

Otter Creek Bridge and Campground Services Replacement

Blue Ridge Parkway
Amherst County, Virginia

Final Environmental Assessment



August 2003



National Park Service
U.S. Department of the Interior



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EXECUTIVE SUMMARY

The U.S. Department of the Interior (DOI), National Park Service (NPS) proposes to replace the existing Otter Creek Bridge and campground services at milepost 60.8 on the Blue Ridge Parkway, Amherst County, Virginia. The project also includes the relocation of the campground kiosk and sewer, electric, and water lines for the concession-operated restaurant facility; reconstructing the access road to the kiosk and the stone retaining wall behind the restaurant facility; and restoring and stabilizing the banks of Otter Creek in the project area. These actions are being proposed to eliminate safety hazards and risks to visitors of the campground and facilities, protect the Park's structures from flood damage and failure, eliminate erosion in the project area, improve water quality of Otter Creek, and provide a more enjoyable experience for the Park's visitors. The need for the project is that, several times a year, the Park experiences a significant flooding event, which poses major safety hazards; has resulted in major damage to the Park's structures, significant erosion, and water quality degradation; requires the evacuation of the Otter Creek campground and concessions facility; and is likely to cause the failure and closure of the Otter Creek Bridge, kiosk, concessions facility, and campground in the near future.

This environmental assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321 et seq.), the Council on Environmental Quality regulations (40 Code of Federal Regulations 1500 through 1508) for implementing NEPA, and the NPS NEPA compliance guidance handbook (Director's Order (DO)-12, *Conservation Planning, Environmental Impact Analysis, and Decision-making*). This EA analyzes the environmental and human health and safety impacts that would result from Preferred Alternative and its alternatives. The Preferred and No Action alternatives are the two reasonable alternatives considered for this project. Under the No Action alternative, the Otter Creek Bridge would not be replaced, the kiosk and Park utilities would not be relocated, and no changes to the access road would be made. The failing stone retaining wall behind the Otter Creek concessions facility/restaurant would also not undergo repairs.

Environmental Effects

Alternative A: No Action

Alternative A would likely result in long-term, moderate to major, adverse impacts on soils, water resources, floodplains, vegetation, and wildlife, including aquatic species, and would contribute to long-term, adverse, cumulative effects on these resources. In addition, this alternative would not be consistent with NPS floodplain policy (Director's Order #77-2 Floodplain Management).

Alternative A would not result in any adverse air quality or noise impacts. On the contrary, long-term, minor, beneficial impacts on these resources would occur from reductions in vehicle emissions and noise and visitor noise, due to eventual closure of the campground and concessions facility.

No adverse effects on historic properties or archaeological resources would result from Alternative A. Over the short-term, continued flooding of the area under Alternative A would

have minor, adverse impacts on visitor use and experience and recreation due to the continued need to evacuate the area during severe storm events and the continued discharge of raw sewage into Otter Lake. Continued high sediment yields to Otter Creek and Otter Lake, and subsequent impacts on aquatic species, would result in long-term, a minor to moderate (at most) adverse impact on recreation. Minor to moderate, adverse impacts on visitor use and experience in the project area would result from continued degradation of the area's visual quality.

Over the next three to five years, minor to moderate, localized, adverse economic impacts would result from Alternative A due to continued temporary losses in revenues during evacuations, manhours associated with evacuations, and costs of continued storm damage repairs. Continued evacuations would also result in moderate to major, adverse social impacts over the short-term. Recurrent, adverse impacts on utilities and public services would occur over the short-term due to the continued need to evacuate the campground and continued input of raw sewage to Otter Creek from sewage system failures during storm events. Flooding would continue to cause negligible, adverse impacts on waste management from debris disposal, and the eventual disposal of the bridge structure in the event of collapse. Continued deteriorating conditions under Alternative A would result in long-term, major, adverse effects on the visual quality of the Otter Creek riparian area and concessions facility.

In the likely event of bridge failure, and subsequent access restrictions, the campground and concessions facility would undergo permanent closure under Alternative A. This would likely result in long-term, moderate to major, localized, adverse impacts on socioeconomic conditions, due to the loss of revenues from use of the concessions facility, loss of jobs at the concessions facility and the need to reassign NPS staff to alternate locations, and an increase in visitor dissatisfaction. Loss of revenues from campground closure would likely result in a minor, adverse economic impact on the NPS. Permanent closure of the campground and concession facility would cause major, long-term, adverse impacts on visitor use and experience and recreation. This alternative could also lead to overcrowding at other area parks and recreation spots, increasing visitor dissatisfaction in those areas, and resulting in adverse cumulative impacts on visitor use and experience in the region.

Major, adverse impacts on the health and safety Park visitors, employees, and rescue workers would continue to occur under Alternative A due to flooding and threats to the structural integrity of the Park's structures, lasting the duration of campground operation. Implementation of this alternative would not be in compliance with NPS Management Policies for ensuring visitor safety.

Over the long-term, the need for utilities and public services, including waste management, at the Park would be eliminated due to facility closures. Closure of these facilities under Alternative A would result in a long-term, major, localized, adverse impact on land use, and would not be consistent with the mission statement of the Blue Ridge Parkway.

Alternative B: Preferred Alternative

Construction activities under Alternative B would have temporary to short-term, negligible, localized, adverse impacts on soils, water quality, and aquatic species and habitats, if mitigation

measures are implemented, due to increased erosion, compaction, runoff, and sediment from the construction site. The potential for a chemical or fuel spill to occur during construction that would adversely affect natural resources would be very low. Temporary to short-term, negligible to minor, localized, adverse impacts on vegetation and terrestrial wildlife would also occur during construction due to vegetation removal, the presence of workers, and use of noise-generating equipment. Alternative B would have temporary, localized, minor, adverse impacts on air quality during construction, but no long-term impacts on air quality are anticipated.

Although Alternative B would have short-term, negligible (due to mitigation measures), adverse effects on the Otter Creek floodplain during construction, the natural resources and functions of the floodplain within the vicinity of the Otter Creek campground would be protected and restored over the long-term. This alternative would be in compliance with Executive Order 11988 and NPS Director's Order #77-2 *Floodplain Management*.

No impacts on visitor use, experience, or recreation would occur during construction activities under Alternative B. While construction activities would have temporary, negligible to minor, beneficial impacts on the local economy, temporary, negligible, adverse impacts on the visual quality of the project site would be anticipated from the presence of workers and equipment, and on transportation from a slight increase in truck and other construction traffic and slows on nearby roads. In addition, temporary, negligible, localized, adverse impacts on public and worker health and safety (from storage, handling, and use of equipment and materials) and waste management (from waste generation and disposal) would occur during construction activities. No impacts on utilities or public services would occur during construction.

Long-term, moderate to major, beneficial impacts on soils, water quality, vegetation, and wildlife, including aquatic species, would result from Alternative B due to reducing erosion and sediment yields, reducing potential for debris jams to develop, eliminating raw sewage discharges into Otter Creek, and restoring eroded areas, including riparian habitat. In addition, long-term, beneficial, cumulative impacts on soils, water quality, vegetation, and wildlife, including aquatic species, are anticipated under this alternative. Alternative B would not result in the impairment of any natural resources.

No adverse effects on historic properties or archaeological resources would result from Alternative B. Over the long-term, Alternative B would have moderate to major, beneficial impacts on visitor use and experience and recreation due to eliminating the need for evacuations, sustaining the long-term use of the area for recreation, improving the area's visual quality, and reducing water pollution in downstream areas. Implementation of Alternative B would be consistent with the Blue Ridge Parkway's mission of enhancing scenic and recreational qualities and promoting public enjoyment.

Moderate to major, beneficial impacts on economic and social conditions at the Otter Creek campground and facilities would occur over the long-term under Alternative B due to eliminating the potential for flooding and subsequent Park evacuations and flood damage. Reducing the potential for flooding and associated flood damage would also have long-term, minor, localized, beneficial impacts on utilities and public services, and negligible beneficial impacts on waste management at the Park.

Alternative B would have long-term, moderate to major, localized, beneficial impacts on transportation and access due to bridge reconstruction and the creation of a pull-off lane for registering vehicles. Bridge reconstruction and restoration activities would also result in long-term, moderate to major, beneficial impacts on the visual quality of the project area.

Long-term, major, beneficial impacts on visitor and employee health and safety are anticipated due to eliminating the potential for flooding and the need for evacuation of the Park, and from reducing the potential for discharges of raw sewage from the sewage system. This alternative would be in compliance with NPS Management Policies for ensuring visitor safety.

No changes in land use for the area are proposed; Alternative B would allow for the continuance of existing land uses in the area. No long-term noise impacts are anticipated from Alternative B.

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1.0 INTRODUCTION

1.1 PURPOSE AND NEED FOR ACTION

The U.S. Department of the Interior (DOI), National Park Service (NPS) proposes to replace the existing Otter Creek Bridge and campground services at milepost 60.8 on the Blue Ridge Parkway, Amherst County, Virginia. The project also includes the relocation of the campground kiosk and sewer, electric, and water lines for the concession-operated restaurant and gift shop facility; reconstructing the access road to the kiosk and the stone retaining wall behind the restaurant facility; and restoring and stabilizing the banks of Otter Creek in the project area. The purposes of the project are to: eliminate safety hazards and risks to visitors of the campground and facilities, protect the Park's structures from flood damage and failure, eliminate erosion in the project area, improve water quality of Otter Creek, and provide a more enjoyable experience for the Park's visitors. The need for the project is that, several times a year, the Park experiences a significant flooding event, which poses major safety hazards, has resulted in major damage to the Park's structures, significant erosion and water quality degradation, and requires the evacuation of the Otter Creek campground and concessions facility. Flood damage has already resulted in the closure of the outdoor patio dining area at the Park's concessions facility, and is likely to cause the failure and closure of the Otter Creek Bridge, kiosk, concessions facility, and campground in the near future.

The Purpose of an Environmental Assessment (EA)

An EA is a study conducted by a Federal agency to determine whether an action the agency is proposing to take would significantly affect any portion of the human or natural environment. The intent of the EA is to provide project planners and Federal decision-makers with relevant information on a Proposed Action's impacts on the environment.

If the EA finds that no significant impacts would result from the action, the agency can publish a Finding of No Significant Impact (FONSI), and can proceed with the action. If the EA finds that significant impacts would result from the action, then the agency must prepare and publish a detailed Environmental Impact Statement (EIS) to help it decide about proceeding with the action.

1.2 THE ENVIRONMENTAL ASSESSMENT

This environmental assessment (EA) analyzes the environmental impacts that would result from the alternatives considered, including the No Action alternative. This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code (USC) 4321 et seq.), the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) 1500 through 1508) for implementing NEPA, and the NPS NEPA compliance guidance handbook (Director's Order (DO)-12, *Conservation Planning, Environmental Impact Analysis, and Decision-making*).

1.3 PROJECT HISTORY AND BACKGROUND

The Otter Creek campground has 68 campsites and is used by thousands of visitors each year. This existing Otter Creek Bridge was installed when the campground was originally constructed. The bottom of the bridge deck is approximately four feet above the creek bed. Three to four times per year, a rainfall event occurs that is significant enough to cause flooding in the area. Once the flooding starts, debris is washed downstream. Because of the design of the existing bridge, the debris is trapped under the bridge, creating a “dam.” This “dam” causes the water to



Figure 1.3-1. Debris Jam and Flood Damage at Otter Creek Bridge During a Recent Rain Event



Figure 1.3-2. Erosion and Flood Damage at the Otter Creek Concession/Restaurant Facility

backup and spill over the bridge, piling debris up against the bridges guardrails. The water then is diverted around the end of the bridge, causing the floodwaters to leave the natural channel, resulting in significant erosion (see **Figure 1.3-1**).

The Otter Creek Bridge is the only means of ingress and egress for the Otter Creek campground. Whenever a rainfall event is significant enough to present a threat of flooding, all visitors are required to leave the campground before the bridge is flooded. Flooding threatens the life of anyone not made to evacuate and any property that is left behind. Prior to the policy of requiring evacuation, a visitor was allowed to remain in the campground. Subsequently, this visitor experienced life-threatening medical problems and required transport to a medical facility. The flooded bridge required that this person be hand-carried by a lifesaving crew for approximately one mile along



Figure 1.3-3. Damage to the Otter Bridge Abutments

a power line right-of-way. The campground was not flooded at the time, only the bridge.

The continuous erosion of the stream banks and displacement of debris from the high water is undermining the foundations of the concessions facility/restaurant, and is compromising the structural integrity of the Otter Creek Bridge abutments (see **Figures 1.3-2 and 1.3-3**). The floodwaters overflow the stream bank on the west side of the bridge, causing scouring and erosion behind the restaurant. A large scour hole has resulted from continued bank erosion behind the restaurant, and is encroaching on the restaurant. At the current rate of erosion (based on current weather trends), major failures in these structures could be expected in three to five years. Damage has occurred to the outdoor patio area used by the concessionaire as an outdoor dining area. Erosion had undermined the patio area to a point that it was extremely unsafe and resulted in the loss of the adjacent retaining wall



Figure 1.3-4. Damage to the Outdoor Patio Area at the Otter Creek Concession Facility (Prior to Removal)

foundation (see **Figure 1.3-4**). Due to these safety risks, the exterior patio was closed and removed in 2001. Unless the Otter Creek Bridge is raised to accommodate floodwaters and debris, it is not economically feasible to continue to reconstruct this patio.

Although no floodwaters have actually damaged the concessions building itself, documentation shows that the water has reached the structure. Floodwaters have reached the campground entrance station/ kiosk and have caused damage, including saturation of the carpeting and interior woodwork. The diverted floodwaters also spill into a sanitary sewer manhole, flooding the sewage treatment system causing untreated wastewater to be released into Otter Creek. This is a direct threat to public health and severely impacts these trout waters and other wildlife habitat.

Undercut banks have developed where floodwaters overflow the stream banks, which have caused the loss of trees and other vegetation in the riparian area. In addition, the recurring washouts have increased sedimentation in Otter Creek, altering its characteristics and affecting the aquatic life in the stream. This sediment continues to settle out in Otter Lake, changing the characteristics of the lake and the aquatic life therein.

1.4 LOCATION AND GENERAL DESCRIPTION OF THE AFFECTED AREA

The 469-mile Blue Ridge Parkway is located in the central and southwestern portions of Virginia and western North Carolina. The legislated purpose of the Blue Ridge Parkway, under the Act of June 30, 1936, is to link Shenandoah National Park in Virginia and Great Smoky Mountains National Park in North Carolina and Tennessee by way of a recreation-oriented motor road intended for public use and enjoyment. Under the provisions of the Act of Congress approved August 25, 1916 (39 Stat. 535), the intended purpose of the Blue Ridge Parkway is to conserve, interpret and exhibit the unique natural and cultural resources of the Central and Southern Appalachian Mountains, as well as provide for leisure motor travel through a variety of environments (NPS, 2001b).

The route of the Blue Ridge Parkway follows mountain and valley landscapes to link Shenandoah and Great Smoky Mountains National Parks. The Parkway extends through the Blue Ridge, Black, Great Craggy, Great Balsam, and Plot Balsam Mountains (NPS, 2001b). Its breathtaking scenic beauty, unbridled natural resources, and unique historic sites make it the showpiece rural parkway of the NPS. The Parkway is also notable as a remarkable landscape architecture and engineering achievement. Design of the Parkway began in 1934. More than 50 years in the making, the Parkway was completed in 1987 with the construction of a 7.5-mile section around the rugged and winding terrain of Grandfather Mountain.

The Parkway occupies 88,000 acres of lands within the socio-political boundaries of two states, six congressional districts, 12 counties in Virginia, 17 counties in North Carolina, 185 miles within 4 National Forests, 11 miles within the Qualla Boundary Reservation of the Eastern Band of Cherokee Indians (Cherokee Indian Reservation), 2 state parks, 9 watershed basins, 12

municipal watersheds, and 3 metropolitan areas. Like beads on a necklace, 900 vistas, 275 paved overlooks, 18 recreational areas, 14 backcountry areas (ranging from 1,000 to 5,000 acres), and 13 maintenance facilities line the Parkway to accommodate visitors. The primary activities are recreational driving, sightseeing, and hiking. The Parkway also provides naturalist walks and talks, self-guided nature trails, roadside exhibits, picnicking, and camping. With annual use approaching 20 million people, it is the most highly visited unit in the National Park System.

The Otter Creek Bridge and Campground are located at Milepost 60.8 on the Blue Ridge Parkway in Amherst County, Virginia, within the Ridge District. The 106-mile Ridge District is almost entirely surrounded by U.S. Forest Service lands, providing distant views of undeveloped mountain slopes and ridges. **Figure 1.4-1** shows the general location of the project area.

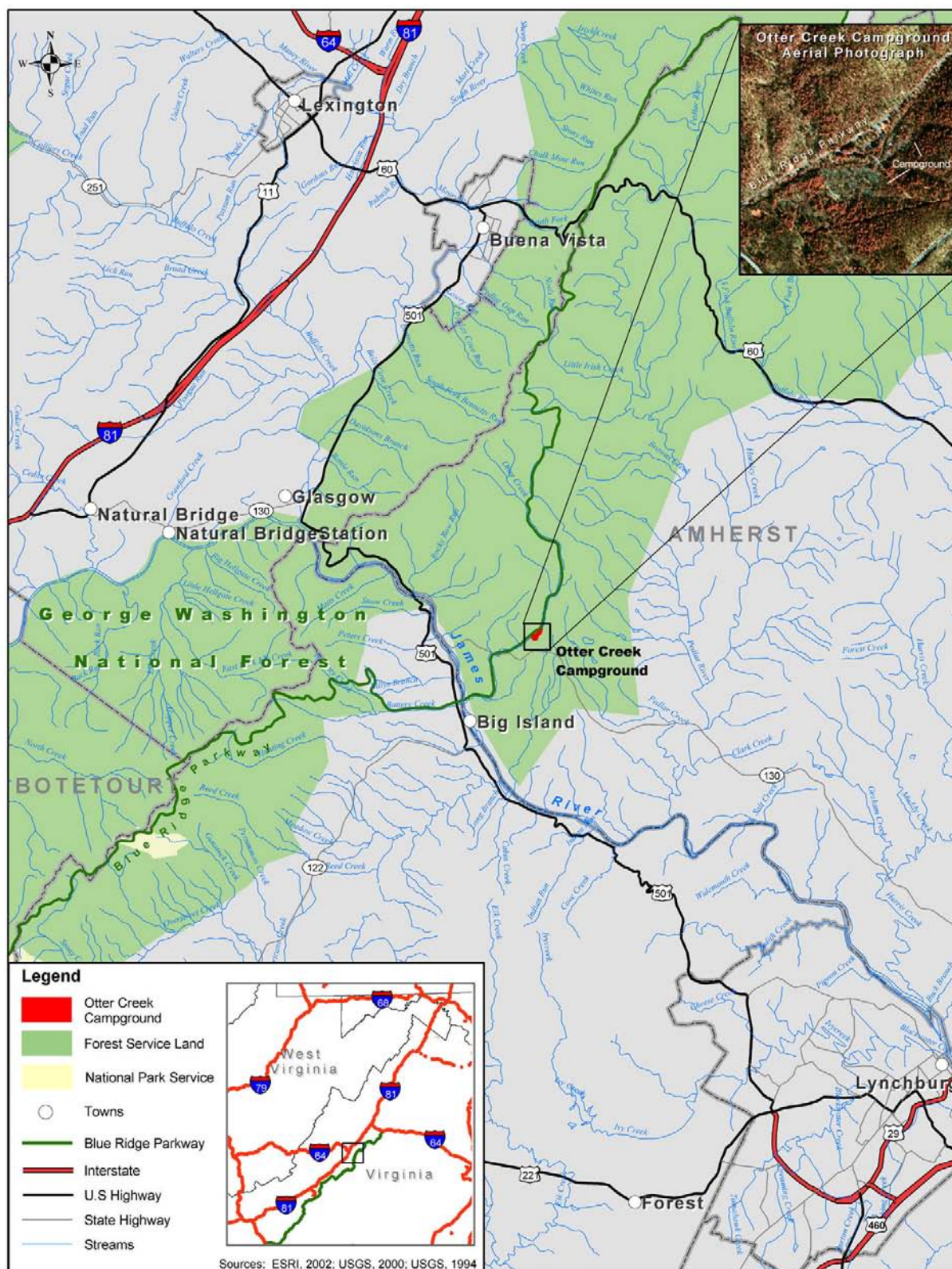


Figure 1.4-1. General Location Map of the Project Area

1.5 ISSUES AND IMPACT TOPICS

Issues can be defined as the relationship between the Preferred Alternative or its alternatives and the human and natural environment. Issues are used to define which environmental resources may experience either detrimental or beneficial consequences from an action; they do not predict the degree or intensity of potential consequences that might result from an action. Issues were identified by the NPS, State and Federal agencies (see Appendix D of this EA), a review of similar construction projects, and by the interdisciplinary team.

From these issues, impact topics were developed for each affected environmental resource area. Impact topics address the potential consequences on the human and natural environment that might result from the Preferred Alternative or its alternatives. Impact topics are used to define and focus the discussion of the affected environment for each resource area, and the analysis of the potential environmental consequences of an action. These topics also derive from relevant Federal laws, regulations, and orders, as well as NPS Management Policies (NPS, 2001a) and resource area expertise. A summary of impact topics analyzed in detail in this EA is presented in Section 1.5.1. Those impact topics analyzed and dismissed from further analysis in this EA are described in Section 1.5.2, along with the rationale for their inclusion or dismissal.

1.5.1 Impact Topics Analyzed

The following issues and impact topics are analyzed in this EA:

Natural Resources

Soils and Topography: Significant erosion from floodwaters in Otter Creek would continue under the No Action alternative, threatening nearby buildings and human health and safety. A large amount of topsoil and riverbank material has been removed from the stream channel and around the bridge. During construction under the Preferred Alternative, there is the potential for increased surface water runoff and soil erosion at the project site. Construction equipment and vehicles have the potential to cause soil compaction. Accidental fuel or other chemical spills during construction have the potential to contaminate soils on the site. Preferred Alternative has the potential to result in long-term beneficial effects on soils by reducing erosion in the project area.

Water Resources: Under the No Action alternative, the Otter Creek Bridge would continue to alter the characteristics of, and affect aquatic life within, Otter Creek during high flow events where debris blocks the bridge causing flooding, stream bank erosion, and associated increased sedimentation in Otter Creek. Sedimentation would continue to settle out in Otter Lake, changing the characteristics of the lake and its aquatic life. In addition, adverse water quality impacts would continue from raw sewage being released into Otter Creek from the sewage treatment system during flood events. The Preferred Alternative would reduce erosion and sedimentation in Otter Creek, benefiting the water quality and characteristics of the Creek and downstream areas including Otter Lake. In addition, the Preferred Alternative would eliminate the potential for raw sewage to be released into Otter Creek.

Floodplains: Under the No Action alternative, the Otter Creek Bridge would continue to alter floodplain characteristics by causing increased flooding during periods of high flow. The Preferred Alternative would restore natural floodplain characteristics by accommodating high flows under the bridge.

Air Quality: Air quality has the potential to be degraded temporarily during construction by emissions generated during the use of heavy equipment and from dust generated during ground disturbance. Long-term air quality impacts may result from increased vehicular traffic to the campground as a result of enhanced visitor experience. Consideration of air quality impacts are required by the Clean Air Act (CAA) and NPS Management Policies (NPS, 2001a).

Vegetation and Wildlife: Construction activities have the potential to displace wildlife or eliminate habitats through removal of vegetation. Wildlife may be disturbed during construction due to the presence of workers and the use of noise generating equipment. Adverse effects on other resource areas, such as air, water, and soils, have the potential to adversely affect vegetation and wildlife.

Cultural Resources

Consideration of cultural resource impacts is required under the National Historic Preservation Act (NHPA), NEPA, the 1916 NPS Organic Act, and NPS Management Policies (NPS, 2001a). Site evaluations at this site did not identify any unusual cultural resources. The concessions facility is nearing 50 years of age. Under the No Action alternative, the cultural landscape would be affected if this structure is lost. The founding legislation of the Blue Ridge Parkway includes providing a quality scenic experience for the visitor.

Visitor Use and Experience/Recreation

The Otter Creek campground and concessions facility are very popular with local and transient visitors, and the experiences provided by these recreation sites are not available in the immediate region. Visitor experience would continue to be degraded under the No Action alternative due to temporary closures and evacuations, and would likely lead to decreases in visitor use. Over time, the Otter Creek campground area would likely have to be permanently closed due to safety risks. Construction activities under the Preferred Alternative may temporarily cause a decrease/degradation in existing visitor use and experience in the project area. The replacement of the bridge and concessions facility, restoration of current safety threats, and a redesigned approach to the concessions facility would likely increase visitor use and experience over the long-term.

Socioeconomic Environment

Economy and Social Conditions: Adverse impacts on employment, income, and revenues, as well as adverse social impacts, would be anticipated under the No Action alternative due to the continued need to close the campground and concessions facility during floods, the potential for

the future closure of the Otter Creek Restaurant facility, and other potential future closures due to safety hazards. Construction activities under the Preferred Alternative have the potential to create temporary employment and temporarily increase local income, spending, and revenue. The Preferred Alternative would allow for continued operation of the campground and restaurant, which would result in positive social impacts, as well as continued employment and revenues.

Transportation: The Otter Creek Bridge is the only means of ingress and egress for the Otter Creek campground and concessions facility. Under the No Action alternative, continued structural damage to this bridge could result in its failure and closure, eliminating access to the campground and facilities. The Preferred Alternative would allow for continued access to these areas. In addition, a parking pull-off would be constructed for registering vehicles to the campground, and would be designed to lessen vehicle backup during registration and to lessen the potential for registering vehicles to impede entrance to the concessions parking area.

Utilities and Public Services: Diverted floodwaters from Otter Creek currently cause the sewage treatment system to release untreated wastewater into Otter Creek, and the system is in violation of State and Federal codes. These adverse impacts would continue under the No Action alternative. Floodwaters currently pose major safety risks to visitors of the campground, and can cause life-threatening medical problems, requiring the use of local and regional medical facilities and Emergency Medical Services. Evacuation of the campground area during flooding also can require the use of County Emergency Medical Services. The use of local and regional public services would be reduced under the Preferred Alternative. In addition, various utilities would be relocated under the Preferred Alternative, and the sewage treatment system would be fixed to alleviate current health risks.

Noise: Construction activities and equipment use under the Preferred Alternative would produce noise, which has the potential to adversely affect nearby residents, visitors, and wildlife.

Land Use: The No Action alternative could result in the permanent closure of the Otter Creek campground and concessions facility, and use of the land would change from its current use. The Preferred Alternative would allow existing project area land uses to continue.

Human Health and Safety: Major human health and safety risks currently exist at the campground, concessions facility, and restaurant during times of flooding of Otter Creek. Life-threatening medical problems have resulted. Under the No Action alternative, these risks would continue to occur. The Preferred Alternative would eliminate visitors being placed in potentially unsafe circumstances.

Waste Management: Under the No Action alternative, diverted floodwaters would continue to flood the sewage treatment system in the project area, causing the release of untreated wastewater. Construction activities under the Preferred Alternative would generate solid, vegetative, and sanitary wastes, which would require proper handling and disposal at approved facilities. Existing infrastructure capacity to handle such wastes may have the potential to be exceeded. The sewage treatment system would be improved under the Preferred Alternative.

Visual Resources: Adverse impacts on visual resources resulting from severe erosion in the project area would continue under the No Action alternative. Construction activities under the Preferred Alternative have the potential to temporarily degrade the visual quality of the surrounding area, including the nature of the park. The presence of new concessions facility has the potential to affect the visual quality of the immediately surrounding area. Restoration of eroded areas would also change the visual quality of the area.

1.5.2 Impact Topics Dismissed From Further Analysis

The following issues and impact topics were dismissed from further analysis in this EA:

Natural Resources

Prime Farmland: Prime farmland is one important kind of farmland defined by the U.S. Department of Agriculture (USDA), the importance of which lies in its ability to help meet the short- and long-term food and fiber needs of the nation. Prime farmland can be cultivated land, pasture land, forest land, or other land, but cannot be urban or built-up land (any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, institutions, buildings, landfills, sewage treatment plans, etc.) or water areas (NRCS, 2001a). In addition, public land is considered land not available for farming in National forests, National parks, military reservations, and State parks. Since the proposed project would occur on public land, no soils on this land are classified as prime farmland. In addition, the project area has been previously disturbed by construction (of the bridge, roadway, and facilities). Therefore, this topic was dismissed from further consideration in this EA.

Wetlands: No wetlands have been identified within the project area, and no wetlands would be affected by project implementation. Therefore, this topic was eliminated from further analysis.

Federal and/or State-Listed Threatened, Endangered, Candidate, and Rare Species: The United States Fish and Wildlife Service (USFWS) and the VDCR were contacted regarding potential impacts of the project on natural heritage resources, including rare, threatened, or endangered plant and animal species. Surveys of the project site did not result in the discovery of any Federal or State-listed threatened or endangered plants or animals, and none would be affected by either alternative. In addition, the Park database has no records of Federal or State-listed plant or animal species from the Otter Creek campground or adjacent area, and no such species would be affected by either alternative. These findings were confirmed in a response letter from the VDCR, Division of Natural Heritage dated March 17, 2003 (see **Figure D-2** in Appendix D). The USFWS had no comment on the project, and it was determined that no formal Section 7 consultation was necessary. Therefore, this topic was dismissed from further analysis.

Socioeconomic Environment

Environmental Justice/Protection of Children: Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, requires Federal agencies to identify and address any disproportionate adverse human health or

environmental effects of its projects on minority or low-income populations. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs Federal agencies to “identify and assess environmental health risks and safety risks that may disproportionately affect children.”

Since the proposed project would take place on lands administered by the NPS, there would be no displacement or relocation of residents or elimination of jobs. There would be no activities occurring under the Preferred Alternative or its alternatives that would disproportionately and adversely affect minority or low-income populations or children. The Park would still be available to all residents, regardless of income or race. Adverse effects on visitor use and experience and human health and safety that would result from the No Action alternative have the potential to affect all Park visitors, regardless of race, age, or income level. Likewise, beneficial impacts on these resource areas that would result from the Preferred Alternative would be experience by all visitors, regardless of race, age, or income level. Therefore, this impact topic was dismissed from further consideration in this EA.

1.6 ORGANIZATION OF THE EA

A summary of the organization of this EA and the contents of the relative chapters is provided in **Table 1.6-1** below. The Table of Contents provides a more detailed outline of these chapters.

Table 1.6-1. Summary of the Organization of the EA	
Chapter	Contents
2 Alternatives Including the Preferred Alternative	<ul style="list-style-type: none"> • Description of the Preferred Alternative • Description of the No Action alternative • Alternatives considered, but eliminated from further study • Mitigation measures • Comparison of the impacts of the alternatives assessed
3 Affected Environment	<ul style="list-style-type: none"> • Description of the existing aspects of the natural and human environment, by resource area, that may be impacted by each alternative
4 Environmental Consequences	<ul style="list-style-type: none"> • Description of the methodology used to analyze environmental impacts resulting from each alternative, including definitions of impact terms • Analysis of potential direct, indirect, and cumulative impacts on the natural and human environment, by resource area, that would result from each alternative
5 Consultation and Coordination	<ul style="list-style-type: none"> • Discusses relevant agency consultation during the EA development • Provides a list of persons and agencies contacted for information during the EA development • Describes public involvement activities implemented as part of the EA process
6 Compliance With Federal and State Regulations	<ul style="list-style-type: none"> • Identifies regulatory compliance, including permits, necessary for implementation of the project

<p>7 References Cited</p>	<ul style="list-style-type: none"> List of references cited within the EA
<p>8 List of Preparers</p>	<ul style="list-style-type: none"> Identifies the members of the interdisciplinary team that contributed to the preparation of the EA
<p>Appendices:</p> <ul style="list-style-type: none"> A: Acronyms and Abbreviations B: Glossary C: Environmental Laws and Regulations D: Agency Consultation and Coordination E: Comments on the EA 	<ul style="list-style-type: none"> List of abbreviations (and their definitions) used within the EA Definitions of terms used within the EA Relevant environmental laws and regulations for each resource area Provides supporting agency consultation documents Provides a description of the public comment period on the EA; will contain comments received from the public and agencies on the EA

2.0 ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE

2.1 ALTERNATIVE A: NO ACTION

Under Alternative A (No Action), the Otter Creek Bridge would not be replaced; the existing bridge would remain in place. In addition, the kiosk and Park utilities would not be relocated, and no changes to the access road would be made. The failing stone retaining wall behind the Otter Creek concessions facility/restaurant would not undergo repairs. Structural inspections of the bridge abutments and the concessions facility indicate that these structures are at risk of failure. At the current rate of erosion, it is anticipated that major failures of these structures could occur in the next three to five years.

CEQ regulations (40 CFR 1502.14) require the assessment of the No Action alternative in NEPA documents. The No Action alternative provides a baseline against which to measure the impacts of the other proposed alternatives.

2.2 ALTERNATIVE B: PREFERRED ALTERNATIVE

The NPS proposes to replace the Otter Creek Bridge, relocate the campground kiosk and utility lines for the concession-operated restaurant facility, reconstruct the access road to the kiosk and the stone retaining wall behind the restaurant facility, and restore and stabilize the banks of Otter Creek in the project area. A site map of the Preferred Alternative is presented in **Figure 2.2-1**. As part of the Preferred Alternative, the existing concrete bridge deck (25 feet by 22 feet), bridge handrails, and fee collection booth (kiosk) would be demolished, and the phone and sewer lines attached to the bridge deck would be removed. Demolition and removal of the existing Otter Creek Bridge would be conducted to minimize impacts on the streambed. The bridge would likely be lifted from place in the largest sections possible using a 10- to 15-ton or larger crane. If the bridge could not be lifted from its place in a single unit, due to weight limits, the bridge would likely be severed in two to four pieces and lifted from its foundation in sections. Sections would be temporarily supported in place with underpinning until they could be removed.

A 75-foot by 26-foot new bridge would be constructed at the existing bridge site, and would have an arched shape to allow floodwaters of Otter Creek to flow under the bridge. The new Otter Creek Bridge would be constructed at a higher elevation (approximately 2.5 to 3 feet higher in elevation than the existing bridge deck). A hydrological study would be conducted as part of this action. The existing bridge footing may be used to construct the new bridge, but only after a structural inspection is performed. Included with bridge construction would be the installation of a new concrete walk with an aluminum handrail on the west side of the bridge, and a new concrete barrier curb on the east side (NPS, 2002b).

The sewer, electric, and water lines for the concession-operated restaurant facility would be relocated under Alternative B. Approximately 210 linear feet of underground single-phase primary electrical service to the concessions operations would be installed through the new bridge. The current electrical lines for the concessions operation are located above ground, with overhead utility poles and lines located to the east and west of the existing bridge. The electrical pole located to the west of the bridge, adjacent to the existing kiosk, would be removed under this alternative. Between the restaurant facility and the bridge, and between the bridge and the electrical pole on the eastern side of the bridge, electrical wiring would be run underground to required trenching and backfill specifications to meet electrical codes. The electrical wiring would run through a conduit embedded within the concrete of the new bridge (Hultquist, 2003e). The overhead power line would be removed from view to the restaurant or its parking area.

A new sewer line connecting the Otter Creek restaurant to the Otter Creek campground sewer system would be constructed over Otter Creek. Approximately 180 feet of sewer line would run under the new Otter Creek Bridge. Since the new bridge would be elevated, a lift station would need to be constructed to pump sewage through the system. This new lift station would have two 3-Hp pumps, a manhole/holding tank, electrical controls, and alarms in the campground.

The NPS also proposes to relocate the existing campground fee collection booth/kiosk out of the floodplain of Otter Creek. The kiosk would be relocated from its existing location near the bridge to a site near the campground entrance, in close proximity to the existing kiosk. This area would no longer be subject to flooding with the raising of Otter Creek Bridge. To avoid and minimize tree removal, the kiosk would be located perpendicular to the entrance road. A parking pull-off for registering vehicles dimensioned approximately 120 feet long by 12 feet wide would be located adjacent to the access road. This pull-off would be constructed with minimal disturbance to trees, and would require minimal site grading. The existing service road to the restaurant, and the existing asphalt walk located between the service road and the kiosk, would remain. This location is the best suited to lessen vehicle backup during registration, and vehicle backup would be less likely to impede entrance into the concessions parking area. Underground electrical and phone service to the kiosk would be installed (NPS, 2002a).

During the time the existing bridge is removed and the new bridge is under construction, the Otter Creek campground would be closed to visitors, since there is no alternative access. The NPS would prefer that the new fee collection booth and road repaving/pull-off widening be constructed simultaneously with the bridge construction to minimize campground closure. The project will most likely require approximately four to five months to complete, and it would be scheduled during the off-season, likely between November and April. Construction would be avoided during October, since that is the busiest month on the Parkway (Hultquist, 2003a).

The existing stone retaining wall located behind the Otter Creek concessions facility would also be reconstructed under Alternative B. Reconstruction would consist of repairing and adding to the existing stone wall west of the Otter Creek Bridge, where erosion has occurred. After the retaining wall is reconstructed, the eroded areas would be backfilled with riprap and stone and covered with a layer of topsoil. The eroded drainage swale behind the restaurant would also be stabilized and restored with native vegetation. All disturbed areas would be revegetated with native plant species (NPS, 2002b).

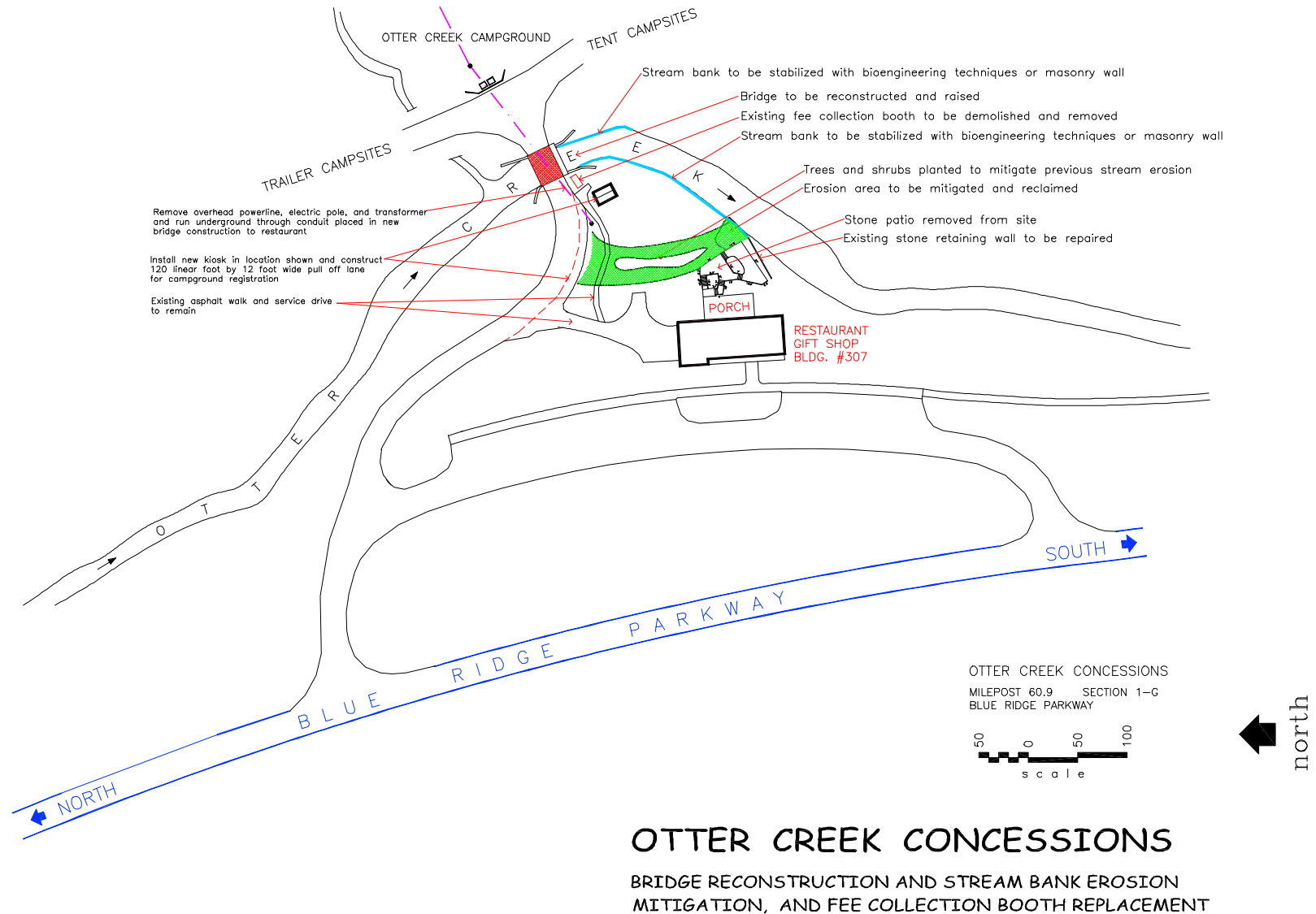


Figure 2.2-1. Site Plan for the Otter Creek Bridge and Campground Services Replacement Project

2.3 ENVIRONMENTALLY PREFERRED ALTERNATIVE

As stated in Section 2.7 (D) of the NPS DO-12 Handbook, “The environmentally preferred alternative is the alternative that will best promote the national environmental policy expressed in NEPA (Section 101(b)).”

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) SEC 101 GOAL STATEMENTS

- (1) Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) Assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- (3) Attain the widest range of beneficial uses of the environment without degradation, risk to health and safety, or other undesirable and unintended consequences;
- (4) Preserve important historic, cultural, and natural aspects of our national heritage, and maintain wherever possible, an environment which supports diversity and variety of individual choice;
- (5) Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities; and
- (6) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

(NEPA, 42 U.S.C. 4321-4347)

In sum, the environmentally-preferred alternative is the alternative that, not only results in the least damage to the biological and physical environment, but also that best protects, preserves, and enhances historic, cultural, and natural resources.

The approach for incorporating these national goal statements into the determination of the environmentally preferable alternative used a qualitative comparison rating of the alternatives under consideration. Each alternative assessed in this EA was rated as to how well it contributes to meeting each of the six NEPA goals. Given the very general nature of the goal statements, with no specific measurable parameters identified, precise, quantitative ratings are not feasible. Therefore, three general qualitative levels were established to rate alternatives as to how well they contribute to meeting each goal: 1) the alternative contributes substantially to meeting that goal (denoted by a check mark); 2) the alternative neither much contributes nor much detracts to meeting that goal (denoted by a circle); and 3) the alternative interferes with that goal achievement (denoted by an “X”). Each rating was judgmentally based on an alternative’s predicted impacts on the relevant environmental resources. For example, an alternative that adversely affects historic, cultural, and natural resources would get a low rating in regard to NEPA goal #4. Although more than one alternative may contribute substantially towards meeting a goal, one may contribute to a greater level than another. In these cases, the use of multiple check marks denotes the difference between alternatives, with the larger number of check marks indicating the greater level of goal achievement.

A summary of this process for each alternative is presented in **Table 2.3-1**. Below the table, a discussion is provided for each alternative explaining the basis for each of the ratings given to that alternative. Identification of the environmentally preferred alternative involved comparing the entire set of ratings for each alternative. In the absence of any indication of Congressional intent otherwise, each of the six NEPA goal statements was considered equally important.

Table 2.3-1. Selection of the Environmentally-Preferred Alternative		
National Environmental Policy Act Goals	Alternative A (No Action)	Alternative B (Preferred Alternative)
Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.	X	Ö
Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.	X	Ö
Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.	X	Ö
Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, whenever possible, an environment which supports diversity, and variety of individual choice.	X	Ö
Achieve a balance between population and resource use, which will permit high standards of living and a wide sharing of life's amenities.	X	Ö
Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.	X	Ö
Legend: Contributes substantially to meeting the goal = Ö Neither much contributes nor much detracts to meeting the goal = O Interferes with that goal achievement = X		

Alternative A

Under Alternative A, the No Action alternative, the Otter Creek Bridge would not be raised or reconstructed, the fee collection booth/kiosk would not be relocated, the access road would not be widened, and eroded areas, including the Otter Creek stream banks, would not be restored. Although this Alternative A would not affect cultural resources, this alternative would result in continued and worsening, major, adverse impacts on natural resources, including soils, water resources, floodplains, and vegetation and wildlife, over the long-term. While Alternative A would not affect depletable resources, this alternative would not enhance the quality of renewable resources. The project area would continue to flood during severe storm events under this alternative, contributing to moderate to major, adverse impacts on human health and safety and visual resources. Raw sewage would continue to be discharged into Otter Creek during flood events. This alternative would not meet the goal of assuring a safe, healthful, productive, and aesthetically pleasing environment. It would also not meet the goal of achieving a balance between population and resource use.

Over the long-term under Alternative A, continued structural damage to the Otter Creek Bridge and concessions facility would likely lead to the closure of these facilities within the next three to five years. Recreational opportunities and visitor experiences provided by these facilities would no longer be available for present or future generations. In addition, natural resource degradation would continue to occur after facility closures. Therefore, this alternative would not meet the goals of attaining the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; preserving the historic, cultural, and natural aspects of our national heritage in an environment that supports diversity and variety of individual choice; and fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations.

Alternative B

Under Alternative B, the Otter Creek Bridge would be raised and reconstructed, the existing kiosk would be relocated out of the Otter Creek floodplain, the access road to the campground would be widened, and all eroded areas, including stream banks, would be stabilized, restored, and revegetated. Alternative B would eliminate the potential for flooding in the project area over the long-term.

While construction activities under Alternative B could have temporary, negligible to minor, adverse effects on natural resources, transportation, human health and safety, and waste management, long-term beneficial impacts on these resources are anticipated. No effects on cultural resources are anticipated. Eliminating the potential for flooding and restoring eroded areas would reduce erosion in the project area over the long-term, reduce sedimentation in Otter Creek and Otter Lake, and eliminate the potential for sewage system failures and subsequent discharges of raw sewage into Otter Creek. Long-term, moderate to major, beneficial impacts on soils, water quality, vegetation and wildlife, including aquatic species, and floodplains would result from Alternative B. While this alternative would not affect depletable resources, it would greatly enhance the quality of renewable resources in the project area.

This alternative would eliminate safety hazards associated with flooding and the need for Park evacuations, resulting in long-term, major, beneficial impacts on visitor and employee health and safety. Bridge reconstruction and restoration activities would also result in long-term, moderate to major, beneficial impacts on the visual quality of the project area. Over the long-term, Alternative B would have moderate to major, beneficial impacts on visitor use and experience, and recreation due to eliminating the need for evacuations, sustaining the long-term use of the area for recreation, improving the area's visual quality, and reducing water pollution in downstream areas. Implementation of Alternative B would be consistent with the Blue Ridge Parkway's mission of enhancing scenic and recreational qualities and promoting public enjoyment. Alternative B would meet the goals of attaining the widest range of beneficial uses of the environment without degradation, risk to human health or safety, or other undesirable and unintended consequences; assuring a safe, healthful, productive, and aesthetically and culturally pleasing environment for all users; and preserving important historic, cultural, and natural aspects of our national heritage, while maintaining an environment that supports diversity and a variety of individual choice.

The Otter Creek campground and concessions facility would not require future closure under this alternative; Alternative B would allow for the continuance of existing land uses and visitation in the area. This alternative would meet the goal of fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations. Eliminating the potential for area flooding and the existing threats the Park's structures would allow the NPS to undertake other improvements on the Park to enhance visitor experience and safety and to protect important resources on the Park, including natural resources. This alternative would help to meet the goal of achieving a balance between population and resource use, which will permit high standards of living and a wide sharing of life's amenities.

Environmentally Preferred Alternative

Alternative A would not contribute to meeting any of the six NEPA goals. Conversely, Alternative A would detract from meeting every goal. Alternative B would contribute to meeting all six NEPA goals in the project area. Therefore, Alternative B would be the environmentally preferred alternative.

2.4 ALTERNATIVES ELIMINATED FROM FURTHER STUDY

CEQ regulations for implementing NEPA require that Federal agencies explore and objectively evaluate all reasonable alternatives to the Preferred Alternative, and to briefly discuss the rationale for eliminating any alternatives that were not considered in detail. This section describes alternatives to the Preferred Alternative that were considered and eliminated from further study, and the rationale for their elimination.

Construct Berms

An alternative of constructing berms to reroute floodwaters away from the Otter Creek concessions facility was evaluated. However, this alternative would not likely alleviate flooding problems in the project area, and thus, would not meet the purpose and need of the project. Not replacing or raising the Otter Creek Bridge would continue to result in debris jams during significant rainfall events, due to the height of the bridge.

Kiosk Relocation and Reconstruction

Two alternatives to the site planning of the kiosk reconstruction and site relocation were considered. These alternatives are described below, along with the rationale for their elimination from further consideration.

1. An alternative of relocating the kiosk at the entrance to Otter Creek Campground, where a fueling station was once located, was considered. Under this alternative, the kiosk would be located on the left (wrong) side of the entrance road. The kiosk would be separated for too great a distance from the campground for convenient registration.

Backup of vehicles in line to register for the campground would not be solved with this alternative. Vehicles parked for registration to the campground would not be adequately removed from the restaurant parking area (NPS, 2002a). It was, therefore, recommended that this alternative not be considered in detail in the EA.

2. An alternative of locating the kiosk at the intersection of the two campground loops, where the trash collection bins are presently located, was considered. However, an alternative location for the trash bins could not be reasonably located that would permit easy access for trash trucks. One possible location for the bins was considered for camping spur site 65, but the bins would be within view of the concessions site. The trash bins and the kiosk would be located too closely to prevent the undesirable effect of trash odors to the kiosk attendants and campers. This location would require that two pull-off parking spurs be constructed for registering vehicles in both the tent camping and trailer camping loops. Without the additional parking spurs, confusion would be created in traffic flow creating vehicle backup, and needless vehicle flow through the camping loops. Construction of a parking spur in the tent pad loop would require some tree removal. Construction of a parking spur in the trailer loop would be difficult due to a creek crossing, and the existence of the trailer dumping station, which would also be within close proximity to the kiosk. Without parking pull-off spurs in both camping loops for registering vehicles, trailers traffic would be flowing through the tent camping loop or visa versa (NPS, 2002a). It was, therefore, recommended that this alternative not be considered in detail in the EA.

2.5 MITIGATION MEASURES

During site preparation and construction activities, standard best management practices (BMPs), such as those described in *Virginia Erosion and Sediment Control Handbook*, would be implemented. Implementation of these BMPs would control or reduce potential adverse impacts from soil erosion, surface water runoff, and sedimentation. In addition to these measures, other measures would be implemented to minimize or avoid adverse impacts on environmental resources as a result of implementation of the Preferred Alternative. **Table 2.5-1** lists these other measures according to the resource area affected, and provides a reference to the section of this EA that contains a detailed discussion of the consequences on that resource area. The NPS would implement these measures as part of the Preferred Alternative.

Table 2.5-1. Recommended Mitigation Measures By Resource Area

Resource Areas	Mitigation Measure
Natural Resources: Soils, Water Resources, and Vegetation and Wildlife	<ul style="list-style-type: none"> The NPS would require the construction contractor to comply with the <i>Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations</i> codified at Title 10.1, Chapter 5, Article 4 of the Code of Virginia to avoid and minimize erosion and sediment runoff to Otter Creek during construction, and follow State Erosion and Sediment Control Program guidance provided in the <i>Virginia Erosion and Sediment Control Handbook</i>. NPS would monitor construction activities to make certain that erosion and stormwater management practices are in

	<p>place and adequately preventing sediment and pollutant migration into nearby surface waters.</p> <ul style="list-style-type: none"> • The NPS would require the construction contractor to stage any equipment in the large grassy area outside the floodplain of Otter Creek at the intersection of the campground access road and the Blue Ridge Parkway to minimize adverse effects from soil compaction. • Construction would not be conducted when soils are wet to minimize or eliminate the potential for compaction. • As few trees as possible should be removed during this project to protect riparian areas and to reduce the amount of ground disturbance that would allow exotic vegetation to become established. • Disturbed areas would be reseeded using Parkway standard seed mixes (<i>Guidelines for Seeding and Rehabilitation</i>). • The NPS would require the construction contractor to prohibit equipment from entering Otter Creek during construction. If in-stream work is unavoidable, the NPS would require the construction contractor to use synthetic mats to protect the stream. • In accordance with Virginia Department of Environmental Quality (VDEQ) recommendations (see Appendix E), the NPS would require the construction contractor to develop a spill response plan and to keep materials such as granular absorbents or booms on-site during construction to quickly respond to any release. Any discharge of such products would be reported to the VDEQ, South Central Regional Office. • The NPS would require the construction contractor to remove any concrete debris entering the streambed within a 10-hour working period. • All fuel, construction materials, fuel handling, and equipment storage must be performed outside the floodplain of Otter Creek. Leaking vehicles and equipment would not be permitted in the floodplain, and such vehicles would require immediate attention. • No waste materials, such as oil, would be allowed to be disposed of in storm or sanitary drains or to be washed into streams. • To reduce fugitive dust emissions during construction, the NPS would require the construction contractor to use control methods outlined in 9 VAC 5-50-60 <i>et seq.</i> of the Regulations for the Control and Abatement of Air Pollution. These include, but are not limited to: applying water or chemicals to suppress dust, washing down construction vehicles and paved roadways immediately adjacent to the construction site, installing and using hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, and covering open equipment for conveying materials. • If project activities include the burning of construction or demolition material, the NPS would ensure that the contractor complies with the requirements under 9 VAC 5-40-5600 <i>et seq.</i> for open burning.
Visitor Use and Experience/ Recreation	<ul style="list-style-type: none"> • The NPS would request that construction of the fee collection booth and road repaving/pull-off widening be constructed simultaneously with the bridge construction to minimize campground closure.
Socioeconomic Environment: Waste Management	<ul style="list-style-type: none"> • All fuel, construction materials, fuel handling, and equipment storage must be performed outside the floodplain of Otter Creek. Leaking vehicles and equipment would not be permitted in the floodplain, and such vehicles would require immediate attention. • No waste materials, such as oil, would be allowed to be disposed of in storm or sanitary drains or to be washed into streams.

	<ul style="list-style-type: none"> • The NPS would require that the construction contractor test any soil or sediment suspected of contamination or generated wastes and dispose of them in accordance with applicable Federal, State, and local laws and regulations. • The NPS would require the contractor to check all structures to be demolished for the presence of asbestos-containing materials and/or lead-based paint. If any are found, the NPS would ensure that, in addition to Federal waste-related regulations, State regulations 9 VAC 20-80-640 and 9 VAC 20-60-261 are followed. • The NPS would require the contractor to reduce at the source, reuse, or recycle all solid wastes generated from the project.
Socioeconomic Environment: Noise, Human Health and Safety, and Transportation	<ul style="list-style-type: none"> • The NPS would request that construction of the fee collection booth and road repaving/pull-off widening be constructed simultaneously with bridge construction to minimize campground closure. • The NPS would require the construction contractor to install and maintain all required signage per the <i>Manual on Uniform Traffic Control Devices</i> around the construction site and around road closures. • The NPS would require the construction contractor to install and maintain barricades or fences around the construction site to prevent non-contractors and the public from entering the construction area. • The NPS would require the construction contractor to post construction warning signs to notify users of the Otter Creek campground and facilities of the construction site and dangers at the site. • The NPS would submit all plans and specifications for any on-site (no discharge to state waters) disposal system to the Virginia Department of Health for review and approval. (Plans and specifications for any system resulting in a discharge of treated wastewater to surface waters will need to be submitted to the VDEQ, South Central Regional Office.) • The NPS would require the contractor to use watertight covers for any manholes located within a floodplain and to locate the pump station outside floodplain or protect it from flooding.

2.6 COMPARISON OF ALTERNATIVES

Table 2.6-1 compares the potential environmental impacts resulting from the No Action and Preferred alternatives (Alternatives A and B, respectively). Potential impacts are grouped according to environmental resource area. Section 4.0, *Environmental Consequences*, of this EA contains a detailed discussion of these potential impacts by resource topic.

Table 2.6-1. Comparison of Potential Impacts of the Alternatives

Environmental Resource Area	Alternative A (No Action)	Alternative B (Preferred Alternative)
Natural Resources	<ul style="list-style-type: none"> • Recurrent, minor, adverse impacts on water resources and aquatic species and habitat from continued discharges of raw sewage into Otter Creek and Otter Lake for the duration of Park operation • Long-term, moderate to major, adverse impacts on soils, water resources, vegetation, and wildlife, including aquatic species and habitat, from increased erosion and resultant sediment yields to Otter Creek and Otter Lake, continued loss of riparian vegetation, recurrent formation of debris “dams” at the bridge site (which can block fish passage), and eventual collapse of the bridge • Long-term, moderate to major, adverse impacts on the Otter Creek floodplain due to increased flood frequency, duration of inundation, stream bank destabilization, and loss of riparian vegetation • Alternative not in compliance with NPS floodplain policy • No adverse impacts on air quality • Long-term, minor, beneficial impact on air quality from reductions in vehicle emissions due to eventual closure of the campground and concessions facility • No impairment of the Park’s natural resources would occur • Alternative would contribute to long-term, potentially moderate, adverse, cumulative impacts on water resources and aquatic species and habitat in Otter Creek down-stream of the project site, and particularly in Otter Lake 	<ul style="list-style-type: none"> • Temporary to short-term, negligible, localized, adverse impacts on soils, water quality, and aquatic species and habitat from potential increased erosion, runoff, and sediment during construction, if mitigation measures are implemented, and the use of heavy equipment • Temporary to short-term, negligible to minor, localized, adverse impacts on vegetation and wildlife during construction due to vegetation removal, the presence of workers, and use of noise-generating equipment • Potential for chemical or fuel spill to occur during construction and adversely impact natural resources would be very low • Alternative may require several water resources-related permits from various federal and state agencies • Temporary, negligible, localized, adverse impacts on air quality during construction • Long-term, moderate to major, beneficial impacts on soils, water resources, vegetation, and wildlife, including aquatic species such as the yellow lance, from reducing erosion and resultant sediment yields, reducing potential for debris jams to develop, eliminating raw sewage discharges into Otter Creek, and restoring eroded areas, including riparian areas • Alternative would contribute to long-term, beneficial, cumulative impacts on soils, water resources, vegetation, and wildlife, including aquatic species • No long-term changes in air quality • No impairment of the Park’s natural resources would occur
Cultural Resources	<ul style="list-style-type: none"> • No historic properties, archaeological resources, or cultural landscapes would be adversely affected 	<ul style="list-style-type: none"> • No historic properties, archaeological resources, or cultural landscapes would be adversely affected

Table 2.6-1. Comparison of Potential Impacts of the Alternatives

Environmental Resource Area	Alternative A (No Action)	Alternative B (Preferred Alternative)
Visitor Use and Experience	<ul style="list-style-type: none"> • Short-term, minor, localized, adverse impact on visitor use, experience, and recreation due to recurrent evacuations • Short-term, minor, adverse impact on downstream fishing opportunities and experiences due to continued sewage discharges from the sewer system; moderate impact health conditions forced the closure of these areas for fishing • Long-term, minor to moderate, adverse impacts on downstream recreation due to continued sedimentation • Long-term, minor to moderate, adverse impact on visitor experience due to continued visual quality degradation • Long-term, major, adverse impacts due to permanent campground closure; campground closure could lead to overcrowding at other parks in the area • Alternative would contribute to adverse cumulative impacts on regional visitor use, experience, and recreation • Alternative would not likely lead to an impairment of visitor use and/or experience or recreation 	<ul style="list-style-type: none"> • No adverse impacts on visitor use, experience, or recreation during construction • Long term, moderate to major, beneficial impacts on visitor use, experience, and recreation due to eliminating the need for evacuations, sustaining the long-term use of the area for recreation, improving the area's visual quality, and reducing water pollution in downstream areas • Alternative would contribute to long-term, beneficial, cumulative impacts on visitor use, experience, and recreation • Alternative consistent with Blue Ridge Parkway's mission of enhancing scenic and recreational qualities and promoting public enjoyment • No impairment of visitor use and experience and/or recreation would occur
Socioeconomic Environment	<ul style="list-style-type: none"> • Short-term, minor to moderate, localized, adverse economic impacts due to continued temporary loss of revenues during evacuations, manhours associated with evacuations, costs of continued storm damage repairs, and the potential for future sewage system failures • Continued moderate to major, adverse impacts on Park visitors, employees, and rescue workers due to flooding and continued structural damage lasting the duration of campground operation; Alternative would not comply with NPS Management Policies for ensuring visitor safety • Short-term, continued congestion at the campground entrance due to registering vehicles • Short-term, moderate to major, adverse social impacts from continued evacuations 	<ul style="list-style-type: none"> • Temporary, negligible to minor, beneficial impacts on the local economy from construction activities • No impacts on visitors or utilities and public services during construction • No adverse impacts on revenues at the concessions facility or campground during construction • Temporary, negligible to minor, adverse impacts on noise levels, waste management, public and worker health and safety, and visual quality during construction • Temporary, negligible, adverse impacts on transportation from a slight increase in traffic and temporary slows in traffic during construction; very minimal potential for congestion or roadway damage • Negligible potential for a fuel or chemical spill to occur

Table 2.6-1. Comparison of Potential Impacts of the Alternatives

Environmental Resource Area	Alternative A (No Action)	Alternative B (Preferred Alternative)
	<ul style="list-style-type: none"> • Recurrent, minor, adverse impacts on utilities and public services and human health and safety over the short-term due to the continued input of raw sewage to Otter Creek and continued need for campground evacuation during storms • No changes in noise levels in the area over the short-term • Negligible, adverse impacts on waste management due to disposal of flood debris over the short-term; no potential to exceed capacity of existing waste infrastructure • Long-term, moderate to major, adverse social and economic impacts due to discontinued use of the concessions facility and campground and permanent loss of jobs at the concessions facility; campground closure may lead to overcrowding at other area parks/facilities • Long-term, minor, adverse economic impact due to loss of revenues from campground visitation • Long-term, major, localized, adverse impacts on transportation due to access restrictions, and associated impacts on other resource areas, in the event of bridge failure • Long-term, minor, localized, beneficial impacts on noise, waste management, and utilities and public services due to permanent future campground and facility closures • Long-term, major, localized, adverse impact on land use in the event of future facility closures • Long-term, major, localized, adverse impacts on visual quality from continued deterioration • Alternative would not be consistent with the mission statement of the Parkway due to the decline in the ability of the NPS to enhance scenic and recreational qualities • Alternative would contribute to adverse cumulative impacts on social conditions and human health and safety 	<p>during construction and adversely affect the human or natural environment</p> <ul style="list-style-type: none"> • Long-term, moderate to major, localized, beneficial economic impacts due to eliminating costs associated with repairing/replacing storm-damaged structures and cleanup after flooding, eliminating potential for temporary losses in revenues during evacuation periods, and eliminating potential for employment decreases • Long-term, moderate to major, localized, beneficial impacts on social conditions from eliminating need to evacuate and protecting the Park's facilities • Long-term, moderate to major, localized, beneficial impacts on transportation and access due to bridge reconstruction and creation of a pull-off lane for registering vehicles • Long-term, minor, localized, beneficial impact on utilities and human health and safety from removal and underground installation of existing aboveground electrical wiring/poles • Long term, beneficial impacts on utilities and public services, land uses, and waste management from eliminating flooding potential • No changes in land use or noise levels are proposed; alternative would allow for the continuance of existing land uses in the area • Long-term, major, beneficial impacts on visitor and employee health and safety due to eliminating the potential for flooding and the need for evacuation of the Park, and from reducing the potential for discharges of raw sewage from the sewage system • Long-term, moderate to major, localized, beneficial impacts on the visual quality of the project site from

Table 2.6-1. Comparison of Potential Impacts of the Alternatives

Environmental Resource Area	Alternative A (No Action)	Alternative B (Preferred Alternative)
		<p>reconstruction and restoration activities</p> <ul style="list-style-type: none">• Alternative would contribute to long-term, beneficial cumulative effects on human health and safety, land use, and socioeconomic conditions• No impairment of the Park's socioeconomic resources would occur

3.0 AFFECTED ENVIRONMENT

In accordance with CEQ regulations (40 CFR 1502.15), this section describes the existing conditions of the area(s) to be affected by the alternatives under consideration in this EA. As stated in DO-12, the NPS NEPA compliance guidance handbook, only those resources that may experience impact or be affected by alternatives under consideration are described in this section.

3.1 NATURAL RESOURCES

3.1.1 Soils and Topography

All soil types are subject to erosion; however, the soils considered most sensitive to erosion are highly erodible lands and wetland soils. Soils can be degraded through three processes: (1) physical degradation, such as by wind and water erosion and compaction; (2) chemical degradation, such as toxification, salinization, and acidification; and (3) biological degradation, which includes declines in organic matter, carbon, and the activity and diversity of soil fauna (Brady and Weil, 1999; ERS, 2002).

Soil: A collective term for the inorganic and organic substrate covering bedrock in which vegetation grows and a multitude of other organisms reside.

Shrink-well Potential: Indication of the volume change to be expected of soil material with changes in moisture content. Building foundations, roads, and other structures may be severely damaged by the shrinking and swelling of soils if shrink-swell potential is rated moderate to very high.

Source: NRCS, 2003a

The soil survey for Amherst County, Virginia is currently unpublished; however, the Virginia office of the Natural Resources Conservation Service (NRCS) provided information on the project area. The Otter Creek Bridge and campground area is underlain by Saunook loam soils. Edneytown loam and Edneytown-Peaks complex soil types have been identified above the campground to the east in the upland ridges. The Saunook series consists of very deep, well-drained, moderately permeable soils, with low shrink-swell potential (see text box) (NRCS, 2001b; 2003a). Slopes typically range from 2 to 60 percent, but are commonly 5 to 25 percent. Mean annual precipitation generally ranges from 45 to 65 inches. Very little runoff occurs where forest litter has not been disturbed or has only been partially disturbed. Medium to rapid runoff occurs where litter has been removed or completely disturbed (NRCS, 2001b). Saunook series soils have a moderate potential frost action (see text box). Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures (NRCS, 2003b). The soils in the Otter Creek area also have moderately low strength; special planning, design, or maintenance is needed to overcome or minimize development limitations on these soils (NRCS, 2003c).

Potential Frost Action: The likelihood of upward or sideways soil expansion caused by the formation of frost within the soil layers (frost heave) and the subsequent weakening and collapse of the soil when it thaws.

Erosion is the detachment and movement of soil material. The process may be natural or accelerated by human activity. Depending on the local landscape and weather conditions, erosion may be very slow or very rapid. The Saunook soil series found in the Otter Creek project area has the potential to be highly erodible. These soils have an erosion factor K of 0.24. The K factor indicates the susceptibility of the soil to sheet and rill erosion by water. Values of K range from 0.05 to 0.69; the higher the value, the more susceptible the soil is to sheet and rill erosion by water (NRCS, 2003a).

Erosion due to flooding along Otter Creek at the project site has been significant and is threatening the structural integrity of the campground facilities. **Figures 1.3-1 through 1.3-4** in Section 1.3 of this EA show the extent of the erosion at the Otter Creek project site. The continuous erosion of the stream banks and displacement of debris from high water during storm events is undermining the foundations of Park and concessionaire facilities, and is threatening access to the campground by compromising the structural integrity of the Otter Creek Bridge abutments. There are two locations where 16 to 20 cubic yards of riverbank material have been removed from the bridge abutment and the retaining wall. Erosion jeopardizes an additional 240 square feet of retaining wall, and the erosion of the material around the abutment exposes the concrete work to deterioration, threatening the support system of the bridge. The concessionaire has discontinued the use of the exterior patio, and subsequently removed it due to safety hazards created by the loss, from erosion, of the adjacent retaining wall foundations. Currently, the topsoil and most of the small to medium stones have been removed from the storm channel (an approximately 325 cubic foot area). Loss of riparian vegetation in the area is also a concern, since the loss of vegetation increases the risk of erosion from wind and runoff.

The Otter Creek project area is on a relatively flat grade, approximately 8 to 20 feet above Otter Creek (Basinger, 2002).

3.1.2 Water Resources

The Otter Creek Bridge crosses a perennial stream called Otter Creek a little over two miles upstream from its confluence with the James River. Otter Creek begins as an intermittent stream near the border of Rockbridge and Amherst Counties, Virginia, and flows approximately two miles southeast until it meets the Blue Ridge Parkway. The stream then flows southwest, following the Blue Ridge Parkway until it drains to the James River just north of Big Island. Otter Creek has two major tributaries, Terrapin Creek and Little Otter Creek, both located downstream of the bridge. Otter Lake, used primarily for catch and release fishing, is also located downstream of the bridge.

The Virginia Department of Environmental Quality (VDEQ) and the Virginia State Water Control Board (VSWCB) have designated Otter Creek as stockable trout waters in the vicinity of the Otter Creek campground, and as natural trout waters upstream. VDEQ and the VSWCB have not assessed the water quality of Otter Creek, as reported in the 2002 Virginia Water Quality Standards (VDEQ, 2002a; Daub, 2003).

No wetlands were identified on or in the vicinity of the Otter Creek project site. The riparian area of Otter Creek is forested, as described in Section 3.1.4, *Vegetation and Wildlife*.

The water quality of Otter Creek has been and is continuing to be adversely impacted by flooding and associated stream bank erosion. Undercut banks have developed where floodwaters overflow the stream banks, which have caused the loss of trees and other vegetation in the riparian area. Recurring washouts have increased sedimentation in Otter Creek, altering its characteristics and affecting the aquatic life in the stream. Much of this sediment is washed downstream, where it settles out in Otter Lake, changing the characteristics and aquatic life of the Lake. In addition, the diverted floodwaters spill into a sanitary sewer manhole, flooding the sewage treatment system causing untreated wastewater to be released into Otter Creek.

Floodplains

Flooding occurs in the area of the campground approximately three to four times per year when the discharge of Otter Creek exceeds its bankfull height. The floodplain is the flat landform along the Creek that is temporarily inundated during these flood events. Debris jams under the bridge during flood events cause increased localized flooding, altering the natural flood regime of the floodplain.

3.1.3 Air Quality

Under the Federal Clean Air Act (CAA), as amended in 1977 and 1990 (40 CFR 50), the U.S. Environmental Protection Agency (USEPA) has established air quality standards in regard to the types of air pollutants emitted by internal combustion engines, such as those in aircraft, vehicles, and other sources. These National Ambient Air Quality Standards (NAAQS) are established for six contaminants, referred to as criteria pollutants, and apply to the ambient air (the air that the general public is exposed to every day) (USEPA, 2003a). These criteria pollutants include carbon monoxide, ozone, particulate matter, nitrogen oxides, sulfur dioxide, and lead, and are described below.

1. ***Carbon Monoxide (CO)***. CO is a colorless, odorless, toxic gas produced by the incomplete combustion of organic materials used as fuels. CO is emitted as a by-product of essentially all combustion.
2. ***Ozone (O₃)***. O₃ is a photochemical oxidant and a major constituent of smog. Ozone is formed when two precursor pollutants, hydrocarbons and nitrogen oxides, react chemically in the presence of sunlight.
3. ***Particulate Matter (PM₁₀)***. PM₁₀ are fine particles less than 10 micrometers in diameter. PM₁₀ includes solid and liquid material suspended in the atmosphere and formed as a result of incomplete combustion.
4. ***Sulfur Dioxide (SO₂)***. SO₂ is a corrosive and poisonous gas produced mainly from the burning of sulfur-containing fuel.
5. ***Nitrogen Oxides (NO_x)***. NO_x are poisonous and highly-reactive gases produced when fuel is burned at high temperatures, causing some of the abundant nitrogen in the air to burn as well.

6. **Lead (Pb).** Pb is a toxic heavy metal, the most significant emissions of which derive from gasoline additives, iron and steel production, and alkyl lead manufacturing (USEPA, 2003a).

In addition to these six criteria pollutants, Volatile Organic Compounds (VOCs) are a source of concern and are regulated as a precursor to ozone. VOCs are created when fuels or organic waste materials are burned. Most hydrocarbons are presumed to be VOCs in the regulatory context, unless otherwise specified by the USEPA.

The NAAQS include primary and secondary standards (see text box). Areas where the ambient air quality does not meet the NAAQS are said to be non-attainment areas. Areas where the ambient air currently meets the national standards are said to be in attainment. Amherst County, Virginia is in attainment for all six criteria pollutants (USEPA, 2003a).

Existing information on air quality was reviewed to identify air quality issues, with particular attention paid to background ambient air quality compared to the primary NAAQS. Relevant regulatory requirements under the conformity provision of Section 176(c) of the CAA, as amended in 1990,

provide that Federal agencies are prohibited from engaging in, supporting in any way, providing financial assistance for, licensing, permitting, or approving, any activity which does not conform to an applicable state implementation plan under the CAA. Federal actions must be “in conformity” with whatever restrictions or limitations the State has established for air emissions necessary to attain compliance with NAAQS.

The VDEQ, Office of Air Program Coordination, on behalf of the State Air Pollution Control Board, is responsible for ensuring that air quality within the State of Virginia protects public health and welfare. The State Air Pollution Control Board promulgates Virginia’s air regulations under the Virginia Air Pollution Control Law (Virginia Annotated Code (VAC) 5-10 through 5-500), which cover stationary sources, such as industrial facilities and other fixed emission sources; mobile sources, such as vehicle emissions; and regulations to ensure that certain projects comply with the Federal CAA and its regulations.

NAAQS for Criteria Pollutants

Under the CAA, the USEPA has established limits on the average levels of pollutants in the air to which the general public is exposed (ambient air). **Primary Standards** establish the level of air quality necessary to protect public health from any known or anticipated adverse effects of a pollutant, allowing a margin of safety to protect sensitive members of the population. **Secondary Standards** establish the level of air quality necessary to protect public welfare by preventing injury to agricultural crops and livestock, deterioration of materials and property, and adverse impacts on the environment, including prevention of reduced visibility.

Pollutant	Averaging Time	Standard ^a (mg/m ³)
Ozone	1-hour	235
Carbon Monoxide (CO)	1-hour	40,000
	8-hour	10,000
Nitrogen Oxides (NO _x)	Annual	100
Sulfur Dioxide (SO ₂)	Annual ^b	80
	24-hour ^b	365
	3-hour ^c	1,300
Particulate Matter (PM ₁₀)	Annual	50
	24-hour	150
Lead (Pb)	0.25 year	1.5
^a Both the Primary and Secondary Standards are the same value, except for sulfur dioxide.		
^b Primary Standard		
^c Secondary Standard		

The activities under the action proposed do not require adherence to the Federal Transportation or General Conformity regulations (40 CFR Part 51, Subparts W and T) because the current project site is located in an area classified as “in attainment” for all criteria pollutants. However, for the purposes of this analysis and to establish criteria for air quality effects, the air quality criteria under the conformity regulations will be used to assess potential air quality impacts. Under the General Conformity Rule, conformity determinations are made for each pollutant where the total of direct and indirect emissions caused by a Federal action would equal or exceed the thresholds established under the rule. These thresholds are referred to as *de minimis* criteria. The term *de minimis* refers to, among other things, emissions that are “so small as to be negligible or insignificant.” In order to qualify as *de minimis*, the thresholds established under the General Conformity Rule are 100 tons per year or less for each pollutant.

Although the project area is considered in attainment for all priority air quality criteria, The VDEQ has recommended to the USEPA that Botetourt County, approximately 10 miles southwest of the project area, be designated as a non-attainment area for ozone (VDEQ, 2001).

3.1.4 Vegetation and Wildlife

A botanical survey of the area surrounding the Otter Creek concessions facility/restaurant was conducted for this project. The Montane Oak-Hickory Forest is the principal plant community at this site. The canopy is closed and includes dominants such as white oak (*Quercus alba*), white pine (*Pinus strobus*), white ash (*Fraxinus americana*), and pignut hickory (*Carya glabra*). Species commonly found in the shrub and herb strata include: *Viburnum cassinoides*, *V. acerifolium*, *V. prunifolium*, *Cercis canadensis*, *Vaccinium stamineum*, *Smilax rotundifolia*, *Vitis labrusca*, *Mitchella repens*, and *Parthenocissus quinquefolia*. The environmental conditions where this community occurs consist of intermediate to xeric moisture conditions, moderate to poor soil fertility, and intermediate topographic exposure (characterized by gentle to flat topography). At this site, species diversity is low, which is typical for this plant community.

Located between the restaurant area and the campground area is a small, narrow occurrence of riverine vegetation along Otter Creek. Species diversity along this creek is high relative to surrounding communities, and include a different suite of species adapted to mesic and aquatic conditions, such as tulip poplar (*Liriodendron tulipifera*), alder (*Alnus serrulata*), fringe tree (*Chionanthus virginicus*), *Houstonia caerulea*, *Hydrangea arborescens*, *Cornus florida*, *Maianthemum racemosum*, *Xanthorhiza simplicissima*, and *Fagus grandifolia*. Numerous foot paths, trampling, and erosion were observed along both sides of Otter Creek in this location. Visitor trampling around the creek is impacting native species and setting the stage for erosion and sediment runoff, which would impact aquatic organisms.

Species of trees and shrubs identified in the immediate area around the Otter Creek Bridge site include white oak, Virginia pine, sycamore, hemlock, alder, and mountain laurel.

There is no unique or important wildlife habitat located on or in the immediate vicinity of the project site. Otter Lake, located downstream of the project site, has occasional beaver activity.

Historically, otters have been sited in Otter Lake, but neither beaver nor otters have been sighted in Otter Creek near the project area (Basinger, 2002).

The VDEQ and VSWCB have designated Otter Creek as stockable trout waters in the vicinity of the Otter Creek campground. The trout water designated use means that higher dissolved oxygen and colder temperature standards apply (VDEQ, 2002a; Daub, 2003). Due to the temperature of the stream in this location, no trout populations occur in this reach of Otter Creek. The nearest native trout population to the project site is located upstream in Otter Creek, on U.S. Forest Service land (Basinger, 2002). Otter Creek in the project area supports benthic communities, as well as other aquatic species that are tolerant of warmer waters (Daub, 2003).

Stream Conservation Units

identify stream reaches that contain aquatic natural heritage resources, including two miles upstream and one mile downstream of documented occurrences, and all tributaries within this reach.

According to the Virginia Department of Conservation and Recreation (VDCR), the James River-Big Island Stream Conservation Unit is located downstream of the project site. Stream Conservation Units are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain.

The James River-Big Island Stream Conservation Unit has been ranked as a B4 conservation site by the VDCR, indicating it is of moderate significance.

In addition, the yellow lance (*Elliptio lanceolata*) has been documented in the project vicinity. This species occurs in mid-sized rivers and second and third order streams. It requires silt-free, stable streambed and well-oxygenated water that is free of pollutants to survive. The yellow lance is currently classified as a special concern species by the Virginia Department of Game and Inland Fisheries, and a species of concern by the U.S. Fish and Wildlife Service (USFWS). However, these designations have no official legal status. The yellow lance currently has a global ranking of G2G3 and a State ranking of S2S3, indicating it is either globally and locally (State) imperiled or globally and locally (State) rare or uncommon. In Virginia, the species is currently known from populations in the Chowan, James, York, Rappahannock, and Potomac river drainages.

Vegetation and wildlife, including aquatic species, at the Otter Creek project site have been and are continuing to be adversely impacted by flooding and associated stream bank erosion. When a significant rainfall event occurs that results in flooding, debris is washed downstream. Due to the design of the existing Otter Creek Bridge, debris becomes trapped under the bridge, creating a “dam.” This “dam” not only directly affects aquatic species by blocking passage, but also causes the floodwaters to leave the natural channel, resulting in significant erosion. Undercut banks have developed where floodwaters overflow the stream banks, which have caused the loss of trees and other vegetation in the riparian area. The stone retaining wall has collapsed into the stream in areas, and erosion is jeopardizing additional portions of the retaining wall.

Recurring washouts have increased sedimentation in Otter Creek, altering its characteristics and affecting the aquatic life in the stream. Much of this sediment is washed downstream, where it settles out in Otter Lake, changing the characteristics of the Lake and the aquatic life therein. In addition, the diverted floodwaters spill into a sanitary sewer manhole, flooding the sewage

treatment system causing untreated wastewater to be released into Otter Creek. This is a direct threat to aquatic species and habitat, as well as wildlife habitat.

3.2 CULTURAL RESOURCES

In compliance with the National Historic Preservation Act (NHPA) of 1966 (as amended), an archaeological investigation was conducted in the project area on 08 April 2003. No previous archaeological work had been undertaken in the immediate area, but site testing was recommended by the Southeast Archaeological Center (Kreusch, 2003).

Three shovel test pits (STP) were placed in the proposed project area as part of the investigation: two on either side of Otter Creek (15 feet west of the present road shoulder), and one at the proposed site for the new fee collection booth (approximately 10 feet west-northwest of the present road shoulder). No archaeological work was done for the raising of the roadbed. No artifacts and/or features were observed or recovered in any of the STPs (Kreusch, 2003).

The Otter Creek campground and concession facilities are not historic sites. No cultural landscape reports have been conducted for this area, and this area is not considered to be part of a cultural landscape.

3.3 VISITOR USE AND EXPERIENCE/RECREATION

Visitors come to national parks seeking a pleasurable experience. Visitor or recreation experience is defined as “the psychological and physiological response from participating in a particular recreation activity in a specific park setting” (Haas, 2001). Visitor use and experience are a function of the interaction between an individual’s expectations, motivations, past experiences, and personality traits and the recreational carrying capacity of a park. Recreational carrying capacity is defined as “a prescribed number and type of people that an area will accommodate given the desired natural/cultural resource conditions, visitor experiences, and management program” (Haas, 2001). The carrying capacity for a park is formed by the convergence of two human and physical constraints: 1) what is considered to be a crowded condition, given the park’s physical and environmental resources and the visitor experience intended by management, and 2) the level of use that a park can sustain without suffering environmental degradation. The NPS defines recreational carrying capacity as “the type and level of visitor use that can be accommodated while sustaining the desired resource and social conditions that complement the purpose of a park unit and its management objectives” (NPS, 1997c). Broadly, it is the maximum number of people that can use a site on an hourly, daily, monthly, or annual basis without degrading the resource base, and while maintaining the integrity of the historic experience.

Visitor/Recreation Experience:

The psychological and physiological response from participating in a particular recreation activity in a specific park setting.

Source: Haas, 2001.

The Otter Creek campground is located at milepost 60.8 along the Blue Ridge Parkway. It is accessible via the Otter Creek Bridge and has 68 campsites: 42 tent sites and 26 sites for recreational vehicles (RVs) up to 30 feet in length. The campground has a campfire circle, telephones, water, and comfort stations, but no showers. Hiking trails and fishing opportunities are accessible from the campground, as well as a concession-operated restaurant and gift shop. The James River Visitor Center, which offers educational interpretations of the River and the historic Kanawha Canal, is also accessible via the campground. The Kanawha Canal is still in evidence along the river and the Park maintains one of the canal's locks in working order.

There are several moderate to easy hiking trails of varying lengths accessible from or near the Otter Creek campground, including: Otter Creek Trail (about 3.5 miles long), which begins at the campground; Otter Lake Trail (about 0.8 miles long); and James River Trail (about 0.2 miles long) (NPS, 2002d). These trails provide visitors with hiking, nature study, and photography opportunities, and allow visitors to participate in educational programs.

Otter Creek is used for wading, but swimming is not permitted in the Creek (Hultquist, 2003c). Downstream of the Otter Creek project area, fishing and swimming are allowed on the south banks of the James River, and Otter Lake is used primarily for fishing. Otter Creek and Otter Lake are game fish waters. Generally, a valid state fishing license for Virginia or North Carolina is required. The fishing season and hours conform to those established by the State, except fishing is prohibited from ½-hour after sunset until ½-hour before sunrise on all Parkway waters. Creel and size limits also conform to those established by the State. Limits for "special waters" are posted at each lakeshore or stream bank. Otter Lake and Otter Creek are considered "special waters" in Virginia. Live and/or organic bait is prohibited while adjacent to, on, or in streams or lakes classified as "special waters." Fishing lures are limited to single-hook artificial lures (NPS, 2002c). Otter Creek is classified as a natural trout stream upstream of the project site and is considered "stockable trout waters" by the State of Virginia in the vicinity of the project area (VDEQ, 2002a; Daub, 2003).

Otter Lake, which is accessible via the Otter Creek campground, offers excellent conditions for fishing, hiking, and scenic viewing. Disabled visitors to the Otter Creek campground have access the Lake, which is the only lake in the Virginia portion of the Blue Ridge Parkway to offer an accessible pier.

Otter Creek campground and concessions facility are popular with local and non-local (transient) visitors. For the 2002 season, 9,253 visitors (5,895 visitors at tent sites and 3,358 at RV sites) were recorded for the campground. The campground is open May through October, with the peak season being from June through October (Lovelace, 2003).

The concession facility/restaurant is closed during the off-season, usually from the end of October to early April (Molling, 2003a). The average annual visitation to this facility is 130,000 visitors. Flood damage to the facility's outdoor patio area resulted in the removal of the patio area in the fiscal year 2001, reducing dining spaces to the interior of the facility.

The Otter Creek campground and concession facility provide visitors with the unique experience that is not available in the immediate region. This site offers a more intimate experience with the

mountain stream, lake, and more mature growth forest than other sites along the Blue Ridge Parkway. Due to the relatively remote location of the Otter Creek campground and facilities, a visitor would need to drive approximately 18 to 20 miles to acquire similar services or facilities. Similar non-park facilities can be found in towns approximately 30 miles away from the project area. The Otter Creek campground is the first campground encountered when entering the Parkway at the north entrance, which is about 60 miles away. The next available park campground and concessions facility is located 30 miles south.

Visitor experiences are generally pleasant and are only affected during the periods of heavy rain. During these periods, visitors are put into an irritated state of mind, and are forced to evacuate the area. Rain events cause the evacuation of the campground three to four times per year.

The significance of the visitor experience at this location is the proximity to the water and the sense of being away of their everyday lives. Campground visitors step out of their normal routines to experience America's special places and resources. The relaxed, uncongested setting that the Otter Creek area provides allows visitors to enjoy park resources in their natural contexts and unique conditions.

3.4 SOCIOECONOMIC ENVIRONMENT

3.4.1 Economy and Social Conditions

The Otter Creek Bridge and campground are located at Milepost 60.8 on the Blue Ridge Parkway in Amherst County, Virginia, within the Ridge District. The 106-mile Ridge District is almost entirely surrounded by U.S. Forest Service lands, providing distant views of undeveloped mountain slopes and ridges. The Otter Creek Bridge is the only means of ingress and egress for the campground. Otter Creek campground has 68 campsites (including both tent sites and RV sites), and is used by thousands of visitors throughout the year. For the 2002 season, over 9,000 visitors were recorded for the campground (Lovelace, 2003). The fee charged per campsite or RV site is \$14 per night (\$7 per night for Golden Age/Access visitors) (Pierceall and Sutton, 2003). However, when a ranger is not available to collect fees at the campground, fee payment and collection at the campground is on an honor system (Molling, 2003d).

One seasonal fee collector and one full-time off-site supervisor are employed at the Otter Creek campground (Pierceall and Sutton, 2003). The annual budget for operation of the Otter Creek campground is about \$50,000 (Molling, 2003a), and annual revenue from visitation to the campground is approximately \$38,000 (Pierceall and Sutton, 2003). The Blue Ridge Parkway, including the Otter Creek campground, is part of the Technical Corrections Fee Demonstration Park, part of the Service-wide Recreation Fee Demonstration Program. Under this program, 80 percent of the revenue from visitation to the Otter Creek campground is retained at the campground for improvements and repairs. The remainder of campground revenues is retained by the NPS for improvements and repairs at other public use facilities (Molling, 2003e; DOI-USDA, 1998).

The Otter Creek concession facility/restaurant is operated by a private company, the Peaks of Otter Company, and can currently accommodate 48 diners at one time. The facility was previously able to accommodate approximately 24 additional diners in the former outdoor patio area (Molling, 2003b). However, flood damage to the facility's outdoor patio area resulted in the removal of the patio area in fiscal year 2001, reducing dining space to the interior of the facility.

Of the gross (adjusted) annual revenues of the restaurant, 6.5 percent are returned to the Federal Government. Approximately 15 seasonal employees work a full-week schedule at restaurant during the peak season, with a reduction of two to three during May and September. The concession facility is closed during the off-season, usually from the end of October to early April (Molling, 2003a).

The average annual visitation to the concession facility is 130,000 visitors. The facility supports visitors from both the Otter Creek campground and the Blue Ridge Parkway. Much of the restaurant business comes directly from the Blue Ridge Parkway, although campground visitor business is also important (Hultquist, 2003d).

The Otter Creek campground and concession facilities are very popular with local and transient visitors, and the experiences provided by this site are not available in the immediate region. This site offers a more intimate experience with the mountain stream, lake, and the mature growth forest than other sites along the Blue Ridge Parkway. Due to the relatively remote location of the Otter Creek campground and facilities, a visitor would need to drive approximately 18 to 20 miles to acquire similar services or facilities. In addition, disabled visitors to the Otter Creek campground have access to Otter Lake, located downstream of the project area. This is the only lake in the Virginia portion of the Blue Ridge Parkway to offer an accessible pier.

Visitor experiences are generally pleasant and are only affected during the periods of heavy rain when flooding occurs. During these periods, the visitors are put into an irritated state of mind, and are forced to evacuate the area. Loss of property is likely if evacuation does not occur. Rain events cause the evacuation of the campground three to four times per year. Typically, four to eight employees assist with evacuation, and in some cases, the adjacent county Emergency Medical Services are used.

Flooding of the area has caused damage to many structures in the Otter Creek area. Floodwaters have reached the fee collection booth at the campground entrance, causing damage, such as saturation of the carpeting and interior woodwork. Although no floodwaters have damaged the concession facility itself, documentation shows that floodwaters have reached the structure.

3.4.2 Transportation

Otter Creek Bridge and campground are located at milepost 60.8 along the Blue Ridge Parkway in Amherst County, Virginia. The evaluation of existing roadway conditions focuses on capacity, which reflects the ability of the road network to serve the traffic demand and volume. The capacity of a roadway depends mainly on the street width, number of lanes, intersection

control, and other physical factors. The average effective life of Parkway pavements is approximately 20 to 22 years (NPS, 2001b).

The access road from the Parkway to the Otter Creek campground and concessions facility is a two-lane road (see **Figure 3.4-1**). Vehicles must cross the Otter Creek Bridge to enter the campground, but not to access the concessions facility. The bridge provides the only vehicular access to the 68-site campground. The existing bridge is approximately 25 feet by 22 feet (550 square feet), and is in a low-lying area. The bridge deck is only 4 feet above the creek bed. Three to four times per year, a rainfall event occurs that is significant enough to flood the bridge and the immediate vicinity, closing off access into and out of the campground for visitors and park employees, and damaging the structural stability of the bridge.



Figure 3.4-1. Access Road and Bridge to the Otter Creek Campground

The existing fee collection booth for the campground is located on the right hand side of the road as visitor cross the bridge into the campground. At high peak times, traffic into the campground and concessions facilities may become congested while visitors register, due to the location of the fee collection booth. The peak season along the Blue Ridge Parkway is typically June through October.

The Otter Creek campground is used for six months out of the year (May through October). During the 2002 season, approximately 3,900 vehicles, including RVs up to 30 feet, entered the campground (Lovelace, 2003). Each vehicle must travel the road and cross the Otter Creek Bridge at least twice per visit, once to enter and once to exit. Therefore, the minimum number of visitor vehicles crossing the Otter Creek Bridge in 2002 was at least 7,800 vehicles, which does not include traffic park employees. In addition, the concessions facility receives an average of 130,000 local and transient visitors each year. However, since visitation to the concessions facility includes both Otter Creek campground visitors as well as visitors coming directly from the Blue Ridge Parkway, is not possible to determine the additional volume of traffic on the access road from visitation to the concessions facility.

3.4.3 Utilities and Public Services

Utilities

In general, utilities include the following kinds of facilities and infrastructure:

- *Energy* – gas pipelines and substations, electricity transmission and distribution lines, and electrical substations;
- *Communications* – telephone lines;

- *Water supply* – water lines and water storage tanks; and
- *Wastewater* – sewage pipelines and sewage treatment plants.

Various utilities are located within the immediate project vicinity. Wastewater from the concessions facility is transported via gravity-operated sewage pipes that run under the existing Otter Creek Bridge to the campground area. Under normal conditions, sewage flows from the concessions facility to the campground, where it is treated in a septic sewage treatment system. However, during significant storm events, floodwaters wash debris downstream, and due to the existing bridge design, debris becomes trapped under the bridge. This trapped debris blocks water flow under the bridge, causing water to back up and be diverted around the bridge abutments. These diverted floodwaters infiltrate the sewer system through manholes located near the bridge. The existing sewage pipes are considered “open,” and the additional floodwaters can combine with the untreated wastewater, overloading the gravity-operated sewage piping system. This process results in the backup of water in the manhole, and subsequent discharge of raw sewage into Otter Creek. Although the existing septic system does not require a discharge permit, the NPS is required to notify the State whenever sewage is discharged into Otter Creek due to a flood or failure (Molling, 2003c).

Power and communication service is supplied by telephone and power lines, which connect the concessions facility to the campground, kiosk, and its two comfort stations. These lines are primarily underground, except for the point at which they traverse the bridge over Otter Creek. At this point, they are suspended above the ground from two poles that straddle the bridge.

Public services

In this context, public services may include the following services provided by local municipalities and the NPS:

- Fire protection;
- Law enforcement;
- Emergency medical response; and
- Facility maintenance (trash removal, sanitation activities, etc.).

The Otter Creek Bridge is the principal means of ingress and egress for the campground. This route not only provides access to the campground for campground users, but also provides access for facility maintenance (including trash collection, sanitation, sewer system maintenance, and general grounds management), and for emergency services (including emergency medical transport and law enforcement services). Currently, whenever a rainfall event is significant enough to flood the bridge, all visitors and employees are required to evacuate the campground. Evacuation of the campground sometimes requires the use of the Emergency Medical Services of the adjacent county. Prior to the policy of requiring evacuation, a visitor, who was allowed to remain in the campground during a flooding event, experienced life-threatening medical problems. Due to the flooded conditions of the bridge, this visitor had to be hand-carried by a lifesaving crew for approximately one mile to a medical facility.

3.4.4 Noise

The loudest sounds that can be detected comfortably by the human ear have intensities that are 1 trillion (1,000,000,000,000) times larger than those of sounds that can just be detected. Because of this vast range, any attempt to represent the intensity of sound using a linear scale becomes very unwieldy. As a result, a logarithmic unit known as the decibel (dB) is used to represent the intensity of a sound. Such a representation is called a sound level. Sound level examples are presented in **Table 3.4-1**.

Table 3.4-1. Common Noise Levels and Their Effects on the Human Ear		
Source	Decibel Level (dB)*	Exposure Concern
Soft Whisper	30	Normal safe levels.
Quiet Office	40	
Average Home	50	
Conversational Speech	66	
Busy Traffic	75	May affect hearing in some individuals depending on sensitivity, exposure length, etc.
Noisy Restaurant	80	
Average Factory	80 to 90	
Pneumatic Drill	100	Continued exposure to noise over 90 dB may eventually cause hearing impairment.
Automobile Horn	120	
* To more accurately assess the loudness of sounds as heard by the human ear, sound levels are reported in this table and this section on the A-weighted decibel (dBA) scale, which is progressively reduced in sensitivity to very low and very high-pitched sounds.		

Source: DOD, 1978

To accurately assess the impacts of noise exposure on an entire community, dB sound levels are commonly expressed with a measure that describes the cumulative effects of noise levels over time. The most commonly employed cumulative noise measure for environmental analysis is the Day-Night Sound Level (Ldn). This measure (expressed in dB) describes the cumulative noise exposure expected from all major noise sources over a 24-hour period. Using the Ldn system, 10 dB is added to the assessment of sound produced by activities occurring between 10 p.m. and 7 a.m. This addition places greater weight on the noise produced by nighttime activities due to the higher sensitivity of communities to noise during these hours.

Certain facilities, communities, and land uses are more sensitive to a given level of noise than others. Such “sensitive receptors” include schools, churches, hospitals, retirement homes, campgrounds, wilderness areas, hiking trails, and certain species of threatened or endangered wildlife. Impacts from noise production are generally assessed with respect to changes in noise levels experienced at sensitive receptors.

Different types of sensitive receptors vary in their acceptance of noise disturbance. As a result, noise impacts for different receptors are often assessed using different noise level standards. Recommended land use and associated noise levels are illustrated in **Table 3.4-2**.

Table 3.4-2. Recommended Land Use Noise Levels				
Land Use Category	Noise Levels (Ldn)*			
	Clearly Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential	< 60	60-65	65-75	> 75
Commercial, Retail	< 65	65-75	75-80	> 85
Commercial, Wholesale	< 70	70-80	80-85	> 85
Manufacturing	< 55	55-70	70-80	> 80
Agriculture, Farming	< 75	> 75	N/A	N/A
Natural Rec. Areas	< 60	60-75	75-85	> 85
Hospitals	< 60	60-65	65-75	> 75
Schools	< 60	60-65	65-75	> 75
Libraries	< 60	60-65	65-75	> 75
Churches	< 60	60-65	65-75	> 75
Nursing Homes	< 60	60-65	65-75	> 75
Playgrounds	< 55	55-65	65-75	> 75
*Noise levels depicted here are consistent with provisions of the Federal Noise Control Act of 1972 (42 USC 4901-4918).				

Source: HUD, 1991

Although ambient noise levels have not been measured in the vicinity of the Otter Creek Bridge and campground, the existing acoustic environment can be inferred based on noise levels typically associated with particular land uses in the nearby area. Overall there are very few noise sources in the vicinity of the Otter Creek Bridge and campground, and no sensitive receptors outside of the campground and facility itself are located in the project area. As described in Sections 3.4.5, *Land Use*, and 3.4.8, *Visual Resources*, of this EA, the Preferred Alternative is located in a forested setting on public lands. These forested areas support a variety of dispersed recreational use, such as hiking, fishing, camping, and nature study. Very few noise sources are located in this area, and there are no sources of continuous noise. Thus, noise levels would likely be observed at between 45 dB and 55 dB, well within the “clearly acceptable range” for natural recreation areas listed in **Table 3.4-2**. The primary source of noise on these lands is passing vehicles from the Blue Ridge Parkway and recreational noise from visitors in the campground and recreation areas, although this noise is not constant. Ambient noise levels in the project area are lower when the campground and restaurant are closed during the off-season, and may be more closely approximated as 45 dB.

3.4.5 Land Use

The NPS mission for the Blue Ridge Parkway is to enhance the outstanding scenic and recreational qualities of the Blue Ridge corridor, conserve its significant natural and cultural resources, and promote the public enjoyment and appreciation of the Central and Southern Appalachian Mountains (NPS, 2001b). The NPS supports this mission, in part, through the numerous developed recreations sites found along the Parkway.

The Otter Creek campground is located in the mountains of southwestern Virginia along Otter Creek, a tributary of the James River. The site was developed in the late 1950s to promote its

scenic beauty, and to provide camping and dining experiences for visitors. The site is typical of the Shenandoah and Appalachian Region as a whole, and is similar to other NPS developed recreation units in the region. However, this site offers a more intimate experience with a mountain stream, lake, and a mature growth forest than other sites along the Blue Ridge Parkway. Visitor uses for this area include camping (tent and RV); fishing, hiking, and a concession-operated gift shop and restaurant. The campground includes a campfire circle for interpretive programs providing educational opportunities for thousands of campers.

The Otter Creek campground and facilities are 60 miles from the closest national park, and 60 miles from the next large city (Roanoke, Virginia). Similar non-park facilities can be found in towns approximately 30 miles away. The Otter Creek campground is the first campground encountered when entering the Parkway at the north entrance some 60 miles away. The next available NPS campground and concessions facility is located 30 miles to the south.

3.4.6 Human Health and Safety

Otter Creek Bridge provides the only vehicular access to the Otter Creek campground. Three to four times per year, the bridge must be closed due to flooding from significant storm events. Campers must be evacuated whenever a rain event is significant enough to present a threat of flooding. A flood event without evacuation results in the campers being trapped in the campground with no means of egress except to hike to a state highway approximately $\frac{3}{4}$ -mile away. Flooding threatens the life of anyone not made to evacuate and any property that is left behind. Prior to the Park's policy of requiring evacuation, a visitor was allowed to remain in the campground. The visitor experienced life-threatening medical problems and required transport to a medical facility. Although the campground was not flooded, due to the flooded bridge, the visitor had to be hand-carried by a lifesaving crew for approximately one mile.

Public health and safety and the welfare of visitors are the greatest concerns of the NPS. The NPS encourages visitors to be aware of the weather when coming into the campground, and advises them when situations are, or have the potential to be, life-threatening.

During the periods of flooding, NPS employees cross the Otter Creek Bridge to assist the visitors with evacuation of the campground and assist the concessionaire with protecting their structures. Generally four to eight employees assist with this operation, and in some cases, the adjacent County Emergency Medical Services are used. During evacuations, employees run the risk of being swept away by floodwaters while trying to assist visitors evacuating the area or while attempting to rescue those trapped in the area.

The continuous erosion of the stream banks and displacement of debris from the high water is undermining the foundations of the concessions facility/restaurant, and is compromising the structural integrity of the Otter Creek Bridge abutments. At the current rate of erosion (based on current weather trends), major failures in these structures could be expected in three to five years. Damage has occurred to the outdoor patio area used by the concessionaire as an outdoor dining area. Erosion had undermined the patio area to a point that it was extremely unsafe and

resulted in the loss of the adjacent retaining wall foundation. Due to these safety risks, the exterior patio was closed and removed in 2001.

In addition, the high storm water has infiltrated the sewer pumping station through the manhole at the Otter Creek Bridge site, which results in the overloading of the sewage system to the point of failure, causing raw sewage to be released into Otter Creek. This poses a direct threat to the health and safety of those people who enter Otter Creek (e.g., or wading or fishing) downstream of the project area, and particularly to users of Otter Lake, due to water contamination.

3.4.7 Waste Management

Waste disposal facilities and procedures in the Blue Ridge Parkway must follow the Superintendent's 2002 *Policy on Solid Waste Disposal*. The Blue Ridge Parkway has approximately 100 dumpsites, the majority of which are inactive. Active dumpsites are used for disposal of organic or beneficial fill types or materials, such as vegetative wastes (NPS, 2002e).

Both Virginia and North Carolina prohibit non-permitted solid waste management facilities and non-conforming solid waste disposal sites. The environmental regulatory departments in both States have reviewed representative sites along the Parkway, and have determined that organic storage sites (such as composting sites) do not fall under the purview of solid waste management regulations. Therefore, these sites do not require State permits (NPS, 2002e).

Sanitary Landfill: Land burial facility for the disposal of household waste, which is located, designed, constructed, and operated to contain and isolate the waste so as to not pose a major hazard to human health or the environment. May also receive commercial solid wastes, nonhazardous sludge and industrial solid wastes, hazardous waste from exempt small quantity generators, and C&D debris.

However, generation and collection of construction and demolition (C & D) debris, as well as any other human-made or inorganic materials generated through Parkway activities, do fall under State permitting regulations. By Virginia and North Carolina State regulations, all human-made and construction related waste must be taken to a State-approved landfill for disposal (NPS, 2002e). **Table 3.4-3** provides an overview of the types of solid waste generated at Blue Ridge Parkway facilities and the proper disposal methods for these wastes.

Table 3.4-3. Types of Solid Wastes Generated Along the Blue Ridge Parkway and Their Approved Disposal Methods		
Type of Solid Waste	Examples	Primary Disposal Methods
Organic, beneficial, and inert wastes	Vegetative wastes (e.g., grasses, leaves, trees), soil, rocks, dredged materials, unpainted and untreated concrete, brick, used asphalt, gravel	<ul style="list-style-type: none"> • Permanent storage sites • Natural materials that can be used by the Park can be taken to temporary storage sites • Selling marketable natural materials through small lot sales or donating them to charitable organizations • Natural decomposition (includes most natural

		<p>debris that falls outside roadways and mowed areas, unless visually intrusive or unsafe)</p> <ul style="list-style-type: none"> • Burn large volumes of natural waste from major storms • Chip and/or compost vegetative wastes to be spread on-site or transported to a permanent storage site • Spoil materials from landslides that will not be used within two years, or if total slide material quantity exceeds local storage capacity, is disposed of off-site
Human-made (inorganic) and C & D wastes	Painted concrete, treated lumber, asphalt shingles, grates, tires, refrigerators	<ul style="list-style-type: none"> • May be stored temporarily, but must be removed off-site to approved landfills at least semi-annually • Extensive C & D projects require waste materials to be removed at time of generation
Hazardous wastes	Chemical storage containers, 55-gallon drums, discarded petroleum storage tanks	<ul style="list-style-type: none"> • Removed from dumpsites and delivered to scrapping or disposal facility • Residual liquids or sludges must be collected and properly disposed of or recycled • Process coordinated by the Maintenance and Engineering Department

Source: NPS, 2002e

Solid waste debris from the Otter Creek campground and facilities is transported to the closest landfill or other approved disposal site (Molling, 2003a), depending on the type of solid waste generated. The nearest temporary storage site (see text box) to the Otter Creek campground area is near the James River Maintenance Area (milepost 66.1), and the closest permanent storage sites (for organic materials/debris) are at Rice Mountain Overlook (milepost 53.7), which accepts shale only, and the unnamed disposal site at milepost 81.5L (NPS, 2002e).

Inorganic, C & D, and hazardous wastes from the Otter Creek area transported to a temporary storage site, and subsequently (at least biannually) taken to the closest landfill site-off the Parkway (Molling, 2003a). The closest landfill is the Bedford County Sanitary Landfill, located in Bedford County, Virginia. As of 2001, the available capacity of this landfill was 461,500 tons, with an annual disposal amount of 42,683 tons (VDEQ, 2002b).

Organic debris is a major source of solid waste at Otter Creek during storms. During major storm events, debris is washed downstream, and becomes trapped under the bridge and piled up

Temporary Storage Sites are used to hold materials until enough have accumulated to justify a trip to the local landfill or recycling center, or until there is enough to sell by bids or donate to an approved organization. All materials in must be removed at least semi-annually. All new materials must be kept separate from pre-existing materials.

Permanent Storage Sites (composting sites) are specifically designed to maintain natural or inert materials that will decay on their own or be treated as beneficial fill. All new materials must be kept separate from pre-existing materials that already occur on-site.

Source: NPS, 2002e

against the bridge. **Figure 3.4-2** shows the Otter Creek Bridge site following a recent storm event, and the debris left behind. This type of debris and waste will most likely be chipped and/or composted, burned, or transported to a permanent storage site.

C & D debris from the Otter Creek area must be removed by a vendor; however, the vendor may be able to temporarily store C & D waste on-site, as long as it is disposed of properly at the end of a project (Molling, 2003a). Solid waste may not be disposed of through open burning or burial. Only land-clearing debris may be burned on the site from which it was cleared, in accordance with applicable State laws and local ordinances (9 VAC 5-40-5600). Hazardous materials and wastes must be handled and disposed of in accordance with the Park's *Hazardous Materials Management Plan* and *Hazardous Waste Emergency Management Plan* (Hultquist, 2003c).



Figure 3.4-2. Debris at the Otter Creek Bridge Site Following a Major Storm

3.4.8 Visual Resources

The Otter Creek Bridge and campground is located in the Ridge District of the Blue Ridge Parkway in Amherst County, Virginia. The site is completely surrounded by the George Washington National Forest, providing views of undeveloped mountain slopes and ridges. The site itself is forested with a perennial stream, Otter Creek, bisecting the campground and restaurant/concessions facility, providing the visitor with a natural forested setting in close proximity to water. Otter Creek is a cobble, clear-running stream with a contiguous forested riparian area providing cover and shade. Vegetation in the project area is described in Section 3.1.4, *Vegetation and Wildlife*. The Otter Creek Bridge crosses Otter Creek at the entrance to the campground, providing access to the campground.

Figures 1.3-1 through **1.3-4** in Section 1.3 of this EA show the current eroded conditions in the project area. Localized flooding and erosion caused by the current bridge design has adversely affected the visual quality of the area. The stream banks around the bridge site have become severely undercut, causing soil and vegetation loss especially behind the restaurant. Mature tree roots have become exposed, and these trees will eventually fall into the stream. A large scour hole has formed behind the restaurant and is encroaching on the structure. Protective fencing has been installed around the scour hole to keep people out of the area for safety. Erosion had undermined the outdoor dining patio behind the restaurant to the point that it required removal for safety reasons, exposing bare ground in the area.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 METHODOLOGY

The interdisciplinary study team (see Section 8.0, List of Preparers) followed a structured process to analyze the potential environmental impacts, or effects, resulting from the Preferred and No Action alternatives. This process, called the cause-effects-questions process, is described below.

**Causes-Effects-Questions:
A Structured Analytic Process**

- Step 1:** Identify the specific activities, tasks, and subtasks involved in the proposed action(s) and alternative(s).
- Step 2:** For each specific activity, task, and subtask, determine the full range of direct effects that each could have on any environmental resource. For example, removing vegetation could cause soil erosion.
- Step 3:** For each conceivable direct effect, identify which further effects could be caused by the direct effects. For example, soil erosion could cause stream sedimentation, which could kill stream species, which could diminish the food supply for fish, leading to decreased fish populations. This inquiry can identify multi-stepped chains of potential causes-and-effects.
- Step 4:** Starting at the beginning of each chain of causes-and-effects, work through a series of questions for each potential effect:
- Would this effect actually occur from this project?
If not, why not? What would preclude it from happening?
 - If the effect cannot be ruled out, characterize which types of data, other information, and analyses are needed to determine the parameters of the effect, including its extent, duration, and intensity. Identify the sources from which the data is to be obtained.
- Step 5:** Gather the data and conduct the analyses identified by the above steps. Gather and use only relevant information. Focus on getting sound answers to the impact questions.
- Step 6:** Document the results of this study process. Provide all relevant analytic information, but no extraneous encyclopedia bulk.

Using this process, both direct and indirect effects that could potentially occur as a result of the Preferred Alternative and its alternatives were identified. Direct effects are impacts caused by the alternative(s) at the same time and in the same location as the action. Indirect effects are impacts caused by the alternative(s) that occur later in time or farther in distance than the action.

The study team proceeded to conduct the investigation and analyses by gathering the data they concluded were relevant for each resource area. Using these data, the team determined which impacts would occur and assessed them according to their duration, extent, intensity, and whether or not the impact would cause an impairment in the Park's resources. These parameters are defined below. Potential mitigation measures were also identified and analyzed to reduce or

avoid potential adverse impacts resulting from the Preferred Alternative (see Section 2.5 of this EA).

4.1.1 Definitions

Duration of Impact:

Temporary – Impact would occur during the site preparation and construction phases only. Once construction has ended, resource conditions are likely to return to pre-construction conditions.

Short-term – Impact would extend past the construction phase, but would not last more than a couple of years, at most.

Long-term – Impact would likely last more than a couple of years, or over the lifetime of the project.

Extent of Impact:

Localized – Impacts would affect the resource area only on the project site or its immediate surroundings, and would not extend into the region.

Regional – Impacts would affect the resource area on a regional level or on the Park as a whole, extending well past the immediate project site.

National – Impacts would affect the resource area on a national level, extending well past the region or Park as a whole.

Intensity of Impact:

Negligible – Minimal or no impact on the resource area; any change that occurs is neither noticeable nor measurable.

Minor – Change in a resource area occurs, but no substantial resource impact results; the change in the resource is barely perceptible and would not alter the condition or appearance of the resource.

Moderate – Noticeable change in a resource occurs, and this change alters the condition or appearance of the resource, but the integrity of the resource remains intact.

Major – Substantial impact or change in a resource area occurs that is easily defined, highly noticeable, and measurably alters the condition or appearance of the resource.

4.1.2 Impairment of Park Resources

The study team analyzed whether impacts would result in an impairment of Park resources based on guidelines set forth in NPS Management Policies (NPS, 2001a). Impairment occurs when an impact degrades or harms the integrity of Park resources or values, including opportunities that would otherwise normally be available for the enjoyment of those resources or values had the impact not occurred. Under the NPS Organic Act and the General Authorities Act, impairment of Park resources is prohibited.

NPS Management Policies outline the conditions under which an impact would be likely to result in an impairment of Park resources. According to the Policies, an impact would likely create an impairment to the extent that the conservation of the affected resource or value is: 1) essential to fulfill a purpose established in the enabling legislation or proclamation of the Park; 2) key to the integrity (natural or cultural) of the Park or its opportunities, 3) identified as a goal in the general management plan for the Park. If an impact is an unavoidable result of an action required to maintain or restore the integrity of Park resources or values, and cannot be reasonably mitigated, the impact would be less likely to constitute an impairment of Park resources (NPS, 2001a).

4.1.3 Cumulative Impacts

A cumulative impact is an impact on the natural or human environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency, organization, or person undertakes such other actions (40 CFR 1508.7). Cumulative impacts can result from individually minor and insignificant, but collectively significant actions, taking place over a period of time.

Cumulative impacts were assessed by combining the potential environmental impacts of the alternatives with the potential impacts of known projects that have occurred in the past, are currently occurring, or are projected to occur in the future within the region of the Preferred Alternative. Known past, current, and reasonably foreseeable future projects and actions in the vicinity of the project site are described below.

Past and Present Projects and Actions

Many construction and maintenance activities have taken place recently at the Otter Creek developed area, including: remodeling and constructing restaurant facilities; removal of the flagstone patio at the restaurant; ditching and installing new sewer lines and electric service to the restaurant; replacing sewer manhole; and routine sewer/manhole maintenance activities (Basinger, 2002).

As a result of past and continued erosion of the Otter Creek stream banks, overflow of the stream banks by floodwaters, and displacement of debris from the high water, scouring and erosion behind the concessions facility/restaurant has occurred. Damage has occurred to the outdoor patio area used by the concessionaire as an outdoor dining area. Erosion had undermined the patio area to a point that it is extremely unsafe and resulted in the loss of the adjacent retaining

wall foundation. Due to these safety risks, the exterior patio was closed and removed in 2001, reducing the number of diners that could be accommodated by the concessions facility.

Undercut banks have developed where floodwaters overflow the stream banks, which have caused the loss of trees and other vegetation in the riparian area of Otter Creek. In addition, the recurring washouts have increased sedimentation in Otter Creek, which continues to settle out in Otter Lake downstream, changing the characteristics of the lake and the aquatic life therein. Continued adverse impacts on the characteristics of and aquatic life within Otter Lake could change the quality or availability of certain recreational opportunities provided in that area.

Future Projects and Actions

If the Otter Creek Bridge is raised to accommodate floodwaters and debris, the outdoor patio area at the Otter Creek concessions facility/restaurant will likely be reconstructed in the future and reopened to diners at the facility. In addition, if the stream banks of Otter Creek can be stabilized, and stream bank wash out mitigated, the NPS will likely undertake relandscaping in the project area, which may include planting trees and restoring riparian vegetation.

One other project the NPS is considering is to construct an improved sewage system for the Otter Creek campground and concessions facility. This would most likely involve installing a package sewage treatment facility in the project area. This facility would be approximately 8 feet wide, 10 feet tall, 30 feet in length, would take some land grading to install. It is anticipated that installation of this proposed facility would take two months. An additional lift station may be required for this installation. In addition, the installation of a 20,000-gallon equalization tank would be required (Hultquist, 2003d).

4.2 ALTERNATIVE A: NO ACTION

4.2.1 Natural Resources

Soils and Topography

Under Alternative A, the Otter Creek Bridge and concessions facility would be at risk of further deterioration and structural failure within the next three to five years. Flooding and associated erosion problems, such as undercutting of upstream stream banks and loss of the stream bank retaining wall behind the restaurant, would continue under this alternative, and would worsen over time as the bridge abutments deteriorate. Erosion would continue to contribute to sedimentation of Otter Creek at the bridge site and downstream to Otter Lake, adversely affecting water quality and aquatic habitat, as described below under *Water Resources* and *Vegetation and Wildlife*. The large scour hole behind the restaurant would continue to worsen and further encroach on the restaurant structure. Eventual failure of the bridge abutments would expose the underlying soils on the banks of Otter Creek to erosion. The soils in the area have the potential to be highly erodible, especially on the stream banks, and runoff in the area is medium to rapid in areas where washouts have occurred, removing forest litter. In sum, major, localized,

adverse effects on the soils at the project site would be anticipated to result from Alternative A over the long-term due to continued localized flooding and associated erosion. The rate and severity of erosion would also depend on the frequency and intensity of storm events over time. However, implementation of Alternative A would not result in an impairment of the Blue Ridge Parkway's soil resources.

Water Resources

Under the Alternative A, the Otter Creek Bridge and concessions facility would be at risk of further deterioration and structural failure within the next three to five years. Continued flooding and associated erosion problems would result from the existing bridge, and would worsen over time as the bridge abutments deteriorate. Eventual bridge collapse would cause a debris jam, obstructing normal stream flow, affecting stream channel stability, sediment storage, bank erosion, aggradation/degradation processes, and aquatic habitat (Rosgen, 1996). Failure of the abutments would also expose the associated banks on each side of Otter Creek to erosion. Eroding stream banks, particularly behind the restaurant, would continue to contribute to sedimentation downstream, further degrading water quality by increasing turbidity, reducing water transparency, and altering the nutrient status of the streambed composition. Downstream streambeds would also be affected by sediment that settles out of the water, depositing on the streambed, and adversely affecting aquatic habitats and communities. Aquatic habitat and communities in Otter Lake are of particular concern since sediment transported from upstream settles out and is stored in the Lake.

In addition, the infiltration of storm water in the sewage pumping station through the manhole at the bridge site, which results in the overloading of the system to the point of failure and the subsequent discharge of raw sewage into Otter Creek, would continue to occur. Bacteria and nutrients, such as nitrogen, from the untreated sewage degrade the water quality of Otter Creek. The bacterial decay of sewage reduces the oxygen concentrations in downstream waters, especially in Otter Lake where the sewage collects. This can starve aquatic life of the oxygen it needs (see *Vegetation and Wildlife* below). Solids suspended in sewage may also blanket the stream and lakebed, preventing respiration of the benthic flora and fauna. Decaying organic matter, and nutrients in sewage enhance plant growth. Excessive plant growth and oxygen depletion can cause eutrophication, altering the ecosystem structure of Otter Lake. While impacts on water quality resulting from continued sewage discharges into Otter Creek and Otter Lake would likely be adverse, they would not be significant, given the small amount of sewage discharged during each flood event, the sporadic, short-term inputs, and dilution effects in Otter Lake. Over the long-term under Alternative A, the Otter Creek campground and facilities would likely require closure due to safety hazards (see Section 4.2.4, *Human Health and Safety*). Once closed, there would no longer be a source of sewage that could be discharged into Otter Creek. While adverse effects on water quality from previously discharged sewage would last past the closure of these facilities, no permanent effects on water quality would occur as a result of this pollution source.

Eutrophication: Excessive growth of algae in a water body due to increased nutrient inputs.

In summary, moderate to major, long-term, adverse effects on the water quality and hydrology of Otter Creek at the Otter Creek Bridge site and downstream to Otter Lake would result from the

Alternative A. This alternative would not result in the impairment of the Blue Ridge Parkway's water resources.

Floodplains

Under Alternative A, the natural floodplain within the vicinity of the Otter Creek campground would continue to be altered from the localized flooding and erosion associated with the current design of the bridge. Moderate to major, long-term, adverse effects on the Otter Creek floodplain would result from the No Action alternative. The bridge has increased the flood frequency of Otter Creek at the site, resulting in increased frequency and duration of floodplain inundation. This increase in inundation would affect the vegetative composition of the floodplain over the long-term. Significant stream bank erosion has encroached on the floodplain, causing significant destabilization and loss of soils and riparian vegetation. The erosion is most severe behind the restaurant, where the undercut banks have exposed the roots of mature trees, which will eventually fall into the stream. A large scour hole has also developed where the stream bank has completely failed. The facilities sited within the floodplain, specifically the kiosk, would continue to be at risk of flooding, and would eventually require replacement.

Alternative A would not be in compliance with NPS floodplain policy, which requires the protection, preservation, and restoration of the natural resources and functions of floodplains. In addition, facilities sited within floodplains that have been damaged or destroyed by flooding must be thoroughly evaluated for relocation or replacement by new construction at a different location (Director's Order #77-2 Floodplain Management).

Air Quality

Under Alternative A, the Otter Creek Bridge would not be reconstructed. Over the short term, vehicle emissions levels would not change while traffic into and out of the restaurant and campgrounds remained at current levels. However, with continued flooding during significant storm events, and likely future structural failure of the bridge and concessions facility, the Otter Creek Bridge, campground, and potentially the concessions facility may need to be closed to visitors. At the current rate of erosion, it is anticipated that major failures of these structures could occur in the next three to five years.

As a result of these permanent future closures, visitation to the Park would no longer occur. With these closures, vehicle emissions at the facility would likely also cease. Thus, under the No Action alternative, long-term vehicle emissions, and any air quality impacts associated with these emissions, would cease, resulting in a beneficial impact on air quality. This alternative would be in compliance with NPS Management Policies for air quality. No impairment of the Park's air resources would occur as a result of Alternative A.

Vegetation and Wildlife

Under Alternative A, moderate to major, localized, adverse impacts on vegetation and wildlife would continue to occur over the long-term. Vegetation and wildlife, including aquatic species such as the yellow lance, in the vicinity of the Otter Creek project site have been and would

continue to be adversely impacted by flooding and associated stream bank erosion. When a significant rainfall event occurs that results in flooding, debris is washed downstream. Due to the design of the existing Otter Creek Bridge, debris becomes trapped under the bridge, creating a “dam.” This “dam” not only directly affects aquatic species by blocking passage, but also causes the floodwaters to leave the natural channel, resulting in significant erosion.

Undercut banks have developed where floodwaters overflow the stream banks, which have caused the loss of trees and other vegetation in the riparian area, greatly reducing the quality of this habitat in the project area. These adverse impacts would continue to occur under the No Action alternative, and would worsen over time. Continued damage to or loss of streamside vegetation can have numerous effects on aquatic organisms in Otter Creek. Streamside vegetation provides food energy for some stream organisms, can affect stream channel morphology by forming pools or preventing the movement of sediment and gravel, helps to regulate stream temperature and stream flow, and stabilizes stream banks (Miller, 1987; USEPA, 2001a; Fulton and West, 2002). Uncorrected, it is unlikely that riparian vegetation would permanently reestablish in these areas.

Recurring washouts have increased sediment in Otter Creek, altering its characteristics and affecting the aquatic life in the stream. Although some sediment settles out in Otter Creek as it is carried downstream, much of the sediment settles out in Otter Lake, changing the characteristics of the Lake and the aquatic life therein. Increased sediment yields to Otter Creek and Otter Lake would continue to occur under Alternative A, and would worsen over time as the stream banks continue to destabilize, and erosion in the project area increases. Increased sediment reduces water quality and may adversely affect fish or spawning areas. Sediment increases turbidity and suspended solids in the water, which could block sunlight, impair photosynthesis by algae and aquatic plants, reduce oxygen replenishment, and harm fish respiratory systems. Once deposited on stream bottoms, sediment can adversely affect spawning areas, bury or smother eggs and fry, prevent larvae emergence, and fill in pools that are essential as fish cover (USEPA, 2001a; Seehorn, 1987; Gucinski et al., 2002). This increase in sediment would also continue to adversely affect the yellow lance in Otter Creek and downstream, potentially making these areas unsuitable as habitat for the species over the long-term. As discussed in Section 3.1.4 above, this species requires silt-free, stable streambeds and well-oxygenated water free of pollutants to survive. Alternative A would not work to protect or conserve this species, or decrease the possibility of future listing of the species.

Adverse impacts on riparian vegetation and aquatic species associated with flooding, erosion, and increased sediment yields would continue to occur over the long-term, regardless of whether the Otter Creek campground and its facilities are closed to visitation. These impacts would worsen over time, increasing the size of eroded areas and the loss of riparian vegetation, and likely resulting in long-term, moderate to major, adverse impacts on aquatic species and habitat in Otter Creek. Impacts on aquatic species and habitat in Otter Lake would also be long-term and adverse, but would be reduced in intensity. Implementation of Alternative A would not lead to an impairment of the Blue Ridge Parkway’s aquatic species or habitat, or riparian habitat.

In addition, the diverted flood waters would continue to infiltrate the sewage pumping station through the manhole at the bridge site under Alternative A, resulting in continued failures of the

sewage system, and subsequent discharging of untreated wastewater into Otter Creek. Storm waters would rapidly wash most of this discharged sewage downstream during and following storm events. Given the normal and storm flows of the Creek, it is not anticipated that sewage discharges would have a noticeable adverse impact on aquatic species in the portion of Otter Creek within the project area. However, this sewage would get discharged into Otter Lake, where it may pose a direct threat to aquatic organisms in the Lake.

Raw sewage contains organic matter, including nutrients, such as nitrogen. Increased nutrient input into a stream can have either adverse effects (Lemly, 2000) or potentially beneficial effects on aquatic species and habitat, depending on the level of nutrient input, and the current nutrient content of the stream (Tank and Webster, 1998). Many aquatic systems are nutrient poor, and therefore, small increases in nutrients can improve their productivity.

However, increases in organic matter and nutrients in water bodies can also adversely affect aquatic species and habitat. Organic matter consumes dissolved oxygen as it decomposes. The amount of dissolved oxygen required by microorganisms to decompose organic matter is referred to as the biochemical oxygen demand (BOD). As the amount of organic matter in a water body increases, the BOD also increases, and the amount of oxygen available in the water body decreases. Consumption of oxygen by microorganisms to decompose organic matter decreases the amount of oxygen available for fish and other aquatic organisms, which can lead to mortality (USEPA, 2001b). In addition, increases in nutrients may adversely affect aquatic species through the proliferation of algae or other microorganisms and aquatic plants (Lemly, 2000; USEPA, 2001a). Increased photosynthetic production stimulates further growth and reproduction of algae and other microorganisms, which can block sunlight and further increase BOD, decreasing oxygen availability in the water (as described above) (USEPA, 2001a).

Dissolved Oxygen: The amount of free oxygen in water.

While impacts on aquatic species and habitat resulting from continued sewage discharges into Otter Creek and Otter Lake would likely be adverse, they would not be significant, given the small amount of sewage discharged during each flood event, the sporadic, short-term inputs, and dilution effects in Otter Lake. Over the long-term under Alternative A, the Otter Creek campground and facilities would likely require closure due to safety hazards (see Section 4.2.4, *Human Health and Safety*). Once closed, there would no longer be a source of sewage that could be discharged into Otter Creek. While adverse effects on aquatic organisms from previously discharged sewage would last past the closure of these facilities, no permanent effects on aquatic organisms would occur as a result of this pollution source.

As discussed above, the Otter Creek Bridge and concessions facility would be at risk of further deterioration under Alternative A, and structural failure is likely within the next three to five years. Eventual bridge collapse would cause a debris jam, which would obstruct normal stream flow and block the passage of fish and other aquatic species until the collapsed structure is removed from the stream. This potential adverse impact would be short-term, but minor to moderate in intensity during the duration of impact.

4.2.1.1 Cumulative Impacts

Implementation of Alternative A would contribute to long-term, adverse, cumulative impacts on the water quality and aquatic species and habitat in Otter Creek downstream of the project site, and particularly in Otter Lake. Continued and increased soil erosion and resulting sediment yields, as well as continued discharges of untreated sewage, into Otter Creek and Otter Lake would add to other potential sources of pollution currently degrading water quality and adversely affecting aquatic species and habitat in these water bodies, including habitat for the yellow lance. The intensity of this impact would depend on the types, levels, and frequencies of other potential sources of pollution. However, since implementation of Alternative A could result in the worsening of already adverse aquatic species and habitat conditions over the long-term, if there other pollution sources are affecting these same water bodies, long-term, moderate, adverse cumulative impacts on aquatic species and habitat could result under Alternative A.

Under Alternative A, there would be a decrease in vehicle emissions over the long-term as a result of the future closure of the campground and concessions facility. Thus, a cumulative net decrease in overall air emissions from the project area would occur, resulting in long-term, beneficial, cumulative impacts on air quality.

4.2.1.2 Conclusion

Alternative A would likely result in long-term, moderate to major, adverse impacts on soils, water resources, floodplains, vegetation, and wildlife, including aquatic species such as the yellow lance, and would contribute to long-term, adverse, cumulative effects on these resources. However, implementation of this alternative would not lead to an impairment of these resources on the Blue Ridge Parkway. This alternative would not be consistent with NPS floodplain policy (Director's Order #77-2 Floodplain Management).

Alternative A would not result in any adverse air quality impacts. On the contrary, long-term, minor, beneficial impacts on air quality would occur from reductions in vehicle emissions due to eventual closure of the campground and concessions facility. No impairment of the Park's air resources would occur.

4.2.2 Cultural Resources

As discussed in Section 3.2, no archaeological artifacts and/or features were observed or recovered in any of the shovel test pits during the archaeological evaluation. Therefore, no impacts to archaeological resources are anticipated under Alternative A. In addition, Alternative A would not affect any historic properties (Kreusch, 2003) or cultural landscapes.

4.2.2.1 Cumulative Impacts

Since Alternative A would not affect archaeological resources, historic properties, or cultural landscapes, this alternative would not contribute to cumulative impacts on these resources.

4.2.2.2 Conclusion

Alternative A would not directly, indirectly, or cumulatively affect any archaeological resources, historic properties, or cultural landscapes. No impairment of the Park's cultural resources would occur under Alternative A.

4.2.3 Visitor Use and Experience/Recreation

Under the Alternative A, the Otter Creek Bridge would not be raised or reconstructed, and projected area would continue to flood during significant storm events. At the current rate of erosion (based on current weather trends), major failures of the bridge and the concessions facility could be expected in three to five years. Without correction, the bridge would be lost, and if not replaced, the Otter Creek campground would be forced to close, since the bridge is the only way to access the campground. The concessions facility would also likely be forced to close in the next several years, due to flood damage and safety concerns.

Potential impacts on the visitor use and experience/recreation resulting from the No Action alternative can be divided into two categories: 1) short-term impacts that would occur between the present time and the future permanent closure of the Otter Creek campground and concession facility (or, over the next three to five years); and 2) long-term impacts associated with permanent closure of these facilities.

Over the next three to five years, visitors would continue to experience adverse impacts resulting from campground evacuation during the periods of heavy rain. The frequency of heavy storms and flooding events will determine the frequency that visitors are required to leave the campground due to potentially dangerous conditions. The intensity of a visitor's distress would be dependant on evacuation management activities. The stress during evacuation could ruin one of the fundamental reasons why visitors come to national parks, which is seeking a pleasurable experience. Evacuation would continue to disrupt the vacation plans and experiences of visitors at the campground, resulting in moderate to major, localized adverse impacts on visitor use and experience. Continuous disruption due to evacuation could result in visitors deciding to never visit the facility, or perhaps other Parkway facilities, again. However, given the infrequent nature of evacuations, this impact on visitor use would likely be minor in intensity.

Erosion and loss of riparian vegetation would continue to dominate the immediate landscape in the vicinity of the Otter Creek Bridge and concession facility. Continued and worsening erosion problems would likely lead to additional destruction of vegetation, including streamside trees, sloughing of stream banks, and the worsening of the scour hole that has formed behind the restaurant. While these areas might revegetate with grasses and shrubby vegetation over the short-term, it is unlikely that the large, standing vegetation, such as trees, would be able to reestablish on these sites due to surface erosion, unless these areas are stabilized and seeded. These adverse visual quality impacts would likely adversely affect visitor experience in the area. Given the localized nature of these visual quality impacts, the impact on visitor experience at the Park would likely be minor to moderate, with visitor experience being more affected near the concession facility and along Otter Creek in this portion of the project area.

Storm water would continue to infiltrate the sewage pumping station through the manhole at the bridge site under Alternative A, resulting in continued failures of the sewage system, and subsequent discharging of raw sewage into Otter Creek. Continued sewage discharges could adversely affect recreation in Otter Creek and Otter Lake downstream of the project site through adverse effects on fish and human health. Threats to people from contaminated water stem from drinking or swallowing the water, or eating fish and other aquatic species contaminated by the water, as described under *Human Health and Safety* in Section 4.2.4 of this EA.

Storm waters would rapidly wash most sewage discharged from the sewage system into Otter Creek downstream during and following storm events. Given the normal and storm flows of the Creek, it is not anticipated that sewage discharges would adversely impact visitors participating in water-related recreational activities in the portion of Otter Creek within the project area. However, this sewage would end up in Otter Lake, where it may pose a threat to the health and safety of users of the Lake, as well as adverse recreation impacts from adverse effects on fish. One of the primary uses of Otter Lake is for recreational fishing. Sewage discharges and subsequent decomposition can lead to fish kills, which could decrease the attractiveness of this area for fishing. In addition, recreationists could become ill if they come into contact with water contaminated by disease-producing bacteria, such as when pulling fish out of the water. If water contamination becomes a threat to human health and safety, it is likely that the State would prohibit use of the Lake for fishing, which could have a moderate, adverse impact on recreation in the area. However, due to the single point source of the contamination and dilution effects, it is unlikely that this would occur. Once the Otter Creek campground and concession facility are closed, there would no longer be a continued source of sewage that could be discharged into Otter Creek, and no long-term, adverse impacts on visitor safety or recreation from the sewage system are anticipated.

However, high sediment loads in Otter Creek and downstream to Otter Lake would continue to occur under Alternative A, and could increase over time, regardless of whether the campground is closed. As discussed in Section 4.2.1 under *Water Quality and Vegetation and Wildlife*, continued sedimentation would negatively impact aquatic habitat and species in these water bodies. Over the long-term, these adverse impacts could decrease fish populations in downstream areas, including Otter Lake, resulting in a minor to moderate (at most) adverse impact on recreation.

Permanent closure of the campground and concession facility would cause major, long-term, adverse impacts on visitor use and experience and recreation. Even an attempt to reduce the season of this campground generated numerous complaints from visitors. With permanent campground closure, the availability of recreation opportunities at this site would be lost. Camping would no longer be available in the area, and access to hiking trails and other opportunities would be lost. Visitors would be forced to use another campgrounds or recreation sites in the region, which could result in decrease in visitor satisfaction. Due to the relatively remote location of the Otter Creek campground and facilities, visitors would need to drive approximately 18 to 20 miles to acquire similar services or facilities as provided by the Otter Creek campground and concessions facility. The most sensitive group would be people who regularly visit the Otter Creek campground, visitors who regularly plan family vacation at the

campground, and disabled visitors. Since Otter Lake, accessible via the project site, is the only lake on the Virginia portion of the Parkway to offer an accessible pier, permanent closure of the campground could have major, adverse impacts on the experience of disabled visitors or persons accompanying persons with disabilities.

Additionally, recreation sites in the area may not have available capacities for accommodating additional visitors. This could conflict with carrying capacity at a particular park or site. Recreation sites in the area may not have the resources to accommodate additional visitors, given the desired natural resource conditions, visitor experiences, and management program. Overcrowding at some recreation sites in the region could lead to diminishing visitors' experience at those facilities.

4.2.3.1 Cumulative Impacts

Past flood damage to the outdoor patio area at the concessions facility, and associated safety hazards, resulted in the closure of the patio area to diners. Due to continued damage, the patio area was removed in fiscal year 2001, resulting in the loss of outdoor scenic dining experience. The closure of this patio area also reduced the number of visitors that could be accommodated at the facility by reducing dining capacity to the interior of the facility only.

Under Alternative A, it is likely that the Otter Creek Bridge will fail in the next several years, forcing permanent closure of the Otter Creek campground. If closure of this campground occurs, visitors would be forced to use another campgrounds or recreation areas in the region, which may not have available capacities for accommodating additional visitors. This could result in overcrowding at some recreation areas in the region, and lead to an increase in dissatisfied visitors. Not only would usual visitors to Otter Creek campground be dissatisfied, due to permanent campground closure and the need to find an alternate vacation spot, but this dissatisfaction could also spread to the region as a result of overcrowding at other facilities. Therefore, long-term, adverse cumulative impacts on visitor use and experience and recreation in the region would likely result from Alternative A.

In addition, continued discharges of raw sewage into Otter Creek during flood events would continue to contaminate downstream waters, including Otter Lake. This contamination would add to any other potential sources of pollution that are affecting the water quality of the Lake and other downstream waters, and would contribute to cumulative adverse impacts on the health and safety of recreational users, as well as the continued attractiveness of this area as a fishing site. The intensity of this impact would depend on the types, levels, and frequencies of other sources of pollution.

4.2.3.2 Conclusion

Over the short-term, continued flooding of the area under Alternative A would have minor, adverse impacts on visitor use and experience and recreation due to the continued need to evacuate the area during severe storm events and the continued discharge of raw sewage into Otter Lake. Continued high sediment yields to Otter Creek and Otter Lake, and subsequent impacts on aquatic species, would result in long-term, a minor to moderate (at most) adverse

impact on recreation. Minor to moderate, adverse impacts on visitor use and experience in the project area would result from continued degradation of the area's visual quality.

Permanent closure of the campground and concession facility would cause major, long-term, adverse impacts on visitor use and experience and recreation. However, since there are many other recreational facilities along the Blue Ridge Parkway, Alternative A would not lead to an impairment of visitor use and experience and recreation at the Park. Closure of these facilities could lead to overcrowding at other facilities in the area, and an associated decrease in visitor satisfaction. Alternative A would also contribute to adverse cumulative impacts on visitor use and experience and recreation in the region.

4.2.4 Socioeconomic Environment

Economy and Social Conditions

Under the Alternative A, the Otter Creek Bridge would not be raised or reconstructed, and the project area would continue to flood during significant storm events. At the current rate of erosion (based on current weather trends), major failures of the bridge and the concessions facility could be expected in three to five years. Without correction, the bridge would be lost, and if not replaced, the Otter Creek campground would be forced to close, since the bridge is the only way to access the campground. The concessions facility would also likely be forced to close in the next several years, due to flood damage and safety concerns.

Potential impacts on the economy and social conditions resulting from Alternative A can be divided into two categories: 1) short-term impacts that would occur between the present time and the future permanent closure of the Otter Creek campground and concessions facility (or, over the next three to five years); and 2) long-term impacts associated with permanent closure of these facilities.

Over the next three to five years, flooding of the Otter Creek area would continue to occur during major storm events. Floodwaters would continue to damage the Park grounds and fee collection booth, and eventually, damage to the concessions facility would occur. Costs associated with repairing and/or replacing storm-damaged structures and removing storm debris would continue to be incurred by the NPS. Since these costs are not predictable, and are not part of the annual allocated budget for the campground, NPS incurrence of these costs may, at times, result in the NPS exceeding its annual budget for operation of the Otter Creek campground. In addition, manhours would continue to be expended to assist in Park evacuations, including expenditures by the County Medical Emergency Services. Continued evacuations during storm events would continue to result in the loss of NPS revenues from visitation, as well as losses in revenues at the restaurant facility. However, these losses would be temporary, lasting only from the time of evacuation until floodwaters have receded and damage repaired. Therefore, short-term, minor to moderate, localized, adverse economic impacts are anticipated to result from Alternative A.

Continued flooding of the Otter Creek campground and concessions facility sewage system under Alternative A would eventually cause complete failure of the system, requiring in the

closure of the concessions facility and campground until repairs can be made. Temporary closure of these facilities would reduce both NPS and concession revenues for the duration of the closure. The intensity of this impact on annual revenues would be dependent on the timing of sewage system failure. If the system were to fail during the peak season for visitation, moderate to major losses in annual revenues may occur.

The frequency of heavy storms and flooding events would determine the frequency of campground evacuation. Evacuations would continue to disrupt the experience of visitors to the campground and their vacation plans, resulting in moderate to major, localized, adverse social impacts. Continuous disruptions due to evacuations could result in visitors deciding to never visit the facility, or perhaps other Parkway facilities, again.

If the Otter Creek Bridge were to be closed to traffic due to structural failure before structural failure of the concessions facility occurs, the concessions facility would undergo a loss of customers from the campground, followed by a loss of revenues. The only income that would be generated by the restaurant/gift shop would be from customers coming directly from Blue Ridge Parkway. Since many of the current concessions facility customers come directly from the Blue Ridge Parkway, the loss of customers from the campground would not have a major effect on revenues at the facility. However, campground visitation does provide a steady source of revenue to the concessions facility during the on-season, and loss of this revenue source would likely have a moderate, adverse effect on business and employment at the restaurant/gift shop. This impact would last only a short duration, since erosion from flooding would continue to undermine the stability and structural integrity of the concessions facility under Alternative A.

Over the long-term, both the Otter Creek campground and concessions facility would likely require permanent closure under Alternative A, due to structural failures of the Otter Creek Bridge and the restaurant. Closure of the campground and concessions facility would result in the long-term loss of revenues generated from visitation to these facilities. This would have a moderate to major, adverse economic impact on the concessionaire. Since the Otter Creek campground is part of the Technical Correction Fee Demonstration program, loss of the portion of visitation revenues that would typically be retained for use at the campground would have little financial impact on the NPS, since the campground would be closed over the long-term. However, the portion of the campground visitation revenues that typically goes to the NPS for use at other NPS public use facilities would no longer be available. Since this portion (20 percent) of the campground's revenues is small in comparison to overall NPS revenues, loss of campground revenues under Alternative A would likely only result in a minor, adverse, economic impact.

If the campground and facilities were to close under Alternative A, the annual budget for the campground would be reallocated to different NPS operations. A portion of this budget would likely stay in the area for land management purposes; however, the majority of the annual budget would likely be used in different regions.

Closure of these facilities would also have a long-term, moderate to major, adverse impact on employment in the area. NPS employees would need to be reassigned to different locations, and restaurant and gift shop employees would lose their jobs. Job losses, and potentially the

relocations of NPS employees, could also result in moderate to major, adverse social impacts on affected persons and families.

Permanent closure of the campground and concessions facilities would cause major, long-term, adverse social impacts. Even an attempt to reduce the season of the Otter Creek campground generated numerous complaints from visitors. With permanent campground closure, visitors would be forced to use another campgrounds in the vicinity, which could result in decrease in visitor satisfaction, particularly if the Otter Creek campground has special importance to a visitor. In addition, the experiences and services provided by the Otter Creek area are not available at nearby sites, requiring visitors to travel greater distances and be further inconvenienced. The most sensitive groups would be people who regularly visit Otter Creek campground, visitors who regularly plan family vacations at the campground, and disabled visitors. Since Otter Lake, accessible via the project site, is the only lake on the Virginia portion of the Parkway to offer an accessible pier, permanent closure of the Otter Creek campground could have major, adverse social impacts on disabled persons or persons accompanying persons with disabilities. In addition, campgrounds in the area may not have available capacities for accommodating additional visitors. This could result in overcrowding at some campgrounds in the region and lead to more dissatisfied visitors.

Transportation

Under Alternative A, the Otter Creek Bridge would not be replaced; the existing bridge would remain in place. Stream bank erosion and displacement of debris from floodwaters would continue to occur during significant storm events, and would continue to compromise the structural integrity of the Otter Creek Bridge abutments. Over the short-term, traffic patterns and trends in the Park would continue at current levels. Occasional traffic congestion at the fee collection booth/campground entrance would continue to occur during campground registration.

Eventually, the bridge would have to be closed to use due to safety concerns, resulting in the permanent closing of the Otter Creek campground, since the Bridge is the only means of ingress and egress for the campground. In addition, the concessions facility could require future closure as a result of flood damage and safety concerns. At the current rate of erosion (based on current weather trends), major failures in the bridge could be expected in three to five years.

While closure of the campground and concessions facility would eliminate traffic within the project area, since there would no longer be any visitors to these areas, bridge failure would have long-term, major, localized, adverse impacts on transportation due to access restrictions. Long-term restrictions on vehicular access to NPS lands across Otter Creek in this area could have potentially major, adverse impacts on other resource areas, including land use and recreation. Without replacement of the bridge, NPS land management across Otter Creek, as well as recreational access, could be inhibited over the long-term.

Utilities and Public Services

Under Alternative A, the Otter Creek Bridge would not be raised or reconstructed, and no changes would be made to the sewage pipes or power and telephone lines that are currently in

the project area. While no new impacts on power or telephone services would be expected, over the short term, periodic flooding of the bridge area would continue to result in the failure of the sewage system. Untreated wastewater would continue to be discharged into Otter Creek via the nearby manholes during storm events, and would continue to adversely affect downstream water quality, aquatic species and habitats, and human health and safety.

In addition, over the short-term, campground visitors and staff would continue to be required to evacuate the area during severe storm events, which would continue to require the occasional use of the adjacent county's Emergency Medical Services. Use of these public services during storm events would continue to decrease the availability of these same services for other emergencies in the county during these times. This would have recurrent, adverse effects on public services in the region over the short-term. The intensity of this impact would be dependent on how many other emergencies are occurring in the region during these storm events.

The Otter Creek Bridge and concessions facility would be at risk of further deterioration under Alternative A. Eventually, bridge would have to be closed due to safety concerns, resulting in the permanent closing of the campground. In addition, the concessions facility could require future closure as a result of flood damage and safety concerns. At the current rate of erosion, it is anticipated that major failures of these structures could occur in the next three to five years.

Campground closure would eliminate the need for many of the public services required at the campground over the long-term. The need to use County Emergency Medical Services for evacuations would be eliminated, which would allow these services to be free to respond to other emergencies in the region, having a beneficial effect on the region's public services.

However, closure of the Otter Creek Bridge would also eliminate access for other maintenance activities. If the bridge were to be closed before failure of the concessions facility occurs, maintenance access required to sustain and monitor the septic system would also cease, which may force the early closure of the concessions facility.

Over the long-term, closure of the Otter Creek campground and concessions facility would eliminate the need for any utilities at the Park, as well as the majority of public service requirements in the project area.

Noise

Under Alternative A, the Otter Creek Bridge would not be reconstructed. Over the short term, noise levels would not change from current noise levels observed during the on- and off seasons. However, with continued flooding during significant storm events, and likely future structural failure of the bridge and concessions facility, the Otter Creek Bridge, campground, and potentially the concessions facility may need to be closed to visitors. At the current rate of erosion, it is anticipated that major failures of these structures could occur in the next three to five years. As a result of these permanent future closures, visitation to the Park would no longer occur. Noise levels at the facility would be similar throughout the year, with no increases observed in the summer months from camping visitors or the use of the restaurant. Thus, under the No Action alternative, long-term noise levels would be similar to current off-season levels

throughout the entire year. This alternative would be in compliance with NPS Management Policies for limiting noise production

Land Use

Under Alternative A, the Otter Creek Bridge would not be raised or reconstructed, and no repairs to the retaining walls, restaurant, or movement of the kiosk would occur. Structural damage to the Otter Creek Bridge would eventually result in the permanent closing of the campground, and loss of the recreation use of these lands. In addition, convenient access to nearby trails from the campground area would no longer be available. The loss of retaining walls adjacent to the concessions operation would continue to occur, eventually resulting in the closure of the concessions facility.

Thus, with the eventual closing of the concessions facility and campground, the Otter Creek project area would be significantly reduced in its use over the long-term, with little more than a parking lot and information display available to Parkway visitors. The Otter Creek area would no longer be able to be used for its intended purpose under Alternative A, resulting in a long-term, major, localized, adverse impact on land use. In addition, this alternative would be contradictory to the mission statement of the Blue Ridge Parkway, due to the resultant decline in the ability of the NPS to enhance the recreational qualities of the Blue Ridge corridor.

Human Health and Safety

Under the Alternative A, the Otter Creek Bridge would not be raised or reconstructed, and the project area would continue to flood during significant storm events. The frequency of this flooding would depend on the frequency and intensity of storm events, but would likely continue to occur at a rate of three to four significant events a year. The Park staff tries to give visitors ample warning to allow the visitors to break camp and leave the campground prior to flooding; however, some flooding events cannot be predicted. Evacuation of the campground and Park facilities would continue to be required under current procedures, and NPS employees would continue to assist visitors with evacuation. The risk of NPS employees and visitors being swept away by floodwaters during evacuation would remain under Alternative A. The number of visitors affected would depend upon the occupancy of the campground during a flood event. In sum, flooding would continue to pose major, adverse impacts to Park visitors and staff, as well as rescue workers.

Under Alternative A, structural damage to the Otter Creek Bridge abutments, the loss of retaining walls adjacent to the concessions operation, and frequent flooding of the buildings would continue to occur. Structural inspections of the bridge abutments and concessions facility indicated that these structures are at risk of failure. Eventually, bridge would have to be closed for use due to safety concerns, resulting in the permanent closing of the campground. In addition, the concessions facility could require future closure as a result of flood damage and safety concerns. At the current rate of erosion, it is anticipated that major failures of these structures could occur in the next three to five years. As a result of these permanent future closures, visitation to the Park would no longer occur. Therefore, long-term, adverse human health and safety impacts related to flooding and structural damage would not affect the general

public. However, these safety risks could still affect any NPS staff present in the area during or immediately after flooding events.

Storm water would continue to infiltrate the sewage pumping station through the manhole at the bridge site under Alternative A, resulting in continued failures of the sewage system, and subsequent discharging of raw sewage into Otter Creek. Raw sewage contains fecal coliform. In themselves, fecal coliforms do not usually pose a threat to people or animals, but they indicate the potential presence of other pathogens or disease-producing bacteria typically found in fecal matter. Threats to people from contaminated water stem from drinking or swallowing the water, or eating fish and other aquatic species contaminated by the water. Health problems related to water contaminated with bacteria typically range from no ill effects to gastrointestinal distress (USEPA; 2003b; CDC, 2002; VDOH, No date). In addition, primary contact with contaminated water can cause infections of the eye, nose, ears, and in cuts or scrapes (CDC, 2002).

Storm waters would rapidly wash most sewage discharged from the sewage system into Otter Creek downstream during and following storm events. Given the normal and storm flows of the Creek, it is not anticipated that sewage discharges would adversely impact visitors participating in water-related recreational activities in the portion of Otter Creek within the project area. However, some sewage may settle out on the banks of the Creek in the project area as floodwaters recede, and could pose a threat to visitors, particularly children who play along the Creek, once the Park has reopened following a flood event. While this impact would be adverse, it would be short-term and minor in intensity.

As stated above, most sewage would be washed downstream, and would end up in Otter Lake, where it may pose a threat to the health and safety of users of the Lake. Otter Lake is not designated as a swimming area, and therefore, the probability of someone accidentally swallowing water in the Lake would be minimal. However, one of the primary uses of Otter Lake is for fishing, and visitors could become ill if they come into contact with water contaminated by disease-producing bacteria, such as when pulling fish out of the water. Bacteria can enter the body through cuts, scrapes, and other openings on the skin surface, or by accidental contact between uncleaned surfaces (including hands) and a person's mouth. The duration of water contamination (and thus, the duration of direct health threat) could range from temporary to short-term, depending on the temperature of the Lake and other variables at the time of contamination. Direct impacts on human health and safety from sewage-contaminated water would likely be minor, given the single point source of the contamination and dilution effects.

Over the long-term, bacteria discharged from the Otter Creek campground sewage system into Otter Creek would likely die off, and would not threaten human health and safety until the next storm event. In addition, under Alternative A, the Otter Creek campground and facilities would likely require closure in the future due to other safety hazards discussed above. Once closed, there would no longer be a continued source of sewage that could be discharged into Otter Creek, and no long-term, adverse impacts on human health and safety from the sewage system are anticipated.

Alternative A would not be in compliance with the *2001 NPS Management Policies* for ensuring visitor safety. According to these policies:

“The saving of human life will take precedence over all other management actions as the Park Service strives to protect human life and provide for injury-free visits...the Service and its concessioners, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees...When practicable, and consistent with congressionally designated purposes and mandates, the Service will reduce or remove known hazards...” (NPS, 2001a).

Implementation of Alternative A would not work to remove the existing safety hazards from the Park, nor would it remove the potential for loss of life and property during storm events.

Waste Management

Under Alternative A, the Otter Creek Bridge would not be raised or reconstructed. Over the short-term, operations at the Otter Creek campground and concessions facility would continue under current conditions. Wastes would continue to be generated at their current volumes and frequencies at these facilities under this alternative. During major storm events, debris washed downstream would continue to become trapped under the bridge, and would continue become piled up against the bridge guardrails and around the bridge site due to floodwaters. This debris would continue to require clean up and disposal by Park employees, most likely by chipping and/or composting or transport to a permanent storage site.

Under Alternative A, structural damage to the Otter Creek Bridge abutments, the loss of retaining walls adjacent to the concessions operation, and frequent flooding of the Park’s structures would continue to occur. At the current rate of erosion, it is anticipated that major failures of these structures could occur in the next three to five years. The bridge may eventually fail and collapse into the stream channel, potentially causing obstruction to the normal stream flow or a debris jam. The collapsed structure would need to be removed and disposed of by the NPS at a nearby approved disposal facility, likely at the Bedford County Sanitary Landfill. Given the existing capacity of this landfill, the small quantity of waste that would require disposal, and the one-time occurrence of this event, this additional waste would only have a negligible impact on the capacity of this landfill.

Over the long-term, failures of the bridge and concessions facility would lead to closure of these facilities. Waste generation and management at these facilities would stop, since they would no longer be used by visitors, and since waste would no longer be generated. Therefore, over the long-term, a negligible to minor, beneficial impacts on waste management would occur under Alternative A.

Visual Resources

Under Alternative A, the Otter Creek Bridge would not be replaced, and as a result, the bridge and concessions facility would be at risk of further deterioration and structural failure within the next three to five years. Flooding and associated erosion problems, such as undercutting of upstream stream banks, loss of riparian vegetation, and loss of the stream bank retaining wall behind the restaurant, would continue under this alternative, and would worsen over time as the

bridge abutments deteriorate. The large scour hole behind the restaurant would continue to worsen and further encroach on the restaurant structure. In addition, continued flooding and worsening erosion problems would likely result in the loss of the fee collection booth, bridge collapse, and structural damage to the concessions facility. Overall, continued deteriorating conditions under Alternative A would result in major, adverse effects on the visual quality of the Otter Creek riparian area and concessions facility over the long-term.

4.2.4.1 Cumulative Impacts

Under Alternative A, it is likely that the Otter Creek Bridge will fail in the next several years, forcing permanent closure of the Otter Creek campground due to access constraints. If closure of this campground occurs, visitors would be forced to use another campgrounds or recreation sites in the region, which may not have available capacities for accommodating additional visitors. This could result in overcrowding at some sites in the region, including increased traffic congestion and parking constraints, and lead to an increase in dissatisfied visitors. Not only would usual visitors to Otter Creek campground be dissatisfied, due to permanent campground closure and the need to find an alternate vacation spot, but this dissatisfaction could also spread to the region as a result of overcrowding at other facilities. Therefore, long-term, adverse cumulative impacts on social conditions, traffic/transportation, and recreation in the region would likely result from Alternative A.

As a result of the future closure of the Otter Creek campground and/or concessions facility due to structural failures, wastes would no longer be generated at the Park. There would no longer be a need for the construction of a sewage treatment facility, and this activity would no longer be reasonably foreseeable.

Under Alternative A, there would be a net decrease in noise levels over the long-term as a result of the future closure of the campground and concessions facility. Thus, a minor, long-term, beneficial, cumulative impact would be observed as a result of the decreased ambient noise levels observed during the summer months at the project site.

Discharges of raw sewage into Otter Creek during flood events would continue under Alternative A, and would continue to contaminate downstream waters, including Otter Lake. This contamination would add to any other potential sources of pollution that are affecting the water quality of the Lake, and would contribute to cumulative adverse impacts on the health and safety of recreational users of Otter Lake and other downstream waters. The intensity of this impact would depend on the types, levels, and frequencies of other sources of pollution.

While closure of the Otter Creek campground and concessions facility under Alternative A would have a long-term, adverse, localized impacts on visual quality and land use, including the elimination of this site as a recreation area, there are no other predicted or known Park or recreation facility closures in the region, or any other changes in the area's land use. Therefore, no cumulative impacts on land use are anticipated under Alternative A.

4.2.4.2 Conclusion

Over the next three to five years, minor to moderate, localized, adverse economic impacts would result from Alternative A due to continued temporary losses in revenues during evacuations, manhours associated with evacuations, and costs of continued storm damage repairs. Continued evacuations would also result in moderate to major, adverse social impacts over the short-term. Recurrent, adverse impacts on utilities and public services would occur over the short-term due to the continued need to evacuate the campground and continued input of raw sewage to Otter Creek from sewage system failures during storm events. Flooding would continue to cause negligible, adverse impacts on waste management from debris disposal, and the eventual disposal of the bridge structure in the event of collapse. Continued deteriorating conditions under Alternative A would result in long-term, major, adverse effects on the visual quality of the Otter Creek riparian area and concessions facility.

Major, adverse impacts on the health and safety Park visitors, employees, and rescue workers would continue to occur under Alternative A due to flooding and threats to the structural integrity of the Park's structures, lasting the duration of campground operation. Implementation of this alternative would not be in compliance with NPS Management Policies for ensuring visitor safety.

In the likely event of bridge failure, and subsequent access restrictions, the campground and concessions facility would undergo permanent closure under Alternative A. This would likely result in long-term, moderate to major, localized, adverse impacts on socioeconomic conditions, due to the loss of revenues from use of the concessions facility, loss of jobs at the concessions facility and the need to reassign NPS staff to alternate locations, and an increase in visitor dissatisfaction. Loss of revenues from campground closure would likely result in a minor, adverse economic impact on the NPS. This alternative could also lead to overcrowding at other area parks and recreation spots, increasing visitor dissatisfaction in those areas.

Over the long-term, the need for utilities and public services, including waste management, at the Park would be eliminated due to closure of the Otter Creek campground and concessions facility. Closure of these facilities under Alternative A would result in a long-term, major, localized, adverse impact on land use, and would not be consistent with the mission statement of the Blue Ridge Parkway.

Alternative A would not result in any adverse impacts from increased noise production. On the contrary, long-term, minor, beneficial impacts would occur as a result of reductions in noise levels in the summer months due to the anticipated eventual closure of the campground and concessions facility.

4.3 ALTERNATIVE B: PREFERRED ALTERNATIVE

4.3.1 Natural Resources

Soils and Topography

Construction associated with replacing the Otter Creek Bridge and other site improvements, as described in Section 2.2 of this EA, would result in minor, temporary, adverse effects on soils due to soil disturbance and compaction. The total area of disturbance would be approximately 8,200 square feet over a period of approximately 4 to 5 months, between November and April (Hultquist, 2003a; 2003b). Exposed soils are vulnerable to erosion during rainfall, and especially so during intense storms. During rainfall, exposed soils lose surface soil particles from raindrop impact, and these particles become suspended in surface water runoff. Runoff from areas disturbed during construction would have the potential to contribute sediment to Otter Creek, degrading water quality and aquatic habitat as described below under *Water Resources* and *Vegetation and Wildlife*. As discussed in detail under *Water Resources* below, the NPS would comply with the *Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations* (VESCL&R) to avoid and minimize erosion and sediment runoff to Otter Creek and would follow State Erosion and Sediment Control (ESC) Program guidance provided in the *Virginia Erosion and Sediment Control Handbook* (Molling, 2003b). Erosion controls would also include seeding all disturbed areas with native vegetation to stabilize soils.

Soil compaction can occur from the use of heavy equipment during construction activities. Soil compaction increases runoff and erosion, and impedes root growth, inhibiting revegetation. Construction equipment would be staged on-site, in a large grassy area outside the Otter Creek floodplain at the intersection of the campground access road and the Blue Ridge Parkway to minimize adverse effects from soil compaction. In addition, construction would not be conducted when soils are wet to minimize or eliminate the potential for compaction.

Long-term effects on soils resulting from implementation of Alternative B would be beneficial, moderate to major in intensity, and would significantly outweigh any short-term erosion concerns. Replacing the Otter Creek Bridge at a higher elevation would provide greater freeboard, allowing storm waters to pass freely and eliminating the potential for debris “dams” to occur at the bridge site during flood events. Raising the bridge and preventing debris accumulation would also eliminate the potential for flooding and associated stream bank erosion and sedimentation to Otter Creek over the long-term.

In addition, stream bank stabilization, scour hole restoration, and reconstruction of the stone retaining wall behind the concessions facility would greatly reduce the potential for erosion in these areas over the long-term. Implementation of Alternative B would not result in long-term adverse impacts to soils.

Water Resources

Construction associated with replacing the Otter Creek Bridge and other site improvements, as described in Section 2.2 of this EA, would disturb approximately 8,200 square feet of ground surface over a period of approximately 4 to 5 months between November and April (Hultquist, 2003a; 2003b). As described under *Soils and Topography* above, disturbed, exposed soils are vulnerable to erosion during rainfall, and especially so during intense storms. Erosion problems associated with construction activities include water pollution, sedimentation, increased storm water runoff, and stream channel damage.

During all demolition and construction activities, the NPS would require the construction contractor to prohibit equipment from entering Otter Creek. If in-stream work is unavoidable, the NPS would require the construction contractor to use synthetic mats to protect the stream.

As part of the Preferred Alternative, the existing Otter Creek Bridge would be demolished and removed. The bridge would likely be lifted from place in the largest sections possible using a 10- to 15-ton or larger crane. The use of this equipment would reduce, to the greatest extent possible, concrete debris from entering the streambed and adversely affecting water quality and stream flow. It would also reduce the need for smaller, lighter-capacity equipment (such as a backhoe) from entering the streambed. If the bridge could not be lifted from its place in a single unit, due to weight limits, the bridge would likely be severed in two to four pieces and lifted from its foundation in sections. Sections to be removed would be temporarily supported in place with underpinning until they could be removed. Any concrete debris entering the streambed from demolition work would be removed within a 10-hour working period to reduce any impact to stream flow. Therefore, removal of the existing bridge would only have temporary, negligible, adverse impacts on water quality.

As with almost any construction project involving the use of heavy equipment, there is some risk of an accidental fuel or chemical spill, which could adversely affect water quality if the spilled chemical were to enter Otter Creek. Fuel products (petroleum, oils, and lubricants) would be needed to operate some of the heavier equipment used during construction activities. However, the NPS would require mitigation specifications to control fuel and equipment storage and handling for the project. All fuel, construction materials, fuel handling, and equipment storage must be performed outside the floodplain of Otter Creek. Leaking vehicles and equipment would not be permitted in the floodplain and such vehicles would require immediate attention. A large grassed area outside the floodplain to the left of the intersection of the campground access road and the Blue Ridge Parkway would meet the criteria for fuel and equipment storage requirements (Hultquist, 2003c). The NPS also does not allow waste materials, such as oil, to be disposed of in storm or sanitary drains or to be washed into streams. Therefore, with the implementation of these measures, the potential for an accidental chemical or fuel spill to occur and result in adverse impacts on water quality would be negligible.

Runoff from areas disturbed during construction would have the potential to contribute sediment to Otter Creek. The Virginia Department of Conservation and Recreation (VDCR) implements the State's Erosion and Sediment Control (ESC) Program according to the *Virginia Erosion and*

Sediment Control Law, Regulations, and Certification Regulations (VESCL&R) codified at Title 10.1, Chapter 5, Article 4 of the Code of Virginia. The ESC Program regulates only construction activities that constitute land-disturbing activities defined as “any land change on private or public land that may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands in the commonwealth, including, but not limited to, clearing, grading, excavating, transporting, and filling of land.” This definition includes land-disturbing activities equal to or exceeding 10,000 square feet. Although the construction activities associated with the Preferred Alternative are not regulated under the VESCL&R since the total area of land disturbance would be less than 10,000 square feet, the NPS would comply with the VESCL&R to avoid and minimize erosion and sediment runoff to Otter Creek and would follow State ESC guidance provided in the *Virginia Erosion and Sediment Control Handbook* (Molling, 2003b). If erosion is not preventable, the NPS may require construction of sedimentation basins to prevent water pollution. Therefore, with implementation of proper erosion and sediment controls, only negligible adverse effects on the water quality of Otter Creek at the bridge site and a short distance downstream would be anticipated to result from the Preferred Alternative over the short-term.

Use of heavy equipment could compact the soils, increasing the quantity of storm water runoff to Otter Creek. Increased volumes of runoff can cause channel erosion and localized flooding. VDCR implements the State’s Stormwater Management Program according to the *Virginia Stormwater Management Law and Virginia Stormwater Management Regulations* (VSWML&R). These statutes specifically set forth regulations regarding land development activities to prevent water pollution, stream channel erosion, and more frequent localized flooding. However, some activities are exempt from the regulations, such as land development projects that disturb less than 1 acre. The construction activities associated with the Preferred Alternative are not regulated under VSWML&R, since the total area of land disturbance would be significantly less than 1 acre (43,560 square feet), and would have a negligible impact on the quantity of runoff generated from the site.

The new Otter Creek Bridge would be constructed at a higher elevation (an increase of 2.5 to 3 feet higher than the existing bridge deck) to accommodate floodwaters of Otter Creek. A hydrology study would also be conducted to identify 500-year flood volumes of Otter Creek to determine final bridge design. Existing concrete footings would be utilized, as long as the structural integrity of the footings is determined to be sound after investigation. If the abutments need to be replaced, a Nationwide Permit (NWP) from the United States Army Corps of Engineers (USACE) would be required for the discharge of dredged or fill material occurring below ordinary high water (OHW) in waters of the U.S. The project would likely meet the criteria of NWP 3 for repair or replacement of existing serviceable structures (Iseli, 2003).

The new bridge design would allow floodwaters and debris to pass under the bridge unobstructed, preventing localized flooding of the site. In addition, the new bridge would restore the hydrology of Otter Creek and prevent further erosion of the stream banks and structural integrity of the concessions facility. The NPS also proposes to restore and stabilize the stream banks, including repair of the stone retaining wall behind the restaurant. Scoured areas would be backfilled with riprap and stone and covered with a layer of soil. Native plant species would be planted to stabilize the soils and provide riparian cover. Like the bridge abutments, if the stream

bank restoration activities require any material be placed below OHW, these activities would require a permit from the USACE. This activity would likely meet the criteria of NWP 13 for bank stabilization; however, further consultation with the USACE would be required to determine specific permitting requirements (Iseli, 2003).

In addition to the USACE NWP requirements, the CWA requires any applicant for a Federal permit for any activity that may result in discharge into navigable waters to obtain a certification that the discharge will not adversely affect water quality from the State in which the discharge will occur. Virginia Department of Environmental Quality (VDEQ) is responsible for Section 401 certification (CWA), called the Virginia Water Protection permit (Coppage, 2003).

A permit must also be obtained from the Virginia Marine Resources Commission (VMRC) to build, dump, or otherwise trespass upon or over, encroach upon, take, or use any material from rivers, streams, or creeks (with a drainage area of five square miles or greater) within the jurisdiction of Virginia (Madden, 2003). The Joint Permit application and review process covers both Federal and State permits for the proposed construction activities under Sections 404 and 401 of the CWA. The Joint Permit review process applications are filed with VMRC, which serves as a clearinghouse and forwards applications to the USACE and VDEQ. The applicant has to file only one application for projects involving State waters.

Long-term effects on water quality resulting from implementation of Alternative B would be beneficial, and moderate to major in intensity. Replacing the Otter Creek Bridge at a higher elevation would provide greater freeboard, allowing storm waters to pass freely and eliminating the potential for debris “dams” to occur at the bridge site during flood events. Raising the bridge and preventing debris accumulation would also eliminate the potential for flooding and associated stream bank erosion and sedimentation to Otter Creek over the long-term. In addition, stream bank stabilization and reconstruction of the stone retaining wall behind the concessions facility would greatly reduce the potential for erosion in these areas over the long-term. Reduced erosion would decrease long-term sediment yields to Otter Creek, improving water quality of the Creek and downstream areas. Implementation of Alternative B would not result in the impairment of water resources.

The problems associated with overflows in the sewage system at the Otter Creek campground would also be corrected by raising the Otter Creek Bridge and eliminating the potential for flooding. There would no longer be the potential for untreated sewage to be discharged into Otter Creek and adversely affect downstream water quality under Alternative B.

Since there are no wetlands within the project area, and none would be affected by project implementation, this action is exempt from preparation of a Statement of Findings.

In summary, only short-term, negligible, adverse effects on the water quality and hydrology of Otter Creek at the bridge site and a short distance downstream would be anticipated to result from Alternative B. Over the long-term, the water quality, hydrology, and stream channel of Otter Creek at and downstream of the site, as well as the water quality of Otter Lake, would be expected to benefit from the Preferred Alternative.

Floodplains

Short-term, adverse effects to the floodplain would be expected from construction activities conducted in the floodplain, including potential soil compaction and erosion. However, these effects would be negligible with the implementation of the mitigation measures described above. As part of construction, some ground and understory vegetation in the floodplain may have to be removed; however, these impacts would be temporary, since the NPS would revegetate these areas with native vegetation upon completion of construction.

Under the Preferred Alternative, the natural resources and functions of the floodplain within the vicinity of the Otter Creek campground would be protected and restored over the long-term. The new bridge design would prevent the continuation of localized flooding and stream channel erosion that has altered the natural hydrology, soils, and vegetation of the floodplain. The stream banks would be restored and revegetated with native riparian vegetation, improving the habitat value of the floodplain. In addition, the kiosk would be relocated out of the floodplain to prevent continued long-term damage to the structure.

Implementation of the Preferred Alternative would be in compliance with Executive Order 11988, *Floodplain Management*, and NPS Director's Order #77-2 Floodplain Management that requires the NPS to “*protect, preserve, and restore the natural resources and functions of floodplains and avoid the long- and short-term environmental effects associated with occupancy and modification of the floodplain.*”

Air Quality

Impacts on air quality resulting from Alternative B can be divided into two main categories: 1) temporary effects, or those associated with bridge construction and other rehabilitation operations; and 2) long-term effects, or those associated with the long-term operation of the Park. These latter effects result from vehicular emissions as a consequence of driving trips generated by projected visitors and staff to and from the campground and facilities.

Air emissions estimates were made by first making assumptions as to which equipment would be used during construction and for how long. Once these assumptions were made, the following models and emission factors developed by the USEPA were used to estimate the amount of emissions anticipated to be generated:

- NONROAD Emissions Model (USEPA, 1999);
- Mobile Source Observation Database (USEPA, 2000a); and
- AP-42, Compilation of Air Pollutant Emission Factors, Volume II Mobile Sources (USEPA, 2000b).

Equipment needed for the construction and rehabilitation measures would likely include one or more graders, scrapers, dozers, front end loaders, backhoes, cranes, compactors, several kinds of trucks (cement, highway, dump, service), gasoline pumps, and small tools, including concrete saws, jack hammers, drills, and other items. Asphalt and cement would be trucked to the site

from existing plants. Construction would occur approximately eight hours per day, during daylight hours only, for approximately four to five months in total. Assuming that 20 workdays occur in a given month, the total number of work hours for the project would be approximated 800 hours (20 days x 8 hours per day x 5 months).

Table 4.3.1-1 lists the equipment expected to be used during construction, and assumptions as to the total number of hours of use. Note that not all equipment would be used for the entire duration of construction, and not all equipment would be used at the same time. Assumptions regarding hours of use are designed to be very conservative; in other words, each piece of equipment would likely be used for less time than indicated in the table. For the majority of the large equipment, it was assumed that each piece would be used for one-third of the total project time. Small tools and a gas powered pump are assumed to run constantly to ensure a worst-case scenario emissions estimate for these equipment types.

Table 4.3.1-1. Equipment Assumptions For Air Emissions Analysis		
Equipment Type	Total Hours	Total Days*
Crane	267	33
Loader, Front End, Crawler	267	33
Loader/Backhoe, Crawler	267	33
Highway Truck	267	33
Service Truck	267	33
Cement Truck	267	33
Scraper	267	33
Dozer	267	33
Grader	267	33
Compactor	267	33
Small Tools**	800	100
Pump, Gasoline 4-stroke	800	100

*Based on an eight-hour day

** Small, hand-held tools powered by a pump or gasoline, including saws, drills, jackhammers, etc.

Using this equipment, along with the projected hours of use, air emissions levels were determined. The results are shown in **Table 4.3.1-2**.

Table 4.3.1-2. Equipment Emissions (in tons) During Construction Activities				
Carbon Monoxide (CO)	Nitrogen Oxides (NO _x)	Sulfur Dioxide (SO ₂)	Particulate Matter (PM ₁₀)	Volatile Organic Compounds (VOCs)
2.42	1.48	0.39	0.16	0.29

As shown in **Table 4.3.1-2**, none of the criteria pollutants even remotely approach the *de minimis* threshold levels of 100 tons. As stated previously, NO_x and VOCs are ozone precursors, and the combination of these two pollutants should be below the *de minimis* threshold levels of 100 tons in order not to create excessive levels of ozone. Using the above stated scenario, the total emissions from this equipment set would be 1.48 tons of NO_x and 0.29 tons of VOCs. Their sum is well below the 100-ton standard. Additionally, with the virtual elimination of leaded fuels in this country, it would be improbable that there would be any measurable level of lead produced

by this action. In sum, the daily and total emissions from equipment used during construction would not be high enough to significantly deteriorate the air quality of the region.

In addition to tailpipe emissions from heavy equipment, the temporary disturbance of approximately 0.2 acres of ground surface during construction activities may lead to fugitive dust emissions. Fugitive dust emissions are comprised of particulate matter of soil or other materials, which are temporarily suspended in air. These emissions are commonly caused by ground disturbance during road use, construction activities, or simply wind erosion of a newly exposed ground surface. To minimize fugitive dust emissions during construction, measures would be implemented, such as sprinkling to keep the disturbed areas damp and washing down construction vehicles and paved roadways immediately adjacent to the construction site. No fugitive dust emissions would be anticipated to affect visitors to the Otter Creek campground, since the campground would be closed during the construction period.

No long-term impacts on air quality are anticipated as a result of the Preferred Alternative. Current levels and trends in vehicle emissions from visitors and staff of the campground and facilities would not change as a result of this alternative. Alternative B would not result in an impairment of the Park's air resources.

Vegetation and Wildlife

Temporary, negligible to minor, localized, adverse impacts on vegetation and wildlife would occur during construction activities associated with the replacement of Otter Creek Bridge, construction of a new fee collection booth, and widening of the pull-off area. Implementation of Alternative B would primarily require the removal of a small amount of early succession and understory vegetation, including grasses and shrubs. Only a few trees would need to be removed from the project area, primarily at the site of the new fee collection booth. The proposed location for this structure was, in part, selected to lessen tree removal. The proposed pull-off area would also be constructed with minimal disturbance to site trees and minimal ground disturbance (NPS, 2002a). No new vegetative disturbance is proposed for bridge reconstruction; all disturbance would occur in the presently paved asphalt roadway leading up to the bridge (Basinger, 2002).

Vegetation removal during construction would result in the loss of a negligible to minor amount of wildlife habitat in the project area. However, this impact would be short-term, since all disturbed areas would be seeded with a native species mix and allowed to revegetate upon completion of construction. In addition, there are many acres of suitable wildlife habitat available surrounding the project site that would remain unaffected by construction activities.

Terrestrial wildlife within and adjacent to the area would be affected only temporarily during the four- to five-month construction period. The presence of workers and equipment at the project site and noise associated with equipment use would disturb surrounding wildlife, resulting in temporary displacement of some wildlife from the area. However, no permanent displacement of wildlife would occur.

Since all of the proposed construction activities would take place in the area that has already been heavily impacted by other construction and visitor use activities, no additional detrimental effects on neotropical/migratory bird species would be expected. The Otter Creek channel would be protected from adverse environmental effects during construction, and remain unchanged as a result of the new construction. No wetland disturbance would occur during this project, and few, if any trees over six inches in diameter at breast height would be removed.

Aquatic species and habitat, including that for the yellow lance, may be adversely affected by sedimentation of Otter Creek during construction, as well as impacts to the streambed from equipment use. Potential sedimentation could occur during construction from increased soil erosion and surface water runoff associated with ground disturbance, vegetation removal, and soil compaction due to the use of heavy equipment, adversely affecting fish and macroinvertebrate habitat. However, erosion and sediment controls provided in the *Virginia Erosion and Sediment Control Handbook*, as discussed under *Water Resources* above, would reduce or eliminate sedimentation. According to the VDCR, implementation of and strict adherence to erosion and sediment control measures during all land disturbing activities would minimize adverse impacts to the aquatic ecosystem, including the yellow lance and its habitat. In addition, very few trees would be removed during construction, and ground disturbance would be kept to a minimum.

To reduce adverse impacts to the streambed, no equipment would be allowed to enter Otter Creek during construction activities. If in-stream work is unavoidable, the NPS would require the construction contractor to use synthetic mats to protect the stream. As discussed above under *Water Resources*, specialized equipment would be used during demolition/removal of the existing bridge to reduce, to the greatest extent possible, concrete debris from entering the streambed and adversely affecting water quality, stream flow, and aquatic species and habitat. Any concrete debris entering the streambed from demolition work would be removed within a 10-hour working period to reduce any impact to stream flow and aquatic habitat. Therefore, any adverse effects on aquatic species and habitat resulting from construction would be temporary and negligible.

Minor, temporary, adverse effects on stream bank habitat along Otter Creek would occur during construction; however, these areas are already disturbed, and any additional disturbance effects associated with construction would largely be unnoticeable. In addition, these areas would be revegetated with native vegetation and restored upon completion of construction activities. All construction activities and subsequent revegetation measures would take into account the potential for stream flooding and subsequent soil erosion and stream sedimentation to minimize impacts on aquatic species and habitat.

Long-term effects on vegetation and wildlife, including aquatic species, resulting from implementation of Alternative B would be beneficial, and moderate to major in intensity. Replacing the Otter Creek Bridge at a higher elevation would provide greater freeboard, allowing storm waters to pass freely and eliminating the potential for debris “dams” to occur at the bridge site during flood events. This would directly benefit aquatic species by ensuring unobstructed aquatic species passage during those times. Raising the bridge and preventing debris accumulation would also eliminate the potential for flooding and associated stream bank erosion

and sedimentation to Otter Creek, thereby improving aquatic habitat over the long-term. These beneficial effects under Alternative B would work to protect and conserve the yellow lance and its habitat over the long-term.

The problems associated with overflows in the sewage system at the Otter Creek campground would also be corrected by raising the Otter Creek Bridge and eliminating the potential for flooding. There would no longer be the potential for untreated sewage to be discharged into Otter Creek and adversely affect downstream aquatic species under Alternative B. This would have a long-term, moderate to major, beneficial impact on downstream aquatic organisms.

The stream banks of Otter Creek would be stabilized and revegetated with native plant species under Alternative B, restoring the riparian area and providing additional wildlife habitat. The existing stone retaining wall located behind the Otter Creek concessions facility would be reconstructed, eliminating or greatly reducing the potential for erosion over the long-term. Reduced erosion would decrease long-term sediment yields to Otter Creek, improving aquatic habitat within Otter Creek and downstream areas and benefiting riparian vegetation.

Implementation of Alternative B would not result in the impairment of vegetation or wildlife resources. Beneficial impacts to these resources would occur.

4.3.1.1 Cumulative Impacts

Long-term, beneficial, cumulative impacts on soils, water quality, vegetation, and wildlife, including aquatic species such as the yellow lance, would occur as a result of Alternative B. Decreased soil erosion would improve soil resources in the project area over the long-term, and would reduce sediment yields into Otter Creek and Otter Lake. Decreased sediment yields, as well as the elimination of discharges of untreated sewage, would improve the water quality of, and aquatic species and habitat in, downstream waters by eliminating these sources of pollution. In addition, future NPS relandscaping efforts at the Park may involve the planting of some trees and other native vegetation, which would add a very small amount of habitat for some wildlife on the Park, and help to reduce erosion by stabilizing soils, thereby benefiting water quality and aquatic species.

Upon raising the Otter Creek Bridge under Alternative B, it is likely that the outdoor patio area at the Otter Creek concessions facility/restaurant will be reconstructed and reopened to diners in the future. The former patio area was demolished in 2001, and subsequently seeded and mulched to stabilize the area. Reconstructing this patio area would not eliminate any habitat for wildlife, since no vegetation has established in this disturbed area. In addition, since the stream banks and retaining wall would be restored in this area under Alternative B, and erosion and sediment control would be implemented during construction of this patio, no major, adverse, cumulative impacts on soils, water quality, or aquatic species and habitat would occur.

The region in which the Preferred Alternative is located is in attainment for all criteria pollutants. Although Botetourt County, approximately 10 miles southwest of the project area, is considered a non-attainment area for ozone (VDEQ, 2001), since this county is located so far southwest of the project area, it is not anticipated that any activities from the Preferred Alternative would add

to air quality impacts in this county. The only projects proposed for the reasonable foreseeable future within the project area that have the potential to impact air quality would involve further improvements to the sewage system and the reconstruction of the outdoor patio area at the concessions facility. Assuming, as a worst case scenario, that construction operations associated with these project involve similar construction equipment sets and timelines as those described for Alternative B, no cumulative air quality impacts would be expected, due to both the nominal increase in air emissions anticipated and the temporary nature of these emissions on the area airshed. Thus, no significant, adverse, cumulative impacts on air quality would occur under Alternative B.

4.3.1.2 Conclusion

Construction activities under Alternative B would have temporary to short-term, negligible, localized, adverse impacts on soils, water quality, and aquatic species and habitats, if mitigation measures are implemented, due to increased erosion, compaction, runoff, and sediment from the construction site. The potential for a chemical or fuel spill to occur during construction that would adversely affect natural resources would be very low. Temporary to short-term, negligible to minor, localized, adverse impacts on vegetation and terrestrial wildlife would also occur during construction due to vegetation removal, the presence of workers, and use of noise-generating equipment. Long-term, moderate to major, beneficial impacts on soils, water quality, vegetation, and wildlife, including aquatic species such as the yellow lance, would result from Alternative B due to reducing erosion and sediment yields, reducing potential for debris jams to develop, eliminating raw sewage discharges into Otter Creek, and restoring eroded areas, including riparian habitat. No major, adverse, cumulative impacts on natural resources would occur under Alternative B; long-term, beneficial, cumulative impacts on soils, water quality, vegetation, and wildlife, including aquatic species, are anticipated. Alternative B would not result in the impairment of any natural resources.

Although Alternative B would have short-term, negligible (due to mitigation measures), adverse effects on the Otter Creek floodplain during construction, the natural resources and functions of the floodplain within the vicinity of the Otter Creek campground would be protected and restored over the long-term. This alternative would be in compliance with Executive Order 11988 and NPS Director's Order #77-2 *Floodplain Management*.

Alternative B would have temporary, localized, minor, adverse impacts on air quality during construction activities, but no long-term impacts on air quality are anticipated. This alternative would neither contribute to significant cumulative impacts on air quality, nor result in an impairment of the Park's air resources.

4.3.2 Cultural Resources

In accordance with Section 106 of the NHPA, a cultural resources investigation was conducted in the project area and consultation and comment were solicited from the Virginia State Historic Preservation Officer (SHPO). As discussed in Section 3.2, no archaeological artifacts and/or features were observed or recovered in any of the shovel test pits during the archaeological

evaluation. Therefore, no effects on archaeological resources are anticipated under Alternative B. Although no archaeological work was done for the raising of the roadbed at the Otter Creek Bridge site, since fill material would be brought in to raise the roadbed, no effects on archaeological resources are anticipated (Kreusch, 2003).

No historic properties or cultural landscapes would be affected by implementation of the Preferred Alternative. In addition, no further archaeological work is recommended for the project site (Kreusch, 2003). The Virginia SHPO concurs with the Park's finding of No Adverse Effect on cultural resources (NPS, 2003).

4.3.2.1 Cumulative Impacts

Since Alternative B would not affect archaeological resources, historic properties, or cultural landscapes, this alternative would not contribute to cumulative impacts on these resources.

4.3.2.2 Conclusion

Alternative B would not directly, indirectly, or cumulatively affect any archaeological resources, historic properties, or cultural landscapes. No impairment of the Park's cultural resources would occur under Alternative B.

4.3.3 Visitor Use and Experience/Recreation

Under the Alternative B, reconstruction of the bridge and other improvements would be conducted during the off-season at the Otter Creek campground and concessions facility, between November and April, to avoid adverse impacts on visitors. October would be avoided, since it is the busiest month on the Blue Ridge Parkway (Hultquist, 2003a). Therefore, construction activities are not likely have any impact on visitor use and experience or recreation.

Elimination of the potential for future flooding would eliminate the need for campground evacuations during severe storm events, resulting in a long-term, minor to moderate, beneficial impact on visitor use and experience and recreation. Eliminating the need to evacuate the area would allow for an uninterrupted experience for visitors, contributing to a more pleasurable experience and enhancing visitor satisfaction in the long-term.

The new bridge structure would provide for unobstructed stream flow, preventing localized flooding and associated erosion problems over the long-term. The eroded stream banks would be restored and revegetated with native vegetation under Alternative B, and the scour hole behind the restaurant would be backfilled, stabilized, and revegetated. These improvements would enhance the scenic integrity of the project area, thereby enhancing visitors' enjoyment and experience in the area. In addition, reducing the costs associated with repairing or replacing flood-damaged structures and cleanup after storms may allow for more of the Park's budget to be spent on improvements to enhance visitor experience, satisfaction, and safety.

Removing the potential for flooding would eliminate the potential for raw sewage discharges into Otter Creek, and greatly reduce sedimentation of Otter Creek and downstream areas over the long-term. This would have a long-term, minor to moderate, benefit on recreational uses downstream by reducing threats to aquatic species and the health and safety of recreationists.

Relocating the fee collection booth/kiosk and creating a parking pull-off for registering vehicles adjacent to the access road would also enhance visitor experience. This pull-off would lessen vehicle backup and congestion during registration, alleviating inconveniences and making the camping experience at Otter Creek more enjoyable.

Raising the Otter Creek Bridge, and subsequent restoration of eroded areas, would reduce the potential for future flooding in the area and would protect the Park's structures over the long-term. The campground and concessions facility would no longer be in danger of closure. Alternative B would allow for the continued availability of recreational opportunities in the Otter Creek area over the long-term. This alternative would be consistent with the mission of the Blue Ridge Parkway to *"enhance the outstanding scenic and recreation qualities of the corridor that traverses, conserving unimpaired its significant natural and cultural resources, and promoting in perpetuity the public enjoyment and appreciation of the Central and Southern Appalachian Mountains."*

Overall, implementation of Alternative B would allow for long-term, continued enjoyment of the Otter Creek campground and facilities by local and transient visitors and would provide for more sustained visitor use and pleasant visitor experience.

4.3.3.1 Cumulative Impacts

Past flood damage to the outdoor patio area at the concessions facility, and associated safety hazards, resulted in the closure of the patio area to diners. Due to continued damage, the patio area was removed in fiscal year 2001. The closure of this patio area reduced the number of visitors that could be accommodated at the facility by reducing dining capacity to the interior of the facility only. In addition, erosion and loss of the riparian area behind the restaurant has been negatively impacting visitor experience in the area.

Eliminating the potential for future flooding and structural failures under Alternative B would allow the NPS and the concessionaire to make other improvements to the Otter Creek area, including landscaping efforts and reconstruction of the outdoor dining area, to enhance visual quality, visitor experiences, and safety. Reconstruction of the outdoor dining area at the restaurant facility, along with restoration of the riparian area behind the facility, would once again provide restaurant visitors with enjoyable streamside dining experience. In addition, the outdoor dining area would increase the capacity of the restaurant facility, eliminating the potential for overcrowding, and enhancing visitor experience.

Long-term, beneficial, cumulative impacts on downstream recreational uses would also occur under Alternative B. Decreased sediment yields, as well as the elimination of discharges of untreated sewage, into Otter Creek and Otter Lake would improve the water quality of, and

aquatic species and habitat in, downstream waters by eliminating these sources of pollution, making the area more attractive for water-related recreation, such as fishing.

4.3.3.2 Conclusion

No impacts on visitor use, experience, or recreation would occur during construction activities under Alternative B. Over the long-term, this alternative would have moderate to major, beneficial impacts on visitor use and experience and recreation due to eliminating the need for evacuations, sustaining the long-term use of the area for recreation, improving the area's visual quality, and reducing water pollution in downstream areas. Implementation of Alternative B would be consistent with the Blue Ridge Parkway's mission of enhancing scenic and recreational qualities and promoting public enjoyment. This alternative would not lead to an impairment of visitor use and experience and/or recreation.

4.3.4 Socioeconomic Environment

Economy and Social Conditions

Construction activities associated with the proposed improvements would have temporary, negligible to minor, beneficial impacts on the local economy if a local contractor would do the construction. The construction award for this project has not yet been awarded, and will be awarded based on bids submitted by competing vendors (Molling, 2003b). Award of the construction contract would benefit the local economy through wages, overhead expenses, material costs, and profits.

All construction activities under Alternative B would be completed within one construction season, approximately four to five months. Construction would be scheduled during the off-season at the Otter Creek campground, between November and April, to avoid adverse impacts on visitors. October would be avoided, since it is the busiest month on the Blue Ridge Parkway (Hultquist, 2003a). Since construction would be conducted while the campground is closed and no visitation is occurring, no impacts on revenues from visitation are anticipated.

The concessions facility at the Otter Creek campground is closed during the off-season, usually from the end of October to early April, and therefore, would be closed during the construction period (Molling, 2003a). Therefore, construction activities are not likely to affect business or revenues at the restaurant.

Implementation of Alternative B would result in long-term, moderate to major, localized, beneficial economic impacts. Eliminating the need for evacuations of the Otter Creek campground and facilities during storm events would eliminate the manhours associated with warning visitors and assisting in evacuations, including use of the County Emergency Medical Services, which would allow these services to be free to respond to other emergencies. There would no longer be temporary losses in revenues associated with Park closures during evacuation periods.

Eliminating the potential for future flooding at the Park would protect the Park's structures over the long-term, decreasing costs associated with facility maintenance, and eliminating the costs associated with repairing or replacing flood-damaged structures and cleanup after storm events. Reducing these costs would allow more of the Park's allocated budget to be spent on improvements to enhancing visitor experience, satisfaction, and safety. In addition, the NPS does not anticipate to incur any maintenance costs associated with maintaining the reconstructed bridge over the long-term (Pierceall and Sutton, 2003).

Long-term, moderate to major, localized, beneficial impacts on social conditions would also be anticipated as a result of Alternative B. Eliminating the need to evacuate the Park would decrease visitor interruptions, greatly enhancing visitor satisfaction over the long-term. Implementation of the Preferred Alternative would allow for the continued enjoyment of the Otter Creek campground and facilities by local residents and transient visitors. In addition, since the Park's structures would be protected as a result of Alternative B, this alternative would not result any decreases in employment or associated social impacts.

Transportation

The transport of equipment, materials, and workers to the project site during construction activities would temporarily increase the amount of vehicular traffic on surrounding roadways, including the Blue Ridge Parkway. During the first week or two of construction, most of the equipment and materials for construction would be hauled to the sites via large highway trucks. Only a few large trucks, making multiple trips to and from the project sites, are anticipated to be required for this phase of construction. The addition of such a small number of large trucks to surrounding roadways would have negligible impacts on transportation, including temporary slows in traffic speed, particularly at the turn-in to the Otter Creek area from the Blue Ridge Parkway. No damage to affected roadways is anticipated to occur with so few truck trips, and over the very short time period over which these trucks would use the roadways.

Workers would travel to and from the project site at least once daily during construction activities. Workers would travel in service trucks, similar to other vehicles that currently use the local roadways. While this would increase the average daily traffic volumes on the surrounding roadways, this increase would be temporary and negligible, since only a couple of trips each day would occur, and would not result in increased congestion.

During construction under Alternative B, the access road to the campground and concessions facility would be closed to the public. Barricades or fences would be installed around the construction site to prevent non-contractors and the public from entering the construction area (Hultquist, 2003a; NPS, 1997a). All required signage per the *Manual on Uniform Traffic Control Devices* (USDOT, 2001) would be installed and maintained around the construction site and around road closures (NPS, 1997a). These construction access restrictions and road closures are not anticipated to result in traffic congestion or any other adverse impacts on transportation, since construction would occur during the off-season at the campground and concessions facility, when these facilities are closed to visitation (Molling, 2003a). In addition, the NPS would request that construction of the new fee collection booth and road repaving/pull-off widening be

constructed simultaneously with the bridge construction to minimize campground closure and access restrictions (Hultquist, 2003a).

Raising and reconstructing the Otter Creek Bridge under Alternative B would result in long-term, major, localized, beneficial impacts on transportation and access. The structural integrity of the bridge would be maintained, allowing for sustained access to the campground and facilities over the long-term. Included with bridge construction would be the installation of a new concrete walk with an aluminum handrail on the west side of the bridge, which would improve pedestrian traffic safety over the bridge over the long-term.

Relocating the fee collection booth/kiosk and creating a parking pull-off for registering vehicles adjacent to the access road would also result in long-term, moderate, localized beneficial impacts on transportation. This pull-off would lessen vehicle backup during registration, and vehicle congestion would be less likely to impede entrance into the concessions parking area. Beneficial impacts from reduced traffic would be more noticeable during peak times at the campground.

Utilities and Public Services

Impacts on utilities and public services resulting from the Preferred Alternative can be divided into two main categories: 1) temporary effects, or those associated with bridge construction and other rehabilitation operations; 2) long-term effects, or those associated with the long-term operation of the campgrounds and concessions facility.

The sewer, electric, and water lines for the concession-operated restaurant facility would be relocated under Alternative B. Approximately 210 linear feet of underground single-phase primary electrical service to the concessions operations would be installed through the newly constructed bridge. The current electrical lines for the concessions operation are located above ground, with overhead utility poles and lines located to the east and west of the existing bridge. The electrical pole located to the west of the bridge, adjacent to the existing kiosk, would be removed under Alternative B. The overhead power line would be installed underground, and would run through a code-required conduit embedded within the concrete of the new bridge. Between the restaurant facility and the bridge, and between the bridge and the electrical pole on the eastern side of the bridge, electrical wiring would be run underground to required trenching and backfill specifications to meet electrical codes (Hultquist, 2003e). In addition, underground electrical and phone service to the new kiosk would be installed (NPS, 2002a), and a new sewer line connecting the Otter Creek restaurant to the campground sewer system would be constructed over Otter Creek. Approximately 180 feet of sewer line would run within a conduit on the new Otter Creek Bridge. Since the new bridge would be elevated, a lift station would need to be constructed to pump sewage through the system. This new lift station would have two 3-Hp pumps, a manhole/holding tank, electrical controls, and alarms in the campground.

During the construction phase, utility services to the restaurant, kiosk, and campground would need to be temporarily shut down while changes are made to the sewer, electric, and telephone systems. These temporary shut downs would not effect operations at the facilities, as the restaurant and campground are normally closed during the proposed construction period. In

addition, the proposed changes to the sewer, telephone, and power lines would not adversely affect the functioning of these services.

Removal of the existing aboveground electrical pole located on the western side of the bridge, adjacent to the existing kiosk, would have a long-term, minor, localized, beneficial impact on utility service. The existing electrical pole is located very near the edge of the access road to the campground (a potential current violation of electrical code) (Hultquist, 2003e). Removal of this pole would eliminate the potential for accidental vehicle collisions with this pole, which could interrupt electrical service to the area until repaired.

The reconstruction of the bridge at a new higher level would ensure that debris does not get trapped under the bridge during heavy storm events. As a result of this improvement, no flooding of the manholes near the bridge is anticipated to occur, thereby eliminating the occurrence of untreated wastewater input to Otter Creek during floods.

Eliminating the potential for flooding would also eliminate the need for evacuation of the Park during significant storm events over the long-term. Therefore, use of the County Emergency Medical Services by the Park would be reduced over the long-term, freeing these services up to be able to respond to other emergencies in the area.

Noise

Impacts from noise production resulting from Alternative B can be divided into two main categories: 1) temporary effects, or those associated with bridge construction and other rehabilitation operations; and 2) long-term effects, or those associated with the long-term operation of the concessions building and campground.

The equipment needed for bridge construction, kiosk construction, and streamside rehabilitation operations would likely include one or more graders, scrapers, dozers, front end loaders, backhoes, compactors, several kinds of trucks, pumps, and small tools. **Table 4.3.1-1**, under *Air Quality* above, provides a list of the equipment assumed to be used on the construction site, as well as their anticipated hours of usage. Construction would occur on weekdays only, approximately eight hours per day, over the four- to five-month construction period.

Under a worst-case scenario, where all of the equipment is located very closely together, and running/operating at the same time, it is estimated that a noise level of 101 dBA could be generated at the worksite itself. This noise level would attenuate (reduce) with increased distance from the construction site. Assuming that no wind, variations in terrain, foliage, or other factors are taken into consideration, reductions of approximately 3 dB for each doubling of the distance between the site and receiver are observed. **Table 4.3.4-1** shows the noise levels anticipated at various distances from the construction site under this worst-case scenario.

Table 4.3.4-1. Anticipated Equipment Noise Levels at Various Distances from the Construction Site	
Distance From Site (feet)	Operations (dBA)
100	95
300	85
500	81
750	77
1,000	75
2,000	69
3,000	65

As shown in **Table 4.3.4-1**, at a distance of approximately 1,000 feet from the construction site, the noise level would be 75 dBA. At this distance, noise levels would be within the “normally acceptable” standards of 60 to 75 dBA for a natural recreation area (see **Table 3.4-2**, Recommended Land Use Noise Levels, in Section 3.4.4 of this EA).

Noise generated from the use of this equipment would temporarily disturb wildlife adjacent to the construction site, and could cause the temporary displacement of some species. However, since noise-generating equipment would be used only for a relatively short duration, any displaced wildlife would be expected to return to the area upon completion of construction. No permanent displacement of wildlife is expected to occur.

The area surrounding the proposed bridge construction and stream stabilization efforts supports both developed and dispersed recreation uses. Noise generated during construction activities would not be anticipated to interfere with developed recreation uses, as the campground and restaurant would be closed to visitors during the proposed construction period (November to April). Although there is potential for noise disturbance of dispersed recreation (e.g., hiking, nature study), this would be less likely during the winter months, when the concessions and campground facilities are closed and visitor use is minimal or absent. Furthermore, only dispersed recreationists very near the construction site are anticipated to be adversely affected by construction noise. Recreation users farther away would likely experience much-reduced noise levels due to the rapid attenuation of noise as a result of distance and other site-specific factors. Factors such as vegetative cover, terrain, wind, and weather impede the propagation of sound, and thereby provide additional attenuation of noise experienced by an observer. Terrain features (such as grass) may add an additional level of sound-attenuation equal to 4.5 dB per doubling of the distance between the source and receiver, and standing vegetation can provide additional reducing effects, depending on its density and height. For example, sound reductions of up to 7 dB can result from dense forest stands 100 feet or greater in depth between the source and receiver (NYDEC, 2001). Variable terrain, similar to that found to the east of the project site, can greatly effect sound propagation by reflecting sound away from a nearby sensitive area (HUD, 1991). Together, these factors would significantly reduce noise that might be experienced by dispersed recreation users passing near the project area.

The transport of equipment and other materials to and from the project site would require the use of large trucks, which would also generate noise, and would not be restricted to the area adjacent to the project site. These noise sources would be transient, and would only affect a given area

for a few seconds. Truck traffic would use existing roads to access the project site, and any noise effects from increased truck traffic would be temporary.

No long-term impacts on noise levels are anticipated to occur as a result of Alternative B; visitor use would continue at its current levels and trends, and would continue to fluctuate seasonally in accordance with seasonal facility closures.

Land Use

Under Alternative B, the Otter Creek Bridge would be raised and reconstructed, eliminating the potential for future flooding of the area. Evacuation of the campground during significant storm events would no longer be necessary, allowing for uninterrupted operations at the Park's facilities over the long-term. In addition, eroded areas, including the scour hole behind the restaurant, would be restored under this alternative. Implementation of Alternative B would protect the Park's structures from further deterioration over the long-term. The Otter Creek campground and concessions facility would not require closure under this alternative; rather, the Park would be able to continue to operate under normal conditions. In sum, Alternative B would have a long-term, minor, beneficial impact on land uses in the area due to eliminating the potential for future flooding. However, no changes in land use are proposed under this alternative; this alternative would allow for the continuance of existing land uses in the area.

Human Health and Safety

During construction activities under Alternative B, various safety measures would be in place to protect the public from dangers at the construction site, and to restrict access to the site by the public. Construction would occur during the off-season at the campground and concessions facility, when these facilities are closed (Molling, 2003a). The NPS would request that construction of the new fee collection booth and road repaving/pull-off widening be constructed simultaneously with the bridge construction to minimize campground closure (Hultquist, 2003a). The access road to the campground and concessions facility would be closed to the public during construction of the bridge and fee collection booth and widening of the pull-off area. All required signage per the *Manual on Uniform Traffic Control Devices* (USDOT, 2001) would be installed and maintained around the construction site and around road closures (NPS, 1997a).

Barricades or fences would be installed around the construction site to prevent non-contractors and the public from entering the construction area (Hultquist, 2003a; NPS, 1997a). In addition, the construction contractor would likely install a barrier or fence to prevent access to the construction site from down or upstream of the project site (Hultquist, 2003a). These barricades would be regularly maintained and would be illuminated at night (NPS, 1997a). The construction contractor would also post construction warning signs to notify users of the Otter Creek campground and facilities of the construction site and dangers at the site (Hultquist, 2003a). With all of these measures in place, the potential to pose safety risks to the public during construction activities would be very low.

Other construction safety standards and requirements would be built into the construction contract for the project. The NPS has a set of construction contract standards, which contractors

for NPS projects must follow during construction. As part of these specifications, the contractor is required to designate and post a hard hat area. All workers or visitors to the construction site are required to wear hard hats, in addition to any other necessary protective equipment, at all times. At least six hard hats are required to be stored on-site for use by visitors (NPS, 2000a).

The NPS construction contract specifications also include additional worker safety requirements. An accident prevention program would be established before work begins to ensure worker and visitor safety. Among other things, the program must include: the name of the responsible supervisor to carry out the program; a list of weekly and monthly safety meetings; first aid procedures; an outline of each phase of work, with hazards associated with each phase and the methods of ensuring safety; training in first aid and hazardous materials handling; planning for possible emergency situations, such as floods or fires; and fire protection. The program must be reviewed by the NPS contracting officer for compliance with Occupational Safety and Health Administration (OSHA) requirements. In addition, all mechanical equipment present on the construction site must be OSHA inspected (NPS, 2000a).

Personal protective equipment would be available on-site, and would be inspected daily for maintenance. Adequate first aid facilities would be provided on the construction site in the event of an accident. Emergency phone numbers, including ambulance, hospital, police, and fire department numbers, would be posted at the work site with reporting requirements (NPS, 2000a). With all of these safety measures in place, adverse impacts to worker safety resulting from construction activities would be temporary and negligible to minor.

As with almost any construction project involving the use of heavy equipment, there is some risk of an accidental fuel product or chemical spill or unplanned release of some other toxic or hazardous contaminant onto the ground, which would pose a threat to human health and safety. All employees that would be exposed to hazardous materials at the construction site would be trained and instructed in approved methods for handling and storage of such materials (NPS, 2000a). Therefore, the probability of an accidental spill would be very low. In addition, the potential for a chemical spill to occur and pose adverse human health and safety impacts would be further reduced by the implementation the Park's *Hazardous Materials Management Plan* and *Hazardous Waste Emergency Management Plan*.

The degradation of human health and safety due to soil erosion and surface water runoff impacting water quality, and fugitive dust impacting air quality, would be controlled throughout all stages of construction by best management practices (BMPs), as discussed in Section 4.2.1, under *Water Resources*. With these measures in place, impacts on human health and safety due to fugitive dust or water quality degradation would be negligible, at most.

Over the long-term, major, beneficial impacts on human health and safety at the Otter Creek campground and other Park facilities would result from implementation of Alternative B. Raising and replacing the Otter Creek Bridge would eliminate the potential for flooding, as well as the potential for future failure of the bridge and other Park structures. Visitor and employee safety during periods of inclement weather would be improved, and the need for evacuation of the Park would be eliminated. In addition, the safety risks associated with evacuation and rescue during storm events would be eliminated under this alternative.

Removing the potential for flooding would also reduce the potential for failure of the sewage system. Discharges of raw sewage, which could contain disease-producing bacteria, into Otter Creek during storm events would no longer occur, and would no longer pose a health or safety threat to campground visitors or users of downstream waters, including Otter Lake.

Alternative B would be in compliance with the *2001 NPS Management Policies* for ensuring visitor safety. Implementation of this alternative would remove existing safety hazards associated with flooding from the Park, and would greatly reduce the potential for loss of life and property.

In addition, removal of the existing aboveground electrical pole located on the western side of the bridge, adjacent to the existing kiosk, would have a long-term, minor, localized, beneficial impact on human health and safety. The existing electrical pole is located very near the edge of the access road to the campground (a potential current violation of electrical code) (Hultquist, 2003e), and the potential for accidental vehicle collisions with this pole are currently moderate. Accidental vehicle collisions could result in overhead wiring falling and impacting vehicles or Park visitors. Removal of this pole and installation of overhead wiring underground under Alternative B would eliminate the potential for accidental vehicle collisions with this pole, resulting in a long-term, localized, beneficial impact on human health and safety.

Waste Management

The generation, containment, and disposal of wastes during construction would have a negligible impact on waste management. The construction contractor would likely provide port-a-johns for workers during construction activities to adequately contain sanitary waste at the construction site. These facilities would be maintained in accordance with Virginia Health Department and NPS requirements. Upon completion of construction activities, these facilities would be removed from the project site (NPS, 2000b).

Solid and C & D wastes generated during construction would be contained in refuse containers on the project site. These containers would be emptied and transported to a temporary storage facility for eventual disposal at the Bedford County Sanitary Landfill, or directly to the landfill, least once a week (NPS, 1997b). Removal of all C & D debris would be the responsibility of the vendor, in accordance with the *Superintendent's Policy on Solid Waste Disposal* (NPS, 2002e). The Bedford County Sanitary Landfill would provide sufficient capacity to accommodate the solid and construction waste generated from the proposed construction activities.

All vehicles used for transport of solid waste would be operated and maintained in accordance with Virginia Solid Waste Management Act (Title 10.1, Chapter 14 of the Code of Virginia) and its implementing regulations. In accordance with this Act, all vehicles transporting wastes would be designed to prevent loss or spillage of solid or liquid waste, which would minimize the potential for a spill during transport to a negligible extent. In the event of an accidental spill during transport, immediate action would be taken to clean up the spill and remediate the site.

Any hazardous materials used during construction would be handled, stored, transported, and disposed of in accordance with State and Federal hazardous waste laws (see Appendix C), as well as the Park's *Hazardous Materials Management Plan* and *Hazardous Waste Emergency Management Plan* (Hultquist, 2003c). Any hazardous waste generated during construction would be immediately removed from the project site (NPS, 1997b).

As with almost any construction project involving the use of heavy equipment, there is some risk of an accidental fuel product or chemical spill or unplanned release of some other toxic or hazardous contaminant onto the ground, which would pose a threat to human health and safety and natural resources. All employees that would be exposed to hazardous materials at the construction site would be trained and instructed in approved methods for handling and storage of such materials (NPS, 2000a). In addition, the NPS would require mitigation specifications to control fuel and equipment storage and handling for the project. All storage and handling of fuels and other materials, as well as equipment storage, would be required to be performed outside the floodplain of Otter Creek. Leaking vehicles and equipment would not be permitted in the floodplain and such vehicles would require immediate attention. A large grassed area outside the floodplain to the left of the intersection of the campground access road and the Blue Ridge Parkway would meet the criteria for fuel and equipment storage requirements (Hultquist, 2003c). The NPS also does not allow waste materials, such as oil, to be disposed of in storm or sanitary drains or to be washed into streams. With implementation of these measures, the potential for an accidental chemical or fuel spill to occur and result in adverse environmental or human health impacts would be negligible.

Over the long-term, no adverse effects on waste management are anticipated to occur as a result of Alternative B. The Otter Creek campground and concessions facility would remain open to visitors under this alternative, and the amount of wastes generated at these facilities would continue under current levels and trends. However, raising the Otter Creek Bridge under Alternative B would result in a negligible, beneficial impact on waste management due to long-term reductions in storm debris requiring clean up and disposal.

Visual Resources

Temporary, adverse effects on visual quality may result from construction activities. The presence of workers and equipment at the site, as well as the presence of the construction site itself, would conflict with the predominately natural setting of the area. However, construction would occur from November to April, when the Otter Creek campground and concessions facility are closed for the off-season. Therefore, visitors would not be in the vicinity during construction. Passersby on the Blue Ridge Parkway may be able to see the construction occurring on the site; however, the construction site would be almost entirely blocked from view by the forest cover surrounding the area. In addition, the Blue Ridge Parkway is typically closed in this area for most of the winter due to inclement weather. Therefore, any visual quality effects due to the presence of the construction site would be temporary, and negligible.

The bridge replacement and other improvements under Alternative B would greatly improve the visual quality of the project area over the long-term. The existing, deteriorating bridge would be replaced with an arch-shaped new structure. The new bridge would be designed to be consistent

with the surrounding area, and is not anticipated to adversely affect the area's visual quality or obstruct views from the campground or the concession facility.

The new bridge structure would provide for unobstructed stream flow, preventing localized flooding and associated erosion problems over the long-term. The eroded stream banks would be restored and revegetated with native vegetation under Alternative B, resulting in a long-term, moderate to major, beneficial impact on the visual quality of the stream and views toward the stream. In addition, the scour hole behind the restaurant would be backfilled, stabilized, and revegetated, improving the visual quality of the riparian area behind the restaurant.

Under Alternative B, the fee collection booth/kiosk, which is currently located next to the bridge, would be removed and reconstructed at a new location outside the Otter Creek floodplain. The new kiosk design would be more visually appealing, and would not block the view of Otter Creek. The kiosk would be located within the shade of surrounding trees, and would provide excellent view coverage of the entrance road. In addition, the existing power pole located near the existing kiosk, as well as the overhead power line, would be removed under this alternative, and would no longer obstruct the viewshed between the concessions facility and the campground entrance.

In sum, implementation of Alternative B would improve the visual quality of the project site over the long-term, resulting in major, beneficial effects on visual resources.

4.3.4.1 Cumulative Impacts

Land uses in the vicinity of the project area are those associated with nature recreation (wildlife viewing, scenic viewing, fishing, camping, etc.). Implementation of Alternative B would allow these land uses to continue by maintaining access to the Otter Creek campground and eliminating the potential for future failures in the Park's structures. This would allow the NPS and the concessionaire to make other improvements to the Otter Creek area, including landscaping efforts and reconstruction of the outdoor dining area, to enhance visual quality, visitor experiences, and safety. While these developments have the potential to temporarily increase waste generation, noise production, and visual quality disturbance, disrupt recreation opportunities, and result in other temporary adverse impacts on the socioeconomic environment, long-term impacts from these developments would be beneficial. Alternative B would also contribute to beneficial cumulative impacts on land use in the project area.

Past flood damage to the outdoor patio area at the concessions facility, and associated safety hazards, resulted in the closure of the patio area to diners. Due to continued damage, the patio area was removed in fiscal year 2001. The closure of this patio area reduced the number of diners that could be accommodated at the facility by reducing dining capacity to the interior of the facility only. This reduction in capacity has likely resulted in decreased revenues at the facility. Under Alternative B, raising and replacing the Otter Creek Bridge, and the subsequent reduction in flood potential, will allow the concessionaire to reconstruct the outdoor patio area at the restaurant. With restoration of the riparian area, visitors could once again enjoy a pleasant streamside view while dining. Reconstruction of this dining area would increase the capacity of the facility, increasing the number of diners that can be accommodated at one time, thereby

increasing revenues at the facility. Increased business at the restaurant has the potential to generate additional jobs at the facility, due to increased customer demand. In addition, increasing the capacity of the facility would eliminate potential overcrowded conditions in the facility, and providing for a more enjoyable experience for customers, including visitors to the Otter Creek campground. Therefore, Alternative B would contribute to long-term, moderate, beneficial cumulative socioeconomic impacts in the Otter Creek area. However, increasing the capacity of the restaurant could increase traffic and parking problems at the Park in the future.

Cumulative impacts on human health and safety from implementation of Alternative B would be beneficial. Correcting the existing problems associated with the sewage system at the Otter Creek campground would eliminate this source of pollution in downstream waters, including Otter Lake. In addition, eliminating the constant threat of flooding hazards in the Park, and the need for recurrent evacuations, would allow the NPS to focus its efforts and resources on other areas, which could improve visitor experience and safety over the long-term.

Although the potential for failures of the existing sewage treatment system at Otter Creek would be eliminated under Alternative B, the system is considered inadequate to handle the wastewater treatment needs of the campgrounds and concessions facility during high-use periods. In response, the NPS is currently developing plans to increase the capacity and efficiency of the sewage treatment system in the project area. Although the type of treatment facility has not yet been determined, future changes to the treatment system would be designed to provide a greater wastewater handling capacity for the campground and restaurant facility during peak use periods. These future changes to the wastewater treatment facility would improve the wastewater treatment system at the Park.

Noise production as a result of the proposed construction would have temporary effects on a wildlife resources, and a minor potential to induce temporary noise-related disruption of the few dispersed recreation users that would pass near the area in the off-season. As no other major noise sources, outside of the Blue Ridge Parkway, are in the project area, no additional noise sources are available to interact cumulatively with noise produced during construction under this alternative. The only projects proposed for the reasonable foreseeable future within the project area that have the potential to produce additional construction noise would include future improvements to the sewage system and the reconstruction of the outdoor patio area at the concessions facility. Neither of these activities is proposed to occur during the bridge construction and stream stabilization period, and therefore, no short-term cumulative noise impacts would result from implementation of Alternative B. Implementation of Alternative B would not result in any long-term noise impacts. Therefore, this alternative would not contribute to cumulative impacts on noise over the long-term.

4.3.4.2 Conclusion

While construction activities would have temporary, negligible to minor, beneficial impacts on the local economy, temporary, negligible, adverse impacts on the visual quality of the project site would be anticipated from the presence of workers and equipment, and on transportation from a slight increase in truck and other construction traffic and slows on nearby roads. However, no impacts on visitors are anticipated. Construction would also have temporary, localized, minor,

adverse impacts to wildlife and any dispersed recreation users that are near the construction site during the off-season as a result of increased noise production. In addition, temporary, negligible, localized, adverse impacts on public and worker health and safety (from storage, handling, and use of equipment and materials) and waste management (from waste generation and disposal) would occur during construction activities. No impacts on utilities or public services would occur during construction.

Moderate to major, beneficial impacts on economic and social conditions at the Otter Creek campground and facilities would occur over the long-term under Alternative B due to eliminating the potential for flooding and subsequent Park evacuations and flood damage. Reducing the potential for flooding and associated flood damage would also have long-term, minor, localized, beneficial impacts on utilities and public services, and negligible beneficial impacts on waste management at the Park. Long-term, minor, localized, beneficial impacts on utilities and human health and safety would also be anticipated from the removal and underground installation of existing aboveground electrical wiring.

Alternative B would have long-term, moderate to major, localized, beneficial impacts on transportation and access due to bridge reconstruction and the creation of a pull-off lane for registering vehicles. Bridge reconstruction and restoration activities would also result in long-term, moderate to major, beneficial impacts on the visual quality of the project area.

Long-term, major, beneficial impacts on visitor and employee health and safety are anticipated due to eliminating the potential for flooding and the need for evacuation of the Park, and from reducing the potential for discharges of raw sewage from the sewage system. This alternative would be in compliance with NPS Management Policies for ensuring visitor safety.

No changes in land use for the area are proposed; Alternative B would allow for the continuance of existing land uses in the area. No long-term noise impacts are anticipated from Alternative B. Alternative B would not lead to an impairment of the Park's socioeconomic resources.

5.0 CONSULTATION AND COORDINATION

To ensure that the Park and its programs are coordinated with the programs and objectives of State, Federal, and local governments and private organizations, it is the Park's objective to work with these agencies and organizations during the planning process. Consultation and coordination have occurred with numerous agencies during the preparation of this EA. Consultation undertaken for compliance with specific laws is discussed below and in Section 6.0 of this EA. **Table 5-1** lists the agencies, organizations, and persons contacted for information, which assisted in identifying issues, developing alternatives, and analyzing impacts of the alternatives. In addition, letters of consultation and coordination with various agencies are included in Appendix D of this EA.

Virginia Department of Environmental Quality (VDEQ)

The VDEQ, Office of Environmental Impact Review is responsible for coordinating the VDEQ's review of environmental documents submitted pursuant to Executive Order 12372, and responding to appropriate government agencies. The VDEQ, Office of Environmental Impact Review was contacted regarding potential impacts of the project and compliance with Virginia's environmental legislation. In a response letter dated March 24, 2003 (see **Figure D-1** in Appendix D), the VDEQ, Office of Environmental Impact provided guidance regarding programs administered by the VDEQ and other State agencies, which could be applicable to this project. This guidance was incorporated into this EA.

Virginia Department of Conservation and Recreation (VDCR)

In a Memorandum of Agreement between the Virginia Department of Agriculture and Consumer Services (VDACS) and the VDCR, VDCR represents the VDACS in comments regarding potential impacts on State-listed threatened or endangered plant and insect species. The VDCR was contacted regarding potential impacts of the project on natural heritage resources, including rare, threatened, or endangered plant and animal species. A response letter from the VDCR was received on March 17, 2003, and is included in this EA as **Figure D-2** in Appendix D.

Table 5-1. Persons and Agencies Contacted

Person Contacted	Agency/Organization
Suzette Molling, Environmental Protection Specialist	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway Headquarters
Michael Molling, Operations Supervisor	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway Headquarters, M&E Division
Larry Pierceall, District Facility Manager	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway, Ridge District
Bruce Bytnar, District Ranger	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway, Ridge District
Randy Sutton, Ranger	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway, Ridge District
James Basinger, District Natural Resource Management Specialist	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway, Ridge District

Danny Myrtle, Maintenance Mechanic Supervisor	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway, Ridge District
Teresa Lovelace	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway Headquarters
Allen Hess, Park Cultural Resources Management Specialist	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway Headquarters
Larry Hultquist, Resident Landscape Architect	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway Headquarters
Rick Wyatt, Concessions Management Specialist	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway Headquarters
Roy Jones, Virginia Civil Engineering Technician	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway, Vinton Field Office
Bambi Teague, Chief	U.S. Department of the Interior, National Park Service, Blue Ridge Parkway Headquarters, Branch of Resource Management
Michael Stanley, Regional Architect	U.S. Department of the Interior, National Park Service, Southeast Regional Office
Erik Kreusch, Archeologist	U.S. Department of the Interior, National Park Service, Great Smoky Mountains National Park
Nora Iseli	U.S. Army Corps of Engineers, Central Virginia Regulatory Field Office
Kathleen Kilpatrick, State Historic Preservation Officer	Virginia Department of Historic Resources
Ellie Irons, Program Manager	Virginia Department of Environmental Quality, Office of Environmental Impact Review
John Fisher, EIR Coordinator	Virginia Department of Environmental Quality, Office of Environmental Impact Review
Elleanore Daub, Environmental Program Planner	Virginia Department of Environmental Quality
Mark Coppage, Virginia Water Protection Engineer	Virginia Department of Environmental Quality
Ellen Gilinsky, VWP Permit Program Manager	Virginia Department of Environmental Quality, Water Division
Kotur Narasimhan	Virginia Department of Environmental Quality, Division of Air Program Coordination, Office of Air Data Analysis
Thomas Modena	Virginia Department of Environmental Quality, Waste Division
Christina Staten	Virginia Department of Environmental Quality, South Central Regional Office
Keith R. Tignor, Endangered Species Coordinator	Virginia Department of Agriculture and Consumer Services, Office of Plant and Pest Service
S. René Hypes, Project Review Coordinator	Virginia Department of Conservation and Recreation
Derral Jones, Planning Bureau Manager	Virginia Department of Conservation and Recreation
Brian Moyer	Virginia Department of Game and Inland Fisheries, Environmental Services Section
Bud LaRoche	Virginia Department of Game and Inland Fisheries
David Grimes, Environmental Specialist II	Virginia Department of Transportation

Gerald Wilkes, Geologist Senior	Virginia Department of Mines, Minerals, and Energy
Alan D. Weber	Virginia Department of Health
Jeff Madden	Virginia Marine Resources Commission, Habitat Management Division

5.1 PUBLIC INVOLVEMENT

Public involvement during the NEPA process includes public scoping, public review of the EA, and responses to comments submitted by the public. In accordance with CEQ's regulations for implementing NEPA (40 CFR 1506.6), the NPS has involved the interested and affected public during the preparation of this EA.

A copy of this EA was sent to all persons who requested a copy, as well as to other pertinent agencies and individuals potentially affected by the Preferred Alternative. This EA will be available for public review for a minimum of 30 days. During this public review period, written comments on the EA are invited from the public and interested agencies. All comments received on the EA will be reviewed by multiple parties, and appropriate responses will be prepared. Appendix E of this EA contains a more detailed discussion of this process.

6.0 COMPLIANCE WITH FEDERAL AND STATE REGULATIONS

The following laws and associated regulations provided guidance for the development of this EA, the design of the Preferred Alternative and alternatives, the analysis of impacts, and the creation of mitigation measures to be implemented as part of the Preferred Alternative.

Summaries of the following laws, as well as a complete list and description of environmental laws and regulations relevant to the project, are provided in Appendix C of this EA.

National Environmental Policy Act of 1969 (NEPA) (42 USC 4321-4370):

This Act requires Federal agencies to evaluate the environmental impacts of their actions and to integrate such evaluations into their decision-making processes. Implementing regulations for NEPA are contained in 40 CFR 1500 through 1508. This EA was prepared in accordance with NEPA and its implementing regulations.

Endangered Species Act of 1973, as amended (ESA) (16 USC 1531-1544):

Section 7 of the ESA requires that a Federal agency consult with the USFWS or the National Marine Fisheries Service on any action that may affect endangered, threatened, or candidate species, or that may result in adverse modifications of critical habitat. Implementing regulations that describe procedures for interagency cooperation and consultation with regards to effects on threatened, endangered, or proposed species are contained in 50 CFR 402.

The United States Fish and Wildlife Service (USFWS) and the VDCR were contacted regarding potential impacts of the project on natural heritage resources, including rare, threatened, or endangered plant and animal species. Surveys of the project site did not result in the discovery of any Federal or State-listed threatened or endangered plants or animals, and none would be affected by either alternative. In addition, the Park database has no records of Federal or State-listed plant or animal species from the Otter Creek campground or adjacent area, and no such species would be affected by either alternative. These findings were confirmed in a response letter from the VDCR, Division of Natural Heritage dated March 17, 2003 (see **Figure D-2** in Appendix D). The USFWS had no comment on the project, and it was determined that no formal Section 7 consultation was necessary.

The VDCR noted that the yellow lance, a special concern species by the Virginia Department of Game and Inland Fisheries and a species of concern by the USFWS, has been documented in the project vicinity. However, these designations have no official legal status, and the species is not protected under the ESA. Impacts on this species, and mitigation measures to ensure protection of this species under the Preferred Alternative, are discussed in Section 4.0 of this EA.

Clean Air Act (CAA) (42 USC 7401 et seq.):

This Act establishes pollutant standards to protect and enhance the nation's air quality to promote public health and welfare. These standards, known as the National Ambient Air Quality Standards (NAAQS), define the concentrations of these pollutants that are allowable in air to which the general public is exposed. This EA presents an analysis of the potential impacts on air quality resulting from each of the alternatives. No additional compliance activities are anticipated for this project with respect to the CAA.

Clean Water Act of 1972 (CWA) (33 USC 1251 et seq.):

The purpose of this Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The NPS may have to obtain several permits from Federal and State agencies in order to implement the Preferred Alternative (Alternative B). All applicable environmental permits and approvals must be obtained prior to implementing all demolition, construction, and rehabilitation activities.

Under Alternative B, the existing concrete footings of the Otter Creek Bridge are proposed to be utilized for the new bridge, as long as the structural integrity of the footings is determined to be sound after investigation. If the abutments need to be replaced, a Nationwide Permit (NWP) from the United States Army Corps of Engineers (USACE) would be required for the discharge of dredged or fill material occurring below ordinary high water (OHW) in waters of the U.S. The project would likely meet the criteria of NWP 3 for repair or replacement of existing serviceable structures. The NPS also proposes to restore and stabilize the stream banks, including repair of the stone retaining wall behind the concession facility. Like the bridge abutments, if the stream bank restoration activities require any material be placed below OHW, these activities would require a permit from the USACE. This activity would likely meet the criteria of NWP 13 for bank stabilization; however, further consultation with the USACE would be required to determine specific permitting requirements (Iseli, 2003).

In addition to the USACE NWP requirements, the CWA requires any applicant for a Federal permit for any activity that may result in discharge into navigable waters to obtain a certification that the discharge will not adversely affect water quality from the State in which the discharge will occur. VDEQ is responsible for Section 401 certification (CWA), called the Virginia Water Protection (VWP) permit (Coppage, 2003). A permit must also be obtained from the Virginia Marine Resources Commission (VMRC) to build, dump, or otherwise trespass upon or over, encroach upon, take, or use any material from rivers, streams, or creeks (with a drainage area of five square miles or greater) within the jurisdiction of Virginia (Madden, 2003). The Joint Permit application and review process covers both Federal and State permits for the proposed construction activities under Sections 404 and 401 of the CWA. Specifically, the Joint Permit Application is used by: (1) USACE for issuing permits pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act; (2) VDEQ for issuance of a VWP permit pursuant to Section 401 of the CWA (Virginia Code Section 62.1-44.2 *et seq.*; Virginia Code Section 62.1-44.15:5; and 9 VAC 25-210-10 *et seq.*); (3) VMRC for regulating encroachments on or over State waters pursuant to Virginia Code, Sections 28.2-1200 through 1400; and (4) the local wetlands board for impacts to wetlands. The Joint Permit review process applications are filed

with VMRC, which serves as a clearinghouse and forwards applications to the USACE and VDEQ. The applicant has to file only one application for projects involving State waters.

During implementation of Alternative B, the NPS would comply with the *Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations* codified at Title 10.1, Chapter 5, Article 4 of the Code of Virginia to avoid and minimize erosion and sediment runoff to Otter Creek, and would follow State Erosion and Sediment Control guidance provided in the *Virginia Erosion and Sediment Control Handbook* (Molling, 2003b). With implementation of proper erosion and sediment controls, only temporary and negligible adverse effects on the water quality of Otter Creek at the bridge site and a short distance downstream would be anticipated to result from the Preferred Alternative. The new bridge design would restore the hydrology of Otter Creek and prevent further erosion of the stream banks over the long-term.

Section 404 of the CWA regulates the discharge of pollutants, including dredged or fill material, into navigable waters of the U.S., including wetlands, through a permit system jointly administered by the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE). The regulatory definition of Section 404 jurisdictional wetlands is: “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USEPA, 1980). No wetlands have been identified within the project area, and no wetlands would be affected by project implementation.

National Historic Preservation Act of 1966, as amended (NHPA) (16 USC 470 et seq.):

Section 106 of the NHPA requires Federal agencies to consider the effects of their proposals on properties listed or eligible for listing in the National Register of Historic Places (NRHP). Section 106 also directs Federal agencies to provide the state historic preservation officer (SHPO), tribal historic preservation officers, and, as appropriate, the Advisory Council on Historic Preservation, a reasonable opportunity to review and comment on these proposals.

The NPS has consulted with the Virginia SHPO, as required by Section 106 of the NHPA, as amended, and its implementing regulations (36 CFR 800). The NPS initiated consultation on February 25, 2003 with a letter requesting SHPO input on the project (see **Figure D-3** in Appendix D). This consultation resulted in no critical comments regarding the project from the Virginia SHPO. The Section 106 Assessment of Actions was determined to be No Adverse Effect, signed by the Park Superintendent.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations:

This executive order requires Federal agencies to assess whether their actions have disproportionately high and adverse human health or environmental effects on minority and low-income populations. Since the proposed project would take place on lands administered by the NPS, there would be no displacement or relocation of residents or elimination of jobs. There would be no activities occurring under the Preferred Alternative or its alternatives that would

disproportionately and adversely affect minority or low-income populations. The Park would still be available to all residents, regardless of income or race. Adverse effects on visitor use and experience and human health and safety that would result from the No Action alternative have the potential to affect all Park visitors, regardless of race or income level. Likewise, beneficial impacts on these resource areas that would result from the Preferred Alternative would be experienced by all visitors, regardless of race or income level.

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks:

This executive order requires Federal actions and policies to identify and address disproportionately adverse risks to the health and safety of children. Adverse effects on human health and safety that would result from the No Action alternative have the potential to affect all Park visitors, regardless of age. Likewise, beneficial impacts on these resource areas that would result from the Preferred Alternative would be experienced by all visitors, regardless of age. There would be no activities occurring under the Preferred Alternative or its alternatives that would disproportionately and adversely affect the health or safety of children.

Executive Order 11990, Protection of Wetlands:

This executive order directs the NPS to avoid, to the extent possible, the long- and short-term adverse impacts associated with modifying or occupying wetlands, and requires Federal agencies to follow avoidance, mitigation, and preservation procedures regarding wetlands with public input before proposing new construction projects. No wetlands have been identified within the project area, and no wetlands would be affected by project implementation.

Executive Order 11988, Floodplain Management

This executive order requires all Federal agencies to take action to reduce the risk of flood loss, to restore and preserve the natural and beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. Although short-term, adverse effects on the Otter Creek floodplain in the vicinity of the bridge would be expected from construction activities under Alternative B, effects would be negligible with the implementation of the mitigation measures. Under the Preferred Alternative, the natural resources and functions of the floodplain within the vicinity of the Otter Creek campground would be protected and restored over the long-term. The new bridge design would prevent the continuation of localized flooding and stream channel erosion that has altered the natural hydrology, soils, and vegetation of the floodplain. The stream banks would be restored and revegetated with native riparian vegetation, improving the habitat value of the floodplain. In addition, the kiosk would be relocated out of the floodplain to prevent continued long-term damage to the structure.

Implementation of the Preferred Alternative would be in compliance with Executive Order 11988, *Floodplain Management*, and NPS Director's Order #77-2 Floodplain Management that requires the NPS to "protect, preserve, and restore the natural resources and functions of floodplains and avoid the long- and short-term environmental effects associated with occupancy and modification of the floodplain."

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8.0 LIST OF PREPARERS

The following people contributed to the preparation of this EA. For a complete list of persons consulted, refer to Section 5.0 of this EA.

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APPENDIX A

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ARPA	Archaeological Resources Protection Act
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CAA	Clean Air Act
C & D	Construction and Demolition
CDC	Center for Disease Control and Prevention
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted Decibel
DOD	Department of Defense
DOI	Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
ERS	Economic Research Service
ESA	Endangered Species Act
ESC	Erosion and Sediment Control (Program)
FONSI	Finding of No Significant Impact
HUD	Department of Housing and Urban Development
Ldn	Day-Night Level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO _x	Nitrogen Oxides
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O ₃	Ozone
OHW	Ordinary High Water
OSHA	Occupational Safety and Health Administration
Pb	Lead
PM ₁₀	Particulate Matter
RCRA	Resource Conservation and Recovery Act
RV	Recreational Vehicle
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SO ₂	Sulfur Dioxide
STP	Shovel Test Pits
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture

USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VAC	Virginia Annotated Code
VDACS	Virginia Department of Agriculture and Consumer Services
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDOH	Vermont Department of Health
VESCL&R	Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations
VMRC	Virginia Marine Resources Commission
VOC	Volatile Organic Compound
VSWCB	Virginia State Water Control Board
VSWML&R	Virginia Stormwater Management Law & Virginia Stormwater Management Regulations
VWP	Virginia Water Protection

APPENDIX B

GLOSSARY

GLOSSARY

A-weighted Decibel (dBA): The A-scale sound level is a quantity, in decibels, read from a standard sound-level meter with A-weighting circuitry. The A-scale weighting discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear. The A-scale sound level measures approximately the relative “noisiness” or “annoyance” of many common sounds.

Acidification: The decreasing of soil’s pH level (increasing acidity); can be caused naturally in normal weathering and organic decay processes or by human influence, such as the addition of chemicals or fertilizers, disposal of organic wastes, irrigation practices, drainage of wetlands, acid deposition from the atmosphere, and tillage practices.

Ambient Air: Any unconfined portion of the atmosphere; open air, surrounding air.

Ambient Air Quality Standards: Standards established on a State or Federal level that define the limits for airborne concentrations of designated “criteria” pollutants (e.g., nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter, ozone, lead) to protect public health with an adequate margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards).

Attainment Area: An area considered to have air quality as good as or better than the National Ambient Air Quality Standards as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a non-attainment area for others.

Best Management Practice (BMP): A practice or combination of practices chosen as the most effective, economical, and practical means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with State and local water quality goals. Selection of appropriate BMPs depends largely upon the conditions of the site, such as land use, topography, slope, water table elevation, and geology.

Biochemical Oxygen Demand (BOD): A measure of the oxygen needed in a specified volume of water to decompose organic materials; the greater the amount of organic matter in water, the higher the BOD.

Cultural Resources: Any building, site, district, structure, object, data, or other material significant in history, architecture, archeology, or culture. Cultural resources include: historic properties as defined in the National Historic Preservation Act (NHPA), cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA), archeological resources as defined in the Archeological Resources Protection Act (ARPA), sacred sites as defined in Executive Order 13007, *Protection and Accommodation of Access To "Indian Sacred Sites,"* to which access is provided under the American Indian Religious Freedom Act (AIRFA), and collections.

Cumulative Impacts: Impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (Federal or non-Federal) or person undertakes such other actions; effects resulting from individually minor, but collectively significant, actions taking place over a period of time.

Day-Night Sound Level (Ldn): The average A-weighted sound level recorded during a 24-hour period, which includes 10 dB penalty to levels measured between 2200 and 0700 hours. This penalty

compensates for generally lower background noise levels at night and the additional annoyance of nighttime noise events.

Decibels (dB): The unit of measurement of sound level calculated by taking ten times the common logarithm of the ratio of the magnitude of the particular sound pressure to the standard reference sound pressure of 20 micropascals and its derivatives.

Dissolved Oxygen: The amount of free oxygen found in water.

Endangered Species: A species that is threatened with extinction throughout all or a significant portion of its range.

Eutrophication: Excessive growth of algae due to increased nutrient inputs.

Fecal Coliform: Bacteria that lives in the digestive tract of warm-blooded animals, including humans, that aid in the digestion of food.

Fugitive Dust: Particulate matter composed of soil, uncontaminated from pollutants, resulting from industrial activity. Fugitive dust may include emissions from haul roads, wind erosion of exposed soil surfaces, and other activities in which soil is either moved or redistributed.

Hazardous Materials: Solid or liquid materials which may cause or contribute to mortality or serious illness by virtue of physical and chemical characteristics, or pose a hazard to human health or the environment when improperly managed, disposed of, treated, stored, or transported; explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.

Hazardous Waste: A waste or combination of wastes which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious, irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Land Grading: Reshaping the ground surface to a planned elevation and/or slope.

Mitigation: A method or action to reduce or eliminate adverse program impacts.

Natural Heritage Resources: The habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Non-attainment Area: An area that has been designated by the U.S. Environmental Protection Agency and the appropriate state air quality agency as exceeding one or more National Ambient Air Quality Standards.

Nonpoint Source: A pollution source which comes from diffuse sources, such as land runoff, precipitation, atmospheric deposition, or percolation.

Perennial Stream: A stream that flows throughout the year.

Permanent Storage Sites (Composting Sites): These sites are specifically designed to maintain natural or inert materials that will decay on their own or be treated as beneficial fill. All new materials must be kept separate from and not mixed with pre-existing human-made materials that already occur on site.

Prime Farmland: Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oil seed crops and is available for these uses. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Rill Erosion: An erosion process in which numerous small channels of only several centimeters in depth are formed.

Runoff: Non-infiltrating water entering a stream or other conveyance channel shortly after a rainfall.

Salinization: The process of accumulation of salts in soil.

Sanitary Landfill: An engineered land burial facility for the disposal of household waste, which is so located, designed, constructed, and operated to contain and isolate the waste so that it does not pose a substantial present or potential hazard to human health or the environment. A sanitary landfill also may receive other types of solid wastes, such as commercial solid wastes, nonhazardous sludge, hazardous waste from conditionally exempt small quantity generators, construction/demolition debris, and nonhazardous industrial solid waste.

Sediment: Any finely divided organic and/or mineral matter derived from rocks or biological sources that have been transported and deposited by water or air.

Sedimentation: the process of depositing sediment from suspension in water.

Sensitive Receptor: An area defined as sensitive to noise, such as a hospital, residential area, school, outdoor theater, and protected wildlife species.

Sheet Erosion: The removal of a fairly uniform layer of soil from the land surface by runoff water.

Shrink-well Potential: An indication of the volume change to be expected of the soil material with changes in moisture content. Building foundations, roads, and other structures may be severely damaged by the shrinking and swelling of soils if shrink-swell potential is rated moderate to very high.

Soil Erosion: The removal and loss of soil by the action of water, ice, gravity, or wind.

Soil Series: A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All soils of a series have horizons that are similar in composition, thickness, and arrangement.

Species of Concern: According to the U.S. Fish and Wildlife Service, an informal term that refers to those species that the Service believes might be declining or be in need of concentrated conservation actions to prevent decline. These species receive no legal protection, and use of the term does not mean that they will eventually be proposed for listing.

State Historic Preservation Officer (SHPO): The official within each state, authorized by the state at the request of the Secretary of the Interior, to act as a liaison for purposes of implementing the NHPA.

Temporary Storage Sites (Recycling Centers): These sites are used to hold materials until enough materials have accumulated to justify a trip to the local landfill or recycling center, or until there is enough to sell by bids or give away to an approved organization. All materials in temporary storage must be removed at least on a semi-annual basis. All new materials must be kept separate from pre-existing materials.

Threatened Species: A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Topography: The slope gradient of a site expressed as a relationship of vertical feet over horizontal feet of distance, as well as the visual formation of the land.

Toxification (of soils): Contamination of soils with toxic substances from industrial processes or chemical spills.

Wetlands: Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil, including swamps, marshes, bogs, and other similar areas.

APPENDIX C

ENVIRONMENTAL LAWS AND REGULATIONS

Relevant Laws and Regulations	Summary	Affected Resource(s)
The National Environmental Policy Act (NEPA) (42 USC 4321-4370)	Requires Federal agencies to evaluate the environmental impacts of their actions and to integrate such evaluations into their decision-making processes.	All
Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508)	These regulations implement NEPA and establish two different levels of environmental analysis: the environmental assessment (EA) and the environmental impact statement (EIS). An EA determines whether significant impacts may result from a proposed action. If significant impacts are identified, an EIS is required to provide the public with a detailed analysis of alternative actions, their impacts, and mitigation measures, if necessary.	All
The Clean Water Act (CWA) (33 USC 1251 et seq.)	Section 401, the state water quality certification process, gives states the authority to grant, deny, or condition the issuance of Federal permits that may result in a discharge to the waters of the United States based on compliance with water quality standards. Section 404 regulates the discharge of pollutants, including dredged or fill material, into navigable waters of the U.S. through a permit system jointly administered by the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE). Nonpoint sources requirements control pesticide runoff, forestry operations, and parking lots/motor pools. Point sources require individual or group permits and must be monitored at the point at which they enter public waters, storm sewers, or natural waterways. Section 311 (j) requires facilities to prepare a Spill Prevention Control and Countermeasure Plan, containing minimum prevention facilities, restraints against drainage, an oil spill contingency plan, etc.	Water Resources, Biological Resources
The Clean Air Act (CAA) (42 USC 7401 et seq.)	Among its varied provisions, the CAA establishes standards for air quality in regard to the pollutants generated by internal combustion engines. These standards, known as the National Ambient Air Quality Standards (NAAQS), define the concentrations of these pollutants that are allowable in air to which the general public is exposed (“ambient air”).	Air Quality
The Endangered Species Act (ESA) (16 USC 1531-1544)	Prohibits the harming of any species listed by the U. S. Fish and Wildlife Service (USFWS) as being either Threatened or Endangered. Harming such species includes not only directly injuring or killing them, but also disrupting the habitat on which they depend.	Biological Resources
Migratory Bird Treaty Act (16 USC 703 et seq.)	Restricts the taking, possession, transportation, sale, purchase, importation, and exportation of migratory birds through permits issued by the USFWS.	Biological Resources
National Emissions Standards for Hazardous Air Pollutants (NESHAP)	Places standards on all hazardous air pollutants and governs such areas as organic liquids, asbestos, polyurethane foam, and wastewater. NESHAP is implemented under USEPA jurisdiction.	Air Quality, Waste Management

The Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978 (42 USC 4901 et seq.)	Requires compliance with State and local noise laws and ordinances.	Noise, Human Health and Safety
Archaeological Resources Protection Act (ARPA) (16 USC 470a et seq.)	Ensures the protection and preservation of archeological resources on Federal lands.	Cultural Resources
National Historic Preservation Act (NHPA) (16 USC 470 et seq.)	Provides the framework for Federal review and protection of cultural resources, and ensures that they are considered during Federal project planning and execution. The implementing regulations for the Section 106 process (36 CFR Part 800) have been developed by the Advisory Council on Historic Preservation (ACHP). The Secretary of the Interior maintains a National Register of Historic Places (NRHP) and sets forth significance criteria for inclusion in the register. Cultural resources included in the NRHP, or determined eligible for inclusion, are considered “historic properties” for the purposes of consideration by Federal undertakings.	Cultural Resources
Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001 et seq.)	Protects Native American human remains, burials, and associated burial goods.	Cultural Resources
Safe Drinking Water Act (SDWA) (42 USC 300 et seq.)	Provides for the safety of drinking water throughout the U.S. by establishing and enforcing national drinking water quality standards. Protects public health by establishing safe limits (maximum containment limits) for contaminants based upon the quality of water at the tap, and prevents contamination of surface and ground sources of drinking water. The USEPA is responsible for establishing the national standards; the States are responsible for enforcement of the standards	Water Resources, Human Health and Safety
Resource Conservation and Recovery Act (RCRA) (42 USC 6901 et seq.)	Regulates all aspects of the handling of hazardous waste through RCRA permits issued by the USEPA.	Hazardous Materials
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601 et seq.)	Provided broad Federal authority to respond directly to releases of hazardous materials that may endanger public health or the environment. Established prohibitions and requirements pertaining to closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when a responsible party cannot be identified.	Hazardous Materials
National Park Service Organic Act of 1916 (16 USC et seq.)	Established the National Park Service to manage national parks for the purposes of conserving the scenery, natural resources, historic objects, and wildlife within the parks, and providing for the enjoyment these resources in such manner that will leave them unimpaired for the enjoyment of future generations.	All

Federal Land Policy and Management Act (43 USC et seq.)	Declares that all public lands will be retained in federal ownership unless it is determined that a use other than public will better serve the interests of the nation. Requires that all public land be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, and environmental aspects of the land. Requires that all public lands and their resources be inventoried periodically and systematically.	All
Executive Order (E.O.) 11514: Protection and Enhancement of Environmental Quality	Provides leadership for protecting and enhancing the quality of the Nation's environment to sustain and enrich human life.	All
E.O. 11593: Protection & Enhancement of the Cultural Environment	Provides leadership for protecting, enhancing, and maintaining the quality of the Nation's historic and cultural environment.	Cultural Resources
E.O. 12372: Intergovernmental Review of Federal Programs	Directs Federal agencies to consult with and solicit comments from state and local government officials whose jurisdictions would be affected by Federal actions.	All
E.O. 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	Requires Federal actions to achieve Environmental Justice by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.	All
E.O. 13007: Protection and Accommodation of Access To "Indian Sacred Sites"	Directs Federal agencies to consider Indian sacred sites in planning agency activities.	Cultural Resources
E.O. 13045: Protection of Children from Environmental Health Risks and Safety Risks	Requires Federal actions and policies to identify and address disproportionately adverse risks to the health and safety of children.	All
E.O. 11990: Protection of Wetlands	An overall wetlands policy for all agencies managing Federal lands, sponsoring Federal projects, or providing Federal funds to State or local projects. It requires Federal agencies to follow avoidance/mitigation/ preservation procedures with public input before proposing new construction projects.	Water Resources, Biological Resources
E.O. 11988: Floodplain Management	Requires all Federal agencies to take action to reduce the risk of flood loss, to restore and preserve the natural and beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. Because many wetlands are located in floodplains, E.O. 11988 has the secondary effect of protecting wetlands.	Water Resources, Biological Resources
E.O. 12856: Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements	Requires that the head of each federal agency be responsible for ensuring that all necessary actions are taken for the prevention of pollution with respect to the agency's activities and facilities, and for ensuring that the agency complies with pollution prevention, emergency planning, and community right-to-know provisions.	Hazardous Materials

Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations (Title 10.1, Chapter 5, Article 4 of the Code of Virginia)	The Virginia Department of Conservation and Recreation implements the State's Erosion and Sediment Control Program under these regulations. The program regulates and establishes guidelines for erosion and sediment control from land-disturbing construction activities equal to or exceeding 10,000 square feet.	Soils, Water Resources, Biological Resources
Virginia Stormwater Management Law and Virginia Stormwater Management Regulations	Set forth regulations regarding land development activities that disturb greater than one acre of land to prevent water pollution, stream channel erosion, and more frequent localized flooding.	Water Resources, Biological Resources
Virginia Waste Management Act (Title 10.1, Chapter 14 of the Code of Virginia) and Solid waste management regulations (9 VAC 20-80-10 et seq.)	Establishes standards and procedures for the management of nonhazardous solid waste in Virginia to protect public health and safety and the environment, including natural resources. Promote development of comprehensive waste management programs that include planning, source reduction, reuse, reclamation, resource recovery, incineration, and landfilling.	Waste Management

APPENDIX D

AGENCY CONSULTATION AND COORDINATION

AGENCY CONSULTATION AND COORDINATION

The purpose of the scoping process, as outlined in the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR 1501.7), is to determine the scope of issues to be addressed in the EA/EIS and to identify significant issues relating to the Preferred Alternative. The lead agency is required to invite input from Federal, State, and local agencies, affected Indian tribes, project proponents, and other interested parties (Section 1501.7 (a)(1)). Scoping is required for all EAs prepared by the NPS.

To ensure that the Park and its programs are coordinated with the programs and objectives of State, Federal, and local governments and private organizations, it is the Park's objective to work with these agencies and organizations during the planning process. Consultation and coordination have occurred with numerous agencies during the preparation of this EA. Consultation undertaken for compliance with specific laws is discussed below and in Section 6.0 of this EA. Letters of consultation and coordination with various agencies are presented in **Figures D-1 through D-3**.

D-1. Virginia Department of Environmental Quality Consultation Letter



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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March 24, 2003

Ms. Suzette Molling
Environmental Protection Specialist

Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, North Carolina 28803

RE: Scoping comments regarding bridge replacement at Otter Creek Campground, National Park Service, Blue Ridge Parkway, Amherst County, DEQ #708.

Dear Ms. Molling:

The Office of Environmental Impact Review is responsible for coordinating the Department of Environmental Quality's (DEQ's) review of environmental documents submitted pursuant to Executive Order 12372, and responding to appropriate government agencies. As described in your letter, the National Park Service, Blue Ridge Parkway, intends to replace a bridge at Otter Creek Campground, which is located at Milepost 60 in Amherst County. Activities include: (1) investigation of soils, structural integrity of the existing concrete footings, hydrology study, and road elevation survey; (2) demolition of existing concrete bridge, fee collection booth, electrical and sewer lines, and Grass-Crete shoulder; (3) reconstruction of a new bridge deck at a higher elevation and same location as the existing bridge; (4) installation of a concrete walk and concrete barrier curb; (5) design of new roadway/bridge elevations; (6) design of new electrical and sewer utilities; (7) relocation of the campground kiosk; (8) reconstruction of retaining wall; and (9) understory re-vegetation of project area.

This project must be carried out in accordance with all applicable state and federal laws and regulations. Prior to implementing all demolition, construction, and rehabilitation activities, all applicable environmental permits and approvals must be obtained. In general, development must incorporate features which prevent significant adverse impacts on ambient air quality, water quality, wetlands, historic structures, fish, wildlife, and species of plants animals or insects listed by state agencies as rare, threatened, or endangered.

Ms. Suzette Molling
Page 2

The following discussion is provided as a guideline of programs administered by the Department of Environmental Quality and other agencies of the Commonwealth, which could be applicable to this project. Final determination concerning potential impacts on these programs rests with the appropriate agency administering each program. It is the responsibility of the applicant to coordinate development with these agencies.

1. Water Quality and Wetlands. Potential adverse impacts to water quality and wetlands resulting from construction and surface runoff must be minimized. This can be achieved by using Best Management Practices (BMP's).

Federal and state governments regulate impacts to streams and wetlands. The Virginia Marine Resources Commission serves as the clearinghouse for the Joint Permit Application (WA) used by: (1) U.S. Army Corps of Engineers for issuing permits pursuant to *§404 of the Clean Water Act* and *§ 10 of the Rivers and Harbors Act*; (2) Department of Environmental Quality for issuance of Virginia Water Protection Permit pursuant to *§ 401 of the Clean Water Act*, Virginia Code § 62.1-44.2 et seq., Virginia Code § 62.1-44.15:5, and Virginia Administrative Code 9 VAC 25-210-10 et seq.; (3) Virginia Marine Resources Commission regulates encroachments on or over state-owned subaqueous beds as well as tidal wetlands pursuant to Virginia Code § 28.2-1200 through *1400*; and (4) the local wetlands board for impacts to wetlands. If applicable, contact VMRC at (757) 247-2200 for a JPA. VMRC will distribute the application to the appropriate agencies. Each agency will conduct its review and respond.

In general, DEQ recommends that the amount of stream and wetland impacts be avoided to the maximum extent practicable. For unavoidable impacts, DEQ encourages the following practices to minimize the impacts to wetlands and waterways: operation of machinery and construction vehicles outside of stream-beds and wetlands; use of synthetic mats when in-stream work is unavoidable; stockpiling of excavated material for replacement; and preservation of the top 12 inches of material removed from wetlands for use as wetland seed and root stock in excavated areas.

2. Erosion and Sediment Control and Stormwater Management. Non-point source pollution resulting from this project should be minimal provided that effective erosion and sediment control practices and structures are employed. Denuded areas should be vegetated. If you would like technical assistance with erosion and sediment control and stormwater management issues, the Department of Conservation and Recreation is available to help at it's James River Watershed Office, (804) 527-4484.

3. Air Quality. This project is not likely to adversely affect air quality. However, during construction fugitive dust should be kept at a minimum. This requires, but is not limited to, measures such as the application of water to suppress dust, and washing down construction vehicles and paved roadways immediately adjacent to the construction site.

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4. Solid and Hazardous Wastes, and Hazardous Substances. We recommend that all solid wastes generated at the site be reduced at the source, reused, or recycled. All hazardous wastes should be minimized. Otherwise, all solid waste, hazardous waste and hazardous material must be managed in accordance with all applicable federal, state, and local environmental regulations. If desirable, the NPS may contact DEQ's South Central Regional Office, (434) 582-5120, concerning the location and availability of waste management facilities in the project area.

5. Pollution Prevention. DEQ advocates that principles of pollution prevention be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source. We have several pollution prevention recommendations that may be helpful in constructing or operating this project:

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for infrastructure and building construction and design. These could include asphalt and concrete containing recycled materials, and integrated pest management in landscaping, among other things.

DEQ's Office of Pollution Prevention provides free information and technical assistance relating to pollution prevention techniques. For more information, contact DEQ's Office of Pollution Prevention, Mr. Tom Griffin at (804) 698-4545.

6. Pesticides and Herbicides. DEQ recommends that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used. Please contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

7. Natural Heritage Resources. The Department of Conservation and Recreation's Division of Natural Heritage (DNH) can search its Biological and Conservation Data System (BCD) for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered animal and plant species, unique or exemplary natural communities, and significant geologic communities.

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Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Department of Conservation and Recreation (DCR), DCR has the authority to report for VDACS on state-listed plant and insect species. We recommend that the DNH be contacted at (804) 786-7951, to secure updated information on natural heritage resources before the project is implemented.

8. Wildlife Resources. Under Title 29.1 of the Code of Virginia, the Department of Game and Inland Fisheries (DGIF) is the primary wildlife and freshwater fish management agency in the Commonwealth. DGIF has full law enforcement and regulatory jurisdiction over all wildlife resources, inclusive of state and federally endangered or threatened species, but excluding listed insects. The agency maintains a comprehensive system of databases of wildlife resources that is available through the Agency's site at www.dgif.state.va.us, in the "Wildlife" section from the link to "Wildlife Information Online". DGIF determines likely impacts on fish and wildlife resources and habitats, and recommends appropriate measures to avoid, reduce or compensate for those impacts. For more information on the Wildlife Information Online Service, contact Kathy Quindlen at (804) 367-9717.

9. Historic and Archaeological Resources. *Section 106 of the National Historic and Preservation Act of 1966*, as amended, requires that activities that receive federal funding must consider effects to properties that are listed or eligible for listing on the National Register of Historic Places. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources. If applicable, contact DHR. In the event that archaeological resources are encountered during construction, immediately contact Ms. Ethel Eaton, DHR, at (804) 367-2323.

Thank you for your inquiry. We appreciate your interest in complying with Virginia's environmental legislation. If you have any further questions please do not hesitate to call me at (804) 698-4339.

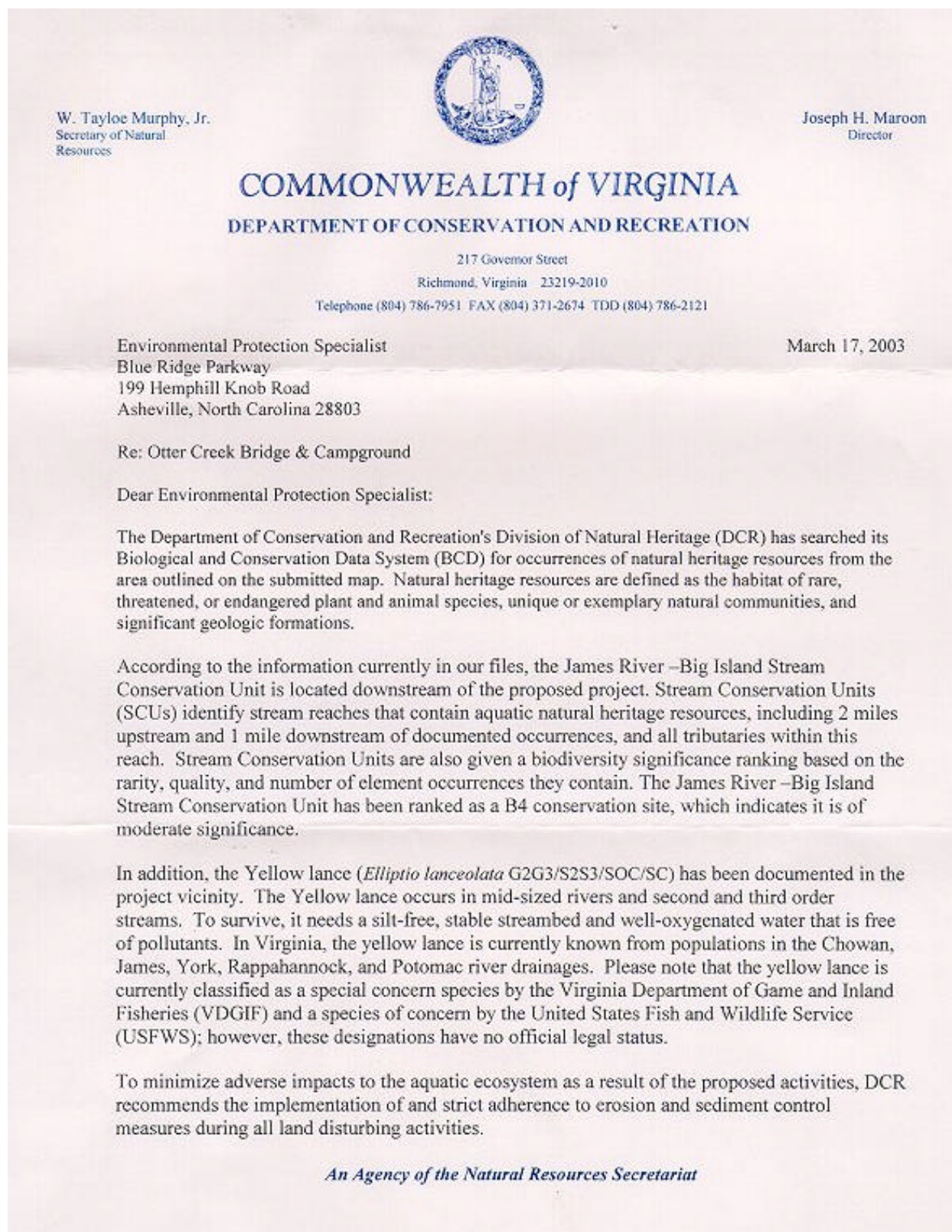
Sincerely,

John Fisher/signed

John Fisher
EIR Coordinator

Cc. Christina Staten, DEQ-SCRO
with copy of the request.

D-2. Virginia Department of Conservation and Recreation Consultation Letter



Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

The absence of data may indicate that the area has not been surveyed rather than confirm that the area lacks natural heritage resources. New and updated information is continually added to BCD. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

Thank you for the opportunity to comment on this project.

Sincerely,



S. René Hypes
Project Review Coordinator

CC: Ray Fernald, VDGIF
Jolie Harrison, USFWS

Literature Cited

Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993.
Conservation status of freshwater mussels of the United States and Canada.
Fisheries 18: 6-9.

D-3. Virginia State Historic Preservation Officer Consultation Letter

February 25, 2003

Ms. Kathleen Kilpatrick
State Historic Preservation Officer
Commonwealth of Virginia
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Ms. Kilpatrick:

We are forwarding to you the draft form "Assessment of Actions Having an Effect on Cultural Resources (Section 106)" relating to Parkway project PIN 737 "Replace Otter Creek Bridge and Campground Services." We are requesting that your office review and comment on this proposed project based on Section 106 of the National Historic Preservation Act of 1966, as amended, and the implementing regulations as codified in 36 CFR Part 800.5(b) and (c).

We are requesting that your office respond to the Parkway within 30 days, and if this is not possible, that your staff contacts us as soon as possible. We want to provide a full and fair opportunity for comment within the context of law and regulations. If any questions or concerns should need addressing immediately, please contact Park Cultural Resource Management Specialist Al Hess at-828/271-4779 extension 211 or Park Environmental Protection Specialist Suzette Molling at extension 219; or by email at al_hess@nps.gov or suzette_molling@nps.gov.

We look forward to hearing from you soon and working closely with your office for our mutual benefit.

Sincerely,

Daniel W. Brown
Superintendent

Enclosures (Section 106 form/Project Scoping Letter)

cc: Al Hess, BLRI

SMolling:sm:2-25-03
(EA/Otter Creek Bridge/SHPO Concurrence ltr-PIN 737.doc)

APPENDIX E

COMMENTS ON THE EA

PUBLIC REVIEW OF THE EA

A copy of this EA was sent to all persons who requested a copy, as well as to other pertinent agencies and individuals potentially affected by the Preferred Alternative. **Table E-1** lists all persons and agencies/organizations to whom the EA was sent. The EA was also sent to all NPS employees along the Blue Ridge Parkway. A public notice/news release was published in local newspapers in Amherst, Roanoke, Rockbridge, Botetourt, and Bedford, announcing the availability of the EA and requesting public and agency comments on the EA. This public notice is presented as **Figure E-1**. In addition, the EA was posted and available for review on the Internet at <http://www.nps.gov/blri/pphtml/facts.html>, under the “Otter Creek Bridge & Campground Services Replacement EA” link.

This EA was available for public review for 30 days, which ended August 1, 2003. Letters and comments submitted during the public review period were reviewed by multiple parties. These comment letters are presented in **Figures E-2** through **E-13**.

Comments and issues determined relevant to the project were incorporated and addressed in the EA. All measures for the protection of the environment recommended by the Virginia Department of Environmental Quality, Virginia Department of Health, and Virginia Department of Conservation and Recreation were incorporated into Section 2.5, Mitigation Measures, of this EA and will be implemented as part of the Preferred Alternative.

The following comment was received from the Virginia Department of Game and Inland Fisheries:

“Otter Creek is a stocked trout stream. We recommend that the Park Service coordinate with our local fisheries biologist to prevent construction/stocking conflicts. We also recommend conducting in-stream activities during low-flow conditions, using non-erodible cofferdams to isolate the construction area, blocking no more than 50% of stream flow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas, and implementing strict erosion and sediment control measures throughout the project period as described in the Virginia Erosion and Sediment Control Handbook, 1992, Virginia Department of Conservation and Recreation.”

In response to this comment, Bambi Teague, Chief, U.S. Department of the Interior, National Park Service, Blue Ridge Parkway Headquarters, Branch of Resource Management, contacted Bud LaRoche at the Virginia Department of Game and Inland Fisheries on August 19, 2003, and was informed that the Virginia Department of Game and Inland Fisheries does not stock Otter Creek. Therefore, there should be no trout stocking conflicts from implementation of the Preferred Alternative.

Table E-1. Persons Who Received the EA

U.S. Army Corps of Engineers Norfolk District Office 803 Front Street Norfolk, VA 23510-1096	Karen L. Mayne Supervisor, Virginia Field Office U.S. Fish and Wildlife Service 6669 Short Lane Gloucester, VA 23061	Andy Moser Chesapeake Bay Field Office U.S. Fish and Wildlife Service 177 Admiral Cochrane Drive Annapolis, MD 21401
S. Rene Hypes Project Review Coordinator Virginia Department of Conservation & Recreation Natural Heritage Program 217 Governor's Street, 3rd floor Richmond, VA 23219	Mr. Raymond Fernald, Manager Virginia Department of Game & Inland Fisheries Nongame and Environmental Programs 4010 West Broad Street Richmond, VA 23230	District Ranger Patricia Egan Glenwood & Pedlar Ranger Districts P.O. Box 10 27 Ranger Lane Natural Bridge Station, VA 24579
Department of Agricultural and Consumer Services Washington Building Capitol Square 1100 Bank Street 23219 Richmond, VA 23230	Virginia Department of Environmental Quality Office of Environmental Impact Review P.O. Box 10009 Richmond, VA 23240	Mr. Garrett Smathers Department of Environmental Studies University of North Carolina - Asheville 1 University Heights Asheville, NC 28804
Dr. Houck Medford, Executive Director Blue Ridge Parkway Foundation P.O. Box 10427 - Salem Station Winston-Salem, NC 27108	Dr. Dan Pittillo, Professor Department of Biology Western Carolina University Cullowhee, NC 28723	Jane Sutton Editor, Parkway Milepost Route 2, Box 268-Q Old Fort, NC 28762
Honorable Bob Goodlatte 10 Franklin Road, SE Suite 540 Roanoke, VA 24011	Honorable Virgil H. Goode, Jr. 104 South First Street Charlottesville, VA 22902	Honorable Rich Boucher 188 East Main Street Abingdon, VA 24210
Virginia Chapter - Sierra Club 6 N 6th Street Richmond, VA 23219	Mr. Bob Gale, Ecologist Western North Carolina Alliance 70 Woodfin Place, Suite 326 Asheville, NC 28801	Shenandoah National Park Superintendent 3655 U.S. Highway 211 East Luray, VA 22835-9036
Ms. Ethel Eaton Virginia Department of Historic Resources, Division of Cultural Resources Office of Review & Compliance 2801 Kensington Avenue Richmond, VA 23221		

Figure E-1. Public Notice

**Otter Creek Bridge and Campground Services Replacement, Amherst County,
Virginia (Milepost 60.8)**

Environmental Assessment

June 2003

NOTE TO REVIEWERS AND RESPONDENTS

The Blue Ridge Parkway, a unit of the National Park Service, has prepared an environmental assessment (EA) to evaluate the direct, secondary and cumulative environmental consequences of replacing the bridge at Otter Creek Campground (Milepost 60.8) in Amherst County, Virginia on Blue Ridge Parkway lands. National Park Service guidelines for compliance with the National Historic Preservation Act and National Environmental Policy Act require an analysis of potential impacts on the proposed activities on historic resources and the human environment and public review of proposed actions and impact analysis.

By this notice the Blue Ridge Parkway is providing the public an opportunity to respond and comment on the project proposal and environmental assessment. If you would like to receive a copy of the EA please contact Suzette Molling, Environmental Protection Specialist, at (828) 271-4779 ext. 219. The EA is also available for review on the Internet at: <http://www.nps.gov/blri/pphtml/facts.html> and by clicking on the "Otter Creek Bridge & Campground Services Replacement EA" link.

If you wish to comment on the environmental assessment, you may mail comments to the name and address below. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold from the record a respondent's identity, as allowable by law. **If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment.** We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

Please Address Comments to:
Superintendent
Attn: Otter Creek Bridge Replacement EA
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, North Carolina 28803

RESPONSES DUE August 1, 2003

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23211
Mailing address: P.O. Box 10060, Richmond, Virginia 23240
Fax (804) 698-4500 TDD (804) 698-4021
www.geq.state.va.us

August 4, 2003

Mr. Daniel W. Brown
Superintendent
U.S. Department of the Interior
National Park Service
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, North Carolina 28803

RE: Draft Environmental Assessment for the Otter Creek Bridge and Campground Services Replacement, Amherst County, Virginia (DEQ 03-128F).

Dear Mr. Brown:

The Commonwealth of Virginia has completed its review of the Draft Environmental Assessment (EA) for the above referenced project. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth. The following agencies took part in the review of the Draft EA:

Department of Environmental Quality
Department of Forestry
Department of Conservation and Recreation
Department of Game and Inland Fisheries
Department of Agriculture and Consumer Services
Department of Mines, Minerals, and Energy
Department of Health
Department of Transportation

The Department of Historic Resources, Amherst County, and the Central Virginia Planning District Commission were also invited to comment.

[illegible]

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Project Description

The proposed action involves the replacement of the existing Otter Creek Bridge and campground services by the National Park Service (NPS) at milepost 60.8 on the Blue Ridge Parkway, Amherst County. The project also includes the relocation of the campground kiosk and sewer, electric, and water lines for the concession-operated restaurant and gift shop facility; reconstructing the access road to the kiosk and the stone retaining wall behind the restaurant facility; and restoring and stabilizing the banks of Otter Creek in the project area. Several times each year, the Park experiences significant flooding events, which pose major safety hazards, have resulted in major damage to the Park's structures, significant erosion and water quality degradation, and require the evacuation of the Otter Creek campground and concession facility. The above described project represents preferred Alternative B. Other alternatives discussed in the Draft EA include a No Action Alternative A, a Berm Construction Alternative, and a Kiosk Relocation and Reconstruction Alternative.

Environmental Impacts and Mitigation

1. Water Quality & Wetlands. The Draft EA (page 4-23) states that the construction associated with replacing the Otter Creek Bridge and other site improvements would disturb approximately 8,200 square feet of ground surface over a period of approximately 4 to 5 months between November and April. The Draft EA also notes that the DEQ has designated Otter Creek as a stockable trout water in the vicinity of the campground and as a natural trout water upstream. Therefore, during demolition and construction activities, the NPS would require the construction contractor to prohibit equipment from entering Otter Creek. If in-stream work is unavoidable, the NPS would require the construction contractor to use synthetic mats to protect the stream (Draft EA, page 4-23). Demolition of the Otter Creek Bridge would be accomplished by lifting the largest sections possible with a 10- to 15-ton or larger crane. The use of this equipment would reduce concrete debris from entering the streambed and adversely affecting water quality and streamflow. Any concrete debris entering the streambed from demolition work would be removed within a 10-hour working period to reduce any impact to stream flow. Also, the NPS would require mitigation specifications to control fuel and equipment storage and handling to minimize accidental fuel or chemical spill into Otter Creek associated with construction equipment.

According to the Draft EA (page 1-10) no wetlands have been identified within the project area, and no wetlands would be affected by project implementation. However, the replacement bridge may require new concrete footings if the existing footings are found to be inappropriate for the new design loads. New footings, according to the NPS, would require a Nationwide Permit (NWP) from the U.S. Army Corps of Engineers (USACE) for the discharge of dredged or fill material in waters of the U.S. The NPS believes the project would likely meet the criteria of

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NWP 3 for repair or replacement of existing serviceable structures. Furthermore, proposed activities related to streambank stabilization, including the use of riprap and stone covered with a layer of soil and planted with native plants, may require a NWP 13 permit from USACE. The NPS plans to consult with the USACE to determine specific permitting requirements. The Draft EA (page 4-25) notes that any NWP will require certification by the state through DEQ's Virginia Water Protection Permit program.

Over the long-term, the NPS anticipates improvements in water quality from the proposed project through streambank stabilization, a reduction in flooding accomplished by the elimination the debris dams that form against the existing bridge during high streamflow events, and the elimination of raw sewage overflows during flood events (Draft EA, page 4-25).

DEQ reviewers note that provided the project qualifies for NWPs 3 and 13, a VWP permit will most likely not be required from DEQ for the proposed activities. If NWPs 3 and 13 do not apply, then a VWP permit will be required for impacts to State waters and the project proponent should coordinate with the DEQ South Central Regional Office (SCRO) for final permit determination. When the Joint Permit Application is submitted to the Virginia Marine Resources Commission (VMRC) for this project, the USACE will make their final determination on the applicable NWPs. At that time, DEQ-SCRO will also make their final determination on the need for a VWP permit.

The use of heavy equipment (backhoes, cranes, etc.) and refueling operations present a risk of releasing petroleum products such as hydraulic oil, motor oil, diesel fuel, etc. Please note that any release of petroleum products to the lands or waters of the Commonwealth is a violation of the State Water Control Law (Va. Code §62.1-44.2, *et seq.*). The use of construction equipment adjacent to the stream bank may warrant the need to develop a spill response plan. DEQ encourages keeping materials such as granular absorbents or booms on site during construction to quickly respond to any release. Any discharge of such products should be reported to SCRO at (434) 582-5120.

2. Erosion and Sediment Control, and Stormwater Management. According to the Draft EA (page 4-24), the construction activities associated with the preferred Alternative B are not regulated under the *Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations* (VESCL&R) since the total area of land disturbance would be less than 10,000 square feet. However, the NPS intends to comply with the VESCL&R to avoid and minimize erosion and sediment runoff to Otter Creek and would follow State Erosion and Sediment Control (ESC) guidance as provided in the *Virginia Erosion and Sediment Control Handbook*. Furthermore, if erosion is not preventable, the NPS may require construction of sedimentation basins to prevent water pollution.

The Draft EA (page 4-24) states that the construction activities associated with the preferred Alternative are not regulated under the *Virginia Stormwater Management Law and Virginia Stormwater Management Regulations* (VSWML&R), since the total area of land disturbance

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would be significantly less than the 1-acre threshold established by VSWML& R, and the project would have a negligible impact on the quantity of runoff generated from the site. In the document, the NPS does acknowledge that the use of heavy equipment on site could compact the soils, increasing the quantity of stormwater runoff to Otter Creek, potentially contributing to channel erosion and localized flooding.

According to DCR, the NPS and its authorized agents conducting regulated land disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations (VSWML&R), and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act Section 313). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, or other structures, soil/dredge spoil areas, or related land conversion activities that disturb 10,000 square feet or more would be regulated by VESCL&R and those that disturb one acre or greater would be covered by VSWML&R. Accordingly, the NPS should prepare and implement erosion and sediment control (ESC) and stormwater management (SWM) plans to ensure compliance with state law. The NPS is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and/or other mechanisms, consistent with agency policy. The NPS is encouraged to contact DCR's James Watershed Office, (804) 527-4484, to obtain plan development or implementation assistance to ensure project conformance during and after active construction.

DEQ reviewers note that since the project does not involve a land disturbing activity affecting 1 acre or more, the project would not require a Virginia Pollutant Discharge Elimination System (VPDES) general permit for stormwater discharges due to construction activities. DEQ recommends strict adherence to erosion and stormwater management controls and the implementation of best management practices (BMPs). DEQ further encourages the monitoring of construction activities to make certain that erosion and stormwater management practices are in place and adequately preventing sediment and pollutant migration into nearby surface waters.

3. Air Pollution Control. The Draft EA (page 4-27) contains air emissions estimates derived from modeling. Using information on the types of fossil fuel burning equipment to be used in the project, the expected output of emissions for each piece of equipment, and the number of hours each piece of equipment would be used over the course of the project, the modeling determined that emissions (in tons) of nitrogen oxides and volatile organic compounds are well below the *de minimis* threshold levels of 100 tons. The NPS believes the daily and total emissions from equipment used during construction would not be high enough to significantly deteriorate the air quality of the region (Draft EA, page 4-28).

To minimize fugitive dust emissions during construction, the NPS plans to apply water to roadways to keep down dust, and to wash down vehicles and paved roadways immediately adjacent to the construction site (Draft EA, page 4-28).

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DEQ reviewers note that during construction fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets, and of dried sediments resulting from soil erosion.

In addition, if project activities include the burning of construction or demolition material, this activity must meet the requirements under 9 VAC 5-40-5600 et seq. for open burning. Whereas, the regulation provides for, but does not require, the local adoption of a model ordinance concerning open burning, the applicant should contact Amherst County officials to determine what local requirements, if any, exist. Some applicable provisions of the regulation include, but are not limited to:

- All reasonable effort shall be made to minimize the amount of material burned, with the number and size of the debris piles;
- The material to be burned shall consist of brush, stumps and similar debris waste and clean burning demolition material;
- The burning shall be at least 500 feet from any occupied building unless the occupants have given prior permission, other than a building located on the property on which the burning is conducted;
- The burning shall be conducted at the greatest distance practicable from highways and air fields,
- The burning shall be attended at all times and conducted to ensure the best possible combustion with a minimum of smoke being produced;
- The burning shall not be allowed to smolder beyond the minimum period of time necessary for the destruction of the materials; and
- The burning shall be conducted only when the prevailing winds are away from any city, town or built-up area.

Please note that the Draft EA (page 3-5) states that Botetourt County, which is adjacent to Amherst County, is a non-attainment area for ozone. However, that designation has been recommended and is not official. The U.S. Environment Protection Agency will make non-attainment designations in December of 2003. For more information contact Christina Staten, DEQ South Central Regional Office, (434) 582-5120.

4. Solid and Hazardous Wastes and Hazardous Materials. The NPS states that waste disposal facilities and procedures in the Blue Ridge Parkway must follow the Superintendent's 2002

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Policy on Solid Waste Disposal (Draft EA, page 3-16). Solid wastes and construction and demolition wastes that are generated during construction would be contained in refuse containers on the project site. These containers would be emptied and transported to a temporary storage facility for eventual disposal at the Bedford County Sanitary Landfill, or directly to the landfill, at least once a week. All vehicles used for transport of solid waste would be operated and maintained in accordance with Virginia solid Waste Management Act (Title 10.1, Chapter 14 of the Code of Virginia) and its implementing regulations (page 4-41). Any hazardous materials used during construction would be handled, stored, transported, and disposed of in accordance with State and Federal hazardous waste laws, as well as the NPS's *Hazardous Materials Management Plan and Hazardous Waste Emergency Management Plan*. All employees that would be exposed to hazardous materials at the construction site would be trained and instructed in approved methods for handling and storage of such materials (Draft EA, page 4-42).

DEQ found that solid and hazardous waste issues were addressed in the Draft EA, but the document did not include a search of waste-related databases. DEQ conducted a cursory review of its data files and found no sites that might impact or be impacted by this project. Any soil or sediment that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Solid waste, including construction demolition debris (CDD), must be disposed of at a certified waste disposal facility. Solid waste may not be disposed of through open burning or burial. Only land clearing debris may be burned on the site from which it was cleared, in accordance to applicable state laws and local ordinances (see 3. *Air Pollution Control*).

The Draft EA (page 3-16) states that "...the organic storage sites (such as composting sites) do not fall under the purview of solid waste management regulations." However, organic storage sites may be regulated by the Virginia Solid Waste Management Regulations (9 VAC 20-80-10 *et seq.*), and specifically by Virginia's Vegetative Waste Regulations (9 VAC 20-80-10, *et seq.*) Certain composting operations are required to obtain a permit. Based on the limited information presented, DEQ is unable to determine whether the organic waste sites cited in the Draft EA may require a permit. Please contact Becky Dietrich at (540) 562-6790 for further information.

The Draft EA did not state if structures that will be demolished have been checked for the presence of asbestos-containing materials (ACM) and/or lead-based paint (LBP). They should be checked and if LBP or ACM are found, in addition to the Federal waste-related regulations, State regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.

Pollution prevention was not addressed in the report. All solid wastes generated from project activities should be reduced at the source, reused, or recycled. All hazardous wastes should be minimized. For additional information, contact Christina Staten, DEQ South Central Regional Office, (434) 582-5120.

5. Natural Heritage and Wildlife Resources. According to the Draft EA (page 1-10), The Virginia Department of Conservation and Recreation's (DCR) Division of Natural Heritage (DNH) was contacted (March 17, 2003, letter, Draft EA Appendix D-2) regarding potential

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impacts of the project on natural heritage resources, including rare, threatened, or endangered plant and animal species. According to the Draft EA, surveys of the project site did not result in the discovery of any Federal or State-listed threatened or endangered plants or animals, and none would be affected by preferred Alternative B.

According to the March 17, 2003 letter, information in the DCR-DNH Biological and Conservation Data system (BCD), showed that the James River-Big Island Stream Conservation Unit (SCU) is located downstream of the proposed project. The James River-Big Island SCU is ranked as a B4 (moderate significance) conservation site. SCUs identify stream reaches that contain aquatic natural heritage resources. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain.

Furthermore, the letter stated that the Yellow lance has been documented in the project vicinity. The Yellow lance is currently classified as a special concern species by the Virginia Department of Game and Inland Fisheries (VDGIF) and a species of concern by the U.S. Fish and Wildlife Service (USFWS); however, these designations have no official legal status. To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activity, DCR recommends the implementation of, and strict adherence to, erosion and sediment control measures during all land disturbing activities.

Review of the Draft EA by the Department of Agriculture and Consumer Services (VDACS) found that statements in the documents concerning endangered plant and insect species were accurate and that no additional comments are necessary. Furthermore, under a Memorandum of Agreement established between VDACS and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species. DCR also determined that the current activity will not affect any documented state-listed plant and insect species.

In its comments, the Department of Game and Inland Fisheries (DGIF) noted that Otter Creek is a stocked trout stream. The DGIF recommends that the NPS coordinate with DGIF's local fisheries biologist to prevent possible conflicts related to campground construction activities and trout stocking efforts. DGIF also recommends conducting in-stream activities during low-flow conditions, using non-erodible cofferdams to isolate the construction area, blocking no more than 50% of stream flow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas, and implementing strict erosion and sediment control measures throughout the project period as described in the *Virginia Erosion and Sediment Control Handbook*, 1992. For additional information contact Brian Moyer, DGIF Environmental Services Section, (804) 367-2733.

Under title 29.1 of the Code of Virginia, DGIF is the primary wildlife and freshwater fish management agency in the Commonwealth. The DGIF has full law enforcement and regulatory jurisdiction over all wildlife resources, inclusive of state and federally endangered or threatened species, but excluding listed insects. The agency maintains a comprehensive system of databases

Mr. Daniel W. Brown
Page 8

of wildlife resources that is available through the Agency's site at www.dgif.state.va.us, in the "Wildlife" section from the link to "Wildlife Information Online". The DGIF determines likely impacts on fish and wildlife resources and habitats, and recommends appropriate measures to avoid, reduce, or compensate for those impacts. For more information on the Wildlife Information Online Service, contact Kathy Quindlen at (804) 367-9717.

6. Forestry Resources. The Draft EA (page 3-5) states that the species of trees and shrubs identified in the immediate area around the Otter Creek Bridge site include white oak, Virginia pine, sycamore, hemlock, alder, and mountain laurel. Only a few trees would need to be removed from the project area, primarily at the site of the new fee collection booth (Draft EA, page 4-28).

The Virginia Department of Forestry (DOF) finds that based on the information contained in the Draft EA, DOF has determined that the project will have no significant impact on the forest resources of the Commonwealth. For more information, contact Michael Foreman, (434) 977-6555.

7. Utility Lines. Water, sewer, and electric lines for the concession-operated restaurant facility would be relocated for this project. A new sewer line connecting the Otter Creek restaurant to the campground sewer system would be constructed over Otter Creek within a conduit on the new Otter Creek Bridge (Draft EA, page 4-36). Since the new bridge would be elevated, a lift station would need to be constructed to pump sewage through the system.

According to DEQ, plans and specification for any on-site (no discharge to state waters) disposal system will need to be submitted to the Virginia Department of Health for review and approval. Plans and specifications for any system resulting in a discharge of treated wastewater to surface waters will need to be submitted to DEQ-SCRO. Please contact Bob Goode, (434) 582-5120.

Watertight covers should be used for any manholes located in the floodplain. In addition, the pump station should be constructed outside the floodplain or protected from flooding. The discharge of untreated wastewater to state waters is a violation of the State Water Control Law (Va. Code § 62.1-44.2, *et seq.*).

The Draft EA mentioned several previous overflows from the existing sewage system. The DEQ-SCRO could find no evidence of these overflows being reported in accordance with state and federal law. Please report any future overflows to this office within 24-hours of discovery. Call (434) 582-5120 to report future overflows.

The Virginia Department of Health (VDH) notes that the NPS needs to discuss the water line construction with the VDH Danville Field Office to determine if plans and specifications need to be submitted for approval.

Mr. Daniel W. Brown
Page 9

8. *Geologic Resources.* The Department of Mines, Minerals, and Energy (DMME) indicated that the project activities would not have a significant impact on geology or mineral resources. For more information, contact Gerald Wilkes, (434) 951-6364.

9. *Historic Structures and Archaeological Resources.* In accordance with *Section 106 of the National Historic Preservation Act of 1966*, as amended, a cultural resources investigation was conducted in the project area by the NPS, and consultation and comment was solicited from the Virginia State Historic Preservation Officer (SHPO) (Draft EA, page 4-31). No archaeological artifacts and/or features were observed or recovered in any of the shovel test pits during the archaeological evaluation. According to the NPS, no historic properties or cultural landscapes would be affected by implementation of preferred Alternative B. The Virginia SHPO concurs with the NPS's finding of "No Adverse Effect" on cultural resources (Draft EA, page 4-32).

Section 106 requires that federal agencies must consider effects of its activities on properties that are listed or eligible for listing on the National Register of Historic Places. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources. The DHR did not respond to DEQ's request for comments on the project. For more information, and in the event that archaeological resources are encountered during construction, immediately contact Ms. Ethel Eaton, DHR, at (804) 367-2323.

10. *Transportation.* The Draft EA (page 4-35) states that the transport of equipment, materials, and workers to the project site during the construction phase of the project would temporarily increase the amount of vehicular traffic on surrounding roadways, including the Blue Ridge Parkway. It is anticipated by the NPS that the small number of large trucks using surrounding roadways would have negligible impacts on transportation, including temporary slows in traffic speed, particularly at the turn-in to the Otter Creek area from the Blue Ridge Parkway. No damage to affected roadways is anticipated to occur with so few truck trips, and over the short time period over which these trucks would use the roadways. All required signage per the *Manual on Uniform Traffic Control Devices* (USDOT, 2001) would be installed and maintained around the construction site and around road closures. Construction access restrictions and road closures are not anticipated to result in traffic congestion or any other adverse impacts on transportation (Draft EA, page 4-35).

The Virginia Department of Transportation reviewed the information contained in the Draft EA and concluded that the proposed project should have minimal impacts to traffic during construction, with no long-term negative impacts.

Regulatory and Coordination Needs

1. *Water Quality and Wetlands.* Provided that this project qualifies for a NWP 3 and 13, a VWP permit will most likely not be required from DEQ. However, if after the NPS submits a Joint

Mr. Daniel W. Brown
Page 10

Permit Application (JPA) to the VMRC it is determined NWP 3 and 13 do not apply, a VWP permit is required from the DEQ-SCRO. For further information and coordination, contact the VMRC at (757) 247-2200. VMRC will distribute the JPA to the appropriate agencies. Each agency will conduct its review and respond. Also, please contact Bob Goode, DEQ SCRO, (434) 582-5120, for questions concerning potential state permits.

2. Erosion and Sediment Control and Stormwater Management. DEQ and other project reviewers support the NPS in its decision to comply with Virginia's Erosion and Sediment Control Law (Virginia Code 10.1-567) and regulations (4 VAC 50-30-30 et seq.) (VESCL&R), and Stormwater Management Law (Virginia Code 10.1-603.5) and regulations (4 VAC 3-20-210 et seq.) (VSWML&R), regardless that the projects anticipated land disturbance of 8,200 square feet falls below the regulatory requirement of 10,000 square feet or more under VESCL&R and one acre or greater under VSWML&R. The NPS is encouraged to contact DCR's James Watershed Office at (804) 527-4484, to obtain plan development or implementation assistance to ensure project conformance during and after active demolition and construction.

3. Air Quality Regulations. This project may be subject to air regulations administered by the Department of Environmental Quality. The following sections of Virginia Administrative Code are applicable: 9 VAC 5-50-60 et seq. governing fugitive dust emissions and 9 VAC 5-40-5600 et seq. for open burning. In addition, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. For more information and coordination contact Christina Staten, DEQ South Central Regional Office, (434) 582-5120.

3. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Contact DEQ's South Central Regional Office, (434) 582-5120, concerning location and availability of suitable waste management facilities in the project area or if free product, discolored soils, or other evidence of contaminated soils are encountered.

- *Asbestos Materials.* It is the responsibility of the owner or operator of a demolition activity, prior to the commencement of the demolition, to thoroughly inspect the affected part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 et seq.). Contact the DEQ Waste Management Program for additional information, (804) 698-4021, and the Department of Labor and Industry, Dr. Clarence H. Wheeling at (804) 786-0574.
- *Lead-Based Paint.* If applicable, the proposed project must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)

Mr. Daniel W. Brown
Page 11

regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation, Mr. Thomas Perry at (804) 367-8595.

Also, please contact Becky Dietrich at (540) 562-6790 for additional information regarding permitted organic waste storage sites in the project area.

4. Natural Heritage and Wildlife Resources. According to DCR-DNH the James River-Big Island Stream Conservation Unit is located downstream of the proposed project. In addition, the Yellow Lance, a state special concern species, and a federal species of concern, has been documented in the area. Therefore, the NPS is encouraged to coordinate project activities with DCR-DNH Derral Jones, (804) 786-9042, and the U.S. Fish and Wildlife Service, Karen Mayne, (804) 693-6694. Also, according to the DGIF, Otter Creek is a stocked trout stream. We recommend that the NPS coordinate with DGIF's local fisheries biologist to prevent possible conflicts related to campground demolition and construction activities and trout stocking efforts. Please contact Brian Moyer, DGIF, (804) 367-8998, to coordinate this activity.

5. Sewer and Water. Plans and specification for any on-site disposal system will need to be submitted to the Virginia Department of Health for review and approval. Please contact Alan Weber, (804) 371-2883, for more information. However, plans and specifications for any system resulting in a discharge of treated wastewater to surface waters must be submitted to DEQ's South Central Regional Office. Please contact Bob Goode, DEQ-SCRO, (434) 582-5120. With regard to the proposed installation of a new water line, the NPS should coordinate this activity with the Virginia Department of Health's Danville Field Office.

Thank you for the opportunity to review the Environmental Assessment for this undertaking. We agree that an Environmental Impact Statement is not necessary for this project. Detailed comments of reviewing agencies are attached for your review. Please contact John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,



Ellie Irons, Program Manager
Office of Environmental Impact Review

Enclosures

cc: Ellen Gilinsky, DEQ-WPS

Mr. Daniel W. Brown
Page 12

Kotur S. Narasimhan, DEQ-ADA
Tom Modena, DEQ-ORP
Christina Staten, DEQ-SCRO
Gerald P. Wilkes, DMME
Brian D. Moyer, DGIF
Derral Jones, DCR
Keith R. Tignor, VDACS
Alan Weber, VDH
Ethel Eaton, DHR
Michael Foreman, DOF
David Grimes, VDOT
R. Bryan David, Amherst County
C. W. "Bill" Gillespie, Jr., Central Virginia PDC

Figure E-3. Virginia Department of Environmental Quality, South Central Region Office
Draft EA Comment Letter



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

SOUTH CENTRAL REGIONAL OFFICE
7705 Timberlake Road, Lynchburg, Virginia 24502
(434) 582-5120 Fax (434) 582-5125
www.deq.state.va.us

Robert G. Burnley
Director

Thomas L. Henderson
Regional Director

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JUL 29 2003

DEQ-Office of Environmental
Impact Review

MEMORANDUM

TO: John E. Fisher, Office of Environmental Impact Review

FROM: Christina Staten, South Central Regional Office (SCRO) *CS*

SUBJECT: South Central Regional Office Comments on the Otter Creek Bridge and Campground Services Replacement, DEQ# 03-128F

DATE: July 28, 2003

The staff of the South Central Regional Office of the Virginia Department of Environmental Quality (DEQ) has reviewed the June 2003 Draft Environmental Assessment (EA) for the U.S. National Park Service Otter Creek Campground located in Amherst County, VA. Significant environmental impacts are not expected from this project, however based on the information provided, we offer the following comments:

Air Quality Issues:

The EA acknowledges the possibility that land disturbance will lead to fugitive dust emissions. These should be controlled pursuant to 9 VAC 5-50-60 of the Regulations for the Control and Abatement of Air Pollution. Construction areas should be watered as needed to reduce dust.

Page 3-5 states that Botetourt County is a non-attainment area for ozone. Please note that this designation has been recommended but is not official. The U. S. Environmental Protection Agency will make non-attainment designations in December of 2004.

Table 4.3.1-1 lists a cement truck with a rating of ¼ HP. We assume this is a typographical error.

Water Quality Issues:

Erosion and Sediment Control

The project will not involve an acre of land disturbance; therefore, coverage under the Virginia Pollutant Discharge Elimination System (VPDES) general permit for storm water discharges from construction activities will not be required. In order to minimize the affects of erosion and sedimentation, the EA indicates that guidance provided in the Virginia Erosion and Sediment Control Handbook will be followed.

Sanitary Wastewater

The EA discusses replacing the sewer line as well as the possible installation of a pump station and/or package treatment plant. Plans and specifications for any on-site (no discharge to state waters) disposal system will need to be submitted to the Virginia Department of Health for review and approval. Plans and specifications for any system resulting in a discharge

An Agency of the Natural Resources Secretariat

of treated wastewater to surface waters will need to be submitted to the DEQ, with an application for said discharge submitted to the South Central Regional Office. Please contact Bob Goode at (434) 582-5120 if you have questions concerning these requirements.

Watertight covers should be used for any manholes located in the floodplain. In addition, the pump station should be constructed outside the floodplain or protected from flooding. The discharge of untreated wastewater to state waters is a violation of the State Water Control Law (Va. Code § 62.1-44.2, *et seq.*).

The EA mentioned several previous overflows from this system. The SCRO could find no evidence of these overflows being reported in accordance with state and federal law. Please report any future overflows to this office within 24 hours of discovery. Reports should be made to (434) 582-5120.

Bridge Replacement/Stream Bank Restoration

The EA stated that the bridge replacement would probably qualify for a Nationwide Permit No. 3 (NWP-3) from the U.S. Army Corps of Engineers (USACE). DEQ has unconditionally certified the NWP-3; if USACE provides coverage under this permit, no state permit or fee would be required.

The EA also stated that some stream bank stabilization would be initiated and it would probably qualify for a NWP-13. DEQ has conditionally certified the NWP-13; however, based on the project description (under 500 feet of stream), it is possible that no state permit or fee would be required.

When the Joint Permit Application is submitted for this project, USACE will make their final determination on the applicable NWPs. At that time, DEQ will also make their final determination on the need for a Virginia Water Protection permit. Please contact Bob Goode at (434) 582-5120 for any questions concerning potential state permits.

Spill Response

The use of heavy equipment (backhoes, cranes, etc.) and refueling operations present a risk of releasing petroleum products such as hydraulic oil, motor oil, diesel fuel, etc. Please note that any release of petroleum products to the lands or waters of the Commonwealth is a violation of the State Water Control Law (Va. Code § 62.1-44.2, *et seq.*). The use of construction equipment adjacent to the stream bank may warrant the need to develop a spill response plan. DEQ encourages keeping materials such as granular absorbents or booms on site during construction to quickly respond to any release. Any discharge of such products should be reported to SCRO at (434) 582-5120.

Waste Disposal:

Organic storage sites (such as composting sites mentioned in 3.4.7 of the EA) may be regulated by Virginia's Vegetative Waste regulations (9 VAC 20-101-10 *et seq.*) and Solid Waste Management Regulations (9 VAC 20-80-10 *et seq.*). In addition, certain composting operations are required to obtain a permit-by-rule from the DEQ. The SCRO cannot make a specific determination based on the information in the EA. If you have additional questions regarding this, please contact Becky Dietrich of SCRO at (540) 562-6790.

Solid waste must be handled and disposed of in a manner compliant with the Virginia Solid Waste Management Regulations and the Virginia Waste Management Act. As stated in the EA, solid waste, including construction demolition debris (CDD), must be disposed of at a certified waste disposal facility. Solid waste may not be disposed of through open burning or burial. Only land clearing debris may be burned on the site from which it was cleared, if in accordance to applicable state laws and local ordinances.

Any hazardous waste or hazardous materials must be handled in accordance to all federal, state, and local regulations (i.e.: the Resource Conservation and Recovery Act, the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, and the Virginia Regulations for the Transportation of Hazardous Materials).

If you have any questions, please contact Christina Staten at (434) 582-5120. Thank you for the opportunity to comment.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

SOUTH CENTRAL REGIONAL OFFICE

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W. Taylor Murphy, Jr.
Secretary of Natural Resources

Robert G. Bumley
Director

Thomas L. Henderson
Regional Director

TO: John E. Fisher, Office of Environmental Impact Review

FROM: Christina Staten, South Central Regional Office (SCRO)

SUBJECT: Addendum to SCRO Comments on the Otter Creek Bridge and Campground Services Replacement, DEQ# 03-128F

DATE: July 31, 2003

In regard to the paragraph concerning organic storage sites in SCRO's July 28, 2003 comments:

The Environmental Assessment (EA) states in section 3.4.7 that "...the organic storage sites (such as composting sites) do not fall under the purview of solid waste management regulations." Organic storage sites may be regulated by the Virginia Solid Waste Management Regulations (9 VAC 20-80-10 *et seq.*), specifically by Virginia's Vegetative Waste Regulations (9 VAC 20-80-10, *et seq.*). Certain composting operations are required to obtain a permit. DEQ cannot make a determination from the limited information presented in the EA as to whether or not these sites may require a permit. Please contact Becky Dietrich at (540) 562-6790 for further information.

**Figure E-4. Virginia Department of Environmental Quality, Water Division Draft EA
Comment Letter**

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Memorandum

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER DIVISION
Larry G. Lawson, P.E., Director

To: John Fisher
Environmental Program Planner

From: Ellen Gilinsky, Ph. D, PWS
VWP Permit Program Manager *EG*

Date: July 18, 2003

Subject: Otter Creek Bridge and Campground Services Replacement
DOI/National Park Service
Project Number 03-118F

On behalf of the DEQ-Water Division, we have reviewed the Environmental Assessment regarding the proposed replacement of a bridge and campground services at the Otter Creek Campground located on the Blue Ridge Parkway in Amherst County, Virginia. The proposed activity involves the replacement of the bridge leading to the campground, stabilization of the stream banks immediately downstream of the bridge, and replacement of the campground fee collection booth adjacent to the bridge.

The report indicates that stream channel impacts may occur as part of the bridge replacement and stream bank stabilization activities. The project proponent intends to apply for a U. S. Army Corps of Engineers Nationwide Permit 3 if work is to be performed on the bridge abutments and a Nationwide Permit 13 for the stream stabilization activities if work is to be conducted below ordinary high water. Provided the project qualifies for Nationwide Permits 3 and 13, a VWP permit will not be required for the proposed activities. If it is determined that the nationwide permits do not apply, a VWP Permit will be required for impacts to State waters and the project proponent should coordinate with the DEQ South Central Regional Office for final permit determination.

We recommend strict adherence to erosion and stormwater management controls and the implementation of best management practices. We further encourage the monitoring of construction activities to make certain that erosion and stormwater management practices are in place and adequately preventing sediment and pollutant migration into nearby surface waters such as Otter Creek.

Figure E-5. Virginia Department of Conservation and Recreation Draft EA Comment Letter

W. Tayloe Murphy, Jr.
Secretary of Natural
Resources



Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street
Richmond, Virginia 23219-2010
MEMORANDUM

DATE: 27 July 2003

TO: John E. Fisher, Virginia Department of Environmental Quality
Derral Jones

FROM: Derral Jones, Planning Bureau Manager

SUBJECT: DEQ#03-128F: Otter Creek Bridge and Campground Services Replacement, National Park Service

The Department of Conservation and Recreation's (DCR) Division of Natural Heritage submitted comments on this project to the to the Environmental Specialist for the Blue Ridge Parkway on 17 March 2003. A copy of that letter is contained in Appendix D.

In addition to those comments, the National Park Service (NPS) needs to be aware that federal agencies and their authorized agents conducting regulated land disturbing activities on private and public lands in the Commonwealth of Virginia must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations (VSWML&R), and other applicable federal nonpoint source pollution mandates (e.g., Clean Water Act-Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, roads, utilities, or other structures, soil/dredge spoil areas, or related land conversion activities that disturb 10,000 square feet or more would be regulated by VESCL&R and those that disturb one acre or greater would be covered by VSWML&R. Accordingly, the National Park Service should prepare and implement erosion and sediment control (ESC) and stormwater management (SWM) plans to ensure compliance with state law. The NPS is ultimately responsible for achieving project compliance through oversight of on site contractors, regular field inspection, prompt action against non-compliant sites, and/or other mechanisms consistent with agency policy. Agencies are highly encouraged to contact DCR's James Watershed Office (804- 527-4484) to obtain plan development or implementation assistance to ensure project conformance during and after active construction. *[Reference: VESCL §10.1-567; VSWML §10.1-603.15]*

DCR supports the proposed efforts of the NPS to improve the visitor experience to the park by eliminating safety hazards, minimize erosion and improve the water quality.

Thank you for the opportunity to offer comments on this project.
Conserving Virginia's Natural and Recreational Resources

Figure E-6. Virginia Department of Environmental Quality, Division of Air Program
Coordination Comment Letter

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: John E. Fisher

DEQ - OEIA PROJECT NUMBER: 03 - 128F

PROJECT TYPE: ☐ STATE EA / EIR / FONSI ☒ FEDERAL EA / EIS ☐ SCC
☐ CONSISTENCY DETERMINATION/CERTIFICATION

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JUL 28 2003

PROJECT TITLE: OTTER CREEK BRIDGE AND CAMPGROUND SERVICES

DEQ-Office of Environmental
Impact Review

PROJECT SPONSOR: DEPT. OF THE INTERIOR / NATIONAL PARK SERVICES

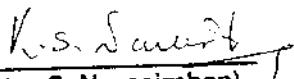
PROJECT LOCATION: ☐ OZONE NON ATTAINMENT AREA
☐ OZONE MAINTENANCE AREA
☐ STATE VOLATILE ORGANIC COMPOUNDS & NITROGEN
OXIDES EMISSION CONTROL AREA

REGULATORY REQUIREMENTS MAY BE APPLICABLE TO: ☒ CONSTRUCTION
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E - STAGE I
2. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 F - STAGE II Vapor Recovery
3. ☐ 9 VAC 5-40-5490 et seq. - Asphalt Paving operations
4. ☒ 9 VAC 5-40-5600 et seq. - Open Burning
5. ☒ 9 VAC 5-50-60 et seq. Fugitive Dust Emissions
6. ☐ 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to
7. ☐ 9 VAC 5-50-160 et seq. - Standards of Performance for Toxic Pollutants
8. ☐ 9 VAC 5-50-400 Subpart _____, Standards of Performance for New Stationary Sources,
designates standards of performance for the
9. ☐ 9 VAC 5-80-10 et seq. of the regulations - Permits for Stationary Sources
10. ☐ 9 VAC 5-80-1700 et seq. Of the regulations - Major or Modified Sources located in
PSD areas. This rule may be applicable to the
11. ☐ 9 VAC 5-80-2000 et seq. of the regulations - New and modified sources located in
non-attainment areas
12. ☐ 9 VAC 5-80-800 et seq. Of the regulations - Operating Permits and exemptions. This
rule may be applicable to

COMMENTS SPECIFIC TO THE PROJECT:


(Kotur S. Narasimhan)
Office of Air Data Analysis

DATE: July 25, 2003

Figure E-7. Virginia Department of Environmental Quality, Waste Division Draft EA
Comment Letter



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

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W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Robert G. Burnley
Director

(804) 698-4000
1-800-592-5482

MEMORANDUM

TO: John Fisher

FROM: Thomas Modena *TM*

DATE: July 25, 2003

COPIES: Kevin Greene

SUBJECT: Draft Environmental Assessment
Otter Creek Bridge and Campground Services Replacement

The Waste Division has reviewed the Draft Environmental Assessment for the National Park Service Otter Creek Bridge and Campground Services Replacement, Prince William County. We have the following comments concerning the waste issues associated with this project.

The report addressed solid and hazardous waste issues, but did not include a search of waste-related databases. The central office of the Waste Division did a cursory review of its data files and did not find any sites that might impact or be impacted by this project.

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 CFR Parts 107, 171.1-172.558.

The report did not state if structures that will be demolished have been checked for the

presence of asbestos-containing materials (ACM) and/or lead-based paint (LBP). They should be checked and if LBP or ACM are found, in addition to the Federal waste-related regulations, State regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.

Finally, pollution prevention was not addressed in the report. VDEQ encourages all projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated.

If you have any questions or need further information, please let me know.

Figure E-8. Virginia Department of Agriculture and Consumer Services, Office of Plant and Pest Service Draft EA Comment Letter

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

- A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.
- B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.
- C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

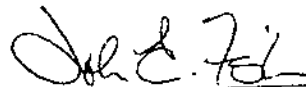
Please return your comments to:

MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319

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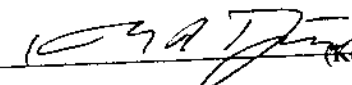
JUL 25 2003

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JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

Statements in the project document concerning endangered species were reviewed and compared to available information. No additional comments are necessary in reference to endangered plant and insect species regarding this project.

(signed)  (date) July 22, 2003
(title) Endangered Species Coordinator
(agency) VDACS, Office of Plant and Pest Service

PROJECT # 03-128F

8/98

Figure E-9. Virginia Department of Game and Inland Fisheries Draft EA Comment Letter

Fisher, John

From: Brian Moyer [MoyerB@dgif.state.va.us]
Sent: Friday, July 25, 2003 3:22 PM
To: Fisher, John
Subject: Re: Comments on the Otter Creek Bridge/Campground Draft EA

Otter Creek is a stocked trout stream. We recommend that the Park Service coordinate with our local fisheries biologist to prevent construction/stocking conflicts. We also recommend conducting in-stream activities during low-flow conditions, using non-erodible cofferdams to isolate the construction area, blocking no more than 50% of stream flow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas, and implementing strict erosion and sediment control measures throughout the project period as described in the Virginia Erosion and Sediment Control Handbook, 1992, Virginia Department of Conservation and Recreation.

Brian D. Moyer
Department of Game and Inland Fisheries
Environmental Services Section
4010 West Broad Street
Richmond, VA 23230
(804) 367-2733
(804) 367-2427 (fax)

"Fisher, John" <jefisher@deq.state.va.us> 07/25/03 10:41AM >>>
Hello All:

DEQ's Office of Environmental Impact Review has not received your comments on the Draft Environmental Assessment prepared for the Otter Creek Bridge and Campground Services Replacement (DEQ 03-128F). The National Park Service stipulated a 30-day review response for the project which makes a much tighter time-frame than for most projects. Please submit your comments as soon as possible so that we may complete the Commonwealth's response. Thank you.

John E. Fisher
Environmental Impact Review Coordinator
Office of Environmental Impact Review
Virginia Department of Environmental Quality
629 East Main Street, Suite 644
Richmond, VA 23219
(804) 698-4339
(804) 698-4319 fax

Figure E-10. Virginia Department of Forestry Draft EA Comment Letter

Fisher, John

From: Michael Foreman
Sent: Monday, July 28, 2003 2:02 PM
To: Fisher, John
Subject: RE: Comments on the Otter Creek Bridge/Campground Draft EA

I just finished reviewing this proposal and have determined that this project will have no significant impact on the forest resources of the Commonwealth.

Thank you and please contact me with any questions or comments.

JMF

-----Original Message-----

From: Fisher, John [<mailto:jefisher@deq.state.va.us>]
Sent: Friday, July 25, 2003 10:41 AM
To: Brian Moyer (E-mail); Keith Tignor (E-mail); Synthia Waymack (E-mail); Alan Weber (E-mail); David Grimes (E-mail); Ethel Eaton (E-mail); Michael Foreman (E-mail); "C. W. V" <mail@regcomm.org>, "R. Bryan David" <rbdavid@countyofamherst.com>
Subject: Comments on the Otter Creek Bridge/Campground Draft EA

Hello All:

DEQ's Office of Environmental Impact Review has not received your comments on the Draft Environmental Assessment prepared for the Otter Creek Bridge and Campground Services Replacement (DEQ 03-128F). The National Park Service stipulated a 30-day review response for the project which makes a much tighter time-frame than for most projects. Please submit your comments as soon as possible so that we may complete the Commonwealth's response. Thank you.

John E. Fisher
Environmental Impact Review Coordinator
Office of Environmental Impact Review
Virginia Department of Environmental Quality
629 East Main Street, Suite 644
Richmond, VA 23219
(804) 698-4339
(804) 698-4319 fax

Figure E-11. Virginia Department of Health Draft EA Comment Letter

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

- A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.
- B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.
- C. Use your agency stationery or the space below for your comments. IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.

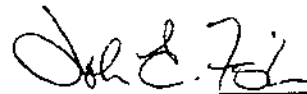
Please return your comments to:

MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319

RECEIVED

JUL 28 2003

DEQ-Office of Environmental
Impact Review



JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

Need to discuss waterline construction with our
Danville Field Office to determine if plans and specifications
need to be submitted.

(signed) Alan D. Weber (date) 7-21-03

(title) _____

(agency) VDH

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Figure E-12. Virginia Department of Mines, Minerals, and Energy Draft EA Comment Letter

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

- A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.
- B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.
- C. Use your agency stationery or the space below for your comments. IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.

Please return your comments to:

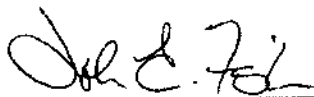
MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319

RECEIVED

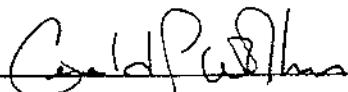
JUL 18 2003

DEQ-Office of Environmental
Impact Review

COMMENTS


JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

NO IMPACT TO THE GEOLOGY OR
MINERAL RESOURCES OF THE SITE.

(signed)  (date) 7/16/03
(title) GEOLOGIST SENIOR
(agency) DMME

PROJECT # 03-128F

8/98

Figure E-13. Virginia Department of Transportation Draft EA Comment Letter

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

- A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.
- B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.
- C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319

RECEIVED

JUL 25 2003

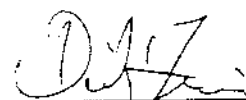
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JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

See attached

(signed)  (date) 7/22/03
(title) Env Spec II
(agency) VDOT

PROJECT # 03-128F

8/98



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, VIRGINIA 23219-2600

PHILIP A. SHUCET
COMMISSIONER

RECEIVED

JUL 25 2003

DEQ-Office of Environmental
Impact Review

EARL T. ROBB
STATE ENVIRONMENTAL ADMINISTRATOR

July 22, 2003

Mr. Anne Newsom
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main St., Sixth Floor
Richmond VA 23219

Dear Ms. Newsom:

The Virginia Department of Transportation has reviewed the information provided for the Otter Creek Bridge and Campground Services Replacement project. Our review covers impacts to existing and proposed transportation facilities.

The proposed project should have minimal impacts to traffic during construction, with no long-term, negative impacts.

Thank you for the opportunity to comment and please call (804) 786-6678 should you have any additional questions.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Grimes".

David Grimes
Environmental Specialist II
VDOT
1401 East Broad St.
Richmond, VA 23219
804-786-6678 - O
David.Grimes@VirginiaDOT.org

VirginiaDOT.org
WE KEEP VIRGINIA MOVING