

National Park Service
US Department of the Interior

Blue Ridge Parkway
Virginia and North Carolina



***GUARDRAIL REPLACEMENT AND INSTALLATION
PROGRAMMATIC ENVIRONMENTAL ASSESSMENT***

September 2009



PUBLIC COMMENT

Note to Reviewers and Respondents:

If you wish to comment on the Environmental Assessment, you may transmit them to the park electronically via PEPC at <http://parkplanning.nps.gov/openPlansDocs.cfm>. This environmental assessment will be on public review for 30 days in accordance with the National Environmental Policy Act.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

At the conclusion of this comment period, the National Park Service will either issue a notice of intent to prepare an environmental impact statement or a finding of no significant impact.

Superintendent
Attention: Guardrail Installation Plan EA
Blue Ridge Parkway
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Asheville, NC 28803

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ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
BLRI	Blue Ridge Parkway (NPS official park unit acronym)
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CLI	Cultural Landscape Inventory
CLR Cult	Cultural Landscape Report
COE	U.S. Army Corps of Engineers
DACS	Department of Agriculture and Consumer Services
EA Environmental	Assessment
EFLHD	Eastern Federal Lands Highway Division (a division of FHWA)
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Act
FHWA	Federal Highway Administration
FLHP	Federal Lands Highway Program
FONSI	Finding of No Significant Impact
FWS	U.S. Fish and Wildlife Service
GMP	General Management Plan
HAER	Historic American Engineering Record
HRS	Historic Resource Study
LCS	List of Classified Structures
MOA	Memorandum of Agreement
MP	Mile Post
NC North	Carolina
NCDOT North	Carolina Department of Transportation
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NHS	National Highway System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PD&D	Project Development and Design
PDDM	Project Development and Design Manual
RCRP	Roadside Cultural Resources Preservation: A Guide to Assessing the Effects of Roadside Safety Implementation on the Blue Ridge Parkway (Jaeger Co.)
ROD	Record of Decision
SHPO	State Historic Preservation Office
T&E	Threatened and/or Endangered Species
VA Virginia	

SUMMARY

In the proposed action, the National Park Service (NPS), in cooperation with the Federal Highway Administration (FHWA), proposes to replace deteriorated and guardrail that does not meet current crashworthiness criteria along the Blue Ridge Parkway (BLRI). Because of aging, wear and tear, and weathering, the guardrails along the BLRI need periodic replacement.

Additionally, certain locations along the BLRI have been identified as meeting the requirements for the addition of new guardrail to address current safety standards at such locations as tunnel openings, stone masonry walls, bridge wing walls, parapet walls and roadside fill slopes.

Because of the wide variety and varying types of historic resources and safety elements encountered on the 469-mile BLRI, and the ongoing nature of guardrail replacement efforts, a comprehensive guardrail replacement approach is needed. The goal of this plan is to gain approval for an approach for evaluating proposed actions to replace and/or install new guardrail that can be replicated from one project to the next and be defensible if challenged. The approach will be central to making decisions about installing guardrail in new locations by weighing the merits of installing new guardrail that is warranted against actual accident data for the given location, the historic importance of roadside features and their ability to visually absorb the proposed safety feature. As a cooperating agency in the NEPA process, the FHWA has assisted in the development and evaluation of alternatives for ongoing guardrail replacement efforts.

Two alternatives are considered in this Environmental Assessment (EA): 1) the No Action Alternative would maintain all current management practices and levels of treatment for the resources and 2) the Preferred Alternative under which a consistent, comprehensive, and adaptive approach would be used to maintain roadside safety while protecting, to the maximum extent possible, the BLRI's significant historical and environmental resources.

The No Action Alternative would have moderate, long-term, park-wide adverse effects on the Park resources. The cumulative effects would be moderate, long-term and adverse. The Preferred Alternative would have minor to moderate, long-term, local adverse effects on the Park resources. The cumulative effects would be minor to moderate, long-term, local and adverse.

1 Purpose and Need

1.1 Introduction

The Blue Ridge Parkway (BLRI), with its outstanding scenery and recreational opportunities, is one of the most popular park units in the National Park System. Known as "America's Favorite Drive," the BLRI traverses the gamut of spectacular scenic vistas the Appalachian Mountains have to offer, incorporates numerous recreational areas, and provides many glimpses of the natural and cultural history of Appalachia. With over 18 million annual recreational visitors, the National Park Service (NPS) is committed to providing a pleasurable and safe BLRI motoring experience. Maintaining roadside safety is fundamental to safe motoring. Maintaining safe roadside conditions by replacing guardrails that have deteriorated over time or have been damaged by vehicular impact, and adding new guardrail at locations posing potential roadside safety hazards, is essential to that experience. However, it is important to implement such actions in a sensitive manner in order to protect park resources and values and to maintain the quality of the visitor's scenic driving experience.

In the proposed action, the NPS, in cooperation with the Federal Highway Administration (FHWA), proposes to continue replacing deteriorated and guardrail that does not meet current crashworthiness criteria along the BLRI. The NPS is also considering the installation of guardrail along sections of the BLRI where none previously existed, as well as installing guardrail at the approaches to all fixed structures along the BLRI such as tunnel openings, stone masonry walls, bridge wing walls, and parapet walls.



1.2 Purpose and Need of Proposed Action

Because of aging, wear and tear, and weathering, the guardrails along the BLRI need periodic replacement. Additionally, certain locations along the BLRI have been identified as meeting the requirements for the addition of new guardrail to address current safety criteria. Because of the wide variety and varying types of historic resources and safety elements encountered on the 469-mile BLRI, and the ongoing nature of guardrail replacement efforts, a comprehensive guardrail replacement approach is needed. As a

cooperating agency in the NEPA process, the FHWA has assisted in the development and evaluation of alternatives for ongoing guardrail replacement efforts.

The BLRI is a historic designed landscape that possesses a high degree of historic integrity. “The road retains the original location and geometric design intended to encourage leisurely progress and frequent stops, and although some of it’s supporting components have been modified and few replaced a, the great majority have been preserved” (Firth n.d.a: 366).

Until the 1950s, dry stacked stone guardwalls were used as roadside barriers. From the 1950s on, timber guardrails were used at some locations in lieu of the more expensive stone walls. From that time the design standard for guardrails has evolved to meet more up-to-date crashworthy design guidelines. Technological advances in safety barriers over the years have allowed for the rustic look of vehicle barriers to be maintained while the overall safety value has been increased.

Over the past 70 years roadside barriers have been strategically added in key locations to increase safety. Based upon the most current safety guidelines for installing guardrails to protect visitors from impacting fixed roadside obstacles, guardrails are being considered for application at all bridge wing walls, tunnel portals and along many roadside locations. The most recent guardrail inventory found 25.50 miles of guardrail along the BLRI, with 16.68 miles in Virginia and 8.82 miles in North Carolina (Sept. 2004 Guardrail Inventory). Guardrail replacement and upgrading is ongoing, so the total linear feet of guardrail may have been increased over the past two years.

Most of the designed landscape components implemented on the BLRI were a product of the design philosophy that guided construction prior to the Second World War. Because the initial design and construction focused on designed landscape and the character of the roadway rather than standard crashworthy safety practices, roadside safety barriers were designed to promote safety in a manner that was aesthetically pleasing while meeting the standards for safe barrier design at the time of installation.

The BLRI’s principal motor road designed landscape components include shoulders, paved waterways, constructed landforms, guardrails, guardwalls, bridges, culverts and tunnels. Design standards adopted for these components were a compromise between the highway engineers’ desire to meet modern highway standards for grade, curvature and safety and the landscape architects’ attempt to best unify the road and landscape in a way that minimized construction scarring on the mountainside and provided a type of parkway with its own distinctive character.

The process for warranting additional guardrail has, at times, been inconsistent with respect to balancing the protection of BLRI resources and providing for motorist safety, and is cause for concern. In some instances, newly installed guardrails continue with no interruption for considerable distances and, in some cases, occupy both sides of the roadway to create a “tunnel vision” effect. Some newer guardrail has also been

installed at locations where warranted. Guardrail has not typically been installed on the Parkway, including tangents (i.e., straight sections of road), uphill grades, inside curves and other areas generally considered non-hazardous. Finally, recent guardrail designs created to adequately contain and redirect an errant vehicle has resulted in guardrail that is taller and can thus interfere with scenic views from automobiles.

The NPS has only one set of “standards” for park roads, the NPS Park Road Standards (1984). BLRI projects must be in compliance with these standards. Although there are more current guidelines, such as the NCHRP Report 350, these guidelines were developed and are applicable for National Highway System (NHS) routes primarily. NPS routes that are a part of the NHS need to meet the requirements of NCHRP 350. However, the BLRI is not a part of the NHS. The Federal Lands Highway (FLH) Project Development and Design Manual (PDDM) provides direction in section 8.5.3.2 that for routes not on the NHS, safety improvements should comply with the owning agencies’ policies on roadside safety hardware, and that this will be referenced as the reasons for permitting barrier systems that do not meet NCHRP 350 criteria.

The NPS Park Road Standards also address “Historic Structures” with the following guidance: *“A number of park roads and parkways, or structures on them (e.g. bridges, walls and overlooks) are historic in themselves, and are in some instances listed on the National Register. Preservation and restoration may be the only option for such historic roadways or structures.”*

The continued emphasis on non-obtrusive approaches to roadside safety is also consistent with the findings and recommendations of prominent NPS landscape architects, the BLRI’s original designers, and past BLRI superintendents, most notably:

- Albert H. Good, author of a 1938 park design manual originally intended to serve as a guide for New Deal projects in state and national parks, who advised that roadside barrier should be placed only “where they are requisite and tolerable” and that “providing a park area with neither *too many nor too few barriers* is both the problem and the solution (emphasis added). Good called for “a prevalence of unobtrusive treatments” along park roads (Good 1938).
- NPS Chief Landscape Architect Thomas Vint, who in 1946 concluded that a large amount of “unnecessary” guardwall had been built on the BLRI and asked that it henceforth “be employed only where absolutely necessary” (Quin 1997).
- BLRI Superintendent Sam P. Weems, who during the initial years of guardrail installation (1950s), stipulated that guardrail should be installed at the “points where it is most needed” [emphasis added] (Firth n.d.a: 242-43).

The purpose of this comprehensive approach is to guide the future installation of guardrail so that it balances the safety goals of the National Park System with its cultural and natural resource protection and visitor enjoyment mission. The Environmental Assessment (EA) will evaluate the effects of guardrail installation on BLRI resources and visitor safety. The EA will evaluate two guardrail installation

alternatives: a “No Action” alternative and a “Preferred” alternative. The impact analysis will compare the two alternatives in terms of these three activity or project types.

1.3 Purpose and Significance of the Park

Located in Virginia and North Carolina, the BLRI is unlike most other parkways in that it is a multi-state linear rural parkway containing a 20 foot-wide motor road plus widening on the curves. The 469-mile-long motor road and adjacent landscape is considered one of the most beautiful roads in the United States (Myers 2004). Alignment location was determined in the mid 1930's to early 1940's through the collaboration of NPS landscape architects, Bureau of Public Road (BPR) highway engineers and state department of transportation right-of-way engineers under the leadership of Stanley Abbott the Parkway's first resident landscape architect. This scenic motorway links the Shenandoah and Great Smoky Mountains National Parks and its design and construction spanned some 52 years from 1935 to 1987 with completion of the final link traversing Grandfather Mountain. NPS landscape architects and BPR engineers blended the road with its natural surroundings and scenic mountain views, along with agricultural land use and local flavor.

Purpose and significance statements reaffirm the public's understanding of Congress' intent in establishing the Blue Ridge Parkway as a unit of the national park system and confirm the importance of the area to the nation's natural and cultural heritage.

The following purpose statements describe the reasons Blue Ridge Parkway was established, as noted in the park's legislative history. The significance statements describe the park resources and values that are important enough to warrant national designation. They describe the Blue Ridge Parkway's distinctiveness and help to place it in its regional and national context.

Purposes of the Blue Ridge Parkway

- Connect Shenandoah and Great Smoky Mountains National Parks by way of a “national rural parkway” — a destination and recreational motor road that passes through a variety of scenic ridge, mountainside, and pastoral farm landscapes.
- Conserve the scenery and preserve the natural and cultural resources of the parkway's designed and natural areas.
- Provide for public enjoyment and understanding of the natural resources and cultural heritage of the central and southern Appalachian Mountains.
- Provide opportunities for high quality scenic and recreational experiences along the Blue Ridge Parkway and within the corridor through which it passes.

Significance of the Blue Ridge Parkway

- The Blue Ridge Parkway was the first national rural parkway to be conceived, designed, and constructed for a leisure-type driving experience. Its varied topography and numerous vista points offer easy public access to spectacular views of central and southern Appalachian rural landscapes and forested mountains.
- As an example of pre– and post–World War II automotive rural parkway design, the Blue Ridge Parkway retains the greatest degree of integrity of any parkway in the United States. The parkway is further recognized throughout the world as an international example of landscape and engineering design achievements with a roadway that lies easily on the land and blends into the landscape.
- The parkway is the highest and longest continuous route in the Appalachian area. Along its 469-mile length the parkway provides scenic access to crests and ridges of five major ranges within the central and southern Appalachian Mountains, encompassing geographic and vegetative zones that range from 649 feet at James River in Virginia to 6,047 feet at Richland Balsam in North Carolina.
- The park's uninterrupted corridor facilitates the protection of a diverse range of flora and fauna, including rare and endangered plant and animal species and globally imperiled natural communities.
- The park preserves and displays cultural landscapes and historic architecture characteristic of the central and southern Appalachian highlands.
- The Blue Ridge Parkway is a primary catalyst for promoting regional travel and tourism, serving as a unifying element for 29 counties through which it passes, engendering a shared regional identity, providing a common link of interest, and being a major contributor to regional economic vitality.

The final design of the BLRI was a compromise between the engineers' desire to meet modern highway standards for grade and curvature and the landscape architects' attempt to best unify the road and landscape in a way that minimized construction scarring on the mountainside yet still provided an interesting route (NPS 2003).

The draft *Blue Ridge Parkway Historic Resource Study* (Firth 2005a) and *National Historic Landmark Nomination* (Firth n.d.a, n.d.b) evaluated both the historical significance of the BLRI and the resources that contribute to that significance and concluded that the BLRI met National Historic Landmark criteria one and four:

One: properties that are associated with events that have made a significant contribution to, and are identified with, or outstandingly represent, the broad national patterns of U.S. history and from which an understanding and appreciation of those patterns may be gained.

Four: properties that embody the distinguishing characteristics of an architectural type specimen exceptionally valuable for a study of a period, style or method of construction, or that represent a significant, distinctive and exceptional entity whose components may lack individual distinction.

The draft historic resource study further identified that the timber guardrails placed prior to 1987 as one of the BLRI's contributing resources - those components of the BLRI that represent its historic development and illustrate its distinctive design characteristics (Firth n.d.a: 362; n.d.b: 2, 31).

1.4 Location and Limits of the Study Area

The BLRI motor road corridor is the centerpiece of a 469-mile long designed historic cultural landscape that stretches from Virginia to North Carolina (see Figure 1.1). It was the first long-distance rural parkway developed by the NPS. Construction on the BLRI started in 1935, briefly suspended during WWII, and finally completed by 1987. The BLRI follows the Appalachian Mountain chain, providing breathtaking views of the surrounding countryside. From Shenandoah National Park, the BLRI follows the Blue Ridge, eastern rampart of the Appalachians, for 355 miles. For the remaining 114 miles, it skirts the southern end of the Black Mountains, winds through the Craggy, Pisgah, and Balsam Mountains, and ends in the Great Smoky Mountains. Today, the BLRI corridor landscape is comprised of some over 80,000 acres of land and features 24 separate visitor use and recreation areas. The BLRI has received an annual average of 18,210,827 recreational visitors (based on 1986-2005 data).

For the purposes of the present assessment, the project area consists of the BLRI motor road prism (top of cut slope to toe of fill slope) and its associated infrastructure (including guardrails), as well as the surrounding scenic BLRI right-of-way.



Figure 1.1 Location of the Blue Ridge Parkway

1.5 Scoping

For the purposes of NEPA, NPS is the lead agency on the guardrail installation plan environmental assessment with FHWA-EFLHD as a cooperating agency. Consulting agencies include North Carolina and Virginia State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation, and the U.S. Fish and Wildlife Service.

Scoping is an early and open process to determine the breadth of environmental issues and alternatives to be addressed in an environmental assessment. A meeting was held at the BLRI's Asheville headquarters, attended by representatives from the BLRI, NPS-Denver Service Center, FHWA-EFLHD staff and the NPS contractor to identify and discuss significant resources and values that could be impacted by the project. On August 10, 2005, BLRI initiated consultation with the North Carolina and Virginia SHPOs, with respect to six FLHP guardrail installation projects programmed for FY 2005-2007. Because of safety concerns related to critically deteriorated road surfaces

and non-crashworthy guardrail, BLRI also sought SHPO concurrence for the NPS and EFLHD to continue with project design and construction award for these projects while completing the necessary Section 106 compliance. In November 2005 and February 2006, BLRI staff and the Contractor conducted a preliminary reconnaissance of selected sections of the BLRI that represented a range of site-specific conditions with respect to guardrail installation. In December 2006, correspondence was sent to the North Carolina and Virginia SHPOs, the Advisory Council on Historic Preservation, and the NPS's Associate Director for Cultural Resources, describing the proposed guardrail installation plan and soliciting their comments and concerns. Public scoping for the BLRI Guardrail Installation Plan took place between January 3 and February 20, 2006. A press release announcing its initiation was released on December 30, 2005, and written comments were accepted until February 20, 2006. Scoping letters were also forwarded to the following agencies: U.S. Fish and Wildlife Service, North Carolina Department of Administration, North Carolina Division of Archives and History, Virginia Department of Environmental Quality, Virginia Historical Resources, and the Advisory Council on Historic Preservation. Two public scoping meetings were held on January 17 and 19, 2006, in Vinton (Virginia) and Asheville (North Carolina), respectively. A total of 56 comments were received, all but six of which were expressed opposition to installing additional guardrails and/or changing the design/aesthetics of the guardrails.

As a result of scoping, several issues relating to the proposed action were identified by commenters and are summarized below.

- Although the replacement of existing guardrail that does not meet current crashworthiness criteria would have a negligible impact on resource integrity, the installation of new guardrail at approaches to fixed objects within the clear zone and at new roadside locations potentially would have an adverse effect, particularly on the BLRI's cultural and scenic/aesthetic resources.
- Some of the existing guardrail along the BLRI has been in place for decades and is in need of replacement due to deterioration of the wooden or concrete components of the particular guardrail elements. Replacing timber guardrail that has deteriorated or that does not meet current crashworthiness criteria with steel-backed timber guardrail constitutes a replacement-in-kind rehabilitation that is not expected to significantly diminish the integrity of the BLRI's character-defining features. Installing guardrail at bridge, tunnel, or guardwall approaches could require reconstructing the structure to attach guardrails or installation of specially designed terminal sections of guardrail having additional posts (including two steel I-beam posts anchored in concrete) and an additional rub rail positioned below the main rail, and an approved non-contact abutment would introduce design elements that are not in character with the original design and construction of the BLRI.
- There are some locations along the BLRI where the occurrence of accidents on the blunt ends of roadside structures, geographical relief (steep slopes), or roadway topography pose a potential or actual safety hazard and may therefore warrant the installation of new guardrail or the upgrade of guardrail transitions to fixed objects in the clear zone. Adding new guardrail or replacing existing guardrail could also

potentially affect visitor experience by introducing new elements into the designed landscape and scenic corridor. In addition, construction associated with the proposed action may have short-term impacts on soils and special status species. Finally, the addition of new guardrail would impact park operations by increasing more labor intensive non-mowing kinds of roadside maintenance practices.

- The BLRI is a nationally significant cultural resource, as it meets eligibility criteria for designation as a National Historic Landmark. Adding new guardrail or replacing existing guardrail, especially in locations near or adjacent to historic structures (tunnels, bridges, culvert headwalls, guardwalls and guardrails), must be carefully considered and efforts should be made to minimize impacts to the historical roadside structures, the cultural landscape and the unique visual character of the designed landscape.
- Located sporadically along the entire length of the BLRI, guardrail is a highly visible element of the visual experience for park visitors. Adding new guardrail or changing existing guardrail to the current crashworthiness criteria may impact views of the BLRI's scenic corridor. Efforts should be made to minimize impacts to scenic vistas along the motor road and at overlooks. Protection and preservation of BLRI's scenic/aesthetic resources are of critical importance and are discussed as part of this analysis.

All correspondence resulting from the Agency scoping and public meeting scoping processes are included in Appendix A.

Planning Issues and Concerns

Park planners and engineers must take several park-specific factors into consideration when planning and designing projects for the BLRI. Given the design character of the BLRI, it would be very costly and usually beyond the means of past and current FLHP program funding levels to place roadside barriers in strict adherence to AASHTO recommendations in its *Roadside Design Guide* (AASHTO 2006). Also, and more importantly, given the BLRI's exceptional historical and scenic character, placing roadside barriers in strict adherence to AASHTO recommendations would adversely impact the historic and scenic character of the BLRI.

Among the attributes and conditions that set the BLRI apart from other non-historic roads are the following:

- The BLRI is the most intact national rural parkway in the country based upon the integrity of its extant designed landscape elements and features (Firth n.d.b.).
- The BLRI is a scenic and historic motor road that meets eligibility criteria for designation as a National Historic Landmark (Firth n.d.b.).
- NPS Park Road Standards and roadside barrier guidelines issued by the FHWA and AASHTO imply that the BLRI parkway is a low speed and/or low volume roadway. As such, criteria used for warranting guardrail installation on high-speed high-volume roads would not be appropriate (see NPS 1984; EFLHD 2005; AASHTO 2004 and

2006) in most sections of the Parkway. However, special considerations would be given in higher volume more urban areas like Roanoke, Virginia and Asheville, North Carolina.

- A need for flexibility in applying current guidelines to park roads, especially historic park roads as acknowledged by the NPS Park Road Standards, AASHTO guidelines (Introduction to the Green Book), FHWA policy (PDDM) and FHWA guidelines (Flexibility on Highway Design).
- As recorded in BLRI accident reports, data show that most accidents (over 80 percent) are vehicle/animal collisions. Nearly half of the injury accidents involved motorcycles, for which guardrails have not been proven to be a beneficial safety measure. Guardrails are effective in redirecting an errant vehicle but are not intended to prevent vehicle animal/deer collisions (David Evans and Associates, 2004, *Blue Ridge Parkway Transportation System Data Analysis*).
- Alternatives to adding additional guardrail include engineered countermeasures (i.e. specialized curve signs and pavement markings), increased Ranger patrol, and active Ranger public programs to educate the public about driver safety and driver courtesy on the BLRI have proven to be effective in reducing accident rates (Gary Johnson, pers. comm.).

1.6 Relationship of the Proposed Action to Previous Planning Efforts

Several studies have been completed that identify, evaluate, and recommend management strategies for historic, cultural, and scenic resources of the BLRI. A draft master plan for the BLRI was prepared in 1976 (NPS 1976). The BLRI's General Management Plan (GMP), which is currently under development, will develop a series of management prescriptions, define a series of management zones, and prioritize management actions in these zones. Alternatives are currently being developed for the GMP. A key challenge to be addressed in the GMP is balancing Parkway motorist safety with the preservation of the BLRI's cultural and scenic qualities.

Historic resources became a primary focus in the 1990s. The NPS compiled an inventory of the BLRI's bridges (NPS 1990-1991). In 1992, the BLRI's major cultural resources were briefly described (Firth 1992) and a draft Historic Resource Study of the BLRI, which focused on "pioneer" or "exhibit" structures, was prepared (NPS 1992). Because of the richness, significance, and integrity of the BLRI's built fabric, the report recommended that the BLRI be placed on the National Register of Historic Places as a continuous historic district consisting of 226 historic buildings, sites, and roadway structures along its length.

Phase I of the BLRI's Corridor Management Plan was issued in 1996 (NPS 1996) and a visual characterization study was prepared the following year (Abbott 1997). The latter study described the history of BLRI corridor and roadway route selection, design principles and themes, and assembled a detailed narrative and photographic record of the overlooks, bridges, tunnels, walls and drainage, buildings, pioneer structures, architectural design elements, fences and gates, and site details and signs.

A Historic American Engineering Record (HAER) survey was performed in 1996-97 on the designed scenic landscape and associated architectural and engineering features of the BLRI (Quin 1997). The survey, which was a project under the National Park Service Roads and Bridges Recording Program, examines the history behind the planning and construction of the BLRI; described the design attributes of the roadway (including guardrails and guardwalls, parapets, bridges, tunnels, buildings, overlooks, vistas, drainage elements, and other features), and describes recreational areas abutting the BLRI. The report also includes numerous drawings and large-format black-and-white photographs.

In 2003, as part of an initiative to repair and upgrade guardrails and in response to NPS concerns that the new guardrail installations may be impacting the visual integrity of the BLRI, a cultural landscape report (CLR) for guardrails along a 107-mile section of the BLRI (between mileposts 355 and 462) was completed (Jaeger Company 2003). The study summarizes background conditions, recommends historic preservation treatments (including rehabilitation, replacement, and removal), and indicates the extent to which the treatment recommendations have been followed.

A revised historic resource study (HRS) with accompanying National Historic Landmark Nomination (NHLN) package is currently being prepared (Firth n.d.a, n.d.b). Expanding on the earlier HRS's focus on "pioneer" and "exhibit" structures, the current draft HRS/NHLN examines the entire range of Parkway cultural resources. It defines the period of BLRI's national historical significance (1933-1987), identifies the design principles which guided the design of the BLRI and the design characteristics of the BLRI and its infrastructure, recreation areas and Park buildings, and exhibits and signs, identifies contributing and non-contributing resources, and sets forth recommendations for the General Management Plan and preservation treatments. The study recommends that the BLRI be nominated as a National Historic Landmark, finding that it qualifies under Criteria One and Four and "possesses the extraordinary national importance and high degree of integrity required for landmark status" and meets Exception 8 because of its "extraordinary national importance as the capstone project in the history of American Parkways" (Firth n.d.a: 360).

In addition to the HRS/NHLN described above, the NPS uses other resource management tools for identifying and protecting its significant cultural resources, notably the NPS's List of Classified Structures (LCS) and Cultural Landscape Inventory (CLI).

The LCS is an evaluated inventory of all prehistoric and historic structures in the NPS system having historical, architectural, or engineering significance. The LCS for the BLRI is currently being revised and expanded based on the draft HRS/NHLN. Hundreds of new LCS records are being created as a result, most of which were "certified" in 2006, with new records being added when appropriate (Brian Coffey, pers. comm., June 2006).

The CLI is an evaluated inventory of all cultural landscapes in the NPS system that are listed in or eligible for NRHP listing. Launched in 2001, the CLI for BLRI consists of a hierarchy of inventories, including one for the entire Parkway road, and separate inventories for developed areas (e.g., campgrounds, picnic sites, lodges, maintenance compounds, and other historic sites that may predate the BLRI's development). Currently, 42 separate landscapes are identified in the CLI. Because several studies on the entire BLRI have been completed or are in draft form (e.g., the HRS, CLR, and Visual Characterization Study), the initial focus of the CLI has been to document cultural landscapes at developed areas and historic sites. Ten certified inventories are completed at two sites (Mount Pisgah and Doughton Park) and research is in progress for three additional sites (Peaks of Otter, Harris Farm, and the Kelly School). According to the Southeast Region CLI Strategic Plan, 20 inventories are scheduled for completion by FY2008 (David Hasty, pers. comm., June 2006).

1.7 Impact Topics

Impact topics are the resources of concern that could be affected by the range of alternatives. Specific impact topics were developed to ensure that alternatives were compared on the basis of the most relevant topics. The following impact topics were identified on the basis of federal laws, regulations, orders, and NPS Management Policies (NPS 2006), and NPS knowledge of resources. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics Considered

Soils

NPS policy is to protect the natural abundance and diversity of all naturally occurring communities. The NPS Management Policies (NPS 2006), Director's Order No. 77 (Natural Resources Management), and other NPS and BLRI policies provide general direction for the protection of soils. Soils along the roadway have been historically altered over the years due to construction of the roadway, placement of guardrails, guardwalls, tunnels, culverts, signs, and other roadside structures. Regardless, construction associated with guardrail installation would result in additional soil disturbance along the road shoulder and adjacent cut-slope and fill-slope areas. Therefore, the impact topic of soils is retained for further analysis.

Special Status Species

In addition to NPS policies and management guidelines, the Endangered Species Act of 1973, as amended, provides for the protection of rare, threatened, and endangered species (floral and faunal). Three plant species (a fern, a lily, and a perennial herb) are considered rare by the North Carolina and/or Virginia Natural Heritage Programs and

the fern is listed as rare by Virginia. These species are known to occur infrequently within the road prism and would potentially be impacted by guardrail installation activities. Special Status Species as an impact topic is therefore retained for further analysis.

Cultural Resources: Historic Structures/Cultural Landscapes

The regulations implementing Section 106 of the National Historic Preservation Act (36 CFR Part 800) require federal agencies to take into account the effects of their undertakings on historic properties either listed in or eligible to be listed in the National Register of Historic Places. The goal of the Section 106 review process is to seek ways to avoid, minimize, or mitigate any adverse effects to historic properties. Also, because the BLRI meets the eligibility criteria for designation as a NHL, Section 110(f) of the National Historic Preservation Act requires the National Park Service "...to the maximum extent possible...minimize harm..." to the NHL. Therefore the impact topic Cultural Resources: Historic Structures/Cultural Landscapes will be retained for further analysis.

Visitor Safety

According to National Park Service Management Policies (NPS, 2006), the NPS "...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 and apply other appropriate measures, including closures, guarding, signing, or other forms of education. In doing so, the Service's preferred actions will be those that have the least impact on park resources and values." Because implementation of either the no action or preferred alternative could affect visitor safety, the impact topic visitor safety will be retained for further analysis.

Visitor Experience

Enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks (NPS 2006). The NPS strives to provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the natural and cultural resources found in parks. The proposed action would have the potential to impact visitor experience by altering both the driving experience of the BLRI. Therefore, the impact topic of visitor experience is addressed.

Park Operations

Guardrail replacement and new guardrail installation have the potential to impact park operations by increasing the scope and cost of roadside maintenance. A significant portion of the operational budget of the BLRI goes toward the maintenance of the grassed shoulders of the roadway. Currently, the roadside shoulders are maintained

using single-person mowing equipment. Areas that have guardrail require the additional use of string trimmers to cut grass around the posts. Placement of additional guardrail has the potential to increase maintenance costs for the Park because maintaining a length of shoulder with guardrail takes more time and manpower than an equal length of open shoulder. Additional maintenance staff, increased maintenance time and the purchase of additional equipment could be needed to keep the roadside areas around the new guardrail maintained to current park standards. Therefore, the impact topic of park operations is addressed.

Impact Topics Dismissed From Further Analysis

The following impact topics and environmental considerations were identified but precluded from further analysis because either the resources would be unaffected by implementation of the alternatives or the potential impacts to such resources would be of negligible intensity.

Topography

NPS Management Policies (NPS 2006), NPS Director's Order No. 77 (Natural Resources Management), and other NPS and BLRI policies provide general direction for the protection of topography. Topography along the BLRI is extremely varied, reflecting the complex structural geology of the Appalachian Mountains. It crosses six mountain ranges, four major rivers, and more than a hundred gaps. BLRI elevations range between 649 and 6,047 feet above sea level. Major topographic landforms include mountain ridges and slopes, plateaus, and stream valleys. The BLRI motor road prism includes that topographic area that has been modified to accommodate the roadway, shoulders, ditchlines, and cut and fill slopes. Guardrail sections are installed completely within existing shoulder areas with some terminal ends being buried in cutslopes. Although the proposed action includes construction activities that could result in changes to topographic conditions, these changes would be relatively small and restricted to construction areas that do not exhibit natural topographic conditions. Therefore, the installation of guardrail would have negligible effects upon the topography of BLRI landscapes, and topography was dismissed as an impact topic.

Air Quality

Section 118 of the 1963 Clean Air Act (42 U.S.C. 7401 *et seq.*) requires a national park unit to meet all federal, state, and local air pollution standards. BLRI is a Class II air quality area under the Clean Air Act, as amended. A Class II designation indicates the maximum allowable increase in concentrations of pollutants over baseline concentrations of sulfur dioxide and particulate matter as specified in Section 163 of the Clean Air Act. Further, the Clean Air Act provides that the federal land manager has an affirmative responsibility to protect air quality related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse pollution impacts.

The Clean Air Act requires the Environmental Protection Agency (EPA) to identify national ambient air quality standards to protect public health and welfare. Standards were set for the following pollutants: ozone (O₃); carbon monoxide (CO); nitrogen dioxide (NO₂); sulfur dioxide (SO₂); inhalable particulate matter less than 10 microns (PM₁₀) and less than 2.5 microns (PM_{2.5}); and lead (Pb). These pollutants are designated criteria pollutants because the standards satisfy criteria specified in the Act. An area where a standard is exceeded more than three times in three years can be considered a nonattainment area.

In 1993, the EPA adopted regulations implementing Section 176 of the Clean Air Act as amended. Section 176 requires that federal actions conform to state implementation plans for achieving and maintaining the national standards. Federal actions must not cause or contribute to new violations of any standard, increase the frequency or severity of any existing violation, interfere with timely attainment or maintenance of any standard, delay emission reduction milestones, or contradict state implementation plan requirements. Federal actions that are subject to the general conformity regulations are required to mitigate or fully offset the emissions caused by the action, including both direct and indirect emissions that the federal agency has some control over.

Construction activities associated with the replacement or installation of guardrail, including equipment operation and the hauling of material, could result in temporarily increased vehicle exhaust and emissions, as well as inhalable particulate matter. Construction dust associated with exposed soils would be controlled, if necessary, with the application of water or other approved dust palliatives. In addition, any hydrocarbons, NO₂, SO₂ emissions, as well as airborne particulates created by fugitive dust plumes, would be rapidly dissipated because the location of the park and prevailing winds allows for good air circulation. Overall, there could be a local, short-term, negligible degradation of local air quality during construction activities; however, no measurable effects outside of the immediate project area would be anticipated. Any construction-related, adverse effects to air quality would be temporary and negligible, lasting only as long as construction. Therefore, air quality was dismissed as an impact topic.

Wildlife

The National Environmental Policy Act of 1969 (42 USC 4321 et seq.) calls for an examination of the impacts on all components of affected ecosystems. NPS policy is to maintain all the components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of wildlife (National Park Service Management Policies, 2006).

The surfaces of roadside shoulders and at the approaches to fixed structures along the BLRI, such as at tunnel openings, stone masonry walls, bridge wing walls, and parapet walls, are predominantly turf (grass) that is periodically mown by Park staff. Neither

wildlife habitat nor the abundance of local wildlife populations would be affected by installation of guardrail. Also, wildlife movement would not be impeded by the presence of new guardrail, as wildlife would be able to easily pass over, under or around the guardrail. Construction related noise could temporarily disturb and displace wildlife near the BLRI corridor. The surrounding land, however, would continue to provide abundant nesting, escape, and protective cover, and any impacts to wildlife would be negligible – ending with the cessation of construction. Therefore, wildlife resources would be affected negligibly by the replacement or installation of guardrail and was dismissed as an impact topic.

Geological Resources

According to NPS Management Policies (NPS 2006), the NPS will (1) assess the impacts of natural processes and human-related events on geologic resources; (2) maintain and restore the integrity of existing geologic resources; (3) integrate geologic resource management into Service operations and planning; and (4) interpret geologic resources for park visitors. Examples of important geologic resources in parks include rocks and minerals; geysers and hot springs in geothermal systems; cave and karst systems; canyons and arches in erosional landscapes; sand dunes, moraines, and terraces in depositional landscapes; and dramatic or unusual rock outcrops and formations.

No geologic resources would be affected by the replacement or installation of guardrail. Therefore, geologic resources, as an impact topic, was dismissed.

Prime and Unique Farmland

In August, 1980, the Council on Environmental Quality (CEQ) directed that federal agencies assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's Natural Resource Conservation Service as prime or unique. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops (e.g. citrus, tree nuts, olives, cranberries, fruit, and vegetables).

There are no prime or unique farmlands that would be disturbed by the replacement or installation guardrail along the BLRI. Therefore, prime and unique farmlands were dismissed as an impact topic.

Soundscape Management

In accordance with NPS Management Policies (NPS 2006) and Director's Order #47, Sound Preservation and Noise Management, an important part of the NPS mission is preservation of natural soundscapes associated with national park units. Natural

soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among NPS units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

Any construction activities associated with replacement or installation of guardrails, such as hauling material or operating equipment, could result in localized dissonant sounds, with a relatively limited duration of exposure to visitors in most areas. However, any dissonant sounds caused by construction would be temporary, lasting only as long as the construction activity generating the sound, and would negligibly impact visitor enjoyment of the BLRI. Therefore, soundscape management was dismissed as an impact topic.

Lightscape Management

In accordance with NPS Management Policies (NPS 2006), the NPS strives to preserve natural ambient landscapes, which are natural resources and values that exist in the absence of human caused light.

The Park would strive to limit the use of artificial outdoor lighting to that which is necessary for basic safety requirements and ensure that all outdoor lighting is shielded to the maximum extent possible, to keep light on the intended subject and out of the night sky. Therefore, lightscape management was dismissed as an impact topic.

Vegetation

NPS Management Policies (NPS 2006), NPS Director's Order No. 77 (Natural Resources Management), and other NPS and BLRI policies provide general direction for the protection of vegetation. The BLRI has numerous plant communities due to the long length and varied topography and elevation changes found within the park. At lower elevations, oak-chestnut forest is the dominant community type; however, in remote, sheltered cove forests, stands of remaining virgin timber that was inaccessible to loggers earlier in the century can be found. In higher elevations, northern hardwood forests composed of Beech, Birch, or Buckeye may dominate depending on other characteristics of the habitat. At the highest BLRI elevations, Spruce-Fir forest communities cover the ridgetops and mountain peaks. The BLRI also contains a wide variety of native wildflower species noticeable during spring, summer, and fall. Depending on elevation and north/south orientation, some species can be found blooming for an extended period of time.

The surfaces of roadside shoulders and at the approaches to fixed structures along the BLRI, e.g. as tunnel openings, stone masonry walls, bridge wing walls, and parapet walls, are predominantly turf (grass) that is periodically mown by Park staff. Therefore construction of guardrail would have no impact upon the BLRI's many and varied vegetation communities, and vegetation was dismissed as an impact topic.

Water Quality or Quantity

Since the work is occurring in the existing road prism and along road shoulders, and the soils have been previously disturbed during BLRI construction, project impacts to water quality or quantity is expected to be negligible. If soils are disturbed during the projects, proper erosion control planning and implementation would occur as part of the design and construction phases of the project. This would include covering exposed soils on a daily basis with seed and mulch or an erosion control fabric and the use of sediment fencing and engineered temporary control structures on steep grades and when project occur close to streams or drainages. Because no project work would occur in streams, there would be no impacts to streamflow characteristics. Therefore, water quality or quantity was dismissed as an impact topic.

Marine or Estuarine Resources

Because no marine or estuarine resources exist in or near the BLRI, this impact topic is not relevant and was dismissed.

Wetlands

Executive Order 11990, "Protection of Wetlands" and NPS Director's Order No. 77-1 (Wetland Protection) define the NPS goal to maintain and preserve wetland areas. Although the BLRI crosses wetlands, it either bridges the feature or rests on decades-old fill. Because the project would take place entirely within the existing road prism, the project would have no impacts on wetlands. Therefore, wetlands, as an impact topic was dismissed.

Floodplains

Executive Order 11988, "Floodplain Management" and NPS Director's Order No. 77-2 (Floodplain Management) require an examination of impacts to floodplains and potential risk involved in placing facilities within floodplains. Although the BLRI crosses floodplains, it either bridges the feature or rests on fill. Because the project would take place entirely within the existing road prism, the project would have no impacts on floodplains. Therefore, floodplains, as an impact topic was dismissed.

Land Use

Replacement of existing guardrails or installation of new guardrails only impacts the shoulder area immediately adjacent to the Parkway motor road and would not change the land use along the BLRI. Therefore, land use was dismissed as an impact topic.

Non-native Species Introduction or Promotion

Due to the standard implementation of best management practices (BMP) to prevent the introduction or promotion of non-native species during guardrail installation and replacement activities, it is unlikely that non-native species would be introduced. Therefore, the impact topic of non-native species introduction and promotion was dismissed.

Socioeconomic Environment

The proposed action would neither change local and regional land use nor appreciably impact local businesses or other agencies. Implementation of the proposed action could provide a negligible beneficial impact to the economies of nearby communities (e.g. minimal increases in employment opportunities for the construction workforce and revenues for local businesses and government generated from construction activities and workers). Any increase, however, would be temporary and negligible, lasting only as long as construction. Therefore, socioeconomic environment was dismissed as an impact topic.

Environmental Justice

Presidential Executive Order 12898, *General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. According to the Environmental Protection Agency, environmental justice is the

...fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

The goal of ‘fair treatment’ is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

Communities in the vicinity of the BLRI contain both a minority and low-income populations; however, environmental justice is dismissed as an impact topic for the following reasons:

- The Park staff and planning team actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors.
- Implementation of the proposed alternative would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect adverse effects on any minority or low-income population.
- The impacts associated with implementation of the preferred alternative would not disproportionately affect any minority or low-income population or community.
- Implementation of the preferred alternative would not result in any identified effects that would be specific to any minority or low-income community.
- Any impacts to the socioeconomic environment resulting from implementation of the preferred alternative would be negligible.

Energy Requirements and Conservation Potential

The CEQ guidelines for implementing the National Environmental Policy Act require examination of energy requirements and conservation potential as a possible impact topic in environmental impact statements.

BLRI strives to incorporate the principles of sustainable design and development into all facilities and park operations. Sustainability can be described as the result achieved by doing things in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices minimize the short- and long-term environmental impacts of developments and other activities through resource conservation, recycling, waste minimization, and the use of energy efficient and ecologically responsible materials and techniques.

The NPS’s Guiding Principles of Sustainable Design (1993) provide a basis for achieving sustainability in facility planning and design, emphasizes the importance of bio-diversity, and encourages responsible decisions. The guidebook describes principles to be used in the design and management of visitor facilities and park infrastructure that emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings. BLRI strives to reduce energy costs, eliminate waste, and conserve energy resources by using energy efficient and cost effective technology wherever

possible. The BLRI would encourage suppliers, permittees, and contractors to follow sustainable practices and address sustainable park and non-park practices in interpretive programs. Any increase in energy use, however, would be temporary and negligible, lasting only as long as construction. Therefore, energy requirements and conservation potential is dismissed from further consideration as an impact topic.

Other Agency or Tribal Land Use Plans

The project is expected to have no impact any agency or tribal land use plans currently in effect along the BLRI. Therefore, Other Agency or Tribal Land Use Plans was dismissed as an impact topic.

Urban Quality

Guardrail replacement and/or addition would have no effect upon the quality of urban or semi-urban segments of the BLRI. Therefore, urban quality was dismissed as an impact topic.

Archaeological Resources

There are no known National Register listed or eligible archeological resources in the road prism of the BLRI and it is unlikely that any would be discovered. The road prism is extensively disturbed by decades of construction and vehicular use. If during the replacement or installation of guardrail significant archeological resources are discovered, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an appropriate mitigation strategy developed, if necessary, in consultation with the appropriate SHPO. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (25 USC 3001) of 1990 would be followed. Therefore, archeological resources were dismissed as an impact topic.

Ethnographic Resources

Ethnographic resources are defined by the NPS as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (Director’s Order # 28, Cultural Resource Management Guideline, 181). There are no known ethnographic resources in or adjacent to the road prism of the BLRI. Copies of the environmental assessment will be forwarded to each American Indian tribe or group traditionally associated with BLRI lands for review and comment. If subsequent issues or concerns are identified, appropriate consultations would be undertaken. Because it is very unlikely that ethnographic resources would be affected, and because appropriate steps would be taken to protect any human remains, funerary

objects, sacred objects, or objects of cultural patrimony inadvertently discovered, ethnographic resources was dismissed as an impact topic.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources in BLRI. The lands comprising the BLRI are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, Indian trust resources were dismissed as an impact topic.

Museum Collections

The NPS Director's Order #28, Cultural Resource Management Guideline (1997) and Museum Handbook (2004) require the consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript material). Because museum collections would be unaffected by the replacement or installation of guardrail, this was dismissed as an impact topic.

2 Alternatives

2.1 Alternatives

The following is a description of the two viable alternatives for replacing damaged or deficient guardrail, as well as installing additional guardrail in new locations. A third alternative that was initially considered but rejected as not viable is also described. Because the future replacement and addition of guardrail will occur as multiple separate projects over a several year period, the goal of the current EA is to evaluate the impacts of the proposed alternatives on a programmatic, as opposed to a project-by-project basis.

The No Action Alternative (Alternative A)

The No Action Alternative (Alternative A) sets a baseline of existing actions and conditions continued into the future against which to compare actions and impacts of other alternatives. This alternative would maintain all current management practices and levels of treatment for the resources. Guardrail maintenance and replacement work would continue at current levels. Existing guardrail that does not meet current crashworthiness criteria would be replaced. New guardrail would be added in locations of demonstrated safety concern in accordance with NPS Park Road Standards and Management Policies and as corroborated by accident data. However, in some instances in recent years, new guardrail was installed based on current FHWA policy and guidelines rather than AASHTO and National Cooperative Highway Research Program (NCHRP) Report 350 guidelines. Additions occurred in areas where no clear safety concern was demonstrated and not in accordance with NPS Road Standards or Management Policies. Guardrail replacements and additions would take place over several years, as funding becomes available. Design and safety issues would be addressed, and environmental and cultural resource compliance would proceed on a project-by-project basis.

The No Action Alternative does not imply discontinuing the present action or removing existing uses, developments, or facilities. This alternative does provide the basis for comparing the management and environmental consequences of the preferred alternative.

The Preferred Alternative (Alternative B)

Alternative B consists of the implementation of a roadside barrier warranting and assessment of adverse effects screening methodology that would be applied on a project-by-project basis. The methodology is described in Appendix B: *Roadside Cultural Resources Preservation: a Guide to Roadside Barrier Warranting and*

Assessment of Adverse Effects Screening Methodology Addressing the Effects of Roadside Safety Implementation on the Blue Ridge Parkway, prepared by Blue Ridge Parkway staff and The Jaeger Company (TJC 2008). The roadside cultural resources preservation (RCRP) methodology, contained in Appendix B, incorporates two sections. SECTION 1 outlines three steps, (1) roadside barrier warranting process, (2) historic integrity and effect screening and (3) findings evaluation and decision process. SECTION 2 provides guidelines for assessing the historic resources associated with the Blue Ridge Parkway's typical road section.

The RCRP methodology would provide a systematic, consistent, and objective process for evaluating roadside safety needs in a multi-year, multi-project context. It also provides an effective mechanism for the NPS and EFLHD to continue its historically successful and balanced collaboration on protecting park resources and ensuring visitor safety. The RCRP addresses both the replacement of existing guardrail that does not meet current crashworthiness criteria, as well as the installation of new roadside guardrail or guardrail transitions to fixed objects in the clear zone. Consistent with standard NPS practice, the RCRP calls for replacing guardrail that is damaged or does not meet current crashworthiness criteria with steel-backed timber guardrails. However, the RCRP differs from past approaches to deciding where to add new roadside guardrail or new guardrail transitions to fixed objects in that it would implement a three-step screening process: (1) a *roadside barrier warranting process* that determines whether placement of a roadside safety feature is warranted, (2) a *historic integrity and effects screening process* that determines whether sensitive cultural or environmental resources or conditions are present and assesses the level of effect a roadside safety feature would have on these resources or conditions and (3) a findings evaluation and decision making step.

The RCRP also provides for the use of alternative (non-guardrail) roadside safety measures in certain situations or the use of safety variances. In accordance with the NPS Park Road Standards the park managers ***will invoke the use of a design exception or variance*** (as determined appropriate for that particular project) as ***allowed and recommended*** in such situations by AASHTO guidelines and as allowed and recommended in such situations by the FHWA Highway Design Manual, in order to protect the integrity of the resource. ***NPS Park Road Standards*** includes as historic structures "***a number of park roads and parkways, or structures on them (e.g. bridges, walls and overlooks) are historic in themselves, and are in some instances listed on the National Register. Preservation or restoration may be the only option for such historic roadways or structures.***" Additionally variances should be used in situations in which the application of roadside safety features that are warranted would result in unacceptably high costs or major impacts on the adjacent natural or cultural resources. For these instances, the design variance process allows for the use of criteria lower than those specified as minimum acceptable values in FHWA policy and AASHTO and NCHRP guidelines.

The NPS proposes to implement the RCRP because it better meets the intent of NPS Park Road Standards and Management Policies, and brings a level of objectivity and consistency to the guardrail installation process. Given the variable and dynamic nature of the existing and potential guardrail locations, traffic characteristics, accident occurrences, and other factors, as well as NPS and EFLHD staff turnover, project-by-project guardrail needs and resource impact assessments would be difficult to conduct with any consistency. The manner in which roadside safety and cultural resource criteria are weighed and interpreted could also vary through time. From a cost standpoint, preparing a single all-encompassing environmental assessment that would assess hundreds of potentially affected bridges, box culverts, tunnel portals, guardwalls, retaining walls, and roadside locations would be prohibitive. Taken together, these factors weigh in favor of an evaluation process, applied programmatically, for assessing and balancing safety, environmental concerns and maintaining the historic integrity of the Parkway's designed landscape in a consistent and efficient manner.

The project-by-project similarity of proposed guardrail replacement and addition activities during any fiscal year allowed for the grouping of these activities into three general scenarios or project categories: (1) replacement of existing guardrail that does not meet current crashworthiness criteria in the same location; (2) replacement of existing approaches to fixed objects within the clear zone; and (3) installation of new guardrail (both as freestanding segments and barrier fixed end treatment) in new locations. Given the historic significance of the BLRI's designed landscape and historic structures, the latter two scenarios would adversely affect the integrity of the BLRI's historic resources. Safety issues, however, will vary both within and between these scenarios, depending on accident data and roadway-related characteristics. For this reason, Alternative B incorporates the two-step screening method that would be implemented on a project-by-project basis. This approach, simply stated, provides for an assessment of the need for safety improvements evaluated against the ability of the cultural and scenic resources to absorb the improvement without being adversely affected.

The RCRP methodology embodies a five-step process:

- (1) evaluate the project area to determine if a safety feature is warranted
- (2) inventory the existing conditions/resources of the project area
- (3) assess the existing conditions to determine the roadside's ability to absorb the addition of a safety feature
- (4) determine the level of adverse effect the addition of a safety feature would have on the existing conditions/resources
- (5) findings evaluation and decision leading to project implementation—install the safety feature implement an alternative mitigation, or take no action utilizing the appropriate safety variance.

The *roadside barrier warranting process* would involve evaluating project locations using the Federal Lands Highway Barrier Guide for Low Volume and Low Speed Roads.

Six factors are considered in the warranting process. The first three factors--crash history, presence of fill slope vegetation and driver expectancy on the Parkway are important to consider in exercising professional judgment in determining the degree to which a barrier is warranted. The additional factors of hazard type, size and offset, unusual roadway geometric conditions and traffic growth are most directly used in the warranting process. This Step 1. Process indicates if a barrier is warranted and what safety feature action is to be evaluated in Step 2. the historic integrity and effects screening.

The *historic integrity and effects screening* would involve preparing an inventory of roadway alignment, landform, and vegetation to assess the ability of the landscape to visually absorb the proposed safety feature, and conducting a historic resource assessment to help determine to what degree historic resources would be impacted by the proposed feature. This step leads to determining the level of effect an undertaking would have under Section 106 of the National Historic Preservation Act. This determination is required for every federal action that may potentially effect a cultural resource.

2.2 Mitigation

The National Park Service Organic Act (16 USC 1) mandates the NPS to manage the lands under its stewardship “in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” As a result, the NPS routinely evaluates and implements mitigation whenever conditions occur that could adversely affect the sustainability of the national park system resources. Also, given the BLRI’s potential eligibility as a NHL, the preferred alternative minimizes harm to the BLRI and advances a preservation outcome to the maximum extent possible (36 CFR Part 800.6 and 800.10).

To ensure that implementation of the action alternatives protects natural and cultural resources, and the quality of the visitor experience, a consistent set of mitigative measures will be applied to actions proposed in this plan. The NPS will prepare appropriate environmental review (i.e., those required by NEPA, NHPA, and other relevant legislation) for these future actions. As part of the environmental review, the NPS will avoid, minimize, and mitigate adverse impacts when practicable. A compliance-monitoring program (including reporting protocols) will be implemented that oversees these mitigative measures.

Cultural Resources

In order to mitigate any impacts to cultural resources and further comply with Section 106 of the NHPA, the NPS is consulting with the North Carolina SHPO, Virginia SHPO, and the Advisory Council on Historic Preservation (ACHP). As of October 9, 2008 a programmatic agreement (PA) was being negotiated among the NPS, the State Historic Preservation Officers of North Carolina and Virginia, and the Advisory Council on

Historic Preservation, and is included as Appendix C. The PA records the terms and conditions agreed upon to resolve and mitigate the potential adverse effects of the proposed action.

Soils

It is NPS practice to comply with or exceed local and state water quality and erosion and sediment control regulations. In accordance with standard NPS contracting standards, soil material excavated for emplacing guardrail posts (save for what is needed for backfill) or terminal ends will be hauled off, the road shoulder recontoured, and exposed areas reseeded with grass to minimize erosion. No excavated materials will be stored within the construction zone. These practices will minimize disturbance to soils and vegetation due to construction activities and restore affected areas to their original form wherever possible. Implementation of these practices will result in no measurable impact to the surrounding environment during the construction process.

Special Status Species

The NPS will avoid impacts to special status plant species by minimizing disturbance or removal of roadside turf grass, confining construction staging (including vehicle parking) to paved areas, limiting the period of construction to the plant species' dormant (non-growing) season, and requiring that replaced guardrail be hauled off site.

When specific locations for projects have been determined, the NPS will fulfill compliance requirements for each individual site-specific project. Examples of these additional requirements might include:

- Surveys for the presence of federal or state listed or proposed threatened, endangered, or rare species.
- Any necessary permits under Sections 404 and 401 of the Clean Water Act.
- Initiate additional NEPA analysis for any projects that exceed the scope of this EA.

Visitor Safety

In order to mitigate for visitor safety, traffic management plans will be developed and implemented on a project by project basis during construction. These plans will include such measures as an accident prevention program outlining each phase of work and associated hazards and the methods proposed to ensure property protection and safety of the public. As a part of each project signs will be provided to warn travelers about road construction and traffic delays; the use of alternative routes and destinations may be encouraged.

Also, during construction activities, traffic flows and safety will be maintained by using such measures as keeping construction equipment as far off the road as possible and by providing flag persons to assist traffic negotiating through construction areas. Single

lane closures with flaggers will endeavor to limit construction caused delays to public traffic to a maximum of 15 minutes per passage through the project. Additionally, the hauling of equipment and materials will only be permitted from the nearest point of public access to the project site. Finally, only the length of guardrail that can be replaced in one work day will be removed.

Visitor Experience

In order to mitigate impacts to the visitor experience, mitigative measures could include the use of coloring on constructed elements to blend their appearance with the surrounding landscape. If practical, no work will be permitted on Sundays, National legal holidays or National legal holiday weekends. The NPS does not normally allow any type of construction on the mainline Parkway during the month of October. Also, the use of well-tuned construction equipment with properly operating mufflers will be required and an emphasis on performing the work during low visitation periods will be advised.

Park Operations

When hauling equipment and materials on the BLRI, the contractor must comply with all legal load restrictions as set forth by the NPS. Storage of construction materials will be confined to BLRI pullouts, as approved by the BLRI Superintendent or to private areas outside of the Park. All work operations will be confined to within the designated project limits.

Damage to the BLRI motor road surface, shoulders, ditches, cut or fill slopes or other road related structures will be mitigated, restored, repaired, or replaced by the contractor. Damage to natural or cultural resources will be mitigated, restored, repaired, or replaced by the contractor. The contractor will make mitigate for the introduction of any exotic vegetation introduced into the park through the careless use of unclean turf establishment equipment and by purchasing high quality, weed-free seed.

2.3 Alternatives Considered But Dismissed

A third alternative was considered during the early stages of the planning process but was rejected because it would not be consistent with NPS Management Policies and would result in too great an impact on the BLRI's cultural resources. This alternative was based on rigid conformity with AASHTO roadside design guidelines and the EFLHD's *Project Design and Development Manual* (2005). It was felt that while this alternative would achieve the desired safety goals recommended by the guidelines, it would also result in extensive adverse impacts on park resources, particularly the BLRI's historic architectural and cultural landscape (including scenic) resources.

2.4 The Environmentally Preferred Alternative

In accordance with DO-12, the NPS is required to identify the “environmentally preferred alternative” in all environmental documents, including EAs. The environmentally preferred alternative is the alternative that will promote the national environmental policy expressed in NEPA (Sec. 101 (b)). This includes alternatives that, when compared with other alternatives under consideration, better meet the following criteria:

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- (2) ensure 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 of health or 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 that supports diversity and variety of individual choice.
- (5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

In other words, the environmentally preferred alternative would be the one that “causes the least damage to the biological and physical environment ... [and] ... best protects, preserves, and enhances historic, cultural, and natural resources” (NPS Director's Order No. 12 Handbook: 23).

The No Action Alternative (Alternative A) is not considered the environmentally preferred alternative. In light of the multi-year (possibly multi-decade) nature of the current guardrail installation process, Alternative A does not provide an effective mechanism for ensuring long-term, project-to-project consistency in assessing roadside safety needs and resource protection. Over time, with NPS, FHWA and other agency staff turnover, agreements made during earlier projects are less likely to carry over to future projects. That means that environmentally sensitive decision-making is less likely to remain consistent over the years as projects are implemented. Additionally, under Alternative A, to the extent that the manner in which new guardrail was warranted in the recent past is continued into the foreseeable future, the BLRI's cultural and natural resources would receive less overall protection at the expense of motorist safety enhancements resulting from inflexible implementation of AASHTO guidelines and FHWA policies with respect to roadside barriers.

Alternative B (Proposed Action) is the environmentally preferred alternative for the guardrail because it provides a consistent, comprehensive, and adaptive approach to maintaining roadside safety while protecting to the maximum extent possible the BLRI's significant historical and environmental resources. The alternative identifies three major

types of guardrail installation projects under which each specific project can be grouped, and sets forth a screening process using several safety and natural/cultural/social resource criteria that balances all aspects of the project for planners, designers and implementers. Compared to Alternative A (No Action), Alternative B provides for an adaptive approach to evaluating the guardrail installation program that ensures greater consistency over time in evaluating the cultural and environmental factors. Alternative B, therefore, better fulfills criteria (1), (2), and (4).

3 Affected Environment

3.1 Introduction

Located in Virginia and North Carolina, the BLRI is like other parkways in that it is a linear park containing a 20-foot-wide motor road. The 469-mile-long motor road and adjacent landscape is considered one of the most beautiful roads in the United States (Myers 2004). Designed by NPS landscape architects and BPR/FHWA engineers over some 50 years, the scenic motor way links the Shenandoah National Park with the Great Smoky Mountains National Park by blending the road with natural surroundings and scenic mountain views, along with agricultural land use and local flavor. Construction on the project began in 1935, continued steadily through WWII and finally came to a completion in 1987 with the construction of the section of the Parkway at Grandfather Mountain.

Wooden guardrails are one of the important design elements contributing to the aesthetic character of the BRP. Designers of the BLRI intended to use guardrails as a roadside element, in specific locations, from the inception of the project. As such, guardrails are located sporadically throughout the BRP and are generally used to reinforce the curving roadway alignments of the BLRI and to protect travelers from the hazard of steep slopes. Currently, some of the existing guardrail has reached or exceeded its structural life and is in need of repair or replacement. In some locations new guardrail was installed in new locations, which in some instances blocked access to existing roadside “bays” or informal “pull off” areas.

3.2 Soils

The soils located along the shoulders of the BLRI are previously disturbed due to the construction of the BLRI (e.g., clearing, grubbing, grading, and adding stone road base), thus no undisturbed native soils likely exist in areas where guardrail would be considered for either placement or replacement. Whether replacing existing or installing new guardrail on fill or cut slopes, the timber posts are typically sunk to a depth of up to five feet below grade, which is usually well within the disturbed soil horizon.

3.3 Special Status Species

While no federal listed plant or animal species occur within the areas of proposed action (i.e., within the roadway and its shoulder), three plant species listed as rare by state natural heritage inventory programs do occur. The small grape fern (*Botrychium*

simplex) is listed by North Carolina as significantly rare (due to the peripheral nature of its range in the state). It occurs in some of road shoulders at high elevations, although generally not near guardrails. Two other plants, the sticky false-asphodel (*Tofieldia glutinosa*) and Canadian burnet (*Sanguisorba canadensis*), which grow in at least one ditchline location, are classified by the Virginia and North Carolina heritage conservation programs as imperiled. In addition, black bear (*Ursus americanus*) occasionally forage in wooded areas near the BLRI.

3.4 Cultural Resources

The BLRI is a 469-mile long cultural-historic designed landscape that was constructed between 1935 and 1987. The BLRI preserves and displays cultural landscapes and historic architecture characteristic of the central and southern Appalachian highlands. Its original designers saw the BLRI as a viewing platform and the route they chose took advantage of the cultural, historic, and scenic resources along the corridor. It was the first national rural parkway to be conceived, designed, and constructed as a leisure-type motoring experience and it retains the greatest degree of design integrity among the nation's rural parkways. The draft HRS for the BLRI (Firth n.d.a) evaluated the historical significance of the BLRI and concluded that the BLRI met National Historic Landmark criteria one and four:

Criterion One: properties associated with events that have made a significant contribution to, and are identified with, or outstandingly represent, the broad national patterns of U.S. history and from which an understanding and appreciation of those patterns may be gained.

Criterion Four: properties that embody the distinguishing characteristics of an architectural type specimen exceptionally valuable for a study of a period, style or method of construction, or that represent a significant, distinctive and exceptional entity whose components may lack individual distinction.

Cultural resources within and along the BLRI include the road, its associated infrastructure, and the scenic corridor. The associated infrastructure includes bridges, viaducts, tunnels, stone embankments, masonry retaining walls, guardwalls and guardrails (or guidewalls and guiderails), drainage structures, stone curbing, park buildings, pioneer structures, fences and gates, and BLRI signs and other site amenities. The BLRI features 151 bridges, 26 tunnels, and 275 scenic overlooks (Abbot 1997). A preliminary cultural resource inventory identified 226 historic buildings, sites, and roadway structures along the BLRI (Firth 1992); landscape elements, however, were not included in the inventory. The LCS for the BLRI currently includes 96 historic buildings, 238 overlooks, and 145 bridges (Brian Coffey, pers. comm., June 2006).

The current CLI includes 24 separate landscapes, primarily consisting of landscapes associated with developed areas and historic sites. Ten certified inventories are

completed at two sites (Mount Pisgah and Doughton Park) and research is in progress for three additional sites (Peaks of Otter, Harris Farm, and the Kelly School). A certified inventory of the BLRI road and infrastructure and associated scenic corridor will be completed after the HRS is finalized (David Hasty, pers. comm., June 2006). The scenic overlooks, which are identified in the BLRI Land Use Maps that date back to 1942, were placed at special points of interest, such as at a high elevation overlooking a distant valley, or over a forested stream. They provide park visitors views that are both spectacular and serene. Among the more notable overlooks are Bald Mountain, Grandfather Mountain, and View Craggy Dome.

The historic resource study concluded that the BLRI retains a remarkable degree of design unity, the result of the consistent application of three basic design principles: (1) scenery is “preeminent importance”; (2) the need to provide a safe and enjoyable experience for the recreational motorist; and (3) the importance of protecting the natural environment and “gently fitting” the road and associated infrastructure into its natural setting so as if to belong there (Firth n.d.a: 358-60). The HRS also identified the following design characteristics related to the BLRI and its infrastructure and the scenic corridor (Firth n.d.a: 354-55):

Parkway and Associated Infrastructure

- The BLRI traverses a range of landscapes from forested ridge tops to mountainsides down into rural valleys and up again onto ridges. Its route changes every few miles in order to avoid monotony and to capitalize fully on the scenic potential of the region.
- The road has a curvilinear alignment that appears to glide across the natural contours and fit smoothly into the topography of the mountain slopes;
- The road is designed for a low driving speed, and there are frequent overlooks to allow the safe enjoyment of scenery.
- Road structures are designed to fit the road to the topography, and are located and constructed in ways that minimize the scarring of the mountain slopes;
- Most designs are guided by a rustic architectural aesthetic that places great emphasis on fitting each structure into its landscape setting and features the use of native materials, particularly stone; however, some designs are guided by a modern aesthetic expressed in steel and concrete, but, nonetheless, are carefully fitted into their settings.

Scenic Corridor

- The scenic rural character of the BLRI road is protected by a wide right-of-way free of urban and strip development.
- There is a carefully planned sequence of views from the road, including views of protected forests and well-managed farmland, as well as a variety of natural areas at a wide range of elevations.

- The boundaries of the right-of-way are seldom noticeable, and motorists are able to enjoy scenery ‘borrowed’ from beyond the right-of-way including vistas to distant horizons.

Contributing and Noncontributing Resources

The HRS developed clear guidance for identifying contributing and noncontributing resources along the BLRI. Identification of the specific contributing and non-contributing resources is underway by the NPS. The resource types listed below are intended to materially reflect the changing significance of the BLRI’s construction (Firth n.d.a.: 361-63). All components in place by 1955 should be considered contributing resources because they materially reflect the design and construction of the BLRI and its scenic corridor between 1933 and 1955. More recent components that are contributing should be those that materially reflect the completion of the BLRI road and its scenic corridor between 1956 and 1987. Noncontributing resources are those components that mark the continuing development of recreation areas, interpretive exhibits, and BLRI management facilities. Included are non-BLRI road resources, additions completed after 1987, and any structures lacking integrity. Relevant to this EA are contributing and noncontributing resources grouped under the BLRI and its Infrastructure and Scenic Corridor headings in the HRS/NHLN report.

Parkway Road and Infrastructure

Contributing Resources

- The roadway prism of Sections 1B through 1W in Virginia and 2A through 2Z in North Carolina.¹
- The overlooks and parking areas along those sections (94 in Virginia and 163 in North Carolina).
- All road structures that were constructed between 1935 and 1987 within the roadway prism of Sections 1B through 1W in Virginia, and 2A through 2Z in North Carolina, and structures beside overlooks and parking areas and at intersections.²

Noncontributing Resources

- Spur roads leading into recreation areas at Roanoke River (Virginia’s Explore Park), Mill Mountain (Roanoke Mountain), and Linville Falls.
- Any parking areas added after 1987.
- Any road structures that have been added or substantially rebuilt since 1987.³

¹ The road prism includes the roadway and all constructed landforms from top of cut to toe of fill; and the overlooks and parking areas include all constructed landforms within and around each area (Firth n.d.: 362).

² Includes: tunnels with their linings and portals; drainage channels and drainage structures with associated inlets and head walls; retaining walls, parapet guard-walls and rock embankments; bridges and viaducts; freestanding guard-walls and guard-rails (Firth n.d.: 362).

³ The list of structures that have been substantially rebuilt since 1987 includes stretches of the pavement on the roadway (Firth n.d.: 362).

Scenic Corridor

Contributing Resources

- The right-of-way within its 1987 boundaries.
- The forest and woodland scenes within the right-of-way recorded on the PLUMS.⁴
- The agricultural scenes within the right-of-way recorded on the PLUMS.

Noncontributing Resources

- Additions to the right-of-way since 1987.
- Changes in the forest, woodland, and agricultural scenes that have occurred since 1987, as indicated by a comparison of present landscapes with those recorded on the PLUMS.

Guardrails

The timber guardrails that border BLRI in many places are included among its contributing resources. The first timber guardrails along BLRI were installed in 1953, replacing the stone guardwalls that were used earlier. Each section of guardrail is 10 feet in length. Until recently, five types of timber guardrails could be found along the BLRI⁵. Ongoing guardrail replacement projects begun in 2001 have replaced much of the earlier two types (timber rail with concrete post and timber rail with timber post) with the currently accepted steel-backed timber guardrail. The BLRI maintains a Guardrail Inventory that provides the milepost location, side of road, length, and condition of each section of guardrail along the BLRI.

⁴ The forest and woodland scenes include vista cuts opening up views beyond the limits of the right-of-way; the cuts are contributing resources, but distant landscapes would fall outside the boundaries of the NHL district. The principal features of the scenic corridor are recorded in the PLUMS, many of which were updated to reflect changes in ownership and land use into the 1970s and 1980s. Sections for which there are no PLUMS are in areas where the natural, almost wilderness character of the landscape should be preserved (Firth n.d.: 363).

⁵ The term "guiderail" is used for those timber barriers that do not meet the requirements of NCHRP Report 230.

Five types of guardrail are present along the BLRI (described on the next page). The guardrail consists of freestanding sections and sections that transition to fixed objects in the roadside's clear zone.⁶ The vehicular-approach end of freestanding guardrail is usually flared outward and is often (but not always) buried into the ground. Guardrail that transitions to fixed objects (such as bridge wingwalls, culvert headwalls, and tunnel portals) abut but do not physically contact the fixed object. There are two exceptions to this non-contact treatment, both involving recently constructed bridges where the guardrail was directly inserted into the wingwall.

Type One Guardrail (Timber Guardrails with Concrete Posts). The earliest guardrail design used along the BLRI consisted of timber guardrails with reinforced concrete posts. First installed along the BLRI in 1953, it had gray concrete posts with rounded backs and notched fronts that supported gray-stained, rough sawn timber rails that were double-bolted to the post (the bolt penetrates entirely through the post and rail). The posts are 9.5 x 11 inches and 49 inches long, approximately 30 inches which was sunk below ground and 19 inches extending above ground. The timber rails are pressure treated Southern Yellow Pine that were 6 x 8 inches and 10 feet long, with 1-inch chamfered ends. The top of the rail rested at 20 inches above grade. This rail type is often referred to as "guide rail" due to its inadequate height.



Type One Guardrail

Overall, Type One guardrails within the Guardrail CLR study area were found to be in relatively good shape. Several sections of Type One guardrail at other locations along the parkway are currently in deteriorated condition. As recommended in the Guardrail Inventory, all Type One guardrail within the CLR study area was replaced with Type Five guardrail to improve crashworthiness.

Type Two Guardrail (Timber Guardrails with Timber Posts). First installed in 1965, this guardrail type is similar to the previous guardrail except that the post was made of timber instead of concrete. It is also referred to as "guide rail" due to its inadequate height. This type of guardrail is very similar in design to the first, with a notched post and double bolted rail. Originally designed to stand 20 inches above grade, many of their post have since sunk considerably into the ground. The lower height and lack of steel reinforcement make this type of guardrail the



Type Two Guardrail

⁶ i.e., the total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles (AASHTO *Roadside Design Guide*, 2006).

least effective of the current types as a roadside barrier. Of all guardrail types within the CLR study area, this type has suffered the most damage, with many sections bent or broken from crashes and in general decline due to underground instability. All Type Two guardrails within the CLR study area have been replaced with the Type Five steel-backed timber guardrails.

Type Three Guardrail (Early Steel-Backed Timber Guardrails). The first steel-backed timber guardrail to be used on the BLRI featured 12 x 12-inch posts and 10 x 12-inch rails, lacked steel backing on the terminal sections, and generally stood 24 inches above grade. It features a 2-bolt pattern and was constructed using a Southern Yellow Pine timber rail attached to a steel backing plate with lag screws. Two bolts in a vertical pattern were placed through both the rail and the steel backing plate near each end of the rail. The steel backing plate and rail are attached to the side of the wooden post by an 'L' shaped bend in the steel backing plate with two through bolts, and this post attachment detail followed the entire length of the rail installation except for the terminal sections. The last two 10 foot long segments are rolled down and flared and do not contain any steel plate reinforcement. The steel backing plate also does not run continuous through, or past, the posts. The timber components are pressure treated 12 x 12-inch posts and 8 x 10-inch rails that reach a total height of 24 inches above grade. These guardrails remain in relatively good shape within the CLR study area. As recommended in the Guardrail Inventory, guardrails of this type would be replaced with Type Five guardrail in the CLR study area to improve their crashworthiness.



Type Three Guardrail

Type Four Guardrail (Three-Bolt Pattern Steel-Backed Guardrails). This guardrail type and was constructed using a Southern Yellow Pine timber rail attached to a steel backing plate with lag screws. The steel backing plate and rail are attached to the side of the wooden post with an 'L' shaped steel bracket. Three bolts attach the wooden rail and steel backing plate to the 'L' shaped steel bracket, and one bolt attaches the 'L' shaped steel bracket to the side of the wooden posts. The steel backing plate runs continuous through the posts following the entire length of the rail installation except for the terminal sections. The last two 10 foot long segments are rolled down and flared and do not contain any steel plate reinforcement. The timber components are

Type Four Guardrail



pressure treated 12 x 12-inch posts and 8 x 10-inch rails that reach a total height of 24 inches above grade.

Guardrail Type Five (Four-bolt Pattern Steel-backed Timber Guardrails). This guardrail type represents the design for guardrails installed along the BLRI for the past 12 to 15 years. A steel splicing plate is mounted on the front of the guardrail post, between it and the steel backing plate with a single through bolt. The wooden rail is attached to the steel backing plate using lag screws, and each rail and steel backing plate is attached to the steel splicing plate using 4 through bolts. This creates a unified structural system capable of withstanding crash testing with smaller dimensioned wooden posts and railing. In addition to the improved method for bolting/securing steel backing to the guardrail posts and railings, other modifications include a reduced post size (10" x 12") and a reduced rail (6" x 10"). In order to meet present-day crash test requirements, the guardrail height was increased by several inches. The overall height now reaches 27" above grade, making this the tallest timber guardrail on the BLRI. A 2003 design extends the steel backing into the rolled down flared end segments. Type Five Guardrail meets AASHTO standards and/or FHWA safety and testing requirements, while still offering an aesthetically pleasing appearance.



Type Five Guardrail (front view)



Type Five Guardrail (rear view)

Guardrail Terminal Sections. The last four 10 foot segments of freestanding sections of guardrail and the last two 10 foot segments of guardrail transitioning to a fixed object such as a bridge wingwall or parapet, tunnel portal, or culvert headwall are referred to as transition sections. The terminal sections of early guardrail abutting a fixed object were identical in all respects to other sections of guardrail. A few recent installations of terminal sections abutting fixed objects, however, feature a new design developed by the Federal Highway Administration. The 10-foot section closest to the fixed object has two concrete-reinforced steel posts and three wooden posts, and the next 10-foot section has three wooden posts. Sections beyond have the standard two-post arrangement. In addition, a rub rail positioned below the main rail is present on the two transition sections (0 to 20 feet from the fixed object). These new terminations also feature a NPS/EFLHD approved non-contact abutment (although on at least one occasion the guardrail was inserted into a bridge wingwall).

Integrity of the Parkway

Parkway Road and Infrastructure

The BLRI road and infrastructure possess a very high degree of historic integrity. The original location and geometric design has been retained. Some of the supporting structures have been modified and a few replaced, but the great majority has been preserved (Firth n.d.a).

Scenic Corridor

Motorists still enjoy a sequence of views of scenic rural, forest, and mountainous vistas. The character of this scenery has changed somewhat since the 1950s and continues to change. These changes include altered agricultural landscapes (due to changing land uses), obscured forest views (due to vegetative growth), and altered natural communities (due to natural and anthropogenic disturbances). However, many original views remain largely intact and the spectacular vistas from overlooks appear unchanged (Firth n.d.).

Changes that took place during the historic period are now part of the BLRI's historic character. A more open landscape has filled over the years, as farms were abandoned in erosion-prone areas and roadside plantings grew and expanded, processes of which the original designers were cognizant. This noticeable loss of openness, however, has not resulted in a significant loss of integrity.

3.5 Visitor Safety

One of the unique characteristics of the BLRI is that it was designed by civil engineers in the Bureau of Public Roads and then the Federal Highway Administration working in close consultation with landscape architects in the NPS. To blend in with the topography over which it was being routed, the roadway alignment was carefully designed to lie gently on the landscape, following contours to avoid large cuts and fills, taking advantage of natural vistas, or ambling through scenic woodlands rather than simply serving as a direct route from point to point. The BLRI was designed to fit the topography of the land it traversed rather than conform to the generally accepted standards of alignment, gradient, and curvature that may be applied to other national and state road systems. Walls, curbs, culverts, and other support structures were made from native materials and were generally constructed at a scale that did not dominate the environment, but enhanced the experience of the natural setting. In addition to safely and efficiently accommodating visitors, the BLRI provides a viewing platform for important cultural and natural resources, as well as reflects the historical and natural character of its environment.

Driving on the BLRI was intended to be a low-speed interpretive experience, which complemented and expanded upon the visitor experience. Speed limit was an

important consideration of Parkway design, with a maximum speed limit of forty-five miles per hour (mph) and a minimum of twenty-five mph. When Parkway construction began, forty-five mph was a speed that most vehicles would have not been able to reach, as the BLRI was originally a dirt road. Today, forty-five mph is often the minimum speed limit for many federal, state, and county roadways. Speed limits are determined based upon the functional classification, terrain and the expected level of service.

Road width is another important aspect of the BLRI design. All 469 miles of the BLRI is a restricted two-lane paved road consisting of two 10-foot travel lanes with a standard pavement width dimension of 20 feet with widening curves not to exceed 2 feet – most two-lane roads are typically 24 feet wide. The average shoulder width along the BLRI is an average of 4 feet.

Other design features of the BLRI that contribute to a unique driving experience are: the curvilinear alignment, the steepness of grade, and super-elevated curves (banked curves where the outside of curve is higher than the inside). Most state highways have a maximum grade of six percent (6 percent), while the Parkway has a maximum of eight percent (8 percent).

The BLRI Traffic Safety Improvements Review (1990) identified 20 sites along the BLRI as having a high numbers of accidents relative to the BLRI in general. Contributing factors too many accidents were excessive speed and icy conditions during winter months. A motorcycle crash analysis for the BLRI conducted for the three-year period between 1998 and 2000 (on file at NPS Asheville headquarters) revealed that in recent years the number of accidents involving motorcycles on the BLRI has been higher due to the increased popularity of touring motorcycles. Many accidents involving motorcycles are caused by rider fatigue and/or inexperience and excessive speed. It is important to note, however, that guardrails will not help to increase safety for motorcyclists, who are most likely to be thrown over these structures upon impact rather than contained and redirected, as a car would be.

Adopting and implementing safety guidelines for the BLRI is an evolving process involving a series of compromises among safety and engineering, resource protection, and economic constraints. AASHTO's *Roadside Design Guide* provides up-to-date information and operating practices as they relate to roadside safety. It is intended to provide guidance to road designers and to construction and maintenance personnel. The following considerations are important when making decisions for providing safe roadside travel:

Clear Roadside Concept - the clear zone is defined as a variable distance from the edge of pavement, free of obstacles, where an errant vehicle could recover. Factors such as speed, cross slopes, and design of drainage elements can impact the effectiveness of the recovery area. Other factors, such as traffic volumes (ADT), and roadway/roadside geometry can affect the recovery area.

The clear zone requirements for a highway with much greater speeds of travel, do not apply to the BLRI. The posted speed limit on the BLRI is forty-five mph or less in some locations. This speed would require a roadside recovery zone of approximately 8 feet. However, in many locations along the BLRI there are natural and built features that restrict the width of passage and do not allow adequate space for roadside recovery.

Embankments - some embankments on the BLRI have slopes of 3:1 or steeper and are considered “critical slopes” in which an errant vehicle is likely to overturn. Speed is the main factor when determining design standards for safety. Embankment height and side slope are the basic factors considered in determining barrier need. Embankments with slope and height combinations on or below a curve do not warrant shielding, unless they contain obstacles that present a hazard to errant motorists. Trees with calipers greater than 6 inches represent such an obstacle. Rounded slopes help reduce chances for errant vehicles becoming airborne. As a result, embankment height and side slope are basic factors in determining barrier (guardrail) need.

Roadside Barriers - a roadside barrier is a longitudinal barrier used to shield motorists from natural or man-made hazards located on either side of the roadway. The primary purpose of all roadside barriers is to prevent a vehicle from leaving the roadway and striking a fixed object or terrain feature that is considered more hazardous than the barrier itself—this is accomplished by containing or redirecting the impacting vehicle.

Guardrails are barriers intended to redirect an errant vehicle, to delineate a roadway, or to warn of roadside hazards. Guardrails should be installed at points of unusual danger such as sharp curves, steep embankments, or bridge overpasses. There are three basic types of roadside barriers: rigid, semi-rigid, and flexible. Rigid barriers are solid structures with no deflection upon impact, such as masonry stone walls or concrete walls with a stone veneer. These are the strongest and longest lasting, but they are also more expensive to construct and take up slightly more of the roadside space. Flexible barriers such as cable or w-beam rails on weak posts are generally less expensive to install and are shallow in depth, taking up very little roadside space. Because these systems are designed to give way upon impact, they are reliant on an adequate clear zone space behind the guardrail. Due to the undulating terrain that the BLRI traverses and inadequate clear zone space, this is not a feasible option. Steel-backed timber guardrails are considered semi-rigid types of roadside barriers, which are strong and designed to redirect errant vehicles. This system was developed as an aesthetic alternative to the conventional guardrail systems and has been adopted by the NPS to maintain a rustic appearance along the BLRI.

National Park Service Park Road Standards (1984) were developed and adopted by the NPS to address the safety requirements of Standard 12 of the Federal Highway Safety Program Standards (23 CFR 1230; 23 USC 402), accommodate current and planned road usage, and still preserve the natural or historical characteristics of park areas. The NPS Park Road Standards state that the purpose of park roads:

...remains in sharp contrast to that of the Federal and State highway systems. Park roads are not intended to provide fast and convenient transportation; they are intended to enhance visitor experience while providing safe and efficient accommodation of park visitors and to serve essential management access needs. They are not, therefore, intended nor designed as continuations of the State and Federal-aid network.

The Park Road Standards provide the following guidance for installation of guardrail:

- Guardrails are intended to redirect an errant vehicle, to delineate a roadway, or to warn of roadside hazards.
- These barriers should be installed at points of unusual danger such as sharp curves and steep embankments.
- Criteria for warranting installation of guardrails on high-speed, high-volume highways do NOT apply to low-speed, low-volume traffic conditions on park roads.
- Placement and design of guardrails should be consistent for safety and appearance throughout the length of a particular parkway.
- Choice of materials and design should be sensitive to the setting or environment.

The BLRI was planned, designed, constructed and maintained and operated to standards to safeguard human life and protect and preserve park resources and values.

3.6 Visitor Experience

The Blue Ridge Parkway has received over 20 million visitors each year since 1997. As the Parkway is 469 miles long, not all visitors travel the entire length of the Parkway. A study prepared for the National Park Service in 2002 determined that less than 4 percent of the Parkway visitors traversed the entire length of the Parkway (Blue Ridge Parkway Transportation Data Collection, David Evans and Associates, Inc. Denver, Colorado, December, 2002).

Near urban areas commuters use the Parkway as a shortcut during their commute, as the Parkway has no at-grade intersections, no stop signs, and no traffic signals. The Blue Ridge Parkway Transportation Study determined that 3 percent of the survey respondents in the section near Asheville were using the Parkway for business purposes, such as commuting (Blue Ridge Parkway Transportation Data Collection, David Evans and Associates, Inc. Denver, Colorado, December, 2002). However, it should be noted that the interviews took place at various attractions along the Parkway where people had stopped. Commuters are generally in a hurry to get to work or to get home and would normally not stop at a visitor center or overlook. It is expected that the proportion of business related travel along the Parkway is much higher than 3 percent. This assumption is reinforced by the fact that the Asheville area has the highest access ramp counts, with US 25 displaying the highest ramp counts along the entire Parkway. Yet, these motorists are not driving too far on the Parkway, as the section of the

Parkway with the highest traffic volume is between the Cumberland Knob Visitor Center and the town of blowing Rock, North Carolina, which is approximately 90 miles north of the Asheville area.

The Blue Ridge Parkway is one of the primary attractions in the Asheville area. A survey prepared for the Buncombe County Tourism Development Authority stated that 34 percent of first time visitors and 24 percent of repeat visitors indicated that the Parkway was one of the primary reasons for visiting the Asheville area. During October, this figure rose to 44 percent overall due to the attraction of driving the Parkway during the fall color change (Buncombe County Tourism Development Authority, Buncombe County TDA Field Intercept Study Results-November 2001-December 2002, Buncombe County, North Carolina, January 15, 2003).

A survey prepared for the National Park Service that interviewed visitors at visitor centers and lookouts along the Parkway indicated that 92 percent of the survey respondents stated they were traveling the Parkway for the purpose of recreation. Over 60 percent of the survey respondents stated that they were stopping at one of the Parkway's twelve visitor centers and over 32 of the respondents had either visited the Folk Art Center or planned to visit the Folk Art Center. Taking photographs was another common reason identified for traveling the Parkway (University of Vermont, Blue Ridge Parkway Visitor Survey Study Completion Report, December 2002).

As mentioned, 92 percent of the Parkway travelers that were surveyed were driving the Parkway for the purpose of recreation. Sightseeing is the primary form of recreation along the Parkway. It is generally recognized that Parkway visitors value a natural viewshed with limited development (Friends of the Blue Ridge Parkway, Viewshed Restoration Program, www.blueridgefriends.org, December, 2004). More specifically, according to the "*Blue Ridge Scenic Experience Project Results Synthesis – Phase I Southwest Virginia and Phase II Northern North Carolina – 2004*", visitors indicated that scenic quality along the Parkway is an important reason for their visitation and they indicated that fewer trips would result if scenic quality declines. Conversely, it was found that more trips would occur if scenic quality improved (Kask 2004). The results of the study indicate that maintaining the scenic quality of the Parkway is a high priority for Parkway visitors.

3.7 Park Operations

Permanent (25) and seasonal (12-15) maintenance staff and the equipment that is used to perform the roadside and shoulder maintenance is a significant portion of the budget for the BLRI. Mowers of various sizes, string trimmers, trucks and the fuel and maintenance required to support these operations must be carefully planned for during the seasonal maintenance periods experienced in the park. Routine replacement of old guardrail has long been part of the maintenance operations, but the maintenance work load has increased as new guardrail was added over the years.

4 Environmental Consequences

4.1 Introduction

This section addresses the environmental consequences associated with the alternatives presented in Chapter 2 (“Alternatives”). It is organized by impact topic, which distills the issues and concerns into distinct subjects for discussion analysis. The methodology used for assessing impacts is presented first. This is followed by the assessment of the impacts of each alternative on the resource and proposed mitigation measures to offset the impacts. The impacts are characterized in terms of type (adverse or beneficial direct, indirect and cumulative impacts), context, duration, and intensity, and duration of adverse and beneficial impacts (direct, indirect, and cumulative) and measures to mitigate for impacts.

4.2 Methodology for Assessing Impacts

As required by NEPA, potential impacts are described in terms of type (beneficial or adverse, direct or indirect), context (site-specific, local, or regional), duration (short or long-term), and level of intensity (negligible, minor, moderate, or major). These terms are defined below. Overall, the NPS based its analyses and conclusions regarding the environmental impacts of the Guardrail Installation Plan on a review of existing literature and park studies, information provided by experts within the BLRI, the NPS Southeastern Regional Office, the North Carolina State Historic Preservation Office (NC SHPO), the Virginia State Historic Preservation Office (VA SHPO), the Advisory Council on Historic Preservation, other agencies, professional judgments and staff insights, and public input.

Type

Beneficial: A positive change in resource condition or appearance that moves the resource toward a desired condition.

Adverse: A change that moves the resource away from a desired condition or detracts from its appearance or condition.

Direct: An impact that is caused by an action and occurs at the same time and place.

Indirect: An impact that is caused by an action but is later in time or farther removed in distance, but still reasonably foreseeable.

Context

Context is the setting within which an impact is analyzed. For some impact topics (e.g., soils), the EA project's area of potential impact encompasses the BLRI's roadway shoulder, although for other impact topics (e.g., cultural resources), a local or regional context is more appropriate.

Site-specific: The impact would affect the project site.

Local: The impact would affect the park.

Regional: The impact would affect localities, cities, or towns surrounding the park.

Duration

In general, the following definitions are used to describe duration. For some resources, duration may differ due to each resource's individual time for recovery from the impact.

Short-term: Impacts that occur only during the construction of last less than a year.

Long-term: Impacts that last longer than one year.

Level of Intensity

The definitions of level of intensity (negligible, minor, moderate, major) vary by impact topic. These definitions are therefore provided separately for each impact

Cumulative Impacts

Cumulative impacts are defined as impacts that result when the impact of the proposed action is added to the impacts of other present and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7).

To determine the potential cumulative impacts, past, existing, and anticipated future projects at the BLRI and in the surrounding area were identified. These included lands administered by the NPS, the States of North Carolina and Virginia, and adjacent county and municipal jurisdictions. Potential projects identified as cumulative actions included any planning or development activity completed or currently being implemented or expected to be implemented in the reasonably foreseeable future. Past and existing (ongoing) actions include state and federal highway construction projects, park road rehabilitation and replacement projects, development of park recreational

facilities, maintenance and enhancement of BLRI road infrastructure, and related actions. Actions in the foreseeable future identified as contributing to cumulative impacts on BLRI resources include two interstate roadway construction projects, several BLRI rehabilitation and replacement projects, a bridge repair project, the BLRI's new destination center, and the BLRI corridor access management plan (see Table 4.1).

Table 4.1 Other actions with potential for cumulative effect

Action	Location (Vicinity)	Agency
Corridor Access Management Plan and Environmental Impact Statement	park-wide NPS	
Federal Lands Highway Program Parkway Rehabilitation-Replacement Project BLRI 54306, Section 1N, Project No. 1N18	MP 121-136 (near Roanoke)	NPS/EFLHD
Proposed construction of Interstate 73	MP 121.4 (near Roanoke)	FHWA
Federal Lands Highway Program Project No. 2A, 2B, and 2C, BLRI 059596, Rebuilding Dry-Laid Stone Masonry Guardwalls	MP 216.9 to 248.1 (between Blue Ridge Music Center and E.B. Jeffress Park)	NPS/EFLHD
Federal Lands Highway Program Parkway Rehabilitation-Replacement Project, BLRI 54360, Section 2D, Project No. 2D-15	MP 247.9 to 261.2 (between Doughton Park and E.B. Jeffress Park)	NPS/EFLHD
Federal Lands Highway Program Project 2E-15 Rehabilitation-Replacement Project, BLRI 82566, Project No. 2E-15	MP 270.3 (E.B. Jeffress Park)	NPS/EFLHD
Federal Lands Highway Program Goshen Creek Bridge Repair Project, BLRI 54411, Project No. 2F-22	MP 286.3 (north of Blowing Rock)	NPS/EFLHD
Moses H. Cone Memorial Developed Area Management Plan	MP 292.7 to 295.8 (Moses H. Cone Memorial Park)	NPS
Federal Lands Highway Program Parkway Rehabilitation-Replacement Project BLRI 90447, Sections 2H and 2J, Project Nos. 2H-13 and 2J-16	MP 298.6 to 317.5 (between Julian Price Memorial Park and Linville Falls)	NPS/EFLHD
Federal Lands Highway Program Parkway Rehabilitation-Replacement Project BLRI 54310, Section 2P, Project No. 2P-14	MP 360-372 (between Mt. Mitchell State Park Folk Art Center)	NPS/EFLHD
Blue Ridge Parkway Destination Center	MP 384.1 (Park HQ)	NPS
Proposed multi-lane widening of Interstate 26	MP 391.8 (Interstate 26)	FHWA

In defining the contribution of each EA alternative to cumulative impacts, the following terminology is used:

- Imperceptible:** The incremental effect contributed by the alternative to overall cumulative impacts is such a small increment that it is impossible or extremely difficult to discern.
- Noticeable:** The incremental effect contributed by the alternative to overall cumulative impacts is still relatively small in proportion to the overall cumulative impacts.
- Appreciable:** The incremental effect contributed by the alternative constitutes a large portion of overall cumulative impacts.

Impairment

In addition to determining the environmental consequences of the preferred and other alternatives, *NPS Management Policies* (NPS 2005) and DO #12 requires analysis of potential impacts to determine whether actions have the potential for impairment of park resources and values. A fundamental purpose of the NPS, as provided for in its Organic Act (1916) and reaffirmed by the General Authorities Act (1970), as amended in 1978, is a mandate to conserve park resources and values. However, the laws give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of the Park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirements that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that would otherwise be present for the enjoyment of those resources and values. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant planning documents.

Impairment may result from NPS activities in managing the park, as well as visitor activities or activities undertaken by concessionaires, contractors, and others operating in the Park. For the construction of new guardrail on the Parkway where none previously existed, one of the issues an

impairment determination must take into consideration is how many new installations of guardrail does it take to cumulatively reach or surpass the threshold for impairment to occur. An impairment determination for all impact topics is provided at the end of this chapter in the “Conclusion” section, with the exception of Visitor Safety, Visitor Experience, and Park Operations, for which no impairment determination is made.

4.3 Impact Analysis and Proposed Mitigation Measures

Soils

Methodology

All available information on soils potentially impacted in various areas of the park was compiled. Predictions about short- and long-term site impacts were based on recent studies and previous projects with similar soils. The thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** Impacts to soils would be below or at the lower levels of detection.
- Minor:** Effects to soils would be detectable and small. Mitigation may be needed to offset adverse impacts and would be relatively simple to implement and likely be successful.
- Moderate:** The impacts on soils would be readily apparent and result in a change to soils over a relatively wide area. Mitigation measures would be necessary to offset adverse impacts and likely be successful.
- Major:** The impacts on soils would be readily apparent and would substantially change the character of the soils over a large area in and out of the park. Mitigation measures to offset adverse impacts would be needed, extensive, and their success could not be guaranteed.

Impacts of Alternative A (No Action Alternative)

Under the No Action Alternative, installation of guardrail would result in short-term adverse impacts of negligible to minor intensity. The impacts of other past, present and reasonably foreseeable actions described above, together with the impacts of the No Action, would result in moderate adverse cumulative impacts to soils. The impacts of Alternative A would be a relatively small component of the overall cumulative impact. The soils have been altered over time from roadway construction and the construction or installation of roadway infrastructure (e.g., guardrails, guardwalls, tunnels, culverts and culvert headwalls, and signs). However, the installation of guardrail and guardrail terminations would create additional soil disturbance along the road shoulder and

adjacent cut-slope and fill-slope areas. This disturbance would result from the excavation of soil material by mechanical post-holer to place new guardrail posts, and the reworking of the ground surface by bulldozer to create small topographic berms for burying guardrail terminal sections. The existing topography and elevations would be unaltered and natural soil profiles would be unaffected. Although natural soil profiles would be unaffected, short-term loss of vegetative cover in the disturbed area would increase the potential for erosion and deposition downslope or downwind of the exposed soil material. Standard erosion control measures such as silt fences and/or sand bags, however, would also be used to minimize any potential soil erosion

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact soils in the study area. The future actions identified in Table 4.1 all involve subsurface work. Proposed construction of I-73 and the widening of I-26 would require modifications to BLRI overpasses at these locations. The several Federal Lands Highway Program (FLHP) roadway rehabilitation and replacement projects is expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Impacts to soils would be adverse, short-term and of moderate intensity.

As previously described, actions associated with implementation of Alternative A would result in impacts to soils that would be adverse, short-term and of negligible to minor intensity, but the actions associated with implementation of the alternative would be expected to contribute minimally to the adverse impacts of other past, present, or reasonably foreseeable actions. Although the cumulative impact would be adverse and of moderate intensity, the adverse impacts to soils resulting from implementation of Alternative A would be a small, imperceptible, component of that cumulative impact.

Conclusion. The overall impact would be adverse, site-specific, short-term and of negligible to minor intensity.

Impacts of Alternative B (NPS Preferred Alternative)

The impacts of Alternative B on soils would be very similar to those described under Alternative A. The principal difference would be program-wide extent of the disturbed areas, which would be a function of the number of locations where new guardrail is deemed necessary, which, in turn, would depend on the recommended type of roadside safety treatment resulting from the safety/resource sensitivity screening at potential guardrail installation sites. Where a non-guardrail method of safety treatment is deemed appropriate, the number of soil disturbance areas within each project location would be lessened simply because far fewer holes are needed to install speed limit or other roadway safety-related signage compared to installing a length of guardrail. Impacts to soils would be adverse, site-specific, short-term and of negligible to minor intensity.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact, soils in the study area. The future actions identified in Table 4.1 all involve subsurface work. Proposed construction of I-73 and the widening of I-26 would require modifications to BLRI overpasses at these locations. The several Federal Lands Highway Program (FLHP) roadway rehabilitation and replacement projects is expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Impacts to soils would be adverse, short-term and of moderate intensity.

As previously described, actions associated with implementation of Alternative B would result in impacts to soils that would be adverse, short-term and of negligible to minor intensity, but the actions associated with implementation of the alternative would be expected to contribute minimally to the adverse impacts of other past, present, or reasonably foreseeable actions. Although the cumulative impact would be adverse and of moderate intensity, the adverse impacts to soils resulting from implementation of Alternative B would be a small, imperceptible, component of that cumulative impact.

Conclusion. The overall impact would be adverse, site-specific, short-term and of negligible to minor intensity.

Special Status Species

Methodology

All available information on special status species that potentially would be impacted in various areas of the park was compiled. Predictions about short- and long-term site impacts were based on recent studies and previous projects with similar soils, and input from BLRI environmental staff. The thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** Special status species would not be affected, or the effects would be at or below the level of detection and would not be measurable or of perceptible consequence to populations of the species.
- Minor:** Effects on special status species would be measurable or perceptible but localized within a small area. While the mortality of individuals might occur, the viability of species populations would not be affected and would recover if left alone.
- Moderate:** A change in special status species would occur over a relatively large area. The change would be readily measurable in terms of abundance, distribution, quantity, or quality of population. Mitigation measures would be necessary to offset adverse effects and would likely be successful.
- Major:** Effects on special status species populations would be readily apparent and would substantially change species populations over a large area in

and out of the Park. Extensive mitigation would be needed to offset adverse effects, and the success of mitigation measures could not be assured.

Impacts of Alternative A (No Action Alternative)

Under the No Action Alternative, three perennial forb/herb species categorized as rare by the North Carolina and Virginia Natural Heritage Programs would potentially be impacted. The small grape fern (*Botrychium simplex*) and the Canadian burnet (*Sanguisorba canadensis*) are classified as significantly rare and rare, respectively, by the Virginia Natural Heritage Program. The sticky false-asphodel (*Tofieldia glutinosa*) is classified as rare by the North Carolina Natural Heritage Program. These three species occur infrequently in roadside areas (particularly ditches) along the BLRI. Their growing season ranges from mid-spring to fall. Habitat disturbance resulting from the replacement of guardrail that does not meet current crashworthiness criteria are expected to be short-term. The impacts of other past, present and reasonably foreseeable actions described above, together with the impacts of the No Action, would result in negligible adverse cumulative impacts to special status species. The impacts of Alternative A would be a very small component of the overall cumulative impact. If construction activities are scheduled for the non-growing season, there should be no impacts to individual plants of these three species. Areas denuded of ground cover to accommodate guardrail installation would be immediately reseeded with appropriate ground cover species so that the three rare plant species should be able to recolonize the disturbed areas during the following growing season. In addition, because more new guardrail would probably be installed compared to Alternative B, the overall impact to special status species under the No Action Alternative would be potentially greater than those under the preferred alternative.

Cumulative Impacts. Present and reasonably foreseeable future actions have contributed to, and continue to contribute to, impacts to wildlife and associated habitat in the study area. The future actions identified in Table 4.1 may have the potential to disrupt special status species and disturb associated habitat during and immediately following guardrail replacement. However, the impacts would individually be site-specific, short-term and minor, and the disturbed habitat would fully recover in a matter of a few months. Overall, the No Action Alternative would contribute a **negligible, adverse increment** to the cumulative impact on special status species resources.

Conclusion. The overall impact would be **site-specific, short-term** and **minor**.

Impacts of Alternative B (NPS Preferred Alternative)

The impacts of Alternative B on special status species would be very similar to those described under Alternative A. However, with the addition of new guardrail and new or upgraded guardrail transitions under Alternative B, the impact potential on individuals of

the three rare plant species, as well as other wildlife and associated habitat, would be somewhat greater than under the No Action Alternative.

Cumulative Impacts. Present and reasonably foreseeable future actions that would contribute to impacts to special status species and associated habitat in the study area have been discussed under the “Cumulative Impacts” for Alternative A. Those projects, along with Alternative B, would contribute a **noticeable, adverse increment** to the cumulative impact on special status species resources. The relatively greater cumulative of Alternative B is due to the installation of additional guardrail impact under this alternative.

Conclusion. The overall impact would be **site-specific, short-term** and **minor**.

Cultural Resources

The following impact analyses are intended to comply with the requirements of both NEPA and the National Historic Preservation Act (NHPA). In accordance with the ACHP regulations implementing Section 106 of the NHPA (36 CFR Part 800 Protection of Historic Properties), impacts to cultural resources typically would be identified and evaluated by (1) determining the area of potential effects (APE); (2) identifying cultural resources within the APE that are either listed on or eligible for listing on the National Register; (3) assessing whether the proposed action would have an adverse effect on these resources; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register, e.g., diminishing the integrity (or the extent to which a resource retains its historic appearance) of the resource’s location, setting, design, feeling, association, workmanship, or materials. Adverse effects also include reasonably foreseeable effects caused by the alternatives that would occur later in time, be farther removed in distance (i.e., indirect or secondary effects), or be cumulative (36 CFR Part 800.5 Assessment of Adverse Effects). A determination of no adverse effect means that there is an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the National Register.

CEQ regulations and NPS Director’s Order No. 12 (*Conservation Planning, Environmental Impact Analysis, and Decision-making*) also call for a discussion of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g., from major to moderate or minor impact intensity. Such reduction is an estimate of the effectiveness of mitigation under NEPA, but does not suggest that the level of effect as defined by Section 106 is similarly reduced. Adverse effects on cultural resources generally consume, diminish, or destroy the original historic materials or form, resulting in a loss of integrity that can never be

recouped. While actions determined to have an adverse effect under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary is included in the impact analysis for cultural resources for the preferred alternative. The Section 106 summary is intended to meet the requirements of Section 106 and is an assessment of the effect of the undertaking (implementation of the alternative) on cultural resources, based upon the criteria of adverse effect found in the ACHP regulations.

Historic Structures and Cultural Landscapes

Methodology

For purposes of assessing potential impacts to historic structures and cultural landscapes, the thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** Impact(s) is at the lowest level, with neither adverse nor beneficial consequences. For the purposes of Section 106, the determination of effect would be *no adverse effect*.
- Minor:** Adverse Impact – alteration of a feature(s) or landscape pattern(s) would not diminish the overall integrity of the resource (structure or landscape). For the purposes of Section 106, the determination of effect would be *no adverse effect*.
- Moderate:** Adverse Impact – alteration of a feature(s) or landscape pattern(s) would diminish the overall integrity of the resource (structure or landscape). For the purposes of Section 106, the determination of effect would be *adverse effect*. A Memorandum of Agreement (MOA) or Programmatic Agreement (PA) is executed among the NPS and applicable state historic preservation officers and, if necessary, the ACHP in accordance with 36 CFR 800.6. Measures identified in the MOA or PA to minimize or mitigate adverse impacts reduce the impact intensity under NEPA from major to moderate.
- Major:** Adverse impact - alteration of a feature(s) or landscape pattern(s) would diminish the overall integrity of the resource (structure or landscape). For the purposes of Section 106, the determination of effect would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the NPS and applicable state historic preservation officer and/or the ACHP are unable to execute a MOA or PA in accordance with 36 CFR 800.6.

Impacts of Alternative A (No Action Alternative)

Due to deterioration and vehicle impact damage, replacement of existing guardrail has been, and continues to be, a common activity along the BLRI. Earlier types of affected guardrail would also continue to be replaced as warranted. The replacement guardrail would be the crash-tested, NCHRP 320-compliant guardrail, which is similar in composition, design, color, and texture to earlier guardrail types and, although the rail height is three to 12 inches higher compared to earlier types, is a compatible substitute. Thus, guardrail installation projects involving the replacement of existing guardrail only would be considered “replacement in kind,” which is an appropriate treatment in accordance with the 1983 Secretary of the Interior’s *Standards and Guidelines for Archeology and Historic Preservation*. The replacement of existing guardrail would neither obscure, diminish, or eliminate character-defining features of the BLRI nor alter the historical integrity of the BLRI, and any adverse impacts would be long-term and of minor intensity.

Roadside sections of guardrail along steep fill slopes in curves could be installed as necessary along the BLRI where no guardrail existed before. The topography, vegetation, road alignment circulation patterns, and land use patterns of the BLRI would be unaltered by the installation of the additional guardrail, but the scale and visual relationships among landscape features would be changed and the guardrail would alter the historic visual appearance of the BLRI. The guardrail would be incompatible with the historic surface and edge treatments of the BLRI. In addition, the guardrail would alter historic views or vistas from vehicles being driven along the BLRI. The impact would be adverse, moderate and long-term. The impacts of other past, present and reasonably foreseeable actions described above, together with the impacts of the No Action, would result in moderate adverse cumulative impacts to historic structures and landscapes. The impacts of Alternative A would be a relatively small component of the overall cumulative impact.

The installation of guardrail at bridge, tunnel, or guardwall approaches, which would entail specially designed terminal sections of guardrail with additional posts (including two steel I-beam posts anchored in concrete), an additional rub rail below the main rail, and an approved non-contact abutment, would not alter historic fabric of structures but it would alter the character of the historic designed landscape diminishing its historical integrity by introducing design elements that are not in character with the original design and construction of the BLRI. Also the visual appearance of the structures, the historic spatial relationship of the structures to the surrounding landscape, and the historic site patterns and views and vistas along the BLRI would be altered. The impact would be adverse, moderate and long-term. The impacts of other past, present and reasonably foreseeable actions described above, together with the impacts of the No Action, would result in moderate adverse cumulative impacts to historic structures and landscapes. The impacts of Alternative A would be a relatively small component of the overall cumulative impact.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact, historic structures and cultural landscapes in the study area. The proposed construction of I-73 and the widening of I-26 would require modifications to BLRI overpasses at these locations. The several Federal Lands Highway Program (FLHP) roadway rehabilitation and replacement projects would be expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Few, if any, impacts to topography, circulation patterns, and land use patterns of the BLRI would be anticipated but adverse impacts to vegetation could occur, the scale and visual relationships among landscape features would be changed, and the historic visual appearance of the BLRI would be altered. The impacts would be adverse, long-term and of moderate intensity.

As previously described, actions associated with implementation of Alternative A would result in impacts to historic structures and cultural landscapes that would be adverse, long-term and of minor to moderate intensity. The long-term, minor to moderate adverse impacts of Alternative A would be a noticeable component of the long-term, moderate, adverse cumulative impact.

Conclusion. The impact would be adverse, local, long-term, and of minor to moderate intensity.

Impacts of Alternative B (NPS Preferred Alternative)

Due to deterioration and vehicle impact damage, replacement of existing guardrail has been, and continues to be, a common activity along the BLRI. The replacement guardrail would be the crash-tested, NCHRP 350-compliant guardrail, which is similar in composition, design, color, and texture to earlier guardrail types and, although the rail height is three to 12 inches higher compared to earlier types, is a compatible substitute. Thus, guardrail installation projects involving the replacement of existing guardrail only would be considered “replacement in kind,” which is an appropriate treatment in accordance with the 1983 Secretary of the Interior’s *Standards and Guidelines for Archeology and Historic Preservation*). Because the replacement of existing guardrail would neither obscure or destroy character-defining features of the BLRI nor alter the overall historic character of the BLRI, the impact would be long-term and adverse but minor in intensity.

Under Alternative B, guardrail would be installed at the approaches to all fixed structures along the BLRI (e.g., tunnel openings, stone masonry walls, bridge wing walls, and parapet walls) where deemed appropriate by the RCRP methodology (Appendix B). The materials used for the guardrails would be clearly distinguishable from the predominantly masonry components of the fixed structures, so as not to create a false historical appearance. However, installing guardrail at bridge, tunnel, or guardwall approaches, which would require specially designed terminal sections of

guardrail with additional posts (including two steel I-beam posts anchored in concrete), an additional rub rail below the main rail, and an approved non-contact abutment, would obscure or otherwise alter the BLRI's character-defining features and diminish its historical integrity by introducing design elements that are not in character with the original design and construction of the BLRI, altering the visual appearance of the structures, the historic relationship of the structures to the surrounding landscape, and the historic site patterns and views and vistas along the BLRI. The adverse impact would be moderate and long-term.

Under Alternative B, freestanding sections of guardrail would be installed along the BLRI where no guardrail existed before, again where deemed appropriate by the RCRP methodology (Appendix B). The topography, vegetation, road alignment and circulation patterns, and land use patterns of the BLRI would be unaltered by the installation of the guardrail, but the scale and visual relationships among landscape features would be changed and the guardrail would alter the historic visual appearance of the BLRI. The guardrail would be incompatible with the historic surface and edge treatments of the BLRI. In addition, the guardrail would alter historic views or vistas from vehicles being driven along the BLRI. The adverse impact would be moderate and long-term.

There is a balance between change and continuity in cultural landscapes resulting from both natural processes and human activities. The dynamic quality of change, however, can only be balanced by the continuity of distinctive characteristics, or character-defining features, retained over time, which maintains continuity of form, order, use, features, or materials in the landscape. The installation of guardrail where no guardrail historically existed would diminish the overall historic character of the BLRI.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact historic structures and cultural landscapes in the study area. The proposed construction of I-73 and the widening of I-26 would require modifications to BLRI overpasses at these locations. The several FLHP roadway rehabilitation and replacement projects would be expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Few, if any, impacts to topography, circulation patterns, and land use patterns of the BLRI would be anticipated but adverse impacts to vegetation could occur, the scale and visual relationships among landscape features would be changed, and the historic visual appearance of the BLRI would be altered. Adverse impacts would be long-term and of moderate intensity.

As previously described, actions associated with implementation of Alternative B would result in impacts to historic structures and cultural landscapes that would be adverse, long-term and of minor to moderate intensity. The long-term, minor to moderate adverse impacts of Alternative B would be a noticeable component of the long-term, moderate, adverse cumulative impact.

Conclusion. Under Alternative B, the impact of replacing existing guardrail that does not meet current crashworthiness criteria would be **local, long-term, minor, and adverse**. Impacts associated with the installation of guardrail at the approaches to all fixed structures such as tunnel openings, stone masonry walls, bridge wing walls, and parapet walls, as well as the installation of new freestanding guardrail where none previously existed would result in a **local, long-term, moderate and adverse**.

Section 106 Summary

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service determines that implementation of the preferred alternative would have an adverse effect on the BLRI, which meets eligibility criteria for designation as a National Historic Landmark. As of October 9, 2008, a programmatic agreement (in accordance with 36 CFR Part 800.14[b], *Programmatic Agreements*), is being negotiated between the NPS (BLRI), the North Carolina and Virginia State Historic Preservation Officers, and the Advisory Council on Historic Preservation. The programmatic agreement would record the terms and conditions agreed upon to resolve and mitigate the potential adverse effects of the proposed action.

Visitor Safety

Methodology

NPS Management Policies are unequivocal, "The saving of human life will take precedence over all other management actions" (8:5). However, both the NPS *Management Policies* and the *Loss Control Management Program Guideline* (NPS-50) recognize that public use of park resources sometimes involves elements of risk. Both recognize the need for management actions to limit risk to acceptable levels, consistent with acceptable levels of impact on cultural and natural resources. The challenge is to balance resource impacts against visitor safety – to provide safe and efficient transportation in parks while protecting cultural and natural resources and the sense of place that make our National Park system unique.

The impact intensities for both visitor conflicts and safety follow. Where impacts to visitor safety become moderate or major, it is assumed that current visitor satisfaction and safety levels would begin to decline and the park would not be achieving some of its long-term visitor goals.

Negligible: The impact to visitor safety would not be measurable or perceptible.

Minor: The impact would result in a slight increase or decrease in accident rates at existing accident locations or where accidents have not historically occurred.

Moderate: The impact would result in a noticeable increase or decrease in accident rates at existing accident locations or where accidents have not historically occurred.

Major: The impact would result in a substantial increase or decrease in accident rates at existing accident locations or where accidents have not historically occurred.

Impacts of Alternative A (No Action Alternative)

Hazardous immovable objects such as large trees, bridge abutments, piers, and railings exist within roadway clear zones along the BLRI. The NPS would continue to replace existing deficient guardrail (i.e., impact damaged, deteriorated, or otherwise not crashworthy) or add new guardrail incrementally at locations where public safety concerns have been demonstrated (e.g. locations associated with increasing accident rates, fixed roadside objects, or shoulders that transition into steep topographical relief or and stands of large roadside trees (>4 inches dbh (diameter at breast height))). Impacts to visitor safety would be beneficial, long-term and negligible to minor in intensity.

David Evans and Associates (DEA) in their 2004 report entitled, *Blue Ridge Parkway transportation system data analysis* indicated that the accident rate for BRLI is very low compared to statewide averages for two-lane undivided highways in NC and VA (0.24 RMVM for BLRI versus 2.83 for NC and 1.56 for VA). DEA thinks this may be attributable to “the overall design of the constantly curving alignment, which keeps unusually high speeds in check”. The accident analysis showed relatively few correctable accidents, most being attributable to deer, traffic congestion, and motorcycle accidents. Of 534 accidents investigated, over 80% of the accidents involved deer (48%) or motorcycles (33%). Most of the motorcycle accidents occurred in the southern part of BLRI, where roadway geometry is more varied. Most of the deer accidents occurred in the northern part, where topography and land use create more wildlife crossings. There are no data supporting the notion that placing guardrail to prevent vehicle animal/deer collisions is an effective safety measure. Impacts to visitor safety associated with vehicle animal collisions would be negligible.

During construction activities associated with guardrail implementation, the NPS would take steps to ensure visitor safety , e.g. temporary closing of lanes, sequencing of construction events to minimize impacts to traffic, or restricting contractor work to off-peak hours. Visitors would be notified of changes in traffic patterns, detours, and traffic delays through the use of vehicle messenger signs and public notifications. Implementation of such measures would ensure that any short-term, construction related adverse impacts to visitor safety would be negligible.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact, visitor safety along the BLRI. Several FLHP roadway rehabilitation and replacement projects would be expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Impacts to visitor safety would be beneficial, long-term and of negligible to minor intensity. Any construction related impacts would be short-term and negligible.

As previously described, actions associated with implementation of Alternative A would result in both beneficial, long-term impacts of negligible to minor in intensity and short-term, negligible, adverse impacts. Yet, due to the beneficial impacts of other past, present or reasonably foreseeable actions the cumulative impact would be beneficial, long-term, and of minor intensity. Alternative A would contribute a noticeable beneficial increment to the cumulative impact on visitor safety.

Conclusion. The overall impact would be local, beneficial, long-term and negligible to minor in intensity.

Impacts of Alternative B (NPS Preferred Alternative)

Hazardous immovable objects such as large trees, bridge abutments, piers, and railings exist within roadway clear zones along the BLRI. The NPS would continue to replace existing deficient guardrail (i.e., impact damaged, deteriorated, or otherwise not crashworthy) or add new guardrail incrementally at locations where public safety concerns have been demonstrated (e.g. locations associated with increasing accident rates, fixed roadside objects, or shoulders that transition into steep topographical relief or and stands of large roadside trees (>4 inches dbh (diameter at breast height))). Impacts to visitor safety would be beneficial, long-term and negligible to minor in intensity.

Implementation of Alternative B would also more prudently explore the use of a combination of structural and non-structural techniques to improve visitor safety along the BLRI while retaining the unique historic qualities and characteristics of the roadway. Reduction in speed limits, additional road striping, unique signage, enhanced public education and increased ranger patrol and enforcement are techniques that could be combined with thoughtful placement of guardrail to increase public safety. Such techniques could provide for safe and efficient travel with minimal or no impacts to natural and cultural resources.

For example, anecdotal evidence suggests that many vehicles travel at or above the posted speed limit along the BLRI. Studies in the United States, Canada, and Europe that were reviewed by the Federal Highway Administration (1998) consistently found that about 70 percent of the vehicles on low- and moderate-speed roads exceed the posted speed limits. The Federal Highway Administration (1998) observed that a large

proportion of the reviewed studies mentioned a public information or education program. None of them attributed a significant reduction in speed, speeding, crashes, or crash severity to any such campaign that was not closely tied to an enforcement or engineering action. However, a combined program of enforcement with public information or education can effectively reduce injury crashes (Sali 1983). Increased ranger patrols could also result in increased visitor safety. Increased visibility of BLRI rangers would create a sense of anticipation by drivers that would help maintain traffic at speeds close to those posted. This would potentially reduce the need for sections of guardrail at locations where speed is a contributing factor to accidents. Impacts to visitor safety would be beneficial, long-term, and of minor intensity with no impacts to natural and cultural resources.

Most accidents along the BLRI (over 80 percent) are vehicle/animal collisions. There is no data supporting the notion that placing guardrail to prevent vehicle animal/deer collisions is an effective safety measure. Impacts to visitor safety associated with vehicle animal collisions would be negligible.

During construction activities associated with guardrail implementation, the NPS would take steps to ensure visitor safety, e.g. temporary closing of lanes, sequencing of construction events to minimize impacts to traffic, or restricting contractor work to off-peak hours. Visitors would be notified of changes in traffic patterns, detours, and traffic delays through the use of vehicle messenger signs and public notifications. Implementation of such measures would ensure that any short-term, construction related adverse impacts to visitor safety would be negligible.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact, visitor safety along the BLRI. Several Federal Lands Highway Program (FLHP) roadway rehabilitation and replacement projects would be expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Impacts to visitor safety would be beneficial, long-term and of negligible to minor intensity. Any construction related impacts would be short-term and negligible.

As previously described, actions associated with implementation of Alternative B would result in both beneficial, long-term impacts of negligible to minor in intensity and short-term, negligible, adverse impacts. Yet, due to the beneficial impacts of other past, present or reasonably foreseeable actions the cumulative impact would be beneficial, long-term, and of minor intensity. Alternative B would contribute a noticeable beneficial increment to the cumulative impact on visitor safety.

Conclusion. The overall impact would be local, beneficial, long-term and negligible to minor intensity.

Visitor Experience

Methodology

NPS Management Policies 2006 state that enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy parks. Past interpretive and administrative planning documents provided background on changes to visitor use and experience over time. Anticipated impacts to visitor use and experience were analyzed using information from BLRI studies. Based on these findings, the following intensity levels were developed:

- Negligible:** Visitors would likely be unaware of any effects associated with implementation of the alternative. There would be no noticeable change in visitor use and experience or in any defined indicators of visitor satisfaction or behavior.
- Minor:** Changes in visitor use and/or experience would be slight but detectable, but would not appreciably limit or enhance critical characteristics of the visitor experience. Visitor satisfaction would remain stable.
- Moderate:** Few critical characteristics of the desired visitor experience would change and/or the number of participants engaging in an activity would be altered. The visitor would be aware of the effects associated with implementation of the alternative and would likely be able to express an opinion about the changes. Visitor satisfaction would begin to either decline or increase as a direct result of the effect.
- Major:** Multiple critical characteristics of the desired visitor experience would change and/or the number of participants engaging in an activity would be greatly reduced or increased. The visitor would be aware of the effects associated with implementation of the alternative and would likely express a strong opinion about the change. Visitor satisfaction would markedly decline or increase.

Impacts of Alternative A (No Action Alternative)

Under Alternative A, the visitor experience would change overtime as new guardrail is added along roadsides where none previously existed and at approaches to fixed objects (tunnel portals, bridge wing walls and guardwalls). Adding new guardrail would obscure some scenic views from portions of the roadway and would affect the visual characteristics of culturally significant design elements used in the construction of fixed roadside objects and structures.

Adding additional lengths of guardrail would create a negative visual effect that is created when roadside objects (guardrail, guardwall, noise wall, vegetation, etc.) acoustically or visually “narrow” the roadway and associated shoulder. Also called the “tunnel effect”, this condition occurs when drivers perceive themselves as being uncomfortably surrounded by the barrier. The visual effect of the barrier on the receiver depends on the barrier height, the distance of the barrier from the receiver, and the surface texture and color of the side of the barrier facing the receiver. This visual effect can be accentuated if the barrier changes the pattern of light and shadow on the receptor’s space. Impacts to visitor experience would be adverse, long-term, and of minor to moderate intensity.

During construction activities associated with the replacement of existing guardrail or the installation of any new guardrail, visitors could experience an inconvenience from temporary delays. Every effort would be made to maintain the flow of vehicular traffic on the BLRI during the construction period. Flaggers could also be used during work hours to control traffic. Any construction associated delays would be minimized to the greatest extent possible; however, visitors caught in the delays would be frustrated and may consider the delays interminable. All efforts would be made to reduce delays as much as possible and to alert park staff as soon as possible if delays longer than normal are expected. Visitors stopping at the Park’s 12 visitor orientation areas would be informed of construction activities and associated delays. Equipment would not be stored along the BLRI overnight without prior approval of park staff. Impacts would be adverse and range in intensity from negligible to minor, but would be short-term in duration and end with the cessation of construction.

Impacts to visitor experience associated with visual aesthetics would also occur during construction due to the presence of construction equipment and temporary traffic barriers used for traffic control along the BLRI. Impacts to visitor experience would be negligible and short-term, ending with the cessation of construction.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact, visitor experience along the BLRI. Several FLHP roadway rehabilitation and replacement projects would be expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Adverse impacts to visitor experience associated with visual aesthetics would be long-term and of minor to moderate intensity. Construction related impacts to visitor experience would be adverse and range in intensity from negligible to minor.

As previously described, actions associated with implementation of Alternative B would result in impacts to park operations that would be adverse, long-term and of predominantly minor to moderate intensity. The long-term, minor to moderate adverse impacts of Alternative B would be a noticeable component of the long-term, minor to moderate, adverse cumulative impact.

Conclusion. The overall impact would be local, long-term, minor to moderate and adverse.

Impacts of Alternative B (NPS Preferred Alternative)

Under Alternative B, the visitor experience would change overtime as new guardrail is added along roadsides and at approaches to fixed objects (tunnel portals, bridge wing walls and guard walls). Adding new guardrail would obscure some scenic views from portions of the roadway, would intrude on the cultural landscape and would affect the visual characteristics of culturally significant design elements used in the construction of fixed roadside objects and structures.

However, the amount of guardrail added under Alternative B would be less than Alternative A and thus obstruction of scenic views and intrusion of new guardrail on the designed landscape would be relatively less. Shorter lengths of new sections of guardrail would lower the incidence of visitors experiencing the “tunnel effect” and the use of non-structural safety measures (reduced speed limits and associated signage, more roadway condition warning signs, roadway striping, and increased ranger patrols) would better preserve the historic character of the BLRI. Impacts to visitor experience would be adverse, long-term, and of negligible to minor intensity.

During construction activities associated with the replacement of existing guardrail or the installation of any new guardrail, visitors could experience an inconvenience from temporary delays. Every effort would be made to maintain the flow of vehicular traffic on the BLRI during the construction period. Flaggers could also be used during work hours to control traffic. Any construction associated delays would be minimized to the greatest extent possible; however, visitors caught in the delays would be frustrated and may consider the delays interminable. All efforts would be made to reduce delays as much as possible and to alert park staff as soon as possible if delays longer than normal are expected. Visitors stopping at the Park’s 12 visitor orientation areas would be informed of construction activities and associated delays. Equipment would not be stored along the BLRI overnight without prior approval of park staff. Impacts would be adverse and range in intensity from negligible to minor, but would be short-term in duration and end with the cessation of construction.

Impacts to visitor experience associated with visual aesthetics would also occur during construction due to the presence of construction equipment and temporary traffic barriers used for traffic control along the BLRI. Impacts to visitor experience would be negligible and short-term, ending with the cessation of construction.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact, visitor experience along the BLRI. Several FLHP roadway rehabilitation and replacement projects would be expected to include the replacement of existing guardrail and the addition of new guardrail along several

sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Adverse impacts to visitor experience associated with visual aesthetics would be long-term and of minor to moderate intensity. Construction related impacts to visitor experience would be adverse and range in intensity from negligible to minor.

As previously described, actions associated with implementation of Alternative B would result in impacts to park operations that would be adverse, long-term and of negligible to minor intensity. The long-term, negligible to minor adverse impacts of Alternative B would be a noticeable component of the long-term, minor to moderate, adverse cumulative impact.

Conclusion. The overall impact would be local, negligible to minor and adverse.

Park Operations

Methodology

Park operations, for the purpose of this analysis, refers to the quality and effectiveness of the infrastructure and the ability to maintain the infrastructure used in the operation of the Park in order to adequately protect and preserve vital resources and provide for an effective visitor experience. This includes an analysis of the condition and usefulness of the facilities and developed features used to support the operations of the Park. The thresholds of change for the intensity of an impact are defined as follows:

Negligible: An action would have a no measurable impact to park operations.

Minor: Actions with minor impacts would affect park operations in a way that would prove extremely difficult to measure. To the normal observer, such impacts would not be apparent. This would involve levels of increase in the park's budget and current staffing of less than 10 percent.

Moderate: Actions with moderate impacts would measurably affect park operations. This would involve levels of increase in the Park's budget between 10 to 30 percent and an increase in personnel of 10 to 30 percent (providing additional visitor services, protection and emergency response services, and maintenance).

Major: Actions would significantly affect park operations. This would involve levels of increase in the Park's budget of greater than 30 percent and an increase in personnel of greater than 30 percent (providing additional visitor services, protection and emergency response services, and maintenance).

Impacts of Alternative A (No Action Alternative)

Under the No Action Alternative, incremental changes would be made to the current operations along the BLRI. The amount of time required by crews maintaining grass along the road shoulders would increase over time as new guardrail sections are added. Mowers would be less effective at covering long distances during active shoulder maintenance events. Crews equipped with string trimmers or herbicide would be required to maintain the vegetation under and around the guardrail posts. Crew sizes would need to increase or additional crews would need to be added to accomplish the shoulder maintenance in a time equivalent to that which was required in the past to cover the same distance of required maintenance. Fuel costs are likely to increase as well as supplies and maintenance expenses. If larger or additional crews are required, vehicles used for maintenance may need to increase in size or added in order to accommodate the amount of staff, thus leading to increased fuel and maintenance costs. Traffic control planning, implementation and equipment would increase due to the close proximity of shoulder maintenance staff and equipment to the roadway. Impacts would be adverse, long-term and of minor intensity.

Operational costs required for the actual maintenance of the guardrail would also increase due to necessary replacement from accidents or general maintenance due to age. Crews would be required to survey, inspect and repair potential or actual faulty guardrail at more locations or along longer segments than previously. Additional trucks, guardrail parts, construction equipment, tools and staff would be required to perform maintenance in the same amount of time as previously allocated. Traffic control planning, implementation and equipment would increase due to the close proximity of guardrail maintenance staff and equipment to the roadway. Impacts would be adverse, long-term and of minor intensity.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact, park operations along the BLRI. Several FLHP roadway rehabilitation and replacement projects would be expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Impacts to park operations would be adverse, long-term and of minor intensity.

As previously described, actions associated with implementation of Alternative A would result in impacts to park operations that would be adverse, long-term and of minor intensity. The long-term, minor adverse impacts of Alternative A would be a noticeable component of the long-term, minor, adverse cumulative impact.

Conclusion. The overall impact would be **local, long-term, minor and adverse.**

Impacts of Alternative B (NPS Preferred Alternative)

Under Alternative B, incremental changes would also be made to the current operations along the BLRI, although the rate at which guardrail would be added and the amount of new guardrail would be relatively less overall than those associated with the No Action Alternative. The amount of time required by crews maintaining grass along the road shoulders would increase over time as new guardrail sections are added. Mowers would be less effective at covering long distances during active shoulder maintenance events. Crews equipped with string trimmers or herbicide would be required to maintain the vegetation under and around the guardrail posts. Crew sizes would need to increase or additional crews would need to be added to accomplish the shoulder maintenance in a time equivalent to that which was required in the past to cover the same distance of required maintenance. Fuel costs are likely to increase as well as supplies and maintenance expenses. If larger or additional crews are required, vehicles used for maintenance may need to increase in size or added in order to accommodate the amount of staff, thus leading to increased fuel and maintenance costs. Traffic control planning, implementation and equipment would increase due to the close proximity of shoulder maintenance staff and equipment to the roadway. Impacts would be adverse, long-term and of minor intensity.

Operational costs required for the actual maintenance of the guardrail would also increase due to necessary replacement from accidents or general maintenance due to age. However, since guardrail would be added at fewer locations, operational costs would increase at a relatively lower rate than those associated with the No Action Alternative. Crews would be required to survey, inspect and repair potential or actual faulty guardrail at more locations or along longer segments than previously. Additional trucks, guardrail parts, construction equipment, tools and staff would be required to perform maintenance in the same amount of time as previously allocated. Traffic control planning, implementation and equipment would increase due to the close proximity of guardrail maintenance staff and equipment to the roadway. Impacts would be adverse, long-term and of minor intensity.

Additionally, if non-structural traffic control measures are used in lieu of guardrail, park operations would also be affected. Non-structural traffic control measures such as reduced speed limits and associated signage, more roadway condition warning signs, roadway striping, and increased ranger patrols would require additional resources.

Cumulative Impacts. Present and reasonably foreseeable future actions have impacted, and could continue to impact, park operations along the BLRI. Several FLHP roadway rehabilitation and replacement projects would be expected to include the replacement of existing guardrail and the addition of new guardrail along several sections of the BLRI. Repairs to Goshen Creek Bridge would include the addition of guardrails at leading approach wing walls. Impacts to park operations would be adverse, long-term and of minor intensity.

As previously described, actions associated with implementation of Alternative B would result in impacts to park operations that would be adverse, long-term and of minor intensity. The long-term, minor adverse impacts of Alternative B would be a noticeable component of the long-term, minor, adverse cumulative impact.

Conclusion. The overall impact would be **local, long-term, minor and adverse.**

5 Consultation and Coordination

NPS Director's Order No. 12 requires that NPS make "diligent" efforts to involve the interested and affected public in the NEPA process. The scoping process helps determine for a proposed action the important issues and eliminate those that are not; allocate assignments among the interdisciplinary team members and/or other participating agencies; identify related projects and associated documents; identify other permits, surveys, consultations, etc., required by other agencies; and create a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. This chapter documents the scoping process for this project and includes the official list of recipients for the document.

5.1 Brief History of Planning and Public Involvement

As described previously in Section 1.7 ("Scoping and Issues"), two collaborative, multi-disciplinary brainstorming workshops were held at BLRI's Asheville Headquarters. The first meeting, in November 2005, was held to discuss potential elements of the proposed action, important resources and values that could be affected by the project, and project scheduling. The second meeting, in February 2006, focused on the formulation of alternatives, study methods, and data needs. This meeting also represented the formal kickoff meeting for the EA project. Public scoping letters were mailed in November 2005, December 2006, and February 2007. Given the nature of the proposed action, the proposed alternatives identified the study area as encompassing the entire BLRI. To engage the public in the planning process for the EA, a press release was issued in February 2006. Public scoping meetings, one in Vinton, VA, and another were held in Asheville, NC, on January 17 and 19, 2006, respectively. A public press release was issued in December 2005.

5.2 Interagency Coordination

Agencies contacted during the planning process included the U.S. Fish and Wildlife Service, Advisory Council on Historic Preservation, North Carolina Department of Administration (State Clearinghouse), North Carolina Division of Archives and History, Virginia Department of Environmental Quality (Office of Environmental Review), and Virginia Department of Historical Resources. Responses are included in Appendix A.

5.3 List of Recipients

The EA will be on formal public and agency review for 30 days and has been distributed to a variety of interested individuals, agencies, and organizations. It is also available on the Internet at <http://parkplanning.nps.gov>, and hardcopies are available at the BLRI Asheville HQ and local libraries.

Federal Agencies and Officials

U.S. Fish and Wildlife Service
Advisory Council on Historic Preservation
U.S. Army Corps of Engineers
USDA Soil Conservation Service
U.S. Department of Transportation

State Agencies

Virginia Department of Environmental Quality
Virginia Department of Historical Resources
North Carolina Department of Administration
National Forests in North Carolina
North Carolina Division of Archives
North Carolina Wildlife Resources Commission
Western North Carolina Alliance
Glenwood & Pedlar Ranger Districts

Local Agencies and Officials

City of Asheville

Consulting Parties and Individuals

National Parks Conservation Association
Friends of the Blue Ridge Parkway, Inc
Sierra Club
Blue Ridge Parkway Foundation

6 List of Preparers and Contributors

This document was prepared by HDR Engineering, Inc. with input from staff at BLRI and the NPS Denver Service Center.

HDR Engineering, Inc.

Chris Matthews	Environmental Scientist (former)	Documentation preparation; natural resources review and analysis
Barry Wharton	Historical Preservation Specialist	Documentation preparation; cultural resources review and analysis

Contributors and Reviewers

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APPENDIX A: CORRESPONDENCE



COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

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August 22, 2007

Mr. Philip Francis, Jr.
Superintendent
Blue Ridge Parkway
National Park Service
199 Hemphill Knob Road
Asheville, North Carolina 28803

RE: Replacement of Existing or Construction of New Guardrail, Blue Ridge Parkway, North Carolina and Virginia
VDHR File No. 2006-1865

Dear Mr. Francis:

The Virginia Department of Historic Resources received your letter of notification of July 18, 2007 via email with regard to consultation with the Blue Ridge Parkway, National Park Service, on the above-referenced project. We are happy to see that the initial planning for this project is underway with the submission of a draft Programmatic Agreement for our review and comment.

Per our earlier letter of February 16, 2007, we agree with your finding that this project will have an adverse effect upon the Blue Ridge Parkway, which is eligible for listing on the National Register of Historic Places. We further agree that a programmatic agreement is an appropriate vehicle for addressing the project implementation and specific mitigation measures for potential impacts to the Parkway's historic character. We understand that the Park will be preparing an Environmental Assessment (EA) for this project, and that this process will also be utilized for Section 106 compliance per 36 CFR Part 800.8 for submission to DHR in the upcoming months.

The planning approach outlined in your letter for replacement of existing guardrail and for the construction of new guardrail illustrates a careful consideration of the potential direct and indirect effects of the proposed project. In particular, we agree that the two-step process for assessing the need for new guardrail based on safety criteria, and the subsequent evaluation of the need for additional guardrail within the context of potential impacts to historic character, will provide the most sensitive response to minimizing or avoiding these impacts. The appropriate design and siting of new guardrail—as well as the monitoring of problem areas and installation of small-scale safety features such as signage, with new guardrail as the last alternative—addresses the need to protect the character-defining features of the Parkway's historic landscape such as its significant viewsheds, and will hopefully minimize the degree to which these types of features might be affected by the project.

With respect to the draft Programmatic Agreement and its provisions for mitigation, we agree that the construction of new guardrail in sections of the Parkway, as well as guardrail installation at the

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approaches to all fixed structures, is an adverse effect upon both the historic fabric (surface and edge treatments) and the historic visual character of the Parkway. We support the mitigation stipulations for both the new guardrail design and the documentation of existing conditions prior to its construction. We inserted minor revisions to Stipulation II(A), "Construction of New Guardrail," to address the design specifications documentation for new guardrail, as well as to include as-built photographic documentation when the construction of new guardrail is completed. The addition of these two elements will provide for a full documentation of the project at each location of new guardrail. Another minor revision is located in II (C) Inadvertent Resource Discoveries and Unanticipated Effects, where we added "Native American" to "human remains."

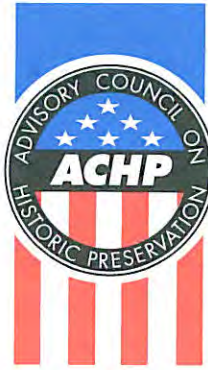
We look forward to continued consultation and correspondence on this project with Gary Johnson. Please let us know how we may assist you as this very important project moves forward. I may be reached at 804-367-2323, extension 137 or by email, tonia.horton@dhr.virginia.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Tonia Horton", with a stylized, cursive script.

Tonia W. Horton
Historical Landscape Architect
Review and Compliance

CC: Kelly Yasaitis Fanizzo, Advisory Council on Historic Preservation
Peter Sandbeck, North Carolina Department of Cultural Resources



Preserving America's Heritage

August 27, 2007

Philip A. Francis, Jr.
Superintendent
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, NC 28803

*Ref: Replacement of Existing and Construction of New Guardrail,
Blue Ridge Parkway, North Carolina and Virginia*

Dear Mr. Francis:

The Advisory Council on Historic Preservation (ACHP) recently received your letter and draft Programmatic Agreement (PA), continuing the Section 106 consultation for the proposed replacement of existing and construction of new guardrail at the Blue Ridge Parkway, North Carolina and Virginia. We agree that a PA is the appropriate mechanism for considering potential effects to historic properties that may result from this undertaking.

We also received copies of comments provided to you from the North Carolina State Historic Preservation Office (SHPO) and the Virginia SHPO. The ACHP is providing preliminary comments on the draft PA at this time so our views will be available to NPS as you proceed with further revisions.

Thank you for providing us with an update on the park's coordination of the Section 106 review. We look forward to continuing to work with you, the NC SHPO, the VA SHPO, and other consulting parties as this process moves forward. If you have any further questions, please contact Kelly Fanizzo at 202-606-8583 or via e-mail at kfanizzo@achp.gov.

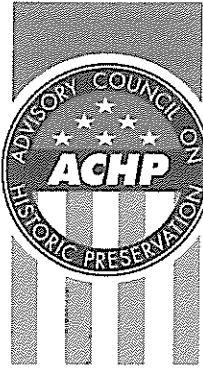
Sincerely,


for Reid Nelson
Assistant Director
Federal Property Management Section
Office of Federal Agency Programs

Enclosure

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov



Preserving America's Heritage

March 14, 2008

Philip A. Francis, Jr.
Superintendent
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, NC 28803

*Ref: Replacement of Existing and Construction of New Guardrail,
Blue Ridge Parkway, North Carolina and Virginia*

Dear Mr. Francis:

The Advisory Council on Historic Preservation (ACHP) recently received your letter and draft Programmatic Agreement (PA), continuing the Section 106 consultation for the proposed replacement of existing and construction of new guardrail at the Blue Ridge Parkway, North Carolina and Virginia.

In response to your request for our review of the draft PA, we suggest providing additional "Whereas clauses" to describe the public outreach efforts that were done through the Section 106 process for this undertaking and any additional consulting parties that might be participating, or that declined to participate after being invited to this consultation. We understand the screening methodology will be incorporated in future reviews for guardrail planning and construction. The PA should include language to that effect. Further, we urge the Park to include a reporting requirement in this PA and develop a set time period for the duration of this agreement. Please see the enclosed document for a more detailed list of our suggested revisions and questions.

Thank you for providing us with this opportunity to comment. We look forward to continuing to work with you, the NC SHPO, the VA SHPO, and other consulting parties on the development of this PA. If you have any further questions, please contact Kelly Fanizzo at 202-606-8583 or via e-mail at kfanizzo@achp.gov.

Sincerely,

Reid Nelson
Assistant Director
Federal Property Management Section
Office of Federal Agency Programs

Enclosure

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004

**Draft PA regarding the Replacement of Existing and Construction of New Guardrail on
the Blue Ridge Parkway, North Carolina and Virginia**

ACHP Comments, 3-14-08

Page 1- Whereas Clauses- Insert “the replacement of existing and construction of new guardrail” to first Whereas Clause, first sentence, to identify the full scope of the undertaking.

Page 1- The park should add additional Whereas Clauses to cover the following-

- (1) whether any additional consulting parties were notified and declined/accepted to participate in this consultation;
- (2) the public outreach done for this Section 106 process (e.g., done in coordination with National Environmental Policy Act requirements?); and
- (3) the development of the Historic Resource Study and the work that was done in developing the Screening Methodology.

Page 2- II.B.- Will there be any need for additional survey or identification efforts to locate potential historic properties prior to ground disturbing activities and the construction of new guardrail?

Page 3- II.B, End of section- Will screening (e.g., vegetation) be used to minimize potential adverse effects to historic properties and/or viewsheds?

Page 3- II.B, End of section- How will the screening methodology and future review process be incorporated in the terms of this PA?

Page 3- II.B, End of section- Was the use of exhibits and/or signage considered as mitigation for potential adverse effects to historic properties?

Page 3- III.- Consider including a provision for reporting to consulting parties? (e.g., an Annual Report)

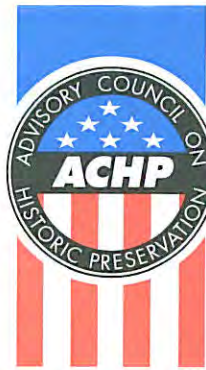
Page 5-III.E.- Recommend clarifying a set time period (e.g., 20 years) after which the PA will expire. Suggest adding a provision to allow consulting parties to meet and consider extending the term of the PA prior to this expiration date.

Enclosure

John L. Nau, III
Chairman

Susan S. Barnes
Vice Chairman

John M. Fowler
Executive Director



Preserving America's Heritage

March 12, 2007

Honorable Dirk Kempthorne
Secretary
Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

Dear Secretary Kempthorne:

We wish to inform you that the Advisory Council on Historic Preservation (ACHP) will participate in the National Park Service's consultation to develop a programmatic agreement to resolve adverse effects to historic properties for the proposed replacement of existing and construction of new guardrail on the Blue Ridge Parkway in North Carolina and Virginia. Under Section 106 of the National Historic Preservation Act and the ACHP's implementing regulations, "Protection of Historic Properties" (36 CFR Part 800), the NPS is required to provide the ACHP a reasonable opportunity to comment and to consult with the North Carolina State Historic Preservation Officer, the Virginia State Historic Preservation Officer, any Indian tribes that attach religious and cultural significance to historic properties that may be affected by this undertaking, and other consulting parties to develop and evaluate alternatives and/or modifications to the undertaking that could avoid, minimize or mitigate the potential adverse effects on historic properties. Our decision to participate in this consultation was made based on Appendix A to Part 800, "Criteria for Council Involvement in Reviewing Individual Section 106 Cases" and our understanding that this proposed undertaking may have the potential to impact important historic properties and may present important questions of policy.

We are providing this notice as required by 36 CFR § 800.6(a)(1)(iii). Enclosed is a copy of our notification letter to Mr. Philip A. Francis, Jr., Superintendent, Blue Ridge Parkway.

We look forward to working with the NPS and other parties in this consultation.

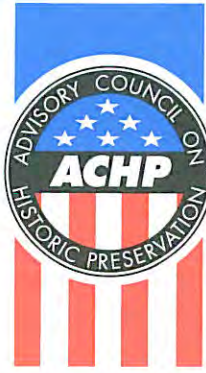
Sincerely,

John M. Fowler
Executive Director

Enclosure

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov



Preserving America's Heritage

March 12, 2007

Mr. Philip A. Francis, Jr.
Superintendent
National Park Service
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, NC 28803

Ref: Notification of Adverse Effect for Proposed Guardrail Installation Project, Blue Ridge Parkway, North Carolina

Dear Mr. Francis:

Thank you for sending the additional information regarding the notification of adverse effect to historic properties for the proposed replacement of existing and construction of new guardrail on the Blue Ridge Parkway in North Carolina and Virginia. In accordance with 36 CFR § 800.6(a)(1) of the regulations, "Protection of Historic Properties" (36 CFR Part 800), implementing Section 106 of the National Historic Preservation Act, the Advisory Council on Historic Preservation (ACHP) has concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual section 106 Cases*, of the regulations is met. Specifically, we believe the proposed undertaking may have the potential to impact important historic properties and may present important questions of policy.

We have provided written notification, copy enclosed, of the ACHP's decision to enter the consultation on this project to Mr. Dirk Kempthorne, Secretary of the Interior, as required by 36 CFR § 800.6(a)(1)(iii). We look forward to consulting with the NPS, the North Carolina State Historic Preservation Office, the Virginia State Historic Preservation Office, and other consulting parties. Should you have any questions or wish to discuss this matter further, please contact Kelly Yasaitis Fanizzo at 202-606-8583, or by EMAIL at kfanizzo@achp.gov.

Sincerely,

Reid Nelson
Assistant Director
Federal Property Management Section
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov



Preserving America's Heritage

January 17, 2007

Mr. Philip A. Francis, Jr.
Superintendent
National Park Service
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, NC 28803

REF: Proposed Replacement of Existing or Construction of New Guardrail
Blue Ridge Parkway, North Carolina and Virginia

Dear Mr. Francis

The Advisory Council on Historic Preservation (ACHP) recently received your letter of notification for the referenced project which was submitted in accordance with Section 800.6(a)(1) of our regulations, "Protection of Historic Properties" (36 CFR Part 800). Unfortunately, the background documentation included with your submission does not meet the specifications in Section 800.11(e) of the ACHP's regulations, "Protection of Historic Properties" (36 CFR Part 800). We, therefore, are unable to determine whether Appendix A of the regulations, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, applies to this undertaking. Accordingly, we request that you submit the following information so that we can determine whether our participation is warranted;

- A description of the undertaking, specifically including information relating to where the new guardrails will be constructed and where existing guardrails may be replaced;
- A description of the affected historic properties, specifically including those features and/or landscapes where new guardrails are to be constructed and existing guardrails are to be replaced and including photographs, maps, drawings, as necessary; and
- Copies or summaries of any views provided by consulting parties and the public, including the North Carolina and Virginia State Historic Preservation Officers.

Upon receipt of the additional information, we will notify you within 15-days of our decision. Please include an email address in your correspondence. Should you have any questions, feel free to contact Kelly Yasaitis Fanizzo at 202-606-8583, or via eMail at kfanizzo@achp.gov.

Sincerely,

Raymond V. Wallace
Historic Preservation Technician
Federal Property Management Section
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

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Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

RECEIVED
FEB 27 2007

STATE NUMBER: 07-E-0000-0281 F02

DATE RECEIVED: 02/21/2007

AGENCY RESPONSE: 03/19/2007

REVIEW CLOSED: 03/22/2007

MS RENEE GLEDHILL-EARLEY
CLEARINGHOUSE COORD
DEPT OF CUL RESOURCES
ARCHIVES-HISTORY BLDG - MSC 4617
RALEIGH NC

REVIEW DISTRIBUTION
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DEPT OF AGRICULTURE
DEPT OF CUL RESOURCES
DEPT OF TRANSPORTATION



Ref ER 06-3201

Sarah - (NC) sbm
3/9/07

PROJECT INFORMATION

APPLICANT: US Dept of Interior-National Pk Service

TYPE: National Environmental Policy Act

ERD: Scoping

Multi

DESC: Proposal to develop Guardrail Installation Plan (GIP) along the 469 mile Blue Ridge Parkway

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED:



NO COMMENT



COMMENTS ATTACHED

SIGNED BY:

Renee Gledhill-Earley
by mpm

DATE:

3/19/2007



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

Fax (804) 698-4500 TDD (804) 698-4021

www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

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

February 20, 2007

Blue Ridge Parkway
Attn: Suzette Molling
199 Hemphill Knob Road
Asheville, North Carolina 28803

RE: Replacement or construction of new guardrail along the Blue Ridge Parkway in North Carolina and Virginia.

Dear Ms. Molling:

This is in response to the February 14, 2006 letter from Mr. Phillip A. Francis Jr. announcing the preparation of an Environmental Assessment for the proposed replacement or construction of new guardrail along the Blue Ridge Parkway in North Carolina and Virginia, and soliciting comments on the scope of the document.

According to the letter, the National Park Service (NPS) proposes to continue replacing existing deteriorated and substandard guardrail. In addition, the NPS is considering the installation of guardrail along sections of the Parkway where none previously existed, as well as installing guardrail at the approaches to all fixed structures along the Parkway such as tunnel openings, stone masonry walls, bridge wing walls, and parapet walls.

The role of the Virginia Department of Environmental Quality (DEQ) in relation to the project under consideration is that DEQ's Office of Environmental Impact Review (this Office) will coordinate Virginia's review of any environmental document prepared pursuant to the National Environmental Policy Act (NEPA) and comment to the NPS on behalf of the Commonwealth.

Environmental Review and Scoping

We are sharing Mr. Francis' letter with selected state and local Virginia agencies, which include the following:

- Department of Environmental Quality:
 - Office of Environmental Impact Review
 - Southwest Regional Office

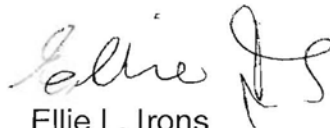
- West Central Regional Office
- South Central Regional Office
- Valley Regional Office
- Air Division
- Waste Division
- Department of Game and Inland Fisheries
- Department of Conservation and Recreation:
 - Division of Soil and Water Conservation
 - Division of Planning and Recreation Resources
- Department of Agriculture and Consumer Services
- Department of Transportation
- Marine Resources Commission
- Department of Historic Resources
- Mount Rogers Planning District Commission
- West Piedmont Planning District Commission
- New River Valley Planning District Commission
- Roanoke Valley-Alleghany Regional Commission
- Virginia's Region 2000 Local Government Council
- Central Shenandoah Planning District Commission
- Thomas Jefferson Planning District Commission.

In order to ensure an effective coordinated review of the Environmental Assessment, we will require 24 copies of the document when it is published. The document should include U.S. Geological Survey topographic maps as part of its information. We recommend, as well, that project details unfamiliar to people outside the NPS be adequately described. While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA document for the proposed project.

If you have questions about the environmental review process, please feel free to call me at (804) 698-4325 or John Fisher of this Office at (804) 698-4339.

I hope this information is helpful to you.

Sincerely,



Ellie L. Irons
Program Manager
Office of Environmental Impact Review

cc: Michael Overstreet, DEQ-SWRO
Kevin Harlow, WCRO
Amanda Gray SCRO
Ronald Phillips, VRO
Kotur S. Narasimhan, DEQ-Air

Paul Kohler, DEQ-Waste
Andrew K. Zadnik, DGIF
Robbie Rhur, DCR
Tony Watkinson, MRC
Ethel R. Eaton, DHR
Keith Tignor, VDACS
Mary Stanley, VDOT
David Barrett, Mount Rogers PDC
Robert Dowd, West Piedmont PDC
Annette Perking, New River Valley PDC
Wayne Strickland, Roanoke Valley-Alleghany Regional Commission
Gary Christie, Virginia's Region 2000 Local Government Council
A. Ray Griffin Jr., Central Shenandoah Planning District Commission
Harrison Bright Rue, Thomas Jefferson Planning District Commission

APPENDIX B:

ROADSIDE CULTURAL RESOURCES PRESERVATION: A GUIDE TO ASSESSING THE EFFECTS OF ROADSIDE SAFETY IMPLEMENTATION ON THE BLUE RIDGE PARKWAY

