
CHAPTER 1: PURPOSE AND NEED

INTRODUCTION

The National Park Service (NPS), in cooperation with the Federal Highway Administration (FHWA), is proposing a combination of road safety improvements located where the southbound ramp from Waterside Drive, NW merges onto Rock Creek and Potomac Parkway (the parkway), in Washington, D.C. This environmental assessment (EA) evaluates a range of feasible alternatives and strategies for the rehabilitation and reconstruction of Rock Creek and Potomac Parkway southbound at Waterside Drive, NW in the District of Columbia.

This EA has been prepared in accordance with National Environmental Policy Act (NEPA) and implementing regulations, Title 40 Code of Federal Regulations (CFR) 1500–1508; NPS Director’s Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision Making* and Handbook (NPS 2011; 2001); and Section 106 of the National Historic Preservation Act of 1966 (NHPA), as Amended, and its implementing regulations, 36 CFR 800.

Four alternatives were considered: the no action alternative (Alternative 1) and three action alternatives that address the rehabilitation and reconstruction of the parkway southbound at Waterside Drive, NW. The three action alternatives include the following:

- Alternative 2: Restore to Original Condition (which would restore the road to the pre–July 2011 alignment)
- Alternative 3: Add Merge Lane by Widening the Road toward the Creek
- Alternative 4: Add Merge Lane by Widening the Road toward the Median

The NPS prepared an EA in 2006 that examined safety improvements for the parkway, including proposed safety improvements at Waterside Drive, NW. Soon after construction began on the Waterside Drive, NW section of the project in July of 2011, the NPS determined that the project design was not following the preferred alternative contained in the 2006 EA. A cofferdam had been placed within Rock Creek and the stream bank prepared for the construction of a retaining wall to support an additional merge lane and road improvements. Fourteen large trees had been removed from the area adjacent to the stream bank. The NPS stopped construction at the Waterside Drive, NW section of the overall parkway project in order to reinitiate the planning and compliance for this specific component of the overall project. Construction on the larger improvement project, including Cathedral Avenue, NW, Shoreham Drive, NW and Beach Drive, NW sections are consistent with the 2006 EA and continued as scheduled.

In August of 2011, severe erosion took place in the section of Rock Creek in the project area as a result of the flooding that occurred after Hurricane Irene and Tropical Storm Lee moved through the area in consecutive weeks. The erosion of the stream banks was exacerbated by the cofferdam that was still in Rock Creek from the construction of the retaining wall. This erosion, which was affecting the stability of Rock Creek Park Multi-use Trail, has been temporarily stabilized with gabion baskets pending a more permanent solution.

PURPOSE OF THE ACTION

The NPS strives to balance the often conflicting purposes of protecting the scenic, natural, and cultural resources of the parks while concurrently providing for safe public use of these resources. The purpose of the proposed action is to improve traffic flow and to minimize the number of vehicle accidents along the parkway in the vicinity of Waterside Drive, NW using a combination of improvements to include a new acceleration lane along the parkway where the southbound ramp from Waterside Drive, NW merges. The

proposed action would also address severe erosion that occurred along the stream banks of Rock Creek in the vicinity of Waterside Drive, NW as a result of flooding after Hurricane Irene and Tropical Storm Lee moved through the Washington, D.C. area during consecutive weeks in August and September of 2011.

The proposed action is feasible and will be implemented in a manner that complies with engineering requirements while minimizing impacts to natural and cultural resources. The NPS will also be considering ecologically sensitive methods of stabilizing the stream bank opposite Rock Creek and Potomac Parkway in the project area.

NEED FOR THE ACTION

Action is needed at this time to improve traffic flow and to minimize the number of vehicle accidents where the southbound ramp from Waterside Drive, NW merges with the parkway. A small merge area and poor sight distances have resulted in numerous vehicle accidents and backups of cars waiting to merge at the intersection of Waterside Drive, NW and the southbound parkway. As a result, the NPS needs to increase sight distances and lengthen the merge area to improve motor vehicle visibility and traffic safety. In addition, action is needed to address the erosion that has occurred, which is affecting the stability of the Rock Creek Park Multi-use Trail.

PROJECT LOCATION

Rock Creek Park is a 2,896-acre park in Washington D.C., extending from the Maryland border to the Potomac River (figure 1-1). It consists primarily of an undeveloped, wooded valley, with some associated tributaries and uplands. The major landscape feature is Rock Creek, a perennially flowing stream that bisects the length of the park before flowing into the Potomac River. The park is completely surrounded by the heavily urbanized metropolitan area of Washington, D.C.

Rock Creek and Potomac Parkway is a travel corridor between Beach Drive, NW to the north and the Lincoln Memorial to the south. The parkway runs north to south along Rock Creek and has two lanes in both directions.

Figure 1-1 depicts the project area at Waterside Drive, NW within the larger context of Rock Creek Park. Figure 1-2 depicts a zoomed-in aerial view of the project area¹. In addition, riparian areas along Rock Creek between Sherrill Drive, NW and Bingham Drive, NW are proposed for revegetation to mitigate for approximately 0.3 acre of riparian area that was impacted by the previous roadway construction in 2011 (see figure 1-3).

¹ Both the segment of Rock Creek and Potomac Parkway and the surrounding park land shown on Figures 1 and 2 (the Project Area) are technically part of District of Columbia Reservation 360, Rock Creek and Potomac Parkway, not District of Columbia Reservation 339, Rock Creek Park. However, the area is administered by the Rock Creek Park unit of the NPS and is widely known to the public as part of Rock Creek Park.

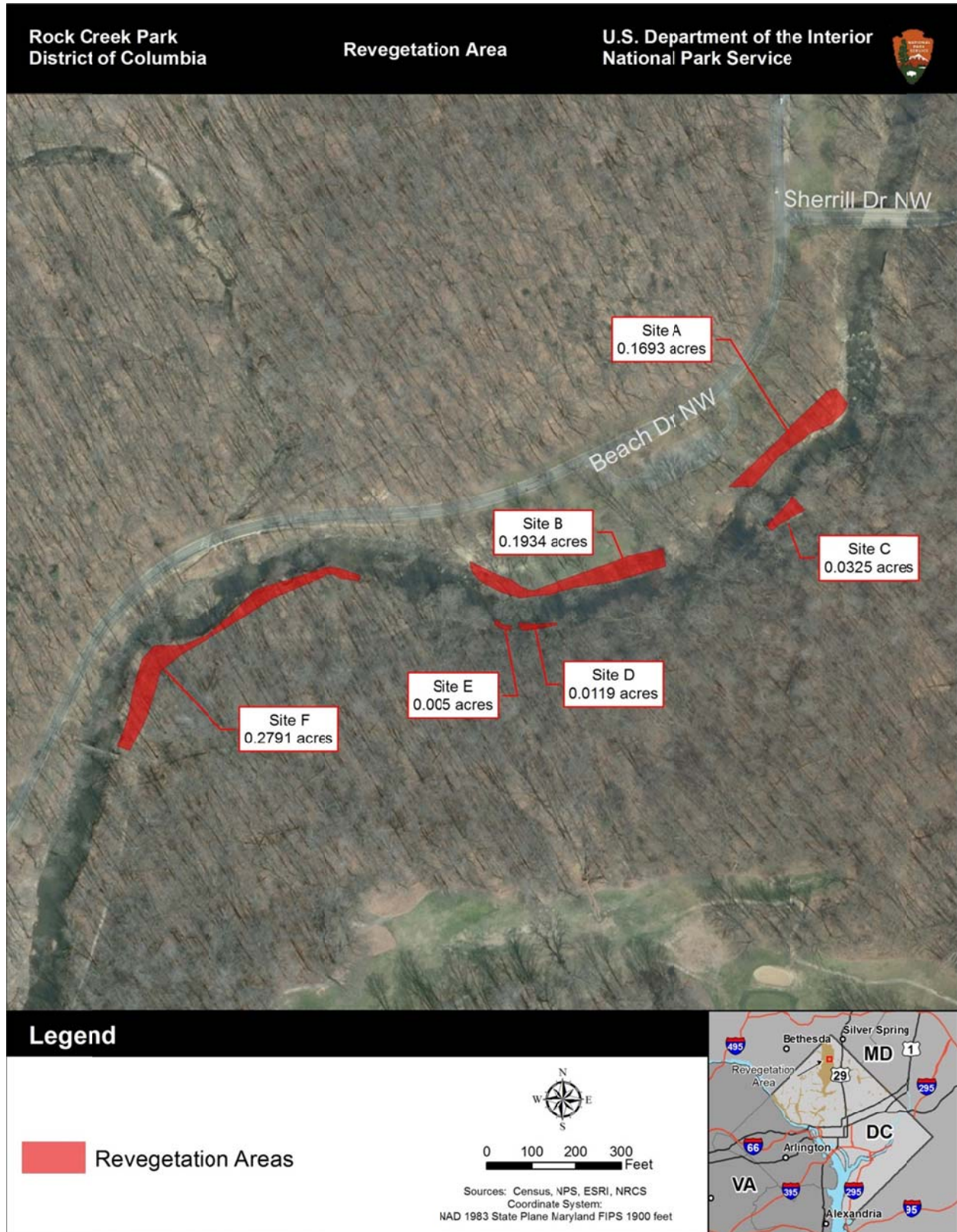
FIGURE 1-1: ROCK CREEK PARK



FIGURE 1-2: PROJECT SITE AT WATERSIDE DRIVE, NW



FIGURE 1-3: RIPARIAN REVEGETATION AREA



SIGNIFICANCE OF ROCK CREEK PARK AND ROCK CREEK AND POTOMAC PARKWAY

Congress established Rock Creek Park, one of the first national park areas, on September 27, 1890 as a unique natural park containing significant historic and archeological resources and providing a great variety of recreational opportunities for visitors and residents of the Washington, D.C. metropolitan area (Public Law [PL] 51-297, 26 Stat. 482).

Rock Creek Park is linked to the Potomac River and the monumental core of Washington, D.C. by the Rock Creek and Potomac Parkway. Congress established the parkway through the Public Buildings Act of March 4, 1923. The parkway corridor is managed contiguously with Rock Creek Park.

As noted in the *Rock Creek Park and the Rock Creek and Potomac Parkway Final General Management Plan / Environmental Impact Statement* (NPS 2005), the significance of the park includes the following factors:

- Rock Creek Park is one of the oldest and largest naturally managed urban parks in the United States;
- The park contains approximately 2,896 acres of valuable plant and wildlife habitat, providing protection for a variety of native species within a heavily urbanized area;
- Rock Creek Park encompasses a rugged stream valley of exceptional scenic beauty with forested, natural landscapes and intimate natural details, in contrast to the surrounding cityscape of Washington, D.C.;
- Rock Creek Park's forests and open spaces help define the character of the nation's capital;
- Rock Creek Valley was important in the early history of the region and in the development of the nation's capital and the park's cultural resources are among the few tangible remains of the area's past;
- Rock Creek Park is an oasis for urban dwellers, offering respite from the bustle of the city;
- Rock Creek Park is a historic designed landscape incorporating early 1900's picturesque and rustic features designed to enhance the visitors' experience of the naturalistic park scenery; and
- Located in the heart of a densely populated cosmopolitan area, Rock Creek Park serves as an ambassador for the national park idea, providing outstanding opportunities for education, interpretation, and recreation to foster stewardship of natural and cultural resources.

SCOPING

INTERNAL SCOPING

On September 27, 2011, park staff members held an internal conference call with the NPS, the FHWA, and the consultant team to identify key issues and potential impact topics and to discuss alternatives. Further team discussion on impact topics and alternatives occurred during an October 4, 2011 site visit. Alternatives were developed and refined by the project team using the input from public scoping, discussed below, at an alternatives development workshop on December 1, 2011, and at a mini value analysis workshop (MVA) on March 30, 2012. The MVA workshop, led by a Value Analysis Technical Expert, focused on the following:

1. Develop a "Preferred" alternative for the Rehabilitation and Reconstruction of Waterside Drive, NW Area by using Choosing By Advantages (CBA) for Roadway Engineering;
2. Discuss options to address Bioengineering; and

3. Discuss options to address traffic calming.

PUBLIC SCOPING

The NPS initiated public scoping for this EA by issuing a public scoping notice on October 5, 2011. The scoping notice was sent to a mailing list consisting of 502 recipients and was posted to the park's Planning, Environment, and Public Comment (PEPC) website. The scoping notice described the history of the planning process, including previous reconstruction planning efforts in 2006, which included the consideration of acceleration lanes at Waterside Drive, NW. Subsequently, a public meeting to solicit feedback on the purpose, need, objectives and preliminary alternatives was held on October 27, 2011 at the Rock Creek Park Nature Center, Washington, D.C. from 6:00 p.m. to 8:00 p.m. A public meeting notice was posted on the park's website. Two people signed in.

The meeting began with an open house, allowing the public to circulate among park staff and informational displays that described the project background, project area and current road condition, the purpose and need for the proposed action, and the preliminary alternatives and site constraints. The NPS staff gave a brief presentation to explain the project and the NEPA and Section 106 processes. All attendees were advised to submit their comments to the park via email, regular mail, PEPC, or on cards made available at the meeting.

The public scoping comment period was open from October 5, 2011, to November 18, 2011. During this time, the NPS provided several methods for the community to provide input on the proposed project. At the public meeting, comment sheets were provided. Additional opportunities for comment on the project included directing comments to the NPS PEPC website at <http://parkplanning.nps.gov/rocr/> or sending written comments to the superintendent. The public comments received are detailed in the following sections of this report.

During the comment period, two pieces of correspondence were received. One comment was received via PEPC while another was mailed to the park. One commenter requested that no changes be made to the southbound ramp while the second commenter viewed the parkway as a national treasure and evacuation route and requested that it be repaired in a timely manner.

RELATIONSHIP TO LAWS, EXECUTIVE ORDERS, POLICIES, AND OTHER PLANS

The NPS is governed by laws, regulations, and management plans before, during, and following any management action related to the developed NEPA document. The following are those applicable to the proposed action.

APPLICABLE FEDERAL AND STATE LAWS AND REGULATIONS

National Environmental Policy Act, 1969, as Amended

NEPA was passed by Congress in 1969 and took effect on January 1, 1970. This legislation establishes this country's environmental policies, including the goal of achieving productive harmony between human beings and the physical environment for present and future generations. It provides the tools to implement these goals by requiring that every federal agency prepare an in-depth study of the impacts of major federal actions having a significant effect on the environment and alternatives to those actions. It also requires that each agency make that information an integral part of its decisions. NEPA also requires that agencies make a diligent effort to involve the interested and affected public before they make decisions affecting the environment.

Besides setting environmental planning policy goals, NEPA created the Council on Environmental Quality (CEQ), an agency of the president's office, to oversee the implementation of NEPA. The CEQ published NEPA regulations in 1978 (40 CFR 1500–1508). These regulations apply to all federal

agencies and in them the CEQ requires each federal agency to “implement procedures to make the NEPA process more useful to agency decision makers and the public” (40 CFR 1500.2). Agencies are to review and update these regulations as necessary. The NPS has in turn adopted procedures to comply with NEPA and the CEQ regulations, as found in Director’s Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2011).

National Historic Preservation Act of 1966, as Amended

The National Historic Preservation Act of 1966 (NHPA), as Amended (16 United States Code [USC] 470), protects buildings, sites, districts, structures, and objects that have significant scientific, historic, or cultural value. The act establishes affirmative responsibilities of federal agencies to preserve historic and prehistoric resources. Effects on properties that are listed in or are eligible for listing in the National Register of Historic Places (NRHP) must be taken into account in planning and operations.

Section 106 of the National Historic Preservation Act of 1966, as Amended

Section 106 of the NHPA, as Amended (36 CFR 800) requires federal agencies to consider the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP), state historic preservation office (SHPO), and other consulting parties a reasonable opportunity to comment on such undertakings. Through this process, concerns associated with historic properties are addressed at the early stages of project planning. Overall, the objective of consultation is to identify historic properties potentially affected by the undertaking, assess the effects of the project on these properties, and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties.

Archeological Resources Protection Act

The Archeological Resources Protection Act (ARPA) (16 U.S.C. 470aa-470mm; Public Law 96-95 and amendments) was enacted in 1979. The act prohibits unauthorized excavation on federal and Indian lands, establishes standards for permissible excavation, prescribes civil and criminal penalties, requires agencies to identify archeological sites, and encourages cooperation between federal agencies and private individuals.

Shipstead-Luce Act

The Shipstead-Luce Act (Public Law 71-231 and Public Law 76-248) was passed on May 16, 1930. The Act gave the U.S. Commission of Fine Arts authority to review the designs of private construction projects within certain areas of the National Capital. Specifically, the Shipstead-Luce Act applies to construction which fronts or abuts: the grounds of the Capitol; the grounds of the White House; the portion of Pennsylvania Avenue, NW extending from the Capitol to the White House; Rock Creek Park; the National Zoo; Rock Creek and Potomac Parkway; the Mall Park System; Southwest Waterfront; and Fort McNair.

NPS Organic Act

The NPS Organic Act (16 USC 1 et seq., August 25, 1916, 19 Stat. 535) created the NPS to oversee the National Park System. The Organic Act directs the NPS to “conserve the scenery and the natural historic objects and the wildlife 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.”

National Parks Omnibus Management Act of 1998

The National Parks Omnibus Management Act (16 USC 5901 et seq.) underscores NEPA and is fundamental to NPS park management decisions. Both acts provide direction for articulating and connecting the ultimate resource management decision to the analysis of impacts, using appropriate

technical and scientific information. Both also recognize that such data may not be readily available; therefore, the acts provide options for resource impact analysis should this be the case.

The National Parks Omnibus Management Act directs the NPS to obtain scientific and technical information for analysis. The NPS Handbook for Director's Order 12 states that if "such information cannot be obtained due to excessive cost or technical impossibility, the proposed alternative for decision will be modified to eliminate the action causing the unknown or uncertain impact or other alternatives will be selected" (NPS 2001, section 4.4).

Redwood National Park Act of 1978, as Amended

All National Park System units are to be managed and protected as parks, whether established as a recreation area, historic site or trail, or any other designation. This act states that the NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

Clean Water Act Section 404

Section 404 of the Clean Water Act regulates the placement of dredged and fill material into waters of the United States. The act authorizes the issuance of permits from the U.S. Army Corps of Engineers (USACE) for such discharges as long as the proposed activity complies with environmental requirements specified in Section 404(b) (1) of the act. To grant a permit, the USACE must weigh the need to protect aquatic resources against the benefits of the proposed development. The USACE policy requires applicants to avoid impacts to waters of the United States and wetlands to the extent practicable, then minimize the remaining impacts, and finally take measures to compensate for unavoidable impacts.

Soil Erosion and Sedimentation Control Amendment Act of 1994 (D.C. Laws 10-166)

An erosion and sediment control plan would be prepared and implemented in accordance with the District of Columbia's Soil Erosion and Sediment Control Handbook, which lays out standards and specifications for sediment and erosion control (District Department of the Environment [DDOE] 2003). These guidelines also include direction on stream construction. The sediment and erosion control plan would include resource protection measures that conform to these standards and specifications, and would be submitted to the DDOE for approval.

EXECUTIVE ORDERS AND DIRECTOR'S ORDERS

Executive Order 11593, "Protection and Enhancement of the Cultural Environment"

This executive order (EO) directs the NPS to support the preservation of cultural properties and to identify and nominate to the NRHP cultural properties in the park and to "exercise caution . . . to assure that any NPS-owned property that might qualify for nomination is not inadvertently transferred, sold, demolished, or substantially altered."

Director's Order 77-2: Floodplain Management

Director's Order 77-2 (NPS 2003a) was issued in response to EO 11988, "Floodplain Management." This order applies to all proposed NPS actions that could adversely affect the natural resources and functions of floodplains or increase flood risks. This includes the proposed action that is functionally dependent on the location near the water and for which non-floodplain sites are not practicable alternatives.

Director's Order 77-2: *Floodplain Management* and *Procedural Manual #77-2* provide NPS procedures for complying with EO 11988. A Statement of Findings (SOF) for floodplains was prepared for this EA to document compliance with NPS floodplain protection procedures (see appendix B).

Director's Order 77-1: Wetland Protection

The purpose of this Director's Order is to establish NPS policies, requirements, and standards for implementing EO 11990: Protection of Wetlands (42 Fed. Reg. 26961). EO 11990 was issued by President Carter in 1977 in order "...to avoid to the extent possible the long and short-term, adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative..."

Director's Order 77-1: *Wetland Protection* and *Procedural Manual 77-1* provide NPS procedures for complying with EO 11990. A SOF for wetlands was prepared for this EA to document compliance with NPS wetland protection procedures (see appendix C).

NATIONAL PARK SERVICE PLANS AND POLICIES

Rock Creek Park and Rock Creek and Potomac Parkway Final General Management Plan / Environmental Impact Statement

The purpose of the General Management Plan (NPS 2005) is to specify resource conditions and visitor experiences to be achieved in Rock Creek Park and along Rock Creek and Potomac Parkway, and to provide the foundation for decision making and preparation of more specific resource plans regarding the management of the park and parkway. The four alternatives outlined in the plan proposed different options for managing traffic and visitor use along Rock Creek and Potomac Parkway and Beach Drive, NW, ranging from continued access along both roads to closing some sections of road during the week or year-round for recreational purposes.

Related Plans

Traffic and Engineering Studies

Several traffic, engineering, and safety studies have been conducted for Rock Creek Park roads, including Rock Creek and Potomac Parkway. These studies include the following:

- *Rock Creek Park Engineering Study for Roads and Bridges*, Volumes I and II (Federal Highway Administration [FHWA] 1999)
- *Traffic Safety Study, Rock Creek Park, Washington, D.C.* (Robert Peccia & Associates 1997)
- *Draft June 2004 Traffic Study for Rock Creek Park* (Parsons 2004)

The 1999 engineering study was undertaken by the Eastern Federal Lands Highway Division of the FHWA to evaluate the need and priority for rehabilitation and reconstruction of the roads and bridges in Rock Creek Park. The report indicated that the park roads were in fair to poor condition. Types of pavement deterioration noted included alligator and fatigue cracking, potholing, settlement, and rutting. Particular areas of concern are at-grade intersections, ramps, curved road sections, and points where bike trails are located adjacent to the road. These areas are often high or potential vehicle accident locations. Ramps along the parkway do not have acceleration or deceleration lanes, making it difficult to merge into traffic. In addition, issues with pedestrian and bicyclist safety were noted because of the proximity of the uses to one another, as well as the erosion occurring behind concrete curbs due to foot trails.

The 1997 traffic safety study outlined some of the key safety issues associated with the parkway. Some of the issues that the reconstruction and rehabilitation of the parkway at Waterside Drive, NW would address include:

- High proportions of vehicle accidents occur on the parkway where onramp traffic attempts to merge with parkway traffic. The addition of some acceleration lanes along the parkway where there is sufficient space would allow entering vehicles to get up to speed before merging.

- The lack of adequate guidance signs in Rock Creek Park creates problems for drivers who are unfamiliar with the park road system. Warning signs are lacking in some areas, including advance warning of road closures, crosswalks, and significantly low ramp speeds on the parkway interchanges.

The 2004 traffic study describes traffic counts conducted in early June 2004 and provides a comparison with the 1997 traffic safety study that was prepared for the park by Robert Peccia and associates. These counts and a license plate survey and analyses were conducted to provide current information on traffic volumes and flow patterns in the southern part of the park.

The NPS prepared the 2006 EA that looked at safety improvements for the parkway, including proposed safety improvements at Waterside Drive, NW. However, construction of the Waterside Drive, NW section was halted in 2011 when the NPS determined that the project design was not following the preferred alternative contained in the 2006 EA, and is now being re-analyzed in this EA. Construction on the larger improvement project, including Cathedral Avenue, NW, Shoreham, NW, and Beach Drive, NW sections, is occurring following the preferred alternative of the 2006 EA and continued as scheduled.

IMPACT TOPICS

The following impact topics are discussed in the “Affected Environment” chapter and are analyzed in the “Environmental Consequences” chapter of this EA. These topics are resources of concern that could be beneficially or adversely affected by the actions proposed in each alternative. They were developed to ensure that the alternatives are evaluated and compared based on the most relevant resource topics. These impact topics were either identified during scoping; reflect requirements found in federal laws, regulations, executive orders, and/or NPS Management Policies 2006; or come from NPS staff knowledge of limited or easily impacted resources.

IMPACT TOPICS ANALYZED IN THIS ENVIRONMENTAL ASSESSMENT

Water Resources

The widening of the parkway at Waterside Drive, NW adjacent to or into Rock Creek could impact stream flows, streambeds, and channel shape. In addition, water quality of the creek could be affected as a result of erosion or runoff during construction or stormwater runoff from the road. Rock Creek is in an urban area and its watershed has a high level of impervious surfaces. This has increased the flashiness of the stream (increased volume and flow velocity in the stream during storm events) and caused accelerated erosion along Rock Creek in the northern portion of the park.

Floodplains

The parkway in the project area is entirely within the 100-year floodplain. Road reconstruction and rehabilitation activities associated with the project could result in potential impacts to floodplains, floodplain values, and floodplain functions. Two of the action alternatives would increase the amount of impervious surface in the floodplains, which can affect floodplain functions and values. In addition, the combination of the road realignment, increased impervious surface area, and alterations to stream banks could affect water surface elevations in the project area during flood events, and therefore, the physical extent of the floodplain.

Because of the nature of the issues to be addressed by the proposed action – specifically, that there are safety issues with the existing road configuration and because the road is entirely in the 100-year floodplain for this project, which could potentially affect the floodplain – a SOF for floodplains, as required under DO 77-2, is included in appendix B of this document.

Wetlands

Because of impacts to sections of the riparian wetland areas that have already occurred, and the potential for new impacts associated with the proposed alternatives, wetlands is a resource topic that has been carried forward for analysis. A wetland SOF, as required under DO 77-1, was prepared and can be found in appendix C of this document.

SOILS

The proposed realignment of the parkway could have direct impacts to soils from soil compaction, erosion, and bank slope sloughing. In addition, proposed bioengineered methods for permanently stabilizing the banks that have eroded as a result of storms in the August and September of 2011 would result in beneficial impacts.

VEGETATION

The proposed realignment of the southbound Parkway at Waterside Drive, NW could result in impacts to both terrestrial and riparian vegetation near Rock Creek. Beneficial impacts could result from increased vegetation growth as a result of stream bank stabilization. Adverse impacts could result from potential tree removal as well as the disturbance of previously undisturbed areas.

WILDLIFE

The realignment of the southbound parkway near Waterside Drive, NW and the proposed bioengineering to permanently stabilize the creek banks could result in both adverse and beneficial impacts to aquatic wildlife dependent on wetland and riparian areas. Beneficial impacts could result from improved aquatic wildlife habitat from stream bank stabilization and increased vegetation. Adverse impacts could result from habitat loss and construction noise. The potential removal of several large trees could result in impacts to terrestrial wildlife dependent on large trees for food and habitat.

CULTURAL RESOURCES

The NHPA, as Amended (16 USC 470 et seq.), NEPA, the NPS Organic Act, the NPS *Management Policies 2006* (NPS 2006a), Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2011), and Director's Order 28: *Cultural Resource Management* (NPS 1998c) require the consideration of impacts to any cultural resources that might be affected, and the NHPA, as Amended, in particular, on cultural resources either listed in or eligible to be listed in the NRHP. As defined by the NPS, cultural resources are aspects of a cultural system that are valued by or significantly representative of a culture or that contain significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the NRHP, and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

For this study, efforts to identify cultural resources included a review of information provided by the park, supplemented by interviews with park staff, and other published and unpublished sources, including the listings of the NRHP. The project area and riparian revegetation area contains three categories of cultural resource: historic structures (structures, buildings, districts, sites, objects, etc.), cultural landscapes, and archeological resources, which have the potential to be impacted by the road reconstruction activities and the revegetation of riparian areas along Rock Creek.

There are several areas of potential effects (APE or the area for cultural resources affected) considered for this study, including the section of the parkway that would be reconstructed, the section of the creek that would be permanently stabilized, associated areas that would be used for construction staging areas for equipment and supplies, and the riparian revegetation areas along Rock Creek. A more detailed discussion

of the APEs and the cultural resources present or potentially present is found in the “Affected Environment” section. In brief, the parkway reconstruction and stream bank stabilization lie within the NRHP-listed Rock Creek and Potomac Parkway (RCPP) Historic District and are presumed to interface with the subsurface remains of the 1800s Lyons Mill, while the riparian revegetation sites lies within the NRHP-listed Rock Creek Park (RCP) Historic District.

The NPS has completed a Phase 1A archeological study of this area, specifically focusing on the median in the vicinity of Waterside Drive, NW and the possible location of archeological resources associated with Lyons Mill. The study’s findings pointed to the need for further consideration of possible effects of the project on possible archeological resources. According to the Phase 1A study (LeeDecker, et al. 2012) the ruins of Lyons Mill have not been formally identified as an archeological resource, but it is likely that the foundation of the mill is still preserved at its original location. The NPS will be conducting a Phase 1B archeological study prior to construction to positively identify possible archeological resources within the project area.

VISITOR USE AND EXPERIENCE

Temporary closures, including single-lane traffic on portions of the southbound parkway, during road reconstruction and rehabilitation activities could impact traffic, including commuter traffic, in Rock Creek Park. Visitors using the Rock Creek Park Multi-use Trail adjacent to the creek near the project area would be diverted temporarily around construction on a trail bypass. In addition, visitor experience in this area would potentially be impacted by the presence, appearance, and sound of construction equipment and activity throughout the duration of the project. This inconvenience could result in a temporary degradation of the visitor experience. Potential beneficial impacts could also result from the stream bank restoration, because this would have a long-term, beneficial impact to the appearance of the area and would improve visitor safety.

TRANSPORTATION AND SAFETY

The temporary lane closure within the project area on the southbound parkway and closure of the ramp from Waterside Drive, NW ramp during road reconstruction and rehabilitation could impact commuters and other motorists, depending on where they access the roads and the hours during which construction would occur. Beneficial impacts would result from the improvement to traffic flow and potential reduction in the number of vehicle accidents on Waterside Drive, NW and the parkway in the vicinity of Waterside Drive, NW.

The reconstruction and rehabilitation of the parkway, including the addition of a new merge area, could facilitate traffic movement and improve safety. In the short-term, closure of the Waterside Drive, NW ramp onto the southbound parkway could also confuse drivers if they are unfamiliar with these detours, potentially causing safety issues. Additionally, stream bank restoration on the trail side would improve the stability of the Rock Creek Park Multi-use Trail, improving public safety.

IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS

The following impact topics were eliminated from further analysis and consideration. With appropriate management measures, any potential impacts to these resources would be less than minor, localized, and most likely not measurable.

THREATENED, ENDANGERED, AND OTHER SPECIAL CONCERN SPECIES

The Endangered Species Act (ESA) (1973), as amended, requires an examination of impacts to all federally listed threatened or endangered species. NPS policy also requires examination of the impacts to federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species. In accordance with Section 7 of ESA, in October 2011 and April 2012, letters were sent

by NPS to solicit comments from the United States Fish and Wildlife Service (USFWS) regarding the existence of one federally listed endangered species, Hay's Spring amphipod (*Stygobromus hayi*) and one candidate species, Kenk's amphipod (*Stygobromus kenki*) within the project area (see appendix A). According park staff, the closest Hay's Spring amphipod population is within the Smithsonian Institution's National Zoo, which is approximately one and a quarter miles northeast of the project site. The majority of Hay's Spring and Kenk's amphipod populations within Rock Creek Park are approximately two and a half miles to the northeast of the project site. Therefore, there is no evidence of the presence of either the Hay's Spring or Kenk's amphipod within the project location. As a result, this impact topic was not analyzed further.

AIR QUALITY

The 1963 Clean Air Act, as amended (42 USC 7401 et seq.), requires federal land managers to follow policies that protect park air quality. The act also assigns the federal land manager (park superintendent) an affirmative responsibility to protect the park's air quality and related values — including visibility, plants, animals, soil, water quality, cultural and historic resources and objects, and visitors — from adverse air pollution impacts. Section 118 of the Clean Air Act requires that the park meet all federal, state, and local air pollution standards.

The proposed project is in the Metropolitan Washington Air Quality Control Region, an area the U.S. Environmental Protection Agency (EPA) has designated as in attainment for the following National Ambient Air Quality Standards (NAAQS) criteria pollutants: particulate matter less than 10 micrometers (PM₁₀), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead (Pb). The EPA has designated Washington, D.C., as a severe non-attainment area for the criteria pollutant ozone (O₃). In addition, the EPA intends to designate this area as a non-attainment area for particulate matter less than 2.5 micrometers (PM_{2.5}).

During the rehabilitation and reconstruction of the parkway, some emissions would result from the operation of construction vehicles. In addition, commuters and other motorists that currently use the parkway may detour to nearby roads, resulting in no additional traffic or traffic-related emissions in the area-wide transportation network during the construction phase. Based on projects of similar scale and nature, it is expected that these temporary sources of emissions from construction vehicles and displaced motorists would not change regional air quality and would fall well below the minimum pollutant levels for a severe ozone non-attainment area (subject to 40 CFR 93, Determining Conformity of Federal Actions to State or Federal Implementation Plans) and would result in negligible impacts to air quality under the action alternatives during the construction phase.

After rehabilitation and reconstruction is completed (operational phase), an increase in the number of vehicles that use the parkway or drive on the surrounding road network would not be expected as a result of this project, resulting in no new emission sources or increased vehicular emissions. Because emissions would remain below the minimum pollutant levels during both the construction and operation phases of this project, this resource was not analyzed further.

GEOLOGY AND TOPOGRAPHY

The natural geologic character and the general topography of the park would not be impacted as a result of the realignment of the parkway or the stream bank restoration proposed for this project. Therefore, this impact topic was not analyzed further.

SOCIOECONOMICS, INCLUDING LOCAL ECONOMY AND LAND USE

The economic and social characteristics of the residential areas or businesses surrounding the park would be only temporarily and negligibly affected by lane closures on the parkway. Lane closures could result in traffic rerouted to alternate routes, but would not temporarily or permanently eliminate access to any

businesses, attractions, or residential areas adjacent to Rock Creek Park. Therefore, this impact topic was not analyzed further.

ENVIRONMENTAL JUSTICE

EO 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations” directs agencies to address environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate placement of any adverse effects from federal policies and actions on these populations. Local residents may include low-income populations; however, these populations would not be particularly or disproportionately affected by any of the road reconstruction or rehabilitation activities and as a result, this impact topic was not analyzed further.

CULTURAL RESOURCES

Ethnographic Resources

Ethnographic resources are defined by the NPS as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (NPS 1998a). In this analysis, the NPS term “ethnographic resource” is equivalent to the term “Traditional Cultural Property,” which is more widely used in the cultural resource management industry. Guidance for the identification of ethnographic resources is found in National Register Bulletin 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1998). The key considerations in identifying Traditional Cultural Properties are their association with cultural practices or beliefs of a living community that are (1) rooted in the community’s history and (2) important in maintaining the continuing cultural identity of the community (Parker and King 1998). Based on current information at the park and the best professional opinion of park staff, there are no known ethnographic resources in APE that would be affected by the reconstruction and rehabilitation activities. Therefore, ethnographic resources were dismissed as an impact topic.

Museum Collections

Implementation of any alternative would have no effect on museum collections (historic artifacts, natural specimens, and archival and manuscript material). Therefore, museum collections were dismissed as an impact topic.

INDIAN TRUST RESOURCES AND SACRED SITES

Based on current information at the park and from park staff, there are no Indian Trust Resources or Native American sacred sites that would be impacted near the parkway (NPS 2006b). Therefore, this resource area was dismissed as an impact topic.

PARK OPERATIONS

Following construction, some maintenance activities such as pothole patching and culvert maintenance along Beach Drive, NW and the parkway would be slightly improved because of the improved road surface and drainage. Improved drainage, enhanced safety, and the rehabilitated road surface would result in beneficial impacts. Some additional time could be required to clean out the devices used to separate oils from stormwater in the new pipes. However, other maintenance and operational activities would remain unchanged. Because park operations would be negligibly affected by road rehabilitation and reconstruction activities and stream bank stabilization, this topic was dismissed from further analysis.

CLIMATE CHANGE

Climate change refers to any significant changes in average climatic conditions (such as mean temperature, precipitation, or wind) or variability (such as seasonality and storm frequency) lasting for an extended period (decades or longer). Recent reports by the U.S. Climate Change Science Program, the National Academy of Sciences, and the United Nations Intergovernmental Panel on Climate Change provide evidence that climate change is occurring as a result of rising greenhouse gas emissions and could accelerate in the coming decades.

While climate change is a global phenomenon, it manifests differently depending on regional and local factors. General changes that are expected to occur in the future as a result of climate change include hotter, drier summers; warmer winters, warmer ocean water; higher ocean levels; more severe wildfires; degraded air quality; more heavy downpours and flooding; and increased drought. Climate change is a far-reaching, long-term issue that could affect the park and its resources, visitors, and management. Although some effects of climate change are considered known or likely to occur, many potential impacts are unknown. Much depends on the rate at which the temperature would continue to rise and whether global emissions of greenhouse gases (GHG) can be reduced or mitigated. Climate change science is a rapidly advancing field and new information is being collected and released continually.

Construction activities associated with implementation of the proposed action would contribute to increased GHG emissions, but such emissions would be short-term, ending with the cessation of construction, and it is not possible to meaningfully link the GHG emissions of such individual project actions to quantitative effects on regional or global climatic patterns. Any effects on climate change would not be discernible at a regional scale. Therefore, this impact topic was dismissed from further evaluation.

SUSTAINABILITY AND ENERGY CONSERVATION POTENTIAL

The resurfacing of the roads and other safety improvements would not affect sustainability or conservation measures for vehicles traveling on Beach Drive, NW and the parkway. Fuel expenditures for commuting vehicles would remain at current levels or negligibly increase due to detours in the short-term and would potentially decrease in the long-term due to better driving efficiency on an improved road surface. Therefore, this impact topic was not analyzed further.