Propagation Outdoors – Part 2" International Organization Standardization, ISO Standard 9613-2. Geneva, Switzerland: International Organization for Standardization, 1996). This standard requires that trees be sufficiently dense to completely block the view along the propagation path (i.e. view from source to receiver). This requires dense undergrowth as well as dense tree-top foliage. Do not include a TNM tree zone unless its vegetation is very dense."

The project team did not believe that the trees within JPP met the criteria as stated and, therefore, did not include trees within the model. Consequently, the model assesses traffic noise for the worst condition, as if the trees were not there at all.

The design noise levels indicated in the FHWA *Noise Abatement Criteria Activity Relationships* table (CFR 772) were used to determine highway traffic noise impacts and the need for considering abatement measures associated with different land uses or activities in existence at the time of the project approval date.

A number of factors affect sound when it is perceived as noise. These factors include the actual level of sound (or noise), the frequencies involved, the period of exposure to the noise, and the changes or fluctuations in the noise levels during exposure. Noise levels are measured in units called decibels. Since the human ear does not respond equally to all frequencies (or pitches), measured sound levels are often adjusted or weighted to correspond to the frequency response of human hearing and the human perception of loudness. The weighted sound level is expressed in units called A-weighted decibels (dBA) which are the values cited by FHWA in its noise abatement criteria.

Noise-sensitive land uses potentially affected by the action alternatives are in Category B land uses (including residences, motels, hotels, schools, churches, libraries, hospitals, picnic areas, recreation areas, playgrounds, active sports areas, and parks) for which the applicable Noise Abatement Criteria (NAC) in Leq equals 67 dBA. When the predicted design-year build alternative noise levels approach or exceed the NAC during the loudest hour of the day, noise impact occurs and consideration of traffic noise reduction measures are necessary. In December 1993, the FHWA issued guidance on interpreting the word "approach" in section 772.5(g) of 23 CFR as applied to Category B land uses. As a result, the VDOT assess noise impacts when the loudest-hour Leq is equal to or greater than one dBA less than the NAC, which is 66 dBA for Category B land uses. Noise impact also occurs when predicted noise levels associated with the project substantially exceed existing noise levels. An increase of 10 dBA or more above existing levels is considered substantial.

VDOT's Chief Engineer has approved a noise barrier to be placed along the inner loop of I-495/I-95, associated with the WWB Replacement Project. Although traffic noise levels associated with access to/from JPP were anticipated to be substantially below the Category B threshold, the project team also considered if noise generated by JPP would adversely influence the effectiveness of the proposed noise barriers.

Noise Impacts

The average individual's ability to perceive changes in noise levels is well documented. Generally, changes in noise levels less than 3 dBA would be barely perceived by most listeners, whereas a 10 dBA change normally is perceived as a doubling (or halving) of noise levels. The general principle on which most noise acceptability criteria is based is that a change in noise is likely to cause annoyance wherever it intrudes upon the existing noise from all other sources (i.e., annoyance depends upon the noise that exists before the start of a new noise-generating project or an expansion of an existing project).

According to FHWA impact assessment procedures, traffic noise impacts occur when L_{eq} (1 hour) noise levels "approach" or "exceed" the NAC. The "approach" noise level is defined as equal to or greater than one dBA less than the NAC, which is 66 dBA for Category B land uses at the noisiest traffic hour.

The following thresholds were used to determine the magnitude of potential noise effects within JPP and to adjacent properties:

Negligible:	No change in existing noise levels.
Minor:	1 to 3 dBA change in noise levels (barely perceived by most listeners).
Moderate:	3 to 10 dBA change in noise levels (listeners would be aware of the change in noise levels).
Major:	10 dBA or more above existing noise levels (changes in noise levels would be readily apparent).

The No-Action Alternative

Selection of the No-Action Alternative would result in noise levels being less than one decibel different than the action alternatives.

Impacts Common to Action Alternatives

Analysis: Traffic traveling over the WWB provides the primary source of noise in JPP. The existing bridge has an open-grated, steel, moveable span with several expansion joints that increase the overall noise environment under the bridge. The new bridge is anticipated to decrease the amount of traffic-generated noise due to the continuous concrete deck with a reduced number of expansion joints and the incorporation of a concrete moveable span.

For all action alternatives, the addition of local traffic to and from JPP is anticipated to create less than a one-decibel (dBA) increase in hourly equivalent sound levels at all 18 modeled receptor locations. This small increase would be indistinguishable from noise levels that would exist without local traffic traveling to and from JPP.

To ascertain the traffic volume required to influence the local noise environment (defined as a perceptible increase in the noise level or +3 dBA), traffic volumes were incrementally increased within the noise prediction model. The results indicate that, to create a perceptible increase to noise levels, approximately 1,500 vehicle pass-bys per hour would be required or more than twelve times (12x) the maximum proposed parking capacity.

For all action alternatives, future recreational noise is anticipated to generate noise conditions similar to currently measured ambient conditions. As stated in the *Highway Noise Evaluation Summary*, predicted future I-495/I-95 traffic noise levels would exceed the ambient and proposed recreational noise conditions. Vehicular traffic noise would dominate the noise conditions in and around JPP and exceed noise generated by recreational uses.

Experience has shown that recreational noise is not anticipated to increase over current ambient measurements and would not lead to increases in predicted noise levels. Therefore, noise increases in JPP, if any, are attributed to predicted traffic conditions and not recreational uses.

There may be intervals where the ebb and flow of sounds emanating from recreational activities may temporarily generate noise levels that are discernable above the background and traffic noise sources. These intervals, which are expected to be periodic, could affect the serenity of other areas within JPP. While contemplative and reflective recreational activities are accommodated in the passive recreational areas of JPP, balancing active recreation and passive recreation within the same general facility may cause passive users to distance themselves, temporarily, from the active recreational areas or select areas further south along the Potomac River which would better accommodate passive activities.

Overall, the action alternatives would not create any perceptible noise effects within JPP or to adjacent areas, considering that future recreational noise is anticipated to generate noise conditions similar to currently measured ambient conditions, that daytime local traffic noise would not create a perceptible increase in predicted noise levels, and that no nighttime activities would occur at the JPP multi-use fields.

Construction Noise: Temporary noise impacts may occur from construction activity. Areas around the construction zone would experience varied periods and degrees of noise that differ from that of the surrounding ambient community noise levels. The noise produced by construction can vary greatly based upon the type of construction, the mix of equipment and the construction procedures being employed. Typical operations to construct the proposed improvement would probably require the following types of equipment to be utilized during construction:

- Bulldozers and Earthmovers
- Graders and Pavers
- Front End Loaders
- Dump Trucks and other Diesel Trucks
- Compressors
- Jackhammers.

The noise generated by these types of equipment has the potential to temporarily increase the noise levels in the vicinity of the work areas.

Conclusion: The action alternatives are expected to have an adverse, site-specific, long-term, minor effect on noise within JPP or to adjacent areas. The action alternatives would result in no impairment of the park's resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Mitigation Measures

No mitigation measures are required for the action alternatives.

Construction Noise: A number of measures can be considered in order to minimize disturbance to the community from noise emanating from construction activities. Such measures include, but may not be limited to:

- Conduct all construction activities in compliance with the Project's agreements with the City of Alexandria under the Comprehensive Special Permit.
- Any internal combustion engine used for any purpose on or related to the project should be equipped with a proper muffler.
- Maintenance of construction equipment should be regular and thorough to minimize noise emission due to inefficiently tuned engines or poorly lubricated moving parts, etc.
- Equipment that requires back-up alarms should be equipped with adjustable systems to allow lower alarm levels, although still in compliance with OSHA, than the maximum.
- When appropriate, locate continuously operated diesel-powered equipment, such as compressors or generators, in areas distant or shielded from noise sensitive areas.

I. Cultural Resources

Methodology and Assumptions

In this EA, impacts on cultural resources are described in terms of type, context, duration, and intensity. This is consistent with the CEQ's implementing regulations for NEPA. These impact analyses are also intended to comply with the requirements of both NEPA and Section 106 of the NHPA. In accordance with Section 106 of the NHPA, impacts on cultural resources were identified and evaluated by 1) determining the area of potential effects; 2) identifying cultural resources within the area of potential effects that are either listed, or eligible for listing, in the NRHP; 3) applying the criteria of adverse effects to cultural resources located within the area of potential effects that are either listed, or eligible for listing, in the NRHP; and 4) considering alternatives that would avoid, minimize, or mitigate adverse effects to cultural resources.

Under the Advisory Council on Historic Preservation's (ACHP) implementing regulations for Section 106 (36 CFR Part 800), a determination of no effect, no adverse effect, or adverse effect must be made for all cultural resources located within the area of potential effects that are either listed, or eligible for listing, in the NRHP. An adverse effect occurs whenever a proposed project impacts, either directly or indirectly, the characteristics that qualify a property for inclusion in the NRHP.

Adverse effects include, but are not limited to: 1) physical destruction of or damage to all or part of the property; 2) alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access that is not consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36 CFR Part 68) and applicable guidelines; 3) removal of the property from its historic location; 4) change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; 5) introduction of visual, atmospheric, or audible elements that diminish the property's significant historic features; 6) neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and 7) transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance. Adverse effects also include any reasonably foreseeable effects caused by the proposed project that may occur later in time, be further removed in distance, or be cumulative.

The FHWA's historic preservation responsibilities under Sections 106 of the NHPA for the WWB Replacement Project have been fulfilled through the implementation of a MOA signed in October 1997 and included in the ROD issued in the same year. This MOA was signed by officials of the FHWA, the NPS, the ACHP, the SHPOs of Maryland, Virginia, and the District of Columbia, as well as representatives of a number of consulting parties, including the MSHA, the VDOT, the District of Columbia Department of Public Works (DCDPW), the City of Alexandria, the M-NCPPC, Prince George's County, and the Mt. Vernon Chapter of the DAR. Execution and implementation of this MOA is evidence that FHWA has afforded the ACHP an opportunity to comment on the WWB Replacement Project and its effects on historic properties, and that the FHWA has taken into account the effects of this undertaking on historic properties. A copy of the MOA is included in the Appendix. Since the execution of the MOA in October 1997, the FHWA, the MSHA and the VDOT have proceeded to implement the stipulations of the MOA. The specific actions taken in JPP as part of this implementation are discussed below.

The FHWA, the MSHA, the DCDPW, and the VDOT, in consultation with the Maryland, Virginia, and District of Columbia SHPOs, defined the Area of Potential Effects (APE) for the WWB Replacement Project (Figure 22). The original area of potential effects, defined in September 1995, served as the basis of historic property identification for the January 1996 *Draft Supplemental Environmental Impact Statement* (DSEIS), which assessed the effects of the alternatives considered in that document. Following Section 106 consultation, this area of potential effects was also used for the analysis of alternatives considered in the July 1996 Draft SEIS. This original area of potential effects was broadly defined so as to consider all reasonably foreseeable potential effects of the proposed alternatives on historic properties.

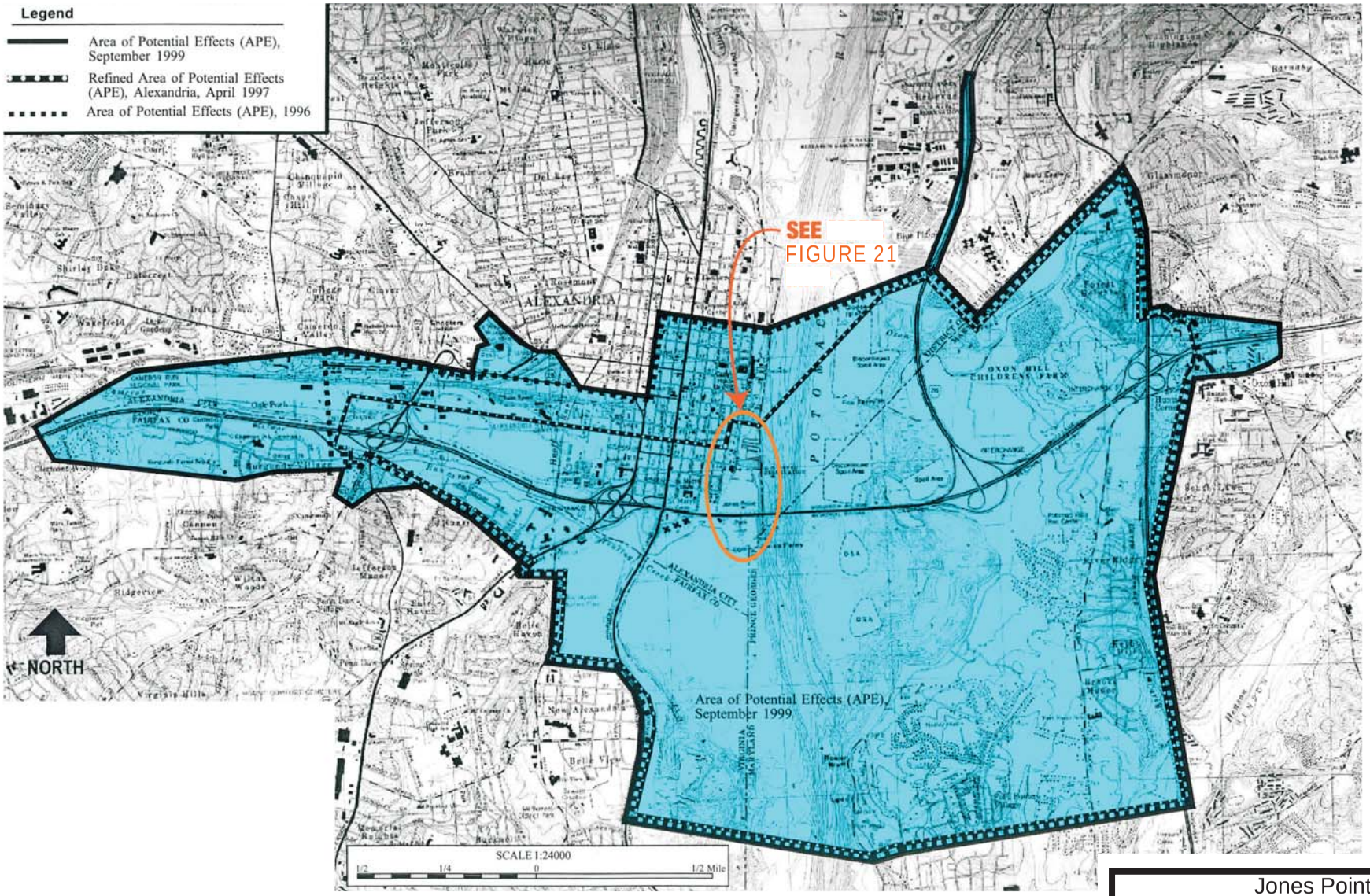
As a result of subsequent studies, a clearer understanding of the nature and range of potential effects due to the project was achieved and the area of potential effects for the WWB Replacement Project was revised in April 1997. The revised area of potential effects was based upon more detailed information regarding traffic projections; the size and scale of the proposed bridge and interchanges; and air quality, noise, vibration, and visual effects.

This revised area of potential effects was used as the basis for the discussions on the effects to historic resources in the September 1997 WWB FEIS.

In September 1999, the area of potential effects for the WWB Replacement Project was again revised due to design changes and the expansion of the project limits that led to additional examination of the effects to historic resources. The discussion of historic resources in the April 2000 WWB FSEIS reflects this change.

For purposes of evaluating effects of proposed improvements outlined in the JPP EA, a smaller area of potential effects for historic resources has been developed (Figure 23). This area of potential effects for historic resources includes JPP itself, as well as a larger geographic area surrounding the park. The area of potential effects for historic resources encompasses an approximately 24-block area that borders JPP to the north and west. This area of potential effects was delineated to evaluate potential direct and indirect effects associated with visual changes, traffic, parking, and flooding both within JPP and in adjacent areas within the Alexandria National Historic Landmark Historic District and the Alexandria National Register Historic District.

An area of potential effects for archeological resources was delineated specifically for JPP prior to commencing WWB Replacement Project-related archeological investigations in July 2000. Initially, the area of potential effects for archeological resources encompassed only those areas of JPP that would be impacted by the construction of the WWB and impacts that would result from implementing parkland and recreational design concepts. The archeological data derived from the initial and subsequent investigations provided the information required in determining potential impacts to known and suspected site elements. However, ongoing revisions to both construction and park design concepts necessitated expanding the area of potential effects for archeological resources to the entire area encompassed within the present day boundary of JPP. This area of potential effects has been retained by the NPS and is used for purposes of this EA (refer to Figure 22 that shows the area of potential effects for both architectural and archeological resources).

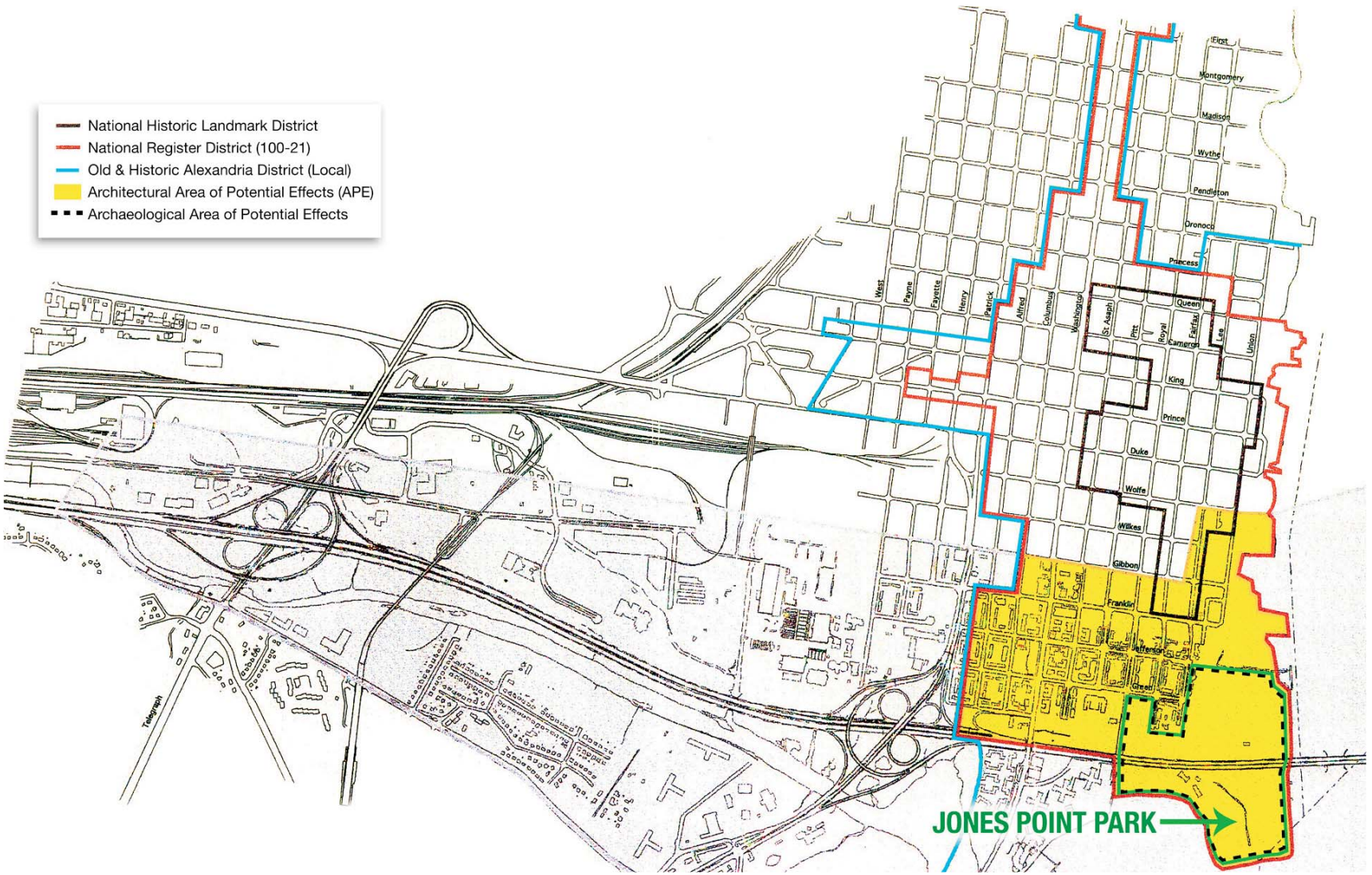


For illustrative purposes ONLY.

Jones Point Park
Environmental Assessment

Woodrow Wilson Bridge Replacement Project: Area of Potential Effects for Architectural and Archeological Resources

June, 2007	Scale As Shown	Figure 22



For illustrative purposes ONLY.

Jones Point Park
Environmental Assessment

Architectural Area of Potential Effects and Archeological Area of Potential Effects, in Relation to Alexandria Historic District

June, 2007	Not To Scale	Figure 23

MOA Stipulations

The MOA signed in October 1997 directed, in part, that the FHWA shall, in consultation with the NPS, the Virginia SHPO, and the City of Alexandria, provide improvements within JPP to aid in the recognition of the historic past of the park, and implement measures to document and preserve historic resources within the park. Specified actions included: 1) development and placement of new entrance signage, entry plantings, or other appropriate improvements that convey the historic past of JPP; 2) development and implementation of a system of markers interpreting the history and significance of Jones Point, the Jones Point Lighthouse, and the D.C. South Cornerstone within the park; 3) interpretation of historic landforms and activities/sites within the park; 4) stabilization, preservation and interpretation of the VSC shipways; 5) preparation of a Historic Structure Report, in accordance with NPS standards and guidelines, for the Jones Point Lighthouse to provide a base-line record of its condition at the start of construction; 6) development of a condition report, in accordance with NPS standards and guidelines, for the D.C. South Cornerstone; 7) restoration of the lighthouse and grounds to the condition evidenced by the baseline record, should the lighthouse deteriorate during the construction period to a degree in excess of normal wear and tear; and 8) riverbank treatments, seawall repair, and landscaping along the boundary of the Jones Point Lighthouse and D.C. South Cornerstone (approximately 200 feet) to provide appropriate public access and allow for long-term protection of the site

JPP Archeological Preservation Plan

The MOA also provides general guidance on the identification, evaluation and treatment of significant archeological resources that may be affected by future actions associated with the WWB Replacement Project. These actions involve unanticipated changes or modifications to current project designs and/or construction contract specifications that may be required in association with 1) bridge construction, 2) the development of intermediate and final park improvement plans, and 3) the implementation of these park improvement plans.

In 2000-2001, FHWA, in conjunction with VDOT, determined that more specific guidance would assist the Project and the WWB contractors in carrying out the stipulations of the MOA as the Project advanced. More specific guidance was now possible given the extensive archeological and geomorphological information that has been obtained as a result of the investigations conducted for the project to date. Therefore, an archeological preservation plan was developed in 2002 to provide more detailed guidance and describe the archeological preservation procedures to be implemented for 1) bridge construction within JPP, 2) developing intermediate park improvement plans, 3) developing final park improvement plans, and 4) implementing park improvement plans.

An archeological sensitivity map was included with the *Archeological Preservation Plan* showing the locations of known and potential archeological resources within JPP. It was developed to precisely locate the horizontal and vertical extent of known, significant archeological resources within the park that were to be avoided during WWB construction activities.

These resources include the VSC Site (44AX73), prehistoric sites (44AX165 and 53), and prehistoric/historic sites (44AX52 and 185) that extend outside of the new bridge pier foundations, and the 1830s-1850s ropewalk. The VSC Site is represented by the remains of several foundations within the northern portion of the park. Two of the original four shipways located in this area have been subsequently destroyed by bridge construction. The prehistoric sites and ropewalk extend the entire length of the pre-1910 extent of Jones Point. The pre-1910 configuration of the point is delineated on this map, and is considered as one large archeologically sensitive zone, containing significant prehistoric and historic archeological remains. The map also indicates the depth of the point's original prehistoric and historic surface that has been buried by 20th-century fill soils. Depths shown on the map are in relation to Mean Sea Level. Any action that would extend to the base of these fill soils in these locations has the potential to impact significant prehistoric and historic archeological resources. The balance of the park consists of 20th-century fill soils, and is not considered archeologically sensitive.

Jones Point Lighthouse and D.C. South Cornerstone Treatment Plan

In December 2000, FHWA completed the preparation of a *Historic Structures Report (HSR) and Treatment Plan* for the Jones Point Lighthouse and the D.C. South Cornerstone in accordance with the 1997 MOA stipulations. The plan provided historic background on the development and evolution of these two resources as well as an assessment of their current condition. An advisory working group with members representing a variety of federal, City of Alexandria, and non-profit organizations with an interest in these historic properties guided the plan. Various staff members of the NPS, the Mt. Vernon Chapter of the DAR, the City of Alexandria, the FHWA, and a variety of consultant firms involved in the development of the HSR and Treatment Plan participated over a two-year period from 2000 through 2001. Specific professional disciplines involved included historic architecture, structural engineering, history, architectural history, landscape architecture, and planning.

A series of treatment alternatives, which ranged from minimal stabilization through complete interior and exterior restoration, were outlined and analyzed within the HSR and Treatment Plan. Alternative 2 – Rehabilitation (Limited) for Exterior Use/Historic Interpretation Only – was the alternative selected for implementation by the NPS and the other members of the advisory working group. This alternative was chosen because it provided the best combination of project actions that achieved multiple historic preservation goals. These included improving the overall condition of both historic properties, increasing protection of each property, decreasing the damaging effects of water on both properties, and improving public education and interpretation opportunities.

The goal of the selected alternative within the Treatment Plan is to accurately depict character-defining features of the site, structures, and object (D.C. South Cornerstone) for the purpose of interpreting significant cultural aspects of these historic properties from 1794 (the date of installation of the D.C. South Cornerstone) through 1926. The presentation of information to the park visitor, aiding in the interpretation of this historic property without detracting from the complex's visual characteristics, is a secondary focus.

The lighthouse rehabilitation work would include the following elements: 1) the exterior appearance of the lighthouse (minus chimneys) would be restored through the replacement of missing exterior features); 2) interior conditions and exposed timbers of the lighthouse's structural system would be improved, but would not include rehabilitation of other interior features that would allow the lighthouse to become more fully accessible to the public; 3) previous projects that were not performed in accordance with appropriate historic preservation standards or that used incorrect materials or details would be corrected.

In order to re-establish the setting of the lighthouse and cornerstone and bring the property up to current Americans with Disabilities Act standards, the following work would also be undertaken within the lighthouse yard and its landscaping: 1) the retaining wall in front and around the lighthouse would be carefully rebuilt, with a new hidden modern wall placed behind it for improved protection and stabilization; 2) within the lighthouse's work yard, two missing architectural features – a work shed and a well house – would be reconstructed; 3) one or two maple trees would be replanted in locations where trees have been removed previously; and 4) the site would be made accessible for the physically challenged through a new pathway system that would allow improved viewing of the lighthouse and the cornerstone from the lighthouse yard.

Based on comments received from the NPS and the Virginia Department of Historic Resources that stressed the importance of retaining the cornerstone in its historic location, the following elements would be implemented to improve the overall condition of the stone, and improve methods of public education regarding this rare object: 1) the concrete vault enclosure surrounding the enclosure would be redesigned and replaced in order to minimize water intrusion and to improve the stone's visibility from the yard above; 2) a new top enclosure would be designed in order to improve the public's ability to view the stone from the lighthouse yard; and 3) a replica of the stone would be placed vertically above, or adjacent to, the original cornerstone, as part of an expanded interpretation program. The conditions assessment was updated in Fall 2003 after Hurricane Isabel made landfall in the project area.

JPP Interpretation Plan

The NPS, the FHWA, and the VDOT remain committed to the development and execution of a comprehensive interpretation program involving the archeological, historic property, and natural features of JPP. This interpretation program includes a series of active and passive elements that have been the focus of considerable comment from federal, state, local agencies and the public from 2001 to 2002. Many of these elements begin with requirements included in the 1997 MOA and include the interpretation of the prehistoric and historic archeological resources located within the park, the D.C. South Cornerstone, and the Jones Point Lighthouse.

During the winter of 2000 and the spring of 2001, the City of Alexandria sponsored a series of meetings with many of its local government committees and members of the public to discuss the park's development. A series of focus group meetings were held. Attendees considered a series of questions including: 1) what should be interpreted at JPP; 2) how much interpretation should occur in JPP; 3) what is the most appropriate form of interpretation; 4) what is the desired tone of the outdoor exhibits; and 5) what are practical concerns with the interpretation.

The Interpretive Plan Working Group developed the following purpose and significance statement for the park:

> JPP, a unit of the National Park system, serves as a local and regional open space encompassing active and passive recreational opportunities. The park is comprised on significant natural, archeological, and historic resources of local, regional, and national importance.
>
> JPP is part of the National Park system, a federally-owned tract of land located at the southeast corner of Alexandria, Virginia. Its history is inextricably linked to the landform of Jones Point, which is surrounded on three sides by the Potomac River. The park's location relative to Old Town and the river, and the great variety of historic and archeological resources identifiable within its boundaries, help establish its unique character.
>
> Jones Point contains a particularly rich array of archeological sites and historic resources that reflect thousands of years of human habitation. Prehistoric archeological sites dating from the Late Archaic and Early Woodland periods have contained materials, including ceramics and projectile points, associated with Native American hunting and gathering sites and cobble quarry work areas. Archeological properties and historic structures provide a wealth of information on such broad historical themes as changing agricultural use, the growth of the federal government and the founding of Washington, D.C., expansion of Alexandria as a seaport and maritime center, Alexandria's Civil War heritage, and military use from the 18th through the 20th centuries, especially through a World War I shipbuilding site. The most significant archeological sites and historic properties that relate to these themes include a Late Archaic/Middle Woodland prehistoric site, the D.C. South Cornerstone, Jones Point Lighthouse, Battery Rodgers, and the VSC Site. Jones Point is one of the few areas within the National Capital Region where archeological and historic resources representing thousands of years of continuous human habitation are preserved and interpreted to the public.

The interpretative plan was envisioned as a treatment protocol for the historic properties affected by the WWB Replacement Project, as described in the WWB FSEIS. Work on the development of a comprehensive plan has been focused through the work of the Interpretive Plan Working Group, comprised of representatives of the NPS, the City of Alexandria Department of Parks and Recreation, Office of Historic Alexandria, and the City of Alexandria Archeology Commission. The members of the Interpretive Plan Working Group included representatives with expertise in history, architectural history, archeology, and landscape architecture.

At meetings in the winter and spring of 2001, the Interpretive Plan Working Group examined three designs, and ultimately refined the option for the development of a new heritage trail that would run around the edge of the park to the south of the new bridge, and along the waterfront near the site of the now-demolished VSC. Through this trail, visitors would be encouraged to explore the cultural, natural, and geological heritage of Jones Point as it has evolved over thousands of years.

The focal point of the trail would feature an historical overview of Jones Point and a depiction of Jones Point, over time, using a custom morphing technology. Small waysides along a heritage trail would provide a shovel and magnifying glass to tell a series of focused stories at different locations along the trail. Four larger waysides along the trail would feature different viewscopes where visitors can glimpse Jones Point at various points in history.

This option called for the production of a single, large, hub/station that would serve as the central focal point for park entry. This hub would provide a historical overview for the park, and describe the physical changes associated with changing land use over time. Four (4) trailhead entry signs would be placed at edges of the park and in parking areas to provide improved orientation for visitors. These signs would include space for posting of special events/temporary permits as well as a way-finding map for the park and region.

The plan envisioned various viewscopes, interactive, and mounted interpretive panels. The tentative titles of the stations included: 1) Marsh Wildlife (viewscope panel); 2) Native Americans (large interpretive panel); 3) Margaret Brent (small interpretive panel); 4) Colonial Land Use (interactive panel discussing the ropewalk, tobacco farming, and the quarantine station previously located within the park); 5) Federal City Survey (viewscope panel); 6) D.C. South Cornerstone and the Federal City (large interpretive panel); 7) Lighthouse and Alexandria during the 1800s (interpretive panel and viewscope to Potomac River); 8) the Potomac River (large interpretive panel); 9) Interpreted VSC Shipway; 10) World War I Shipbuilding and the Ship Lawn (interactive panel); 11) VSC Derrick (mounted panel); 12) Woodland Wildlife/Battery Cove (small interpretive panel); and 13) Battery Rodgers (interactive panel). Work on more fully developing these concepts halted after September 2001 because of JPP security concerns.

The NPS, FWHA, and VDOT are committed to re-establishing the Interpretive Plan Working Group in spring 2007 to guide the completion of all elements of the JPP interpretive plan. The goal of this effort is to have the plan completed by fall 2007 and plan elements installed by the end of spring 2008. The NPS, FHWA, and VDOT also remain committed to the development and completion of a critical element of the park interpretation plan – a Web page available to the public that would describe important elements of the park and its history, including information about archeological and historic properties within the park boundaries. Upon completion, it is anticipated that this page would be presented to either the NPS or the City of Alexandria to host and maintain. It is anticipated that this Web page would be developed, again with broad input from the Interpretive Plan Working Group, in fall 2007, and completed by the end of spring 2008.

The MOA, included in the Appendix, stipulates the procedures to be followed by the FHWA on how project effects on historic properties are taken into account. The 1997 MOA, as executed under the former regulations, is still valid and remains in effect. Therefore, the references throughout the discussion of effects to cultural resources are to the regulation 36 CFR Part 800.

Impacts on Historic and Archeological Resources

The assessment of effects on historic properties listed or eligible for listing in the NRHP follows the criteria outlined in Section 106 of the NHPA. Determinations of Effects on National Historic Landmarks also follow the Section 106 criteria; however, any adverse effects to a NHL are automatically reviewed by the ACHP. The Section 106 regulation defines an "effect" as follows: "…an undertaking has an effect on a historic property when the undertaking may alter the characteristics of the property that may qualify the property for inclusion in the National Register."

In order for a property to be declared eligible for the NRHP, it must possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following Criteria for Evaluation:

A. Is associated with events that have made a significant contribution to the broad patterns of our history.

B. Is associated with the lives of significant persons in our past.

C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or that possess high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.

D. Has yielded or may be likely to yield, information important in prehistory or history.

Analyses of the potential intensity and duration of impacts on cultural resources were derived from available information on JPP, and the professional judgment of park staff. The following thresholds were used to determine the magnitude of effects on cultural resources:

Intensity

Negligible: The impact would not be perceptible or would be barely perceptible by most visitors. For the purposes of Section 106, the determination of effect would be No Adverse Effect.

Minor: The impact would not affect the character-defining feature(s) of a NRHP-listed or eligible property. For the purposes of Section 106, the determination of effect would be No Adverse Effect.

Moderate: The impact would alter the character-defining feature(s) of a NRHP-listed or eligible property, but would not diminish the integrity of the resource to the extent that its NRHP eligibility is jeopardized. For the purposes of Section 106, the determination of effect would be No Adverse Effect.

Major: The impact would alter the character-defining feature(s) of a NRHP-listed or eligible property to the extent that it is no longer eligible for listing in the NRHP. For the purposes of Section 106, the determination of effect would be Adverse Effect.

Duration

Short-Term: Effects would last only during the construction period, and would involve minor changes to the land surface that would close the site to the public during the construction period.

Long-Term: Effects would last longer than the project implementation period.

In all cases, the project may have a beneficial effect on cultural resources if the proposed project complies with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36 CFR Part 68) and applicable guidelines. For the purposes of Section 106, the determination of effect would be No Adverse Effect.

To access potential effects of each of the project alternatives on the Alexandria National Historic Landmark Historic District and the Alexandria National Register Historic District, the project team conducted numerous site visits within the JPP area of potential effects, reviewed park-specific hydrological reports, and examined previously-completed historic resource studies pertaining to these districts. The most pertinent of these historic resource studies was the *Historic Resources Identification and Evaluation Report, Alexandria Historic District,* produced in 1996 for the WWB Replacement Project. This report presented a detailed examination of each historic district, including discussions of current conditions and integrity. The report noted that, while substantial change has occurred, especially within the Alexandria National Register Historic District including construction of the original WWB in 1961, and more modern development such as the Ford's Landing townhouse project located adjacent to JPP, both historic districts continue to retain a sufficient level of significance and integrity to maintain their respective historic designations.

The other assessment methods that were used to measure air quality, noise, and traffic levels and their effects on historic properties that were discussed in Section 4.8.1 of the 1997 FEIS for the WWB Replacement Project remain applicable.

No-Action Alternative

The No-Action Alternative would not alter JPP, the Alexandria National Historic Landmark Historic District, or the Alexandria National Register Historic District. There would be no ground disturbing activities; therefore, there would be a negligible impact to archeological sites. There would also be no improvements to the Jones Point Lighthouse and D.C. South Cornerstone, leading to the continued deterioration of these resources due to water damage from the Potomac River and heavy rains. There is the potential for continued erosion of the retaining wall and damage to both the foundations of the Jones Point Lighthouse as well as the D.C. South Cornerstone and its protective vault. If the historic resources were not improved, severe, long-term, adverse impacts to historic structures would occur.

Section 106 Summary: In accordance with Section 106 of the NHPA, the No-Action Alternative would have No Adverse Effect on archeological resources and an Adverse Effect on historic structures within JPP. The No-Action Alternative would have No Adverse Effect on the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District.

Alternative 1 *(Alexandria City Council's "Scheme A" dated 6/28/05)*

Analysis: The construction of two multi-use fields north of the bridge, play areas, a comfort station, and perimeter barriers would require trenching the site for the foundations associated with the security elements. Construction of the parking area would require the grading and paving of a contained area. During construction of these various elements, heavy equipment and vehicles would need access across portions of JPP. The exposure of one of the shipways associated with the VSC Site (44AX78) as a part of planned commemorative and interpretive activities in JPP would also require the use of ground clearing equipment. However, the *Archeological Preservation Plan* proposes the addition of clean fill in JPP to protect archeological sites. The proposed multi-use fields, play areas, park manager's office/comfort station, perimeter barriers, parking areas and access roads have been located in areas that are either considered to have low archeological potential or that have been cleared for construction by previous archeological investigations (refer to the *Geoarcheological Report* that is available for inspection at the NPS and the WWB Replacement Project offices during normal business hours). For this reason, Alternative 1 would have a minor, short-term, adverse impact on archeological sites during the construction due to the construction activities.

Alternative 1 proposes the rehabilitation and preservation of the Jones Point Lighthouse and D.C. South Cornerstone, including the rebuilding of the retaining wall and the vault that protects the cornerstone. The rehabilitation and preservation work requires that NPS rebuild the existing wall and vault in addition to construction work at the Jones Point Lighthouse. For this reason, Alternative 1 would have an adverse, site-specific, short-term, minor impact on historic and prehistoric resources during the construction due to the demolition of the existing sea wall and vault and construction activities at the lighthouse.

Section 106 Summary: In accordance with Section 106 of the NHPA, Alternative 1 would have No Adverse Effect on archeological resources and No Adverse Effect on historic structures. Alternative 1 would have No Adverse Effect on the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District.

Conclusion: The implementation of Alternative 1 would have a beneficial, local, long-term, major effect on cultural resources. However, an adverse, site-specific, short-term, minor impact on cultural resources would occur during the construction phase of the project due to the need to excavate portions of the site and construction activities.

Upon completion of the construction phase of the project, Alternative 1 would have a minor, long-term impact to archeological resources as no further ground-disturbing activities would occur and the exposure of one shipway from the VSC Site (44AX78) would not affect the NRHP-eligibility of this archeological site.

There would be a long-term, beneficial effect on historic properties, as compatible materials would be used for the rehabilitation and preservation of the lighthouse and the construction of the new retaining wall in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. The improved condition of the Jones Point Lighthouse and D.C. South Cornerstone would reduce the likelihood of continued damage to these resources over time.

Alternative 1 would result in no impairment of the park's cultural resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents. Alternative 1 would result in no impairment to the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District because changes would not be perceptible or would be barely perceptible to most visitors to each historic district.

Alternative 2 *(VDOT "Access Option 5" dated 9/28/04)*

Analysis: The construction of two multi-use fields north of the bridge, play areas, a park manager's office/comfort station, and perimeter barriers would require trenching the site for the foundations associated with the security elements. Construction of the parking area would require the grading and paving of three areas connected by access roads. During construction of these various elements, heavy equipment and vehicles would need access across portions of JPP. The exposure of one of the shipways associated with the VSC Site (44AX78) as a part of planned commemorative and interpretive activities in JPP would also require the use of ground clearing equipment. However, the *Archeological Preservation Plan* proposes the addition of clean fill in JPP to protect archeological sites. Additionally, the proposed multi-use fields, play areas, comfort station, perimeter barriers, parking areas and access roads have been located in areas that are either considered to have low archeological potential or that have been cleared for construction by previous archeological investigations (refer to the *Geoarcheological Report* that is available for inspection at the NPS and the WWB Replacement Project offices during normal business hours). For this reason, Alternative 2 would have an adverse, site-specific, short-term, minor impact on archeological sites during the construction due to the construction activities.

Alternative 2 proposes the rehabilitation and preservation of the Jones Point Lighthouse and D.C. South Cornerstone, including the rebuilding of the retaining wall and the vault that protects the cornerstone. The rehabilitation and preservation work requires that NPS rebuild the existing wall and vault in addition to construction work at the Jones Point Lighthouse. For this reason, Alternative 2 would have an adverse, site-specific, short-term, minor impact on historic and prehistoric resources during the construction due to the demolition of the existing sea wall and vault and construction activities at the lighthouse.

Section 106 Summary: In accordance with Section 106 of the NHPA, Alternative 2 would have No Adverse Effect on archeological resources and No Adverse Effect on historic structures within JPP. Alternative 2 would have No Adverse Effect on the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District.

Conclusion: The implementation of Alternative 2 would have a beneficial, local, long-term, major effect; however, an adverse, site-specific, short-term, minor impact on cultural resources would occur during the construction phase of the project due to the need to excavate portions of the site and construction activities.

Upon completion of the construction phase of the project, Alternative 2 would have a minor, long-term impact to archeological resources as no further ground-disturbing activities would occur and the exposure of one shipway from the VSC Site (44AX78) would not affect the NRHP-eligibility of this archeological site.

There would be a long-term, beneficial effect on historic properties, as compatible materials would be used for the rehabilitation and preservation of the lighthouse and the construction of the new sea wall in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Propertie*s. The improved condition of the Jones Point Lighthouse and D.C. South Cornerstone would reduce the likelihood of continued damage to these resources over time.

Alternative 2 would result in no impairment of the park's cultural resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents. Alternative 2 would result in no impairment to the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District because changes would not be perceptible or would be barely perceptible to most visitors to each historic district.

Alternative 3 *(Based on "Alternative 2" from JPP EA dated 9/10/01)*

Analysis: The construction of one multi-use field north of the bridge, one multi-use field south of the bridge, play areas, a park manager's office/comfort station, and perimeter barriers would require trenching the site for the foundations associated with the security elements. Construction of the parking area would require the grading and paving of a two areas connected by an access road. During construction of these various elements, heavy equipment and vehicles would need access across portions of JPP. The exposure of one of the shipways associated with the VSC Site (44AX78) as a part of planned commemorative and interpretive activities in JPP would require the use of ground clearing equipment. However, the *Archeological Preservation Plan* proposes the addition of clean fill in JPP to protect archeological sites. Additionally, the proposed multi-use fields, play areas, comfort station, perimeter barriers, parking areas and access roads have been located in areas that are either considered to have low archeological potential or that have been cleared for construction by previous archeological investigations (refer to the *Geoarcheological Report* that is available for inspection at the NPS and the WWB Replacement Project offices during normal business hours). For this reason, Alternative 3 would have an adverse, site-specific, short-term, minor impact on archeological sites during the construction due to the construction activities.

Alternative 3 proposes the rehabilitation and preservation of the Jones Point Lighthouse and D.C. South Cornerstone, including the rebuilding of the sea wall and the vault that protects the cornerstone. The rehabilitation and preservation work requires that NPS rebuild the existing wall and vault in addition to construction work at the Jones Point Lighthouse. For this reason, Alternative 3 would have an adverse, site-specific, short-term, minor impact on historic properties during the construction due to the demolition of the existing sea wall and vault and construction activities at the lighthouse.

Section 106 Summary: In accordance with Section 106 of the NHPA, the Alternative 3 would have No Adverse Effect on archeological resources and No Adverse Effect on historic structures within JPP. Alternative 3 would have No Adverse Effect on the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District.

Conclusion: The implementation of Alternative 3 would have a beneficial, local, long-term, major effect; however, an adverse, site-specific, short-term, minor impact on cultural resources would occur during the construction phase of the project due to the need to excavate portions of the site and construction activities.

Upon completion of the construction phase of the project, Alternative 3 would have a minor, long-term impact to archeological resources as no further ground-disturbing activities would occur and the exposure of one shipway from the VSC Site (44AX78) would not affect the NRHP-eligibility of this archeological site.

There would be a long-term, beneficial effect on historic properties, as compatible materials would be used for the rehabilitation and preservation of the lighthouse and the construction of the new sea wall in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. The improved condition of the Jones Point Lighthouse and D.C. South Cornerstone would reduce the likelihood of continued damage to these resources over time.

Alternative 3 would result in no impairment of the park's cultural resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents. Alternative 3 would result in no impairment to the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District because changes would not be perceptible or would be barely perceptible to most visitors to each historic district.

Alternative 4 *(One multi-use field south of the WWB)*

Analysis: The construction of one multi-use field south of the WWB, play areas, a park manager's office/comfort station, and perimeter barriers would require trenching the site for the foundations associated with the security elements. Construction of the parking area would require the grading and paving of a two areas connected by an access road. During construction of these various elements, heavy equipment and vehicles would need access across portions of JPP.

The exposure of one of the shipways associated with the VSC Site (44AX78) as a part of planned commemorative and interpretive activities in JPP would also require the use of ground clearing equipment. However, the *Archeological Preservation Plan* proposes the introduction of clean fill in JPP to protect archeological sites. Additionally, the proposed multi-use field, play areas, comfort station, perimeter barriers, parking areas and access roads have been located in areas that are either considered to have low archeological potential or that have been cleared for construction by previous archeological investigations (refer to the *Geoarcheological Report* that is available for inspection at the NPS and the WWB Replacement Project offices during normal business hours).

Alternative 4 proposes the rehabilitation and preservation of the Jones Point Lighthouse and D.C. South Cornerstone, including the rebuilding of the sea wall and the vault that protects the cornerstone. The rehabilitation and preservation work requires that NPS rebuild the existing wall and vault in addition to construction work at the Jones Point Lighthouse. For this reason, Alternative 4 would have an adverse, site-specific, short-term, minor impact on historic and prehistoric resources during the construction due to the demolition of the existing sea wall and vault and construction activities at the lighthouse.

Section 106 Summary: In accordance with Section 106 of the NHPA, Alternative 4 would have No Adverse Effect on archeological resources and No Adverse Effect on historic structures within JPP. Alternative 4 would have No Adverse Effect on the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District.

Conclusion: The implementation of Alternative 4 would have a beneficial, local, long-term, major effect; however, an adverse, site-specific, short-term, minor impact on cultural resources would occur during the construction phase of the project due to the need to excavate portions of the site and construction activities.

Upon completion of the construction phase of the project, Alternative 4 would have a minor, long-term impact to archeological resources upon the completion of construction activities as no further ground-disturbing activities would occur and the exposure of one shipway from the VSC Site (44AX78) would not affect the NRHP-eligibility of this archeological site.

There would be a long-term, beneficial effect on historic properties, as compatible materials would be used for the rehabilitation and preservation of the lighthouse and the construction of the new sea wall in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Propertie*s. The improved condition of the Jones Point Lighthouse and D.C. South Cornerstone would reduce the likelihood of continued damage to these resources over time.

Alternative 4 would result in no impairment of the park's cultural resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents. Alternative 4 would result in no impairment to the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District because changes would not be perceptible or would be barely perceptible to most visitors to each historic district.

Alternative 4A – Preferred Alternative *(Multi-use fields north and south of the WWB)*

Analysis: The construction of two multi-use fields south and north of the WWB, play areas, a park manager's office/comfort station, and perimeter barriers would require trenching for foundations associated with these new physical improvements. Construction of the parking area would require the grading and paving of a single 110-space area served by an access road. During construction of these various elements, heavy equipment and vehicles would need access across portions of JPP. The exposure of one of the shipways associated with the VSC Site (44AX78) as a part of planned commemorative and interpretive activities in JPP would also require the use of ground clearing equipment. However, the *Archeological Preservation Plan* proposes the introduction of clean fill in JPP to protect archeological sites. Additionally, the proposed multi-use field north of the WWB, play areas, comfort station, perimeter barriers, parking areas and access roads have been located in areas that are either considered to have low archeological potential or that have been cleared for construction by previous archeological investigations (refer to the *Phase I Archeological Testing and Determination of Eligibility Documentation for Submittal to the Keeper of the National Register of Historic Places, Virginia Shipbuilding Corporation Site (44AX78), Alexandria, Virginia* report that is available for inspection at the NPS and the WWB Replacement Project offices during normal business hours).

While the majority of the proposed multi-use field south of the WWB is located in an area that has been previously cleared for construction, a section of the southeast corner of the field encroaches into an area that was determined to be archeologically sensitive (refer to the *Archeological Preservation Plan* that is available for inspection at the NPS and the WWB Replacement Project offices). For this reason, Alternative 4A would have an adverse, site-specific, short-term, minor impact on historic and prehistoric resources during the construction of the multi-use field.

The areas in which the proposed new culverts and additional piping will be placed have already been compromised by previous ground-disturbing activity - that is, the placement of the original stormwater runoff control elements within the park. Therefore, the chance for proposed project construction to affect significant archaeological resources in these locations is very low to nonexistent, since the context in which these resources existed was compromised by original construction. Following subsequent design, the project team's cultural resources professionals will again examine all the critical areas where impacts could occur - placement of utilities, placement of walkways/paths that require subsurface excavation, installation of irrigation systems, plantings, construction of buildings of any kind, and placement of fill (for VSC site) - and provide comments on the need for any follow-up work, including monitoring by one or more professional archaeologists.

Alternative 4A proposes the rehabilitation and preservation of the Jones Point Lighthouse and D.C. South Cornerstone, including the rebuilding of the sea wall and the vault that protects the cornerstone. The rehabilitation and preservation work requires that NPS rebuild the existing wall and vault in addition to construction work at the Jones Point Lighthouse. For this reason, Alternative 4A would have an adverse, site-specific, short-term, minor impact on historic and prehistoric resources during the construction due to the demolition of the existing sea wall and vault and construction activities at the lighthouse.

Section 106 Summary: In accordance with Section 106 of the NHPA, Alternative 4A would have No Adverse Effect on archeological resources and No Adverse Effect on historic structures within JPP. Alternative 4A would have No Adverse Effect on the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District.

Conclusion: The implementation of Alternative 4A would have a beneficial, local, long-term, major impact to archeological and historic resources by improving the physical condition of the Jones Point Lighthouse and the D.C. South Cornerstone, and by interpreting the importance of all historic and archeological resources through a comprehensive interpretation program. However, an adverse, site-specific, short-term, minor impact on cultural resources would occur during the construction phase of the project due to the need to excavate portions of the site and temporarily limit public access to these areas.

Upon completion of the construction phase of the project, Alternative 4A would have a minor, long-term, beneficial impact to archeological resources as no further ground-disturbing activities would occur and the exposure of one shipway from the VSC Site (44AX78) would not affect the NRHP-eligibility of this archeological site.

There would be a long-term, beneficial impact on historic properties, as compatible materials would be used for the rehabilitation and preservation of the lighthouse and the construction of the new sea wall in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Propertie*s. The improved condition of the Jones Point Lighthouse and D.C. South Cornerstone would reduce the likelihood of continued damage to these resources over time.

Alternative 4A would result in no impairment of the park's cultural resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents. Alternative 4A would result in no impairment to the Alexandria National Historic Landmark Historic District or the Alexandria National Register Historic District because changes would not be perceptible or would be barely perceptible to most visitors to each historic district.

Mitigation Measures

All construction activities would be completed in accordance with the *Archeological Treatment Plan* for the site, avoiding construction activities, including staging, in areas determined to have high archeological potential. Construction fencing would be erected to delineate these areas and protect them from any inadvertent impacts during construction. Clean fill would also be brought into JPP, as discussed in the *Archeological Treatment Plan,* and placed on top of archeological sites for long-term preservation.

All rehabilitation and preservation work at the Jones Point Lighthouse and D.C. South Cornerstone would be completed in accordance with the *Park Interpretation Plan* for the site, using compatible construction materials and completed in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties.*

The ROD contains a Table of Commitments that lists actions that would mitigate the potential impacts of the WWB Replacement Project as well as the JPP improvements. A copy of the ROD is available for inspection at the NPS and the WWB Replacement Project office. The ROD contains the following commitment relative to cultural resources: Follow the conceptual mitigation plan for the Alexandria Historic District/JPP/Jones Point Lighthouse and D.C. South Cornerstone.

The MOA for the WWB Replacement Project (which includes JPP) outlines specific mitigation measures for historic properties and archeological resources. As per the requirements included in the 1997 MOA, the FHWA must prepare and implement plans for the treatment, preservation and interpretation of the both the archeological resources and historic structures located within JPP. (These stipulations would prohibit the implementation of the No-Action Alternative). Coordination would continue with the SHPO and interested parties to complete the stipulations in the MOA with regard to cultural resources. Construction of a multi-use field south of the WWB will be achieved in a manner that is compatible with obligations to improve and provide interpretation of archeological resources, including the VSC shipways, and historic resources including the Jones Point Lighthouse and the D.C. South Cornerstone.

Any significant utilities modifications will be reviewed under the existing 2002 Jones Point Archaeological Preservation Plan which established a system to identify, assess, and propose treatments for any impacts to cultural resources. The preservation plan clearly notes that specific actions that may affect significant archaeological resources include the following:

- Placement of utilities
- Placement of walkways/paths that require subsurface excavation
- Installation of irrigation systems
- Plantings
- Construction of buildings of any kind, and
- Placement of fill (for VSC site).

J. Utilities

Guiding Regulations and Policies

The National Environmental Policy Act (NEPA) of 1969, as amended, requires all agencies of the federal government to consider and document potential social, economic and environmental impacts of projects eligible for federal funding. The following federal laws and FHWA regulations contained in Title 23 of the United States Code deal specifically with utilities:

- 23 U.S.C. 109(l) covers the accommodation of utilities on the right-of-way of federal-aid highways.
- 23 U.S.C. 123 covers reimbursement for the relocation of utility facilities necessitated by the construction of a project on any federal-aid highway.

The FHWA and the American Association of State Highway Officials (AASHTO) have published several program guides and design criteria regarding utility issues.

Methodology and Assumptions

Existing utility systems and future system plans for all private and public utilities including communication, electric power, water, gas, oil, petroleum products, steam, sewer, drainage, and similar facilities affecting the public right-of-way for streets and highways were identified for the WWB Replacement Project. Review of utility plans and subjective observations were used to determine potential impacts to utilities introduced by the JPP improvements.

Impacts on Utilities

The following thresholds were used to determine the magnitude of effects on utilities:

Negligible:	Utilities would not be affected.
Minor:	Changes in utilities would be slight. May or may not require mitigation.
Moderate:	Changes in utilities would be readily apparent. Would require mitigation.
Major:	High level of adverse change such as utility conflicts that require excavations and/or relocations.

The No-Action Alternative

The No-Action Alternative will have minor effects on existing utilities. Occasional tree trimming is required to keep the aerial paths for the lines clear. Utility companies may also need to perform maintenance on the cables.

Impacts Common to Action Alternatives

Analysis: The impact of the action alternatives on existing utilities would vary substantially based on the timing of project implementation. If the park access improvements are initiated prior to the demolition of the existing bridge and completion of the new WWB, estimated in 2008, then all of the services to the construction trailers and both electrical feeds to the new bridge would need to be maintained. That maintenance of service would require relocation of facilities that are in conflict with the proposed construction. The electrical service for the new bridges would lead off of Royal Street at the new abutment so they would not be impacted by any of the JPP action alternatives. If construction of the proposed park access improvements follows the demobilization of contractors from JPP, the only services that would need to be maintained, and possibly relocated, would be electrical and phone service to the Jones Point Lighthouse and roadway lighting for Jones Point Park Drive.

Aside from the timing of project implementation, all action alternatives have the following impacts to existing utility facilities:

- Power lines and phone lines that run to the south end of Fairfax Street may need to be relocated due to the proximity of the new parking area and/or access road.
- Power lines and phone lines that currently run east from the intersection of Lee Street and Lee Court would need to be relocated to remove them from the easternmost multi-use field or parking area, as applicable.
- New utility lines for water, sewer, phone, and electricity would need to be placed under the new WWB to serve the proposed comfort station.

In addition to the above, Alternatives 2, 3, 4, and 4A share the following impacts to existing utilities:

- Power lines and phone lines at the southeast corner of the community garden would need to be relocated due to the proximity of the new access roadway and parking area.
- Sanitary sewer lines at the intersection of the Lee Street right-of-way and the new access roadway may need to be adjusted due to proposed stormwater drainage construction.

Conclusion: The construction of the action alternatives would have an adverse, site-specific, short-term, major impact on selected utilities. The addition of new utility lines under the WWB for water, sewer, phone, and electricity would benefit the proposed comfort station. However, the action alternatives would result in no impairment of park natural, cultural, and recreational resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Mitigation Measures

Coordination and the active effort to share information and interact productively with others occur in all phases of the development of a project (planning, design, preliminary engineering, construction, operation, and maintenance). All parties with utility facilities in or abutting the park's right-of-way would have the opportunity to examine and consider the impact of the proposed project. Municipal agencies, utility companies, and the project team exchange information on planned utility/infrastructure projects on a continual basis. The project team would distribute design plans to all utility companies for review and comment. Public information programs would advise area residents and park patrons of the timeframe for construction activities. Notification would occur through press releases; notices on the NPS, City of Alexandria, and WWB Replacement Project websites; and posted signs at the park. The NPS would continue public involvement activities throughout planning and design activities.

K. Safety and Security

An integrated security design is a top priority for the NPS and would benefit both the public (in terms of aesthetics) and the agency (potential maintenance issues). The ultimate goal is to integrate security measures (perimeter barriers) into a consistent landscape that meets the approval of both the NPS and the public. Based on the current security measures implemented at other NPS properties, the access and parking to JPP would use a combination of perimeter barriers including decorative fencing, a "ha-ha" wall (depressed wall with slope), masonry piers, bollards (stationery and retractable), a secure parking entrance, and landscape plantings.

Guiding Regulations and Policies

In August 2003, the federal TSA performed a vulnerability assessment and recommended the removal of all public vehicle access and parking from beneath the new WWB. After careful evaluation of the risks of parking in JPP, a recommendation was set forth to eliminate parking and vehicular access in the park within an 80-foot distance measured from the north and south parapet driplines of the new WWB. There could be an exception for special events if the predefined perimeter barriers have been put in place for vehicle inspection assuring safety of the bridge structure.

TSA's recommendation, endorsed by the FHWA and accepted by the MSHA, the VDOT, the City of Alexandria, and the NPS has resulted in the need to assess the proposed parking, access, and security components of the park design.

Methodology and Assumptions

All of the action alternatives contain security measures including structures, materials, and equipment that are meant to deter criminal activity. Subjective observations were used to determine potential effects to public safety and security from the various perimeter barriers to be introduced by the JPP improvements.

Impacts on Safety and Security

The following thresholds were used to determine the magnitude of effects on utilities:

Negligible: The effect would be at low levels of detection and would not have an appreciable effect on public safety or security.

Minor: The effect would be detectable, but would not have an appreciable effect on public safety or security. If mitigation were needed, it would be relatively simple and likely successful.

Moderate: The effects would be readily apparent and would result in substantial, noticeable effects to public safety and security on a local scale. Mitigation measures would probably be necessary and would likely be successful.

Major: The effects would be readily apparent and would result in substantial, noticeable effects to public safety and security on a regional scale. Extensive mitigation measures would be needed, and their success would not be guaranteed.

The No-Action Alternative

The No-Action Alternative does not address TSA's security recommendation to remove all public vehicle access and parking under the WWB (an exception for special events was allowed if the predefined security measures have been put in place for vehicle inspection assuring safety of the bridge structure).

Impacts Common to Action Alternatives

Analysis: The perimeter barrier systems contained in each action alternative are designed to eliminate public vehicle access and parking under the WWB and to prevent a vehicle from entering within 80 feet of the bridge. The action alternatives have multiple parking and access configurations that provide up to 110 parking spaces (and up to 240 parking spaces for special events under Alternatives 2, 3 and 4). The action alternatives include a new park entrance road approximately 200 feet from the new WWB. Security requirements would limit access to both the bridge and the water. The area under the bridge would be available for special events, provided there is controlled access and/or a security and search checkpoint. A secure parking entrance would ensure that vehicles could be monitored entering and exiting the 80-foot distance surrounding the WWB.

All of the action alternatives would have effects during construction. Plans call for access to park facilities during construction of park improvements, as much as feasible, and the separation of construction areas with fences for the safety of park patrons. Temporary parking areas would be provided north of the WWB.

All of the recreational functions of the park, including walking trails, fishing, soccer, and access to the Jones Point Lighthouse and D.C. South Cornerstone can likely be maintained during construction. Some recreational activities, such as the soccer fields, may have to be temporarily relocated within the park in order to ensure the safety of park users at all times. The NPS is committed to maintaining access between the northern and southern portions of the park during the construction period. Contract specifications would direct the contractor to maintain a temporary pathway through the construction zone during hours the park is open to the public.

Construction of the park improvements would not involve any unusual or particularly dangerous construction methods, procedures, or locations that would pose any substantial safety or security effects. Public safety, involving design and engineering of the park improvements and the type of materials used, is addressed by state and local building codes and design standards used by the NPS in the development of its facilities.

Conclusion: All of the action alternatives include a perimeter barrier system that would have a beneficial, site-specific, long-term, moderate effect on public safety and security. However, the effects from construction activities would be short-term. The action alternatives would result in no impairment of park natural, cultural, and recreational resources because there would be no major, adverse impacts to those resources which conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of JPP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the 2001 JPP EA, or other relevant NPS planning documents.

Mitigation Measures

The challenge is to design the perimeter of JPP to meet both the security recommendations and provide an attractive landscape for park users. The proposed perimeter barrier system would incorporate the natural landscape with a permanent berm, preventing vehicles from entering within 80 feet of the WWB. If this is not possible based on geometrics and hydrology, the next choice of barrier could incorporate a series of planters and plinth or retaining walls. The last choice would incorporate a series of bollards or fence walls. The access point into the park from Royal Street would use a proposed series of bollards and a secure parking entrance that would be designed to be compatible with the existing park environment.

L. Indirect and Cumulative Effects

The WWB FSEIS contained a full secondary and cumulative effects analysis that encompassed the JPP project area. The CEQ regulations (40 CFR 1508.8(b) for implementing the NEPA describe secondary or indirect effects as: "…caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." The CEQ regulations define cumulative effects as: "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." (40 CFR 1580.7).

Hydrology

The NPS has received questions from the public regarding potential indirect effects on natural drainage patterns and stormwater flow. In particular, residents asked if the project would exacerbate natural hazard events (flooding) that could, in turn, threaten the surrounding residential areas and cultural resources. In response, the project conducted a study of surface hydrology. The study, entitled *Hydrologic and Hydraulic Analysis Report, Jones Point Park Drainage Study, Alexandria, Virginia* (Potomac Crossing Consultants, September 2005), is available for public inspection at the NPS and the WWB Replacement Project offices. The study found that half of the area in the northern portion of JPP flows directly to the Potomac River via swale or natural channel. The remainder flows under Lee Street via a 24-inch reinforced concrete pipe (RCP) pipe, discharges through a wetland to twin 21-inch corrugated metal pipes (CMP) that flow under the WWB, and discharges into Hunting Creek.

The public has expressed concern that a loss of vegetation would affect the hydrology in JPP. However, all of the action alternatives would have either the same amount of impervious area or less than existing conditions. There would be no cumulative loss of vegetation in the park.

Existing storm drain culverts within JPP are undersized. The 24-inch RCP culvert under Lee Street is too small to adequately convey the runoff. Stormwater runoff would flood the road at the 10-year storm event elevation, even if the culvert were properly maintained. The twin 21-inch CMP culvert under the bridge that leads to the south to the Potomac River is also undersized, and the outfall is in a constant submerged (tailwater) condition. Stormwater runoff would flood the road under the WWB if the culvert is not upgraded. Both culverts would fail to adequately accommodate stormwater during a 10-year storm event, even if the Potomac flooding impacts were not a factor.

All of the action alternatives would increase the stormwater runoff in the park as the drainage area to the culverts would be increased in size and contain more impervious area. However, the study based its analysis on Alternative 2 since it would add the most impervious area (thereby increasing stormwater flow the most). All of the other action alternatives would have less impact on stormwater flow. Existing culverts would be upgraded and a new culvert installed between the existing culverts, under the proposed road. Roads are flooded, under existing conditions, at the 10-year storm event elevations. Proposed flows would pass through the drainage system without flooding the road if the following improvements were made: the 24-inch pipe would be upgraded to a twin 24-inch concrete pipe; the twin 21-inch pipe would be upgraded to twin 2-foot-high by 6-foot-wide box culverts; and a new twin 36-inch culvert would be installed under the new road. These improvements would allow flows equal to and less than the 10-year storm event to drain without flooding any roads. However, storm events greater than the 10-year return frequency would continue to flood JPP due to Potomac River influences. Residences would not be affected by culvert influences; however, Potomac River flooding would continue to threaten residences. The proposed improvements to JPP would not increase Potomac River flooding.

The flooding solution chosen would not change the inverts of the pipes in the park, just make the pipes larger. Water would flow more quickly through the park, yet water below the pipe inverts would remain. Existing wetlands would continue to have the same water available under proposed conditions. Wetlands would not be affected by upgrading the culverts.

The action alternatives would have a beneficial, local, long-term, major effect on stormwater flow in JPP by expanding the capacity of the storm drainage system to handle stormwater runoff and reducing the potential flooding of roads. The proposed improvements to storm drain culverts would not impair park resources.

Cultural Resources

There would be a negligible indirect or cumulative impact to archeological resources as no ground-disturbing activities would occur.

Natural Resources

Cumulative impacts to tidal and/or nontidal wetlands and waterways, vegetation, terrestrial habitats, and wildlife are not expected to occur within the JPP area, as no further transportation, park, or other improvement plans are anticipated. The JPP project improvements would mitigate for the impacts as well as contain the spread of invasive porcelain berry vine which would benefit the park.

M. Sustainability and Long-Term Management

The NPS has adopted the concept of sustainable design as a guiding principle for facility planning and development. Director's Order 12 defines sustainable development as "that which meets the needs of the present without compromising the ability of future generations to meet their needs" (*World Commission on Environment and Development*).

The objectives of sustainability are to design park facilities to minimize adverse effects on natural and cultural values, to reflect their environmental setting, and to maintain and encourage biodiversity; to construct and retrofit facilities using energy-efficient materials and building techniques; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through the sustainable design and ecologically sensitive use.

The action alternatives are consistent with NPS concepts on sustainability as the project would be implemented in a manner so as to minimize impacts to the natural and built environments. The materials and design of the perimeter barriers would reflect the environmental setting. All rehabilitation and preservation work at the Jones Point Lighthouse and D.C. South Cornerstone would be completed in accordance with the *Park Interpretation Plan* for the site, using compatible construction materials and completed in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties.* Any upgrades to the water, sewer, phone, and electrical systems would be accomplished using energy-efficient equipment, materials, and procedures.

Short-Term Effects vs. Long-Term Productivity

All of the action alternatives would have short-term effects from dust, noise, and excavation associated with construction activities. Access to the Mt. Vernon Trail would remain open to the public during construction of the JPP improvements. The recreation fields, fishing areas, and other park resources would remain open to the extent that they can maintain safe conditions during construction of the improvements. The project would develop comprehensive phasing and mitigation efforts to lessen the short-term effects. Notification of pending construction activities would occur through press releases; notices on the NPS, City of Alexandria, and WWB Replacement Project websites; and posted signs at the park. The NPS would continue public involvement activities throughout planning and design activities.

Long-term effects of the action alternatives include the loss of forest, understory vegetation, and wetlands, as described in other sections of this document. However, the action alternatives fulfill the Purpose and Need for the project (refer to Chapter 1.0 of this document), the NPS resource management goals for JPP (refer to Chapter 2.0 of this document), and conditions relevant to JPP as stated in the MOA and the ROD for the WWB Replacement Project (refer to the Appendix).

An extensive agency coordination and public involvement program, established during the *Woodrow Wilson Bridge Improvement Study*, was continued during planning activities for JPP. The public involvement activities included an interagency coordination group, citizens advisory committee, design review working group, technical coordination teams, website, open house, and other opportunities for participation. Although there are competing interests for improving JPP, the action alternatives present a balanced program of active recreation, passive recreation, and interpretation of archeological, historic, cultural, and natural park features that would benefit local and regional park patrons.

Irreversible or Irretrievable Commitment of Resources

Irreversible impacts are those effects that cannot be changed over the long-term or are permanent. An irretrievable commitment of resources consists of the effects to resources that, once gone, cannot be replaced. The action alternatives involve the irreversible and irretrievable commitment of forested land (up to 5.6 acres), mature trees (up to six trees greater than 24 inch dbh), and wetlands (up to 0.5 acres) for the construction of recreational facilities. Fossil fuels, labor, and construction materials would be used to construct the action alternatives. The materials used in the construction process are irretrievable, however, they are not in short supply and their use should not have an adverse effect on continued availability of these resources. The commitment of these resources is established on the premise that local and regional park patrons would benefit from the proposed park improvements. Benefits would include increased safety and security, and expanded recreational opportunities within JPP.

Unavoidable Adverse Impacts

Unavoidable adverse impacts are those that cannot be fully mitigated or avoided and, therefore, would remain throughout the duration of the action. The following list describes potential unavoidable adverse impacts related to the action alternatives.

- The clearing of trees and understory vegetation would reduce the amount of habitat for forest and forest edge birds and other wildlife. However, impacts to wildlife are anticipated to be minimal and are not expected to result in the loss of species in the park.
- The addition of a new access road, parking areas, and multi-use fields would have visual effects. Bollards, if used as a perimeter barrier, would have a less natural appearance in the landscape than would dense plantings.
- The action alternatives increase the distance between the new parking area(s) to the new water access area (compared with existing conditions). This would require park visitors to transport water recreational gear for longer distances.

N. The Preferred and Environmentally Preferred Alternatives

The Preferred Alternative

The Preferred Alternative (Alternative 4A) fulfills the objectives of the 2001 JPP EA, to enhance recreation opportunities in JPP, and complies with the stated design goals in the MOA and ROD for the WWB Replacement Project. Construction of these improvements would provide recreational opportunities within JPP that currently do not exist and represent an improvement over the conditions that currently exist today under and around the WWB.

In particular, Alternative 4A fulfills the objectives of the 2001 JPP EA, the federal TSA's security recommendations, and the MOA by:

- Creating multi-use fields or improving existing multi-use field and tot lot.
- Creating new bike and footpaths in the southern portion of the park.
- Removing (existing) parking from under the WWB.
- Implementing improvements to document and preserve historic and cultural resources within the park.

Alternative 4A minimizes impacts to resources (i.e.: forest cover and wetlands – through mitigation) and improves drainage conditions. Proposed drainage improvements consist of upgrading existing culverts and a new culvert installed between the existing culverts, under the proposed access road. Alternative 4A would increase the stormwater runoff in the park as the drainage area to the culverts would be increased in size and contain more impervious area. However, the drainage improvements would expand the capacity of the storm drainage system to handle stormwater runoff and reduce the potential flooding of roads.

The NPS recognizes the need to perform the improvements in JPP. This document acknowledges the issues highlighted through citizen comments and supports the proposed action to minimize, as much as possible, the potential effects of improvements to JPP. Though both supporting and dissenting comments were received, Alternative 4A considered all of the comments, and strikes a balance between them.

The Environmentally Preferred Alternative

The NPS is required to identify the "environmentally preferred alternative" in accordance with NPS Director's Order 12 (2001). The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969, which is guided by the Council on Environmental Quality. Although the NPS is required to identify the "environmentally preferred alternative", there is no requirement that the environmentally preferred alternative and the selected alternative be the same.

The Council on Environmental Quality provides direction that "the environmental preferable alternative" is the alternative that will promote the National Environmental policy as expressed in Section 101 of the National Environmental Policy Act, which considers:

- Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
- Assuring for all generations safe, healthful, productive and aesthetically and culturally pleasing surroundings;
- Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- Preserving important historic, cultural and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
- Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources (National Environmental Policy Act, Section 101).

After completing the environmental analysis, the NPS identified the environmentally preferred alternative as Alternative 4 since it would have slightly less impacts to forested areas compared with Alternative 4A (1.7 acres versus 1.9 acres). Alternative 4 also would impact the uncultivated portion (0.03 acres) of the Lee Street community garden versus Alternative 4A which would impact the cultivated portion of the garden (0.0093 acres). However, the Lee Street community garden property would be reconfigured and extended north to maintain the same amount of land available for public gardening activities. Visual effects differ with a minor effect under Alternative 4 versus a moderate effect under Alternative 4A due to the placement of the multi-use fields. Alternative 4 and Alternative 4A have similar benefits and fulfill all of the above criteria.

The No-Action Alternative fails to meet criteria C and D, listed above. In particular, the No-Action Alternative would not have the greatest beneficial uses without risk of health and safety (criterion C) as it does not address the recommendations contained in the *Vulnerability Reduction Design Considerations for the Woodrow Wilson Bridge Replacement Project* (June 2002). Further, the implementation of the No-Action Alternative would fail to preserve the Jones Point Lighthouse and D.C. South Cornerstone, leading to the continued deterioration of these resources due to water damage from the Potomac River and heavy rains (criterion D). As previously stated, the No-Action Alternative is not being considered for improvements to JPP (refer to Chapter 3.0, Section A).

The action alternatives fulfill all of the criteria listed above. In particular, the action alternatives address the recommendations contained in the *Vulnerability Reduction Design Considerations for the Woodrow Wilson Bridge Replacement Project* (June 2002).

The differences between the action alternatives appear in the amount of impacts to wetlands, forests/vegetation, and community gardens, and provision of multi-use fields and water access.

6.0 COORDINATION AND PREPARERS

A. History of Public Involvement

An extensive agency coordination and public involvement program, established during the WWB Replacement Project was continued during planning activities for JPP. The design phase of the WWB Replacement Project included the establishment of several teams and working groups comprised of agency representatives, technical experts and citizens to continue the refinement of the WWB design that was selected during the planning phase of the project. The following teams were put in place for technical and agency support:

- The Interagency Coordination Group (ICG) represents 25 regulatory and resource agencies that reviewed the project-wide permit requirements, avoidance and minimization alternatives, and mitigation alternatives and proposals. The ICG continues to monitor adherence to the permits and monitors the design, viability and success of the mitigation. In this capacity, they have provided comments for the appropriate impact mitigation for JPP, as well as other aspects of the WWB Replacement Project.
- The MOA stipulated the formation of the Design Review Working Group (DRWG). The technical experience of this group allows for discussion of Section 106 coordination, review of design documents and confirms compliance with the MOA. They also served as the Historic Advisory Committee during the WWB Design Competition conducted in 1998. They have provided guidance on interim and ultimate plans for the enhancements in JPP as well as other aspects of the WWB Replacement Project.
- The Environmental Management Group (EMG) comprises environmental managers from the Sponsoring Agencies and the USCOE, provides input, expertise, and policy direction for environmental issues including types of mitigation and treatment.
- The Virginia Technical Coordination Team (VATCT), comprised of FHWA, VDOT, Fairfax County and City of Alexandria engineering staff, provides design direction for Virginia improvements and receives information about JPP.

The following public involvement and outreach activities have been underway during the planning processes for the WWB Replacement Project and the JPP improvements:

- Two offices were established with scheduled weekly public hours and other opportunities for the pubic to reach the technical staff by appointment. The offices offer a resource of graphic and report documentation and staff to answer questions. One of these offices is located in Alexandria.