



Old Rag Parking Lot

Shenandoah National Park



Environmental Assessment

April 2008

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PROJECT SUMMARY

The National Park Service (NPS) proposes to construct a parking lot and connector trail to serve visitors wishing to hike the Old Rag Ridge Trail in Shenandoah National Park, Madison County, Virginia. Old Rag Ridge Trail, one of the most popular hikes in the park, is hiked by approximately 50,000 people each year. This trailhead has historically been serviced by a small 12-space parking situated within park boundaries. Since 1974, to accommodate the heavy visitor use of the Old Rag Ridge Trail, the park has leased a 250-space parking lot in the community of Nethers, 0.8 miles from the Old Rag Ridge Trailhead. The NPS seeks to solidify parking availability by building a parking lot on a suitable site near Old Rag Ridge Trailhead that would remain secure on an indefinite basis. The purpose for taking action is to provide visitors with access to the Old Rag Ridge Trail in a way that protects the resources and values of Shenandoah National Park. The new parking lot is needed because visitor experience is diminished by poor trailhead access when park visitors parking at the lower leased lot are required to hike an additional 0.8 miles along State Route 600 to reach the trailhead; park neighbors are being impacted by this heavy visitor use; the 250-car lower leased parking lot is leased through 2017 and extending this lease beyond this date is not certain; and visitor safety concerns caused from vehicular and foot traffic sharing the same narrow roadway (State Route 600).

This environmental assessment (EA) analyzes the impacts that would result from the implementation of the two action alternatives and the no action alternative. The two action alternatives propose a new parking lot with two parking areas, similar access for the two parking areas, and similar footprints due to the wetland and other sensitive area boundaries. Public use of the NPS upper parking lot would be discontinued under both alternatives. The primary differences between the action alternatives include discontinuing the use of the lower leased parking lot after construction of the new parking lot is completed, and implementing a seasonal reservation system for parking in the newly constructed lot. All proposed action alternatives would be developed on a six-acre tract of land owned by the Potomac Appalachian Trail Club (PATC) and leased to the NPS under a 99-year lease agreement.

Impacts of the proposed alternatives were assessed in accordance with the National Environmental Policy Act (NEPA) and the NPS's Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making*, which requires that impacts to park resources be analyzed in terms of their context, duration, and intensity. Several impact topics have been dismissed from further analysis because the proposed action alternatives would result in negligible to no effects to those resources. No major effects are anticipated as a result of this project.

Note to Reviewers and Respondents:

If you wish to comment on the EA, you may mail comments directly or submit them electronically. 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.

Mailed comments can be sent to:

Superintendent, Shenandoah National Park
Old Rag Parking Lot – Environmental Assessment
Shenandoah National Park
3655 U.S. Highway 211 East
Luray, VA 22835

Comments can also be submitted on-line by following the appropriate links at:

<http://parkplanning.nps.gov/SHEN>

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TABLE OF CONTENTS

PURPOSE AND NEED FOR ACTION.....	1
Purpose of the Action.....	4
Need for the Action.....	4
Purpose and Significance of the Park	4
Project Background and Related Plans	5
Other Past Planning Studies.....	6
National Park Service Plans, Policies, and Actions	6
Scoping	7
Issues.....	8
Impact Topics.....	8
Impact Topics Dismissed from Further Analysis and Consideration	11
ALTERNATIVES.....	19
Alternative A – No Action.....	21
Elements Common to Both Action Alternatives.....	21
Alternative B (NPS Preferred Alternative) – Construct New Parking Lot on PATC Land, Continue Use of Lower Leased Parking Lot, and Discontinue Public Use of the NPS Upper Parking Lot.....	22
Alternative C – Construct a New Parking Lot On PATC Land, Discontinue Public Use of Lower Leased Parking Lot and the NPS Upper Parking Lot.	22
Mitigation Measures of the Action Alternatives.....	23
Soil Resources.....	23
Air Quality	23
Water Quality.....	23
Wetlands	25
Night Sky	25
Vegetation.....	25
Wildlife	25
Threatened And Endangered Species	26
Cultural Resources	26
Transportation And Traffic.....	26
Park Neighbors.....	26
Alternatives Considered But Not Carried Forward.....	27
The Environmentally Preferred Alternative.....	32
AFFECTED ENVIRONMENT	37
Physiographic Resources (Geology, Topography, and Soils).....	37

Water Quality.....	37
Vegetation.....	38
Wildlife and Wildlife Habitats.....	38
Visitor Use and Experience.....	39
Park Neighbors.....	42
Park Operations and Management.....	43
ENVIRONMENTAL CONSEQUENCES	45
General Methodology For Establishing Impact Thresholds And Measuring Effects	45
Cumulative Impacts	45
Impairment Analysis.....	47
Physiographic Resources (Geology, Topography, and Soils).....	48
Water Quality.....	52
Vegetation.....	58
Wildlife and Wildlife habitat	62
Visitor Use and Experience.....	65
Health and Safety.....	69
Park Neighbors.....	72
Park Operations and Management.....	74
COORDINATION AND CONSULTATION	79
Federal Government.....	80
State/Local Government	80
Other	80
LIST OF PREPARERS.....	81
REFERENCES CITED.....	83
GLOSSARY OF TERMS AND ACRONYMS.....	85
APPENDIX A: Coordination With U.S. Fish and Wildlife Service and the Virginia Department of Conservation and Recreation.....	A-1
APPENDIX B: Memorandum of Agreement Between NPS and the Virginia Department of Historic Resources	B-1

FIGURES

Figure 1: Vicinity Map.....	2
Figure 2: Project Area.....	3
Figure 3: Study Area and Proposed Actions.....	20
Figure 4: NPS Upper Parking Lot.....	21
Figure 5: Lowe Leased Parking Lot.....	21
Figure 6: Annual Visitation to Shenandoah National Park (1996-2006).....	40
Figure 7: Total Visitation at Shenandoah National Park by Month (1996 – 2006)	41

TABLES

Table 1: Summary of Environmental Consequences.....	33
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PURPOSE AND NEED FOR ACTION

The National Park Service (NPS) proposes to construct a parking lot and connector trail to serve park visitors wishing to hike the Old Rag Ridge Trail in Shenandoah National Park, Madison County, Virginia. The Old Rag Ridge Trail connects with the Saddle Trail and the Weakley Hollow Fire Road to create a popular 7.2-mile loop hike on Old Rag Mountain. The Old Rag Ridge Trailhead is located in Weakley Hollow at the end of State Route 600, within park boundaries, and southwest of the small community of Nethers. Within 100 miles of the Washington, D.C. metropolitan area, Old Rag Mountain is one of the most popular hikes in the park and is hiked by approximately 50,000 park visitors each year. This trailhead has historically been served by a small 12-space parking lot (herein referred to as the NPS upper parking lot) situated within park boundaries (Figure 1).

Since 1974, to accommodate the heavy visitor use of the Old Rag Ridge Trail, the park has leased a 250-space parking lot (herein referred to as the lower leased parking lot) in Nethers, 0.8 miles from the Old Rag Ridge Trailhead (Figure 2). People who park in the lower leased parking lot are required to walk along State Route 600 to reach the trailhead. The 250-space parking lot is leased through 2017 from a private landowner. The NPS seeks to solidify parking availability by building a parking lot on a suitable site owned by the Potomac Appalachian Trail Club (PATC) near Old Rag Mountain that would remain secure on an indefinite basis. In doing so, the NPS is seeking a solution that provides future visitors with improved service and safer access to the Old Rag Ridge Trail, while reducing impacts to park neighbors.

In addition to the Old Rag Ridge Trail, other trails in the area include Nicholson Hollow, Corbin Hollow, Robertson Mountain, Weakley Hollow Fire Road, and Old Rag Fire Road. The Weakley Hollow Trailhead is located next to the Old Rag Ridge Trailhead at the small NPS upper parking lot. The Nicholson Hollow Trailhead is located a short distance down State Route 600 from the NPS upper parking lot toward the lower leased parking lot.

This environmental assessment (EA) analyzes the impacts that would result from the implementation of the two action alternatives and the no action alternative. The two action alternatives propose a new parking lot with two parking areas, similar access for the two parking areas, and similar footprints due to wetland and other sensitive area boundaries. Public use of the NPS upper parking lot would be discontinued under both alternatives. The primary differences between the action alternatives include discontinuing the use of the lower leased parking lot after construction of the new parking lot is completed and implementing a seasonal reservation system for parking in the newly constructed lot. All proposed actions would occur on a six-acre tract of land owned by the Potomac Appalachian Trail Club (PATC) that would be leased to the NPS under a 99-year lease agreement. PATC is a long-time partner of the park and shares similar land management interests, which includes helping the park resolve trail access to Old Rag, improving visitor experience, and protecting the natural resources found within the area.

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations, 40 CFR 1500-1508, and NPS *Director's Order 12 and Handbook, Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 2001). Compliance with Section 106 of the National Historic Preservation Act of 1966 has occurred in conjunction with the NEPA process.

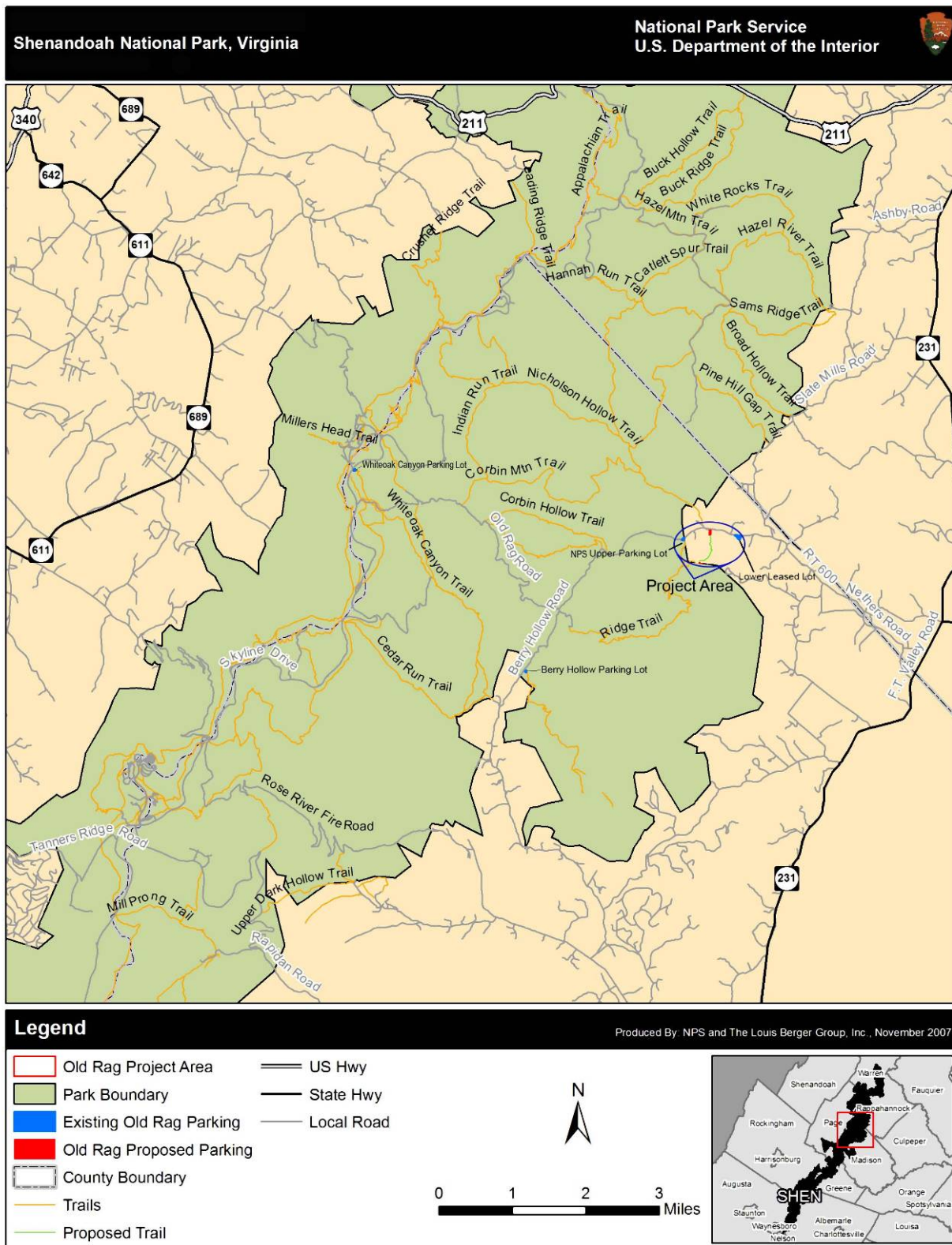
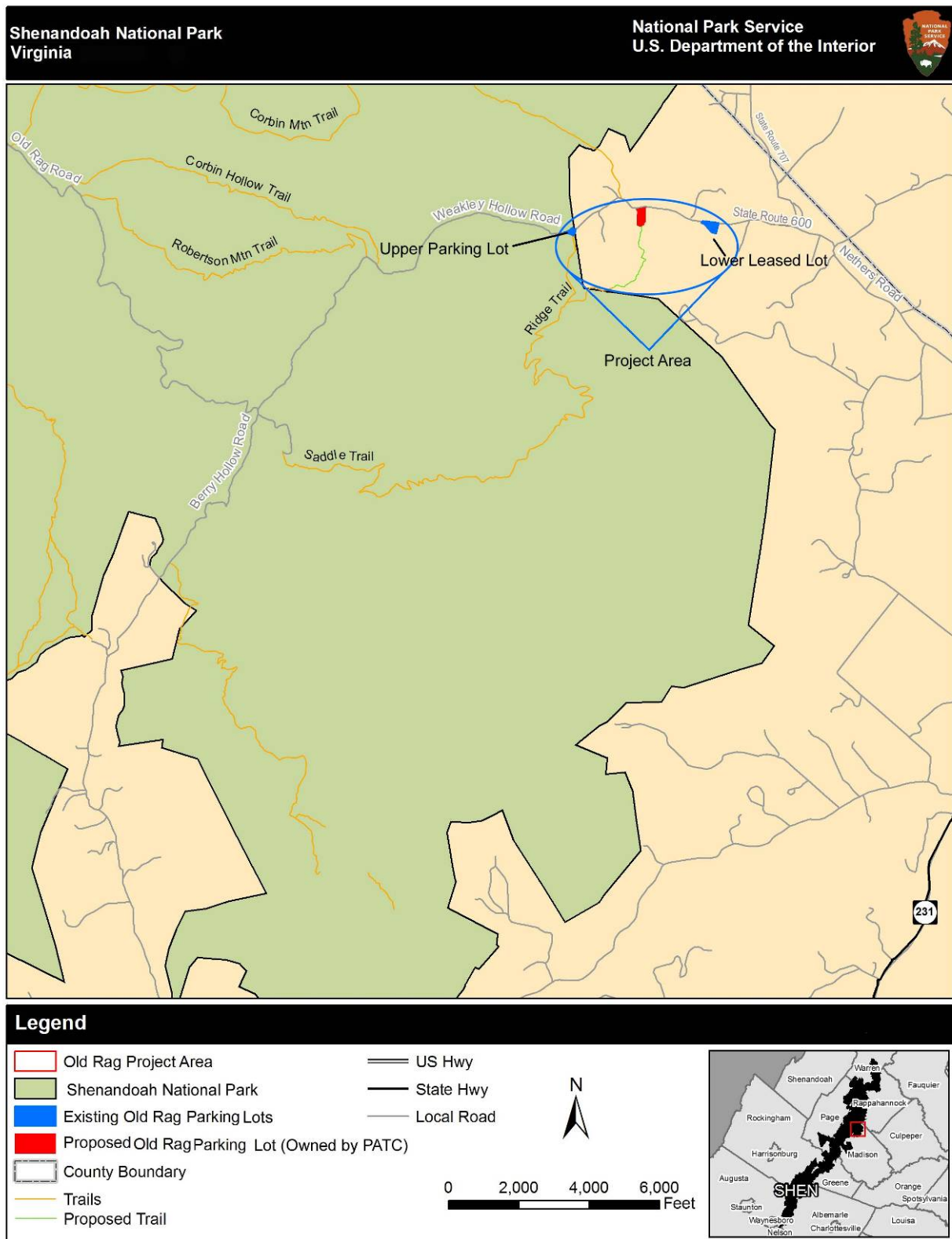


Figure 1: Vicinity Map



PURPOSE OF THE ACTION

The purpose for taking action is to provide visitors with access to the Old Rag Ridge Trail in a way that protects the resources and values of Shenandoah National Park and that:

- Improves the quality of the visitor experience, assuring continued visitor enjoyment of the park and local area;
- Reduces impacts to park neighbors;
- Ensures the long-term availability for visitor parking and trail access at Old Rag Mountain; and
- Improves public safety by reducing vehicle and pedestrian congestion.

NEED FOR THE ACTION

The new parking lot is needed because:

- Visitor experience is diminished by poor trailhead access when people parking at the lower leased lot are required to hike an additional 0.8 miles along State Route 600 to reach the trailhead (1.6 miles total round-trip);
- Park neighbors are being impacted by vehicular congestion at the lower leased parking lot and pedestrian traffic up and down State Route 600 from the approximately 50,000 people per year visiting Old Rag;
- The 250-car lower leased parking lot is only leased through 2017. Extending this lease beyond this date is not certain; and
- Visitor safety concerns caused from vehicular and foot traffic sharing the same narrow roadway (State Route 600).

PURPOSE AND SIGNIFICANCE OF THE PARK

Shenandoah National Park is a vital part of America's national system of parks, monuments, battlefields, recreation areas, and other natural and cultural resources. Authorized by an Act of Congress in 1926, established in 1935, and dedicated in 1936, Shenandoah National Park is located along the crest of the Blue Ridge Mountains in Virginia. Containing approximately 197,000 acres, the park preserves an outstanding representation of the Blue Ridge/Central Appalachian biome and makes this valuable part of America's heritage available to approximately 1.1 million visitors each year for their experience, enjoyment, understanding, and appreciation.

Establishment — In 1926, Congress authorized the establishment of Shenandoah National Park. The Commonwealth of Virginia purchased nearly 280 square miles of land to be donated to the Federal government. In dedicating the park in 1936, President Franklin D. Roosevelt initiated a novel experiment in allowing an overused area to return to a natural state. The Civilian Conservation Corps (CCC) built recreational facilities in the park. In 1939, Skyline Drive was substantially completed, and work on the road continued until 1951. Cropland and pastures soon became overgrown with shrubs, locusts, and pine; these in turn were replaced by oak, hickory and other trees that make up a mature deciduous forest. Now, more than 95 percent of the park is covered by forests with approximately 100 species of trees. The vegetative regeneration has been so complete that in 1976 Congress designated two-fifths of the park as wilderness.

Purpose — Based on legislation and legislative history, Shenandoah National Park was established to:

- Protect the natural and cultural resources of the northern Blue Ridge and immediate area;
- Have a National Park here, at this location, providing scenery, serving as a refuge and pleasuring ground, and including the developed visitor amenities traditionally found in other National Parks; and

- Construct and maintain a “Skyline Drive” to provide outstanding views of the scenic and historic Shenandoah Valley and Piedmont of Virginia.

Significance — Park significance statements capture the essence of the park’s importance to the nation’s natural and cultural heritage. Understanding park significance helps managers to make decisions that preserve the resources and values necessary to the park’s purpose. The following significance statements recognize the important features of Shenandoah National Park (NPS 2000).

- This park provides a traditional national park experience in the east.
- This national park is nearby large metropolitan populations, providing relatively good accessibility to millions of citizens.
- It provides recreation and re-creation, in the historic context of personal contemplative pleasure.
- Within the historic context of the time in which the park was established, the park represented a conscious change in human use of the land rather than the preservation of unimpaired resources.
- The park has become a sizeable natural area with large areas of designated wilderness and is an outstanding representation of the Blue Ridge/Central Appalachian biome.
- Skyline Drive and the associated developed areas at Simmons Gap, Lewis Mountain, Big Meadows, Skyland, Piney River, Pinnacles, Dickey Ridge, and park headquarters are listed on the National Register. This national significance is their association with the CCC, the Works Progress Administration, several hundred architectural or landscape architectural structures, and features that are highly representative of their type.
- Rapidan Camp, the summer retreat of Herbert and Lou Henry Hoover from 1929 to 1933, is a National Historic Landmark. It served as the summer White House during the Hoover presidency, was the site of many national and international policy meetings, and retains significant rustic architectural and landscape architectural structures and features.
- The Appalachian Trail is the backbone of the park’s trail system, includes fine examples of early trail construction techniques, and is the longest segment of the trail in a national park.

Park Mission Statement — Park resources are managed to achieve the following desired future conditions at Shenandoah National Park:

- The ecological integrity of this portion of the Blue Ridge/Central Appalachian biome is protected, maintained, and restored as appropriate.
- Cultural landscapes, other significant cultural resources, and associated values are protected, restored as appropriate, and maintained in good condition and managed within their cultural context.
- The views of the Shenandoah Valley and Piedmont Plain, as seen from the park, are scenic and rural in character, and maintained in partnership with and integrating the needs of the surrounding communities.
- Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational and re-creational opportunities.
- The stories of the area and the development of the park are available; visitors and the general public learn the purposes and significance of the park.

PROJECT BACKGROUND AND RELATED PLANS

In 1974, based on the growing popularity of hiking Old Rag Mountain, Shenandoah National Park began leasing land from a neighboring family near the Old Rag Ridge Trailhead, in Nethers, Virginia, to supplement the original 12-space NPS upper parking lot and alleviate the increasing problem of illegal parking along the roadside. The leased parking lot, situated on State Route 600 approximately 0.8 miles

from the trailhead, accommodated about 200 vehicles. In 1996, the park released its *Old Rag Management Plan* and started collecting park entrance fees at the Old Rag Ridge Trailhead. That same year, a public contact kiosk was constructed at the leased parking lot and the lot was expanded to accommodate a maximum of 250 cars.

In 2001, the PATC purchased a parcel of land from local landowners and offered the NPS a 99-year lease to build a parking lot to secure long-term parking and improve access to Old Rag Mountain. The PATC parcel is closer to the Old Rag Ridge Trailhead than the currently leased lower parking lot and situated so that a connecting trail constructed on PATC and park land could connect the new parking lot to the trail, alleviating the need for hikers to walk along Route 600. As a result, archeological, natural resource (including wetlands), and engineering studies were conducted on the PATC tract in 2002; an EA was completed; and a Finding of No Significant Impact (FONSI) was signed in 2003. During the EA process, some local residents expressed opposition to the proposed parking lot. In 2006, the superintendent of Shenandoah National Park determined that a re-evaluation of the proposed actions was warranted based on new information and the desire to re-engage the public. As a result, in 2007, a new EA was initiated to examine issues and alternatives for a long-term parking solution for visitors who use Old Rag Ridge Trail. In addition, a new 10-year lease was negotiated with the owner of the lower lot through 2017.

OTHER PAST PLANNING STUDIES

In 2001, as part of the initial planning efforts, Shenandoah National Park staff conducted an archaeological survey on three acres of PATC land being considered for the placement of the proposed parking lot on the site. The other three acres of the site were not surveyed due to the existing physical constraints of the site that would prohibit the construction of the parking lot (i.e., wetlands, steep slopes, and geology). The purpose of the survey was to aid in the final design of the parking lot by identifying previously disturbed, culturally sterile, and culturally sensitive areas. The majority of the three-acre survey area contained no previously recorded sites and archival research produced no evidence of historic structures or other significant activity. There was a small area where culturally significant resources were recorded. This area was delineated to ensure any potential future development on the site would avoid impacting these resources.

A June 5, 2002 wetland report describing the delineated boundaries of the jurisdictional wetlands and other waters of the United States (i.e., streams) found within the six-acre PATC site was provided to the U.S. Army Corps of Engineers (USACE) for their verification and approval. The wetland delineation conducted as part of this effort was performed pursuant to the *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1 (1987 Manual).

NATIONAL PARK SERVICE PLANS, POLICIES, AND ACTIONS

Created and approved in 1983, the *Shenandoah National Park General Management/Development Concept Plan* guides the overall management and use of park resources. The general management portion of the plan indicates overall unified programs for park preservation, interpretation of the park's natural and cultural resources, visitor use, development, and administration. The development concept portion refines proposals for the developed areas and discusses the spectrum of existing and new facilities that will allow opportunities for recreation and re-creation to continue for future generations. The park's *General Management Plan* states that NPS will continue efforts to acquire, through donation or exchange, a parcel in Weakley Hollow for the construction of a parking area.

In 1976, Congress enacted Public Law 94-567, designating 79,019 acres of wilderness areas within the park, which included most of the lands surrounding Old Rag Mountain. Congress expanded the designated wilderness area to 79,579 acres in 1978. In 1984, the park completed a *Backcountry and Wilderness Management Plan* (BWMP) as an action plan called for by its *Resource Management Plan* (RMP). This BWMP emphasized recreation management, wilderness management, and resource protection. The basic objectives for the plan were to provide an opportunity for resource-dependent backcountry visitor experiences while maintaining the integrity of natural ecological processes and minimizing the effects of recreation.

In November 1991, an interdivisional BWMP Task Force was created to identify and resolve the park's backcountry and wilderness management issues. Initially, the task force identified numerous issues unresolved by the existing plan, some of them quite complex, and identified the need to develop a planning framework to provide an organized response to these and unforeseen future issues. In 1998, the park updated its BWMP to create a more comprehensive backcountry management guide that describes the planning framework and recommended management actions, but also addressed topics including historical Shenandoah National Park backcountry management, relationship to other park planning documents, backcountry facilities and recreational uses, wilderness awareness education, management of recreation impacts (i.e., campsite and trails management strategies), budget and staffing assessments, and park boundary issues. The BWMP sets management objectives for backcountry and wilderness conditions to manage recreation carrying capacity; resource, social, and managerial settings; and management zones (recreation opportunity classes) are described.

The BWMP manages Old Rag Mountain area, including the area within the park where the proposed trail would connect the proposed new parking lot with the Old Rag Ridge Trailhead, as a threshold wilderness (high-use) area, which provides specific management objectives for impacts related to visitor use. Visitors recreating within the threshold wilderness management zone can expect to experience reduced opportunities for isolation and solitude. Hikers may frequently experience large groups along the trail and may notice moderate use impacts to vegetation and soil (on and off the trail). Trails are maintained to a standard commensurate with the high levels of visitor use and impact (NPS 1998b).

SCOPING

After the initial EA was completed and the FONSI was signed in 2003, the project sat idle for a couple of years. In 2006, the new superintendent of Shenandoah National Park reinitiated the project. After reviewing the original EA, the superintendent determined a re-evaluation of the proposed actions was warranted based on new information and the desire to re-engage the public. As a result, in the late winter of 2007, a new EA was initiated to examine issues and alternatives for a long-term parking solution for visitors who use Old Rag Ridge Trail.

On July 12, 2007, the park held a public scoping meeting to initiate public involvement and obtain community feedback on the proposed action to develop a new parking lot to serve the Old Rag Ridge Trail at Shenandoah National Park. The meeting was held from 6:00 p.m. to 8:00 p.m. at the Belle Meade Schoolhouse on Valley Road, Sperryville, Virginia. Twelve people signed in at the meeting.

The meeting marked the beginning of the 60 day public scoping comment period, which ended September 31, 2007. During the public scoping comment period, NPS received additional comments from five individuals via e-mail or other type of correspondence.

The public scoping meeting provided numerous methods for the community to comment. After the initial open house, the park engaged in an open dialog with the meeting participants, soliciting comments regarding the proposed action. These comments were recorded on a flip chart. If the commenter did not want to publically comment, comment forms were provided to be completed and returned during the meeting. If the attendee chose not to complete a comment form at the meeting, a return address was provided on the sheet to mail back to the park at a later date. Those attending the meeting were also instructed of additional opportunity to comment on the project through the NPS's Planning, Environment, and Public Comment (PEPC) website at: <http://parkplanning.nps.gov/shen>.

General questions and comment themes received during the public scoping meeting and over the course of the public scoping comment period regarding the proposed new parking lot included:

- Why not relocate the trailhead to Skyline Drive?
- Why is the Nethers side the primary access point to Old Rag Mountain?
- How will traffic be affected by this new parking lot?
- Why not expand the current 12-space NPS upper parking lot on NPS property?
- Will the proposed new lot bring more cars to the area?

- Why not move primary trailhead parking to Berry Hollow?
- The NPS should work with the Virginia Department of Transportation (VDOT) to enforce illegal parking along State Route 600.
- The NPS should close the NPS upper parking lot to parking to reduce visitor congestion.
- The NPS needs to improve education of Old Rag visitors to address impacts to park neighbors.
- The NPS needs more collaboration between neighbors and VDOT to enforce parking.
- The new parking lot should be made to look as natural as possible.

ISSUES

Issues describe problems or concerns associated with current impacts from environmental conditions or current operations, as well as problems that may arise from the implementation of any of the alternatives. Potential issues associated with this parking development project were identified by the public, park staff, and input from other agencies consulted.

The primary concern of the park, as identified during the internal scoping meeting, is to ensure the long-term availability for visitor parking and trail access at Old Rag Mountain. Other identified issues and concerns are listed below.

Visitor Use and Experience. Old Rag is hiked by approximately 50,000 people per year. Currently, visitors using the lower leased parking lot are required to hike approximately 1.6 miles round-trip along State Route 600 to and from the trailhead; no off road connecting trail is available. The experience of hiking along the road may diminish the overall quality of the hiking experience for some park visitors. Internal scoping conducted as part of the planning process identified that in the event the lease on the lower parking lot was not able to be renewed, the subsequent loss of parking would drastically restrict access to this popular portion of Shenandoah National Park.

Park Neighbors. Between the lower leased parking lot and the NPS upper parking lot and trailhead, there are six private residences and a sportsmen's club. These park neighbors are currently impacted by the large number of park visitors accessing Old Rag Ridge Trail via Weakley Hollow, especially during periods of heavy visitor use. Impacts include trespassing on private land, especially from roadside parking and camping; sanitation problems/litter on private property; traffic/noise from vehicles and/or pedestrians; and diminished aesthetics.

Natural Resources. Activities associated with the construction and operation of a new parking lot would affect natural resources such as soils, water quality, vegetation, and wildlife.

Health and Safety. Currently, visitors to the park who use the lower leased parking lot must walk approximately 0.8 miles along State Route 600 to the trailhead. State Route 600 narrows to a single-lane 12-foot state right-of-way near the NPS upper parking lot. While a pedestrian/vehicle accident has never been reported along this stretch of road, the potential exists as pedestrians must share the road with vehicles. In addition, illegal parking occurs along State Route 600 during periods of heavy visitor use, narrows the traffic lane, and could interfere with access of large emergency vehicles.

IMPACT TOPICS

The following impact topics are discussed in the "Affected Environment" chapter and analyzed in the "Environmental Consequences" chapter. The topics are resources of concern that could be beneficially or adversely affected by the actions proposed under each alternative and were developed to ensure that the alternatives are evaluated and compared based on the most relevant resource topics. These impact topics were identified based on the following: issues brought up during scoping, federal laws, regulations, executive orders, NPS 2006 Management Policies, and NPS knowledge of limited or easily impacted 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.

Physiographic Resources (Geology, Topography, and Soils)

The lower leased parking lot is an unpaved field where cars park on the grass. As a result, soils in this lot have been compacted and the overall productivity of these soils has probably decreased over time.

Activities associated with the proposed development of a parking lot on the six-acre PATC parcel would disturb approximately two acres of soil, resulting in the loss of soil productivity and increasing the potential for soil erosion and loss of topsoil during construction. In addition, some grading and filling would be required, and modification to local geologic formations may also be required. After construction, with the implementation of new stormwater management devices, erosion would likely be greatly diminished. As a result of potential impacts to soils from the no action and proposed action alternatives and potential modifications to the geologic and topographic resources of the PATC parcel, geologic resources are addressed as an impact topic in this EA.

Water Quality

The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters, enhance the quality of water resources, and to prevent, control, and abate water pollution. The NPS 2006 Management Policies provides direction for the preservation, use, and quality of water originating, flowing through, or adjacent to park boundaries. The NPS seeks to restore, maintain, and enhance the water quality within the parks consistent with the 1972 Federal Water Pollution Control Act, as amended, and other applicable federal, state, and local laws and regulations.

Currently, visitor parking at both the upper and lower leased parking lots have little impact to the overall water quality of local drainages due to the surrounding vegetation and generally flat topography of the parking lots. Under the proposed action alternatives, during the construction of the new parking lot on the six-acre PATC parcel, temporary impacts to the water quality of the local drainages could occur as vegetation is removed and soils are exposed and runoff laden with construction-related sediments is introduced into the watershed. After construction, with the installation of a proper stormwater management system designed specifically for the site, runoff would be controlled and treated prior to being released into the watershed, reducing impacts to the water quality of the surrounding watershed. As a result of potential impacts to water quality that could occur during construction from both action alternatives, water quality is addressed as an impact topic in this EA.

Vegetation

Actions directly related to the proposed development of a parking lot under either action alternative would require the clearing of approximately two acres of second growth mixed deciduous forest and associated vegetation. As a result of impacts to vegetation that would occur from the proposed action alternatives, vegetation is addressed as an impact topic in this EA.

Wildlife and Wildlife Habitat

Activities associated with the proposed construction of a new parking lot under either action alternative would result in the clearing of approximately two acres of secondary mixed deciduous forest, which could disturb or displace the wildlife that use the area. Some individual animals would be displaced outside the construction limits and would be susceptible to increased levels of predation or competitive stress. This displacement could result in a slight population depression adjacent to the site but following project completion and successful revegetation efforts, wildlife would again reoccupy areas adjacent to the project area. As a result of the impacts to wildlife and wildlife habitat associated with the two action alternatives, this impact topic is addressed in this EA.

Visitor Use and Experience

Currently, if the 12-space NPS upper parking lot is full, park visitors wishing to climb Old Rag Mountain must park at the lower leased parking lot. People parking in this lot have to walk approximately 0.8 miles

along State Route 600 to reach the Old Rag Ridge Trailhead. Having to hike approximately 1.6 miles round-trip along a roadway decreases the overall quality of the visitor experience.

Construction activities associated with proposed action alternatives would have short-term direct impacts to the overall visitor enjoyment and use of those who begin their hike at the Old Rag Ridge Trailhead. After construction of the new parking lot and connecting trail is complete, visitors parking in the new parking lot would no longer have to walk along the road to reach the trailhead, but instead walk along a wooded trail to reach the Old Rag Ridge Trail. Walking along a wooded trail, instead of State Route 600, would have beneficial impacts to the overall visitor experience. Removing the lower leased parking lot and/or NPS upper parking lot, however, would decrease the total available parking, which could adversely impact visitor use and experience. As a result of the potential impacts from both the no action and proposed action alternatives, impacts to visitor use and experience are addressed as an impact topic in this EA.

Health and Safety

Currently, when the NPS upper parking lot is at capacity, park visitors wishing to hike Old Rag Ridge Trail are required to park at the lower leased parking lot, and walk approximately 0.8 miles along State Route 600 to the trailhead. While there has never been a reported pedestrian/vehicle accident occurring along this stretch of road - the potential exists, as pedestrians must share the road with vehicles. In addition, illegal parking that has occurred along State Route 600 during periods of heavy visitor use narrows the traffic lane, and could potentially prevent access of large emergency vehicles.

Both of the proposed action alternatives would eliminate the NPS upper parking lot, and park visitors would no longer have to walk along the road to reach the trailhead. While illegal parking may continue, implementation of a reservation system and mitigations aimed at preventing illegal parking would likely reduce this behavior. For these reasons, this impact topic was carried forward for further analysis in this EA.

Park Neighbors

NEPA requires an analysis of impacts to the human environment, which includes economic, social, and demographic elements in the affected area. The focus of discussion is on the current and potential impacts of visitor use on park neighbors (i.e., six private residences and a sportsmen's club located on State Route 600 between the lower leased parking lot and the NPS upper parking lot). The analysis for park neighbors is limited to impacts caused by the current use and operation of the available parking lots, and the proposed construction and operation of the new parking lot on PATC land. Because the amount of available parking would either remain the same or decrease by roughly 100 spaces, impacts from the actions proposed under the alternatives considered would not have more than a negligible effect on park neighbors who do not live between the lower leased lot and the NPS upper parking lot.

Park neighbors are currently being impacted by the visitor use of the Old Rag Ridge Trailhead, especially during periods of heavy visitor use. These impacts include trespassing on private land, especially from roadside parking and camping; sanitation/littering on private property; traffic/noise from vehicles and/or pedestrians; and roadside aesthetics. Constructing a new parking lot on the PATC parcel would likely decrease the amount of pedestrian traffic on State Route 600, and decrease the overall amount of direct contact park neighbors have with the park visitors. Therefore, this impact topic was carried forward for further analysis in this EA.

Park Operations and Management

The initial construction of a parking lot at the Old Rag Trailhead could divert funds and staff needed to manage and maintain the other recreational facilities throughout the park. After construction, funding needed to manage and maintain these facilities would return. As a result of the short-term impacts to park operations and management, this impact topic was carried forward for further analysis in this EA.

IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS AND CONSIDERATION

The following impact topics were eliminated from further analysis in this EA. A brief rationale for dismissal is provided for each topic. With mitigation, potential impacts to these resources would be negligible, and localized.

Impacts to Threatened, Endangered or Special Concern Species

The Endangered Species Act (1973), as amended, requires an examination of impacts on all federally listed threatened or endangered species. NPS policy also requires examination of the impacts on federal candidate species, as well as state-listed threatened, endangered candidate, rare, declining, and sensitive species.

In late 2002, the park sent letters to both the U.S. Fish and Wildlife Service (FWS) and the Virginia Department of Conservation (DCR) regarding the potential for any state or federally listed species that could be affected by the proposed construction of a parking lot on the six-acre PATC parcel. The DCR responded on December 9th, 2002, stating that it searched its Biological and Conservation Data System (BCD) for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations. While the BCD search documented the presence of a few natural heritage resources in the project area, they stated that due to the scope of the activity and the distance to the resources, the DCR did not anticipate the proposed project would adversely impact any of these natural heritage resources (Appendix A).

On January 28, 2003, the FWS responded to the park's initial informal consultation letter regarding the proposed parking lot on the six-acre PATC parcel. In their response, the FWS stated their concerns about the potential for the federally-threatened small whorled pogonia (*Isotria medeoloides*) to occur on the PATC site. This conclusion was based on potential habitat on the site and the FWS recommended the NPS survey the site. The small whorled pogonia is protected under the Virginia Endangered Plant Act administered by the Virginia Department of Agriculture and Consumer Services (VDACS). Under the Memorandum of Agreement (MOA) established between VDACS and the DCR, the DCR has the authority to report for VDACS on state-listed plant and insect species. As stated above, the DCR did not anticipate the proposed project would adversely impact any of these natural heritage resources (Appendix A).

In March of 2008, as part of its ongoing review, NPS requested DCR to conduct another BCD search to confirm the findings gathered in the previous 2002 BCD database search. If a new listed species is found in the project area, NPS would again consult with the DCR and the FWS to develop mitigation measures to ensure no impacts to these species would occur. Because of the actions taken by the NPS to ensure no federal- or state-listed species would be impacted by the proposed actions, no impacts to these species would occur. As a result, this impact topic was dismissed from further analysis in this EA.

Prime Farmland

Prime farmland, as defined by the U.S. Department of Agriculture (USDA), is the land best suited to food, feed, forage, fiber, and oilseed crops. It may be cultivated land, pasture, woodland, or other land, but it is not urban and built-up land or water areas. Prime farmland is protected under the Farmland Protection Policy Act of 1981 to minimize the extent to which federal programs contribute to the unnecessary or irreversible conversion of farmland to nonagricultural uses. There are no known prime farmland soils occurring in the vicinity of either the lower leased parking lot or the site of the proposed new lot; therefore, this impact topic was dismissed from further analysis in this EA.

Floodplains

Executive Orders 11988 (Floodplain Management) requires an examination of impacts to floodplains and the potential risk involved in placing facilities within floodplains. The NPS 2006 Management Policies, Section 4.6.4, Floodplains; the 1993 NPS Floodplain Management Guidelines; DO-77-2; and the 1983 General Management Plan provide guidelines on developments proposed in floodplains. Most of the streams and stream segments within the park and near to the site are high gradient, and peak flows from precipitation events and snow and ice melt pass downstream quickly.

None of the streams on the PATC parcel appear to experience extreme flow events. The morphology of these channels is characterized by randomly scattered cobbles that display no evidence of reworking (i.e. cobble bar formation or particle imbrication). Examination of the topographic map supports this conclusion; the watershed is very small (likely less than 0.1 square miles) and there is no indication of a well defined channel. The channel that does exist is a first order stream, meaning that there are no tributary streams above the proposed area. Evidence of previous flows exists in the form of a wash line or discoloration of the cobble substrate, but this indicator was only a few inches above the channel bottom - suggesting only minor increases in flow on a regular basis. Lastly, no indications of channel scour or overbank flows were observed. Therefore, the proposed site is not likely prone to flooding. Because both the action alternatives and no action alternative would have no long- or short-term adverse impacts associated with the occupancy and modification of floodplains, and would avoid direct or indirect support of floodplain development, this impact topic was dismissed from further analysis in this EA.

Wetlands

Wetlands include areas inundated or saturated by surface or groundwater for a sufficient length of time during the growing season to develop and support characteristic soils and vegetation. The NPS classifies wetlands based on the FWS *Classification of Wetlands and Deepwater Habitats of the United States*, also known as the Cowardin classification system (Cowardin et al. 1979). Based on this classification system, a wetland must have one or more of the following attributes:

- The habitat at least periodically supports predominately hydrophytic vegetation (wetland vegetation);
- The substrate is predominately undrained hydric soil; or
- The substrate is non-soil and saturated with water, or covered by shallow water at some time during the growing season.

The six-acre PATC parcel has two known wetland areas beyond stream banks. Impacts to wetlands are not expected under the no action because there would be no action taken on this site. Under either of the action alternatives, the PATC parking lot would be sited to allow for a minimum of a 25-foot vegetated buffer protecting wetlands (50-foot buffer would be utilized whenever possible) and the other water resources on the site. Under both action alternatives, two small pedestrian bridges would completely span the wetlands, connecting the two parking areas.

Construction limits would be clearly delineated to ensure no encroachment upon the site wetlands. In addition, erosion controls would be implemented during construction to ensure no sediment-laden runoff would be transported into these wetlands. Additionally, groundwater flows feeding these wetlands would not be affected because during the construction of the new parking lot, there would be no need to excavate beyond the depth of the existing water table nor would new barriers to groundwater flows be introduced as a result of the proposed action. Because of the site planning and mitigations measures that would be implemented, no impacts to wetlands would occur as a result of either of the action alternatives. As a result, this impact topic was dismissed from further analysis in this EA.

Air Quality

The 1963 Clean Air Act, as amended (42 USC 7401 et seq.), requires federal land managers to protect park air quality. Shenandoah National Park was designated Class I under the 1963 Clean Air Act, as

amended. Class I areas must not exceed the maximum allowable increment over baseline concentrations of sulfur dioxide and particulate matter as specified in Section 163 of the 1963 Clean Air Act. Further, the 1963 Clean Air Act provides that the federal land manager must have an affirmative responsibility to protect the park's air quality related values (including visibility, plants, animals, soils, water quality, cultural and historic resources and objects, and visitor health) from adverse air pollution impacts.

Should either of the action alternatives be selected, local air quality would be temporarily affected by dust and vehicle emissions. Hauling materials and operating equipment would result in increased vehicle exhaust and emissions during the construction period. Hydrocarbons, nitrogen oxide, and sulfur dioxide emissions would be rapidly dissipated by air drainage since air stagnation is uncommon at the project site. Fugitive dust plumes from construction equipment would occasionally increase airborne particulates in the area near the project site; however, these loading rates would be of short duration and of negligible to minor consequence.

Should the no action alternative be selected, there would be no additional impacts to air quality as this alternative represents the park's current condition. With the action alternatives, temporary increases in air pollution would occur during construction, primarily from operation of construction equipment.

Overall, there would be a slight and temporary degradation of local air quality due to dust generated from construction activities and emissions from construction equipment. The park would employ mitigations such as implementing dust control measures and limiting idling times to minimize impacts to air quality. The overall impacts to air quality would be localized and negligible to minor, lasting only as long as construction activities occurred. After construction, there would be no increase in the amount of vehicles currently traveling to and from the site. Because the park's Class I air quality would not be affected by the proposal, this impact topic was dismissed from further analysis in this EA.

Soundscapes

In accordance with the NPS 2006 Management Policies (NPS 2006) and DO-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. Natural ambient soundscapes are 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 duration of human-caused sound considered acceptable varies among NPS units, as well as throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The State Route 600 corridor, from its junction with Route 707 to the Weakley Hollow/Old Rag Mountain trailhead, is a rural soundscape comprised of second growth mixed deciduous forest with interspersed hills, ridges, and lowlands with residences, outbuildings and pastureland. Most residences appear to be within 700 feet from the road, and some have intervening physical features that attenuate (i.e., forest, structures, rock outcrops) or propagate (i.e., driveways, roads, parking areas) sound. The Hughes River flows north of State Route 600, and closely parallels the road from the proposed parking lot site to east of the existing lease lot. The sounds of nature, traffic, hikers and dogs walking 0.8 miles from the NPS upper parking lot to the lower leased parking lot, farmers working their fields, and residents enjoying the outdoors are periodically interrupted by aircraft overflights.

Under either of the proposed action alternatives, construction noise associated with the activities related to the activities associated with the action alternative would be of short duration minor and localized. Impacts associated construction related noise are discussed under "Park Neighbors." During the operation of the new parking lot, only those residents living in the immediate vicinity of the proposed parking site would likely experience the potential negative impact (as an audible change from the present). These impacts would likely be negligible to minor impacts and would be mitigated by encouraging vegetation growth in open spots along the road right-of-way. With the creation of a connector trail and closure of the NPS upper parking lot proposed under both action alternatives, noise impacts to area residents created by

park visitors walking along State Route 600 to and from the Old Rag Ridge Trailhead would be greatly reduced. Because the expected impacts to the local soundscape are expected to be short-term and minor during the construction of the proposed parking lot, and negligible or less during its operation, this impact topic was dismissed from further analysis in this EA.

Lightscape

The NPS 2006 Management Policies states that the NPS will preserve (to the greatest extent possible) the natural lightscapes of parks, which are natural resources and values that exist in the absence of human-caused light. Under both action alternatives, one security light would be installed to illuminate the contact station and nearby comfort stations. The proposed action would require the NPS to provide minimal artificial lighting within the parking lot on the PATC parcel for safety and security purposes. However, to protect natural darkness and other components of the natural lightscape, the project will incorporate the following mitigation measures:

- Restrict the use of artificial lighting in parks to those areas where security, basic human safety, and specific cultural resource requirements must be met;
- Use minimal-impact lighting techniques; and,
- Shield the use of artificial lighting where necessary to prevent the disruption of the night sky.

As a result of the mitigations that would be implemented to protect the night sky and that fact that the PATC parcel is not located near any established camping or night-use areas, any such development would have negligible impacts to the overall lightscape of the park and neighboring community. Therefore, lightscape management was dismissed as an impact topic.

Traffic and Transportation

The annual average daily traffic volume along the 1.3-mile section of State Route 600 extending from the intersection with Route 707 to the park boundary is 210 vehicles per day, or 76,650 vehicles per year, which includes access by both local residents and park visitors. Approximately 73 percent of the traffic volume is associated with residential access. The portion of traffic volume associated with park visitation was determined, assuming (1) 50,000 visitors access the Old Rag Mountain annually, and (2) there are on average 2.5 visitors per vehicle. The resulting annual traffic volume related to park visitation is approximately 20,000 vehicles traveling along State Route 600 to access Old Rag Ridge.

Under either of the proposed action alternatives, during construction of the proposed parking lot - impacts on local traffic may occur from the introduction of construction vehicles hauling materials to and from the site. Based on the relatively low traffic volumes on this road, and mitigations measures taken to minimize impact (i.e., conducting all construction activities during daylight hours and avoiding construction during peak visitor use periods) impacts from construction would not be expected to be greater than negligible. After construction is complete, parking capacity would either stay the same or decrease by about 100 cars. As a result, impacts to traffic along State Route 600 would either remain the same or decrease slightly. Because traffic impacts along State Route 600 would be negligible or less under either of the proposed action alternatives, this impact topic was dismissed from further analysis in this EA.

Unique Ecosystems, Biosphere Reserves, World Heritage Sites

There are no known biosphere reserves, World Heritage sites, or unique ecosystems associated with Shenandoah National Park at large or specifically at the project site; therefore, this impact topic was dismissed from further analysis in this EA.

Wilderness

Shenandoah National Park's "recycled" wilderness demonstrates the recuperative powers of natural processes in eastern deciduous Appalachian forest. Nearly all of the Park's land area, including that now designated as wilderness, was once cleared and inhabited, farmed, logged and burned. The Park was established in 1936 and the natural regeneration to the "wilderness" conditions that followed encouraged

NPS officials to recommend and eventually designate 42 percent of the Park as wilderness. The Park interprets these unique values to the public and protects remaining cultural resources. More than 500 miles of trails provide access to the park, including 101 miles of the Appalachian Trail (AT). Approximately 175 miles of trails traverse wilderness.

The Old Rag Mountain area receives approximately 50,000 hiker visits each year, which can cause a dilemma in managing the area for wilderness values such as having "...outstanding opportunities for solitude" and "...with the imprint of man's work substantially unnoticeable." Due to the historical popularity of the Old Rag trail system, the paradox of allowing high levels of visitor use to occur during certain periods (such as summer and fall weekend days) while maintaining wilderness character was resolved in the BWMP. The classification prescription for management of Old Rag Mountain in "Threshold Wilderness" (high-use) within the "Limits of Acceptable Change" planning framework provides specific management objectives for impacts related to visitor use. Visitors recreating within the Threshold Wilderness management zone can expect to experience reduced opportunities for isolation and solitude. Hikers may frequently experience large groups along the trail and may notice moderate use impacts to vegetation and soil (on and off the trail). Trails are maintained to a standard commensurate with the high levels of visitor use and impact (NPS 1998b).

The proposed new connector trail would be 0.7 miles long, of which 0.2 mile of the 0.3 mile within NPS boundaries is in wilderness. Impacts to federally designated wilderness would consist of the construction of the new connector trail. No opportunities exist outside of designated wilderness for constructing a trail to connect the proposed parking lot on PATC land to the Ridge Trail in the park. The trail would be constructed to meet existing BWMP standards for park trails in the high-use, Threshold Wilderness and Nonwilderness zones. In accordance with light on the land trail construction, the trail would be sited in such a way as to avoid removing any woody vegetation with stems greater than one-half inch in diameter. The trail would traverse the mountain along its contours, side-sloping the mountain thereby making it relatively low-maintenance and less subject to erosion problems. Trail width would generally be no greater than four-feet wide as possible within wilderness and five-feet wide outside of wilderness. Because the Wilderness Act specifically prohibits the use of motorized equipment, traditional hand tools (i.e., rakes, shovels, pickmattocks, crosscut saws, etc.) would be used to clear, construct and maintain the portion of trail located in this threshold wilderness area. Because the proposed 0.3 mile connector trail would be constructed to meet existing BWMP standards for Threshold Wilderness zones, and all construction activities would adhere to Wilderness Act requirements, overall impacts to the designated wilderness of Shenandoah National Park would be negligible, and would occur mostly during construction activities. As a result, this impact topic was dismissed from further analysis in this EA.

Cultural Resources

The National Historic Preservation Act (NHPA; 16 USC 470 et seq.), NEPA, NPS 1916 Organic Act, the NPS 2006 Management Policies (NPS 2006), DO-12 (Conservation Planning, Environmental Impact Analysis and Decision-making), and NPS-28 (Cultural Resources Management Guideline) require the consideration of impacts on any cultural resources that might be affected, and NHPA, in particular, on cultural resources either listed in, or eligible to be listed in, the National Register of Historic Places (NRHP). Cultural resources include archeological resources; cultural landscapes; historic structures and districts; ethnographic resources; and museum objects, collections, and archives.

Cultural Landscapes – According to the National Park Service's *Cultural Resource Management Guideline* (NPS-28), a cultural landscape is:

"...a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions."

The historical record indicates the area of the PATC parcel was open pasture or farmland in the 19th century and that it had a large garden in the 20th Century. A Phase I archeological survey of three acres of the PATC parcel identified a potentially significant archeological site in one location, which would be avoided during all construction activities. The archeological evidence indicates much of the remaining area surveyed has been disturbed by several cycles of plowing, excavation, and recent use. The surface is littered with piles of rocks (both linear and circular), and intermixed with trash and demolition rubbish. What at first appearance suggests a structural landscape, on close examination is revealed only to be the result of decades of dumping rocks from field clearance elsewhere.

Neither the NPS upper parking lot nor leased lower parking lots are historically significant, nor are there any historic structures located within the NPS upper parking lot or the area designated for the proposed parking lot within the PATC parcel. The small shed-style building used as a contact station at the lower parking lot is not a historic structure. Because the landscape encompassing the upper and lower parking lots and the PATC parcel does not possess the historical significance for listing in the National Register of Historic Places, cultural landscapes was dismissed as an impact topic.

Archaeological Resources - A Memorandum of Agreement (MOA) among the Virginia Department of Historic Resources (the office of the State Historic Preservation Officer), the NPS, and the PATC was executed for the proposed project under the previous EA in 2002 (Appendix B). The MOA stipulated how the identification, evaluation, and treatment of archeological resources would occur. The terms of the MOA were reaffirmed, and the expiration date of the MOA was extended by three years, from 2007 to 2010, on January 19, 2007 (Appendix B).

A Phase I archeological survey of three acres of the PATC parcel identified a potentially significant archeological site in one location. This site would be avoided during all construction activities. The archeological evidence indicates much of the remaining area surveyed has been disturbed by several cycles of plowing, excavation, and recent use and thus has little potential for significant archeological resources (NPS 2003).

The existing NPS upper parking lot and leased lower parking lot areas have been extensively disturbed by excavation and years of use, and the presence of significant archeological resources is very unlikely. In addition, no excavation or improvements to the existing upper and lower parking areas would occur.

If during construction of the proposed new parking lot, 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 Virginia State Historic Preservation Officer. 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.

Because no impacts to National Register eligible archeological resources are anticipated, and any inadvertent discoveries would be addressed in accordance with the MOA, archeological resources was dismissed as an impact topic.

Historic Structures - Neither the NPS upper parking lot nor the leased lower parking lot are historically significant, and there are no historic structures located within or adjacent to the NPS upper parking lot or the six-acre PATC parcel. The small shed-style building used as a contact station at the lower parking lot is not a historic structure. Because there would be no impacts to National Register eligible historic structures, historic structures was 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). Two ethnographic groups are associated with Shenandoah National Park: Native Americans and mountain residents. There is no evidence that Native American groups ever permanently resided within the current boundaries of the park or in the vicinity of

the proposed project area; however, hunter/gather parties may have used the project area. Mountain residents predate the creation of the park, but were no longer in residence after its creation (1935). In addition, mountain residents do not represent a defined cohesive ethnographic community (Engle 2007). Because no known ethnographic resources would be affected by the proposed actions, 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.

Museum Collections – Implementation of any alternative would have no effects upon museum collections (historic artifacts, natural specimens, and archival and manuscript material); therefore, museum collections was dismissed as an impact topic.

Socioeconomic Resources

The proposed actions would not appreciably affect either local and regional land use or local businesses or other agencies. Implementation of the proposed actions could provide minimal beneficial impacts to the economies of Madison, Rappahannock, and Culpeper Counties (i.e., 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 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 Shenandoah National Park. The lands comprising the park 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 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.

Both minority and low-income populations are present in the vicinity of Shenandoah National Park; 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 alternatives 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 proposed alternatives would not disproportionately affect any minority or low-income population or community.
- Implementation of the proposed alternatives would not result in any identified effects that would be specific to any minority or low-income community.
- Any impacts to the socioeconomic environment would not appreciably alter the physical and social structure of the nearby communities.

ALTERNATIVES

NEPA requires federal agencies to explore a range of reasonable alternatives aimed at addressing the purpose and needs of the issue. The alternatives under consideration must include the “no action” alternative as prescribed by 40 CFR 1502.14. Project alternatives may originate from the proponent agency, local government officials, or members of the public, at public meetings or during the early stages of project development. Alternatives may also be developed in response to comments from coordinating or cooperating agencies. The alternatives analyzed in this document, in accordance with NEPA, are the result of design scoping, internal scoping, and public scoping. These alternatives meet the management objectives of the park while also meeting the overall purpose of and need for proposed action. Alternatives that were considered but were not technically or economically feasible, did not meet the purpose and need of the project, created unnecessary or excessive adverse impacts to cultural or natural resources, and/or conflicted with the overall management of the park or its resources were dismissed from further analysis.

The NPS explored and objectively evaluated three alternatives in this EA, including:

- Alternative A – No action.
- Alternative B – Construct a new parking lot on PATC land, continue public use of the lower leased parking lot at a reduced vehicle parking capacity, and discontinue public use of the NPS upper parking lot.
- Alternative C – Construct a new parking lot on PATC land, discontinue public use of the leased lower parking lot upon construction completion of the new parking lot, and discontinue public use of the NPS upper parking lot. Implement a seasonal reservation system for parking at the new parking lot.

The study area and proposed actions for each alternative are presented on the next page in Figure 3, followed by a complete description of each alternative.

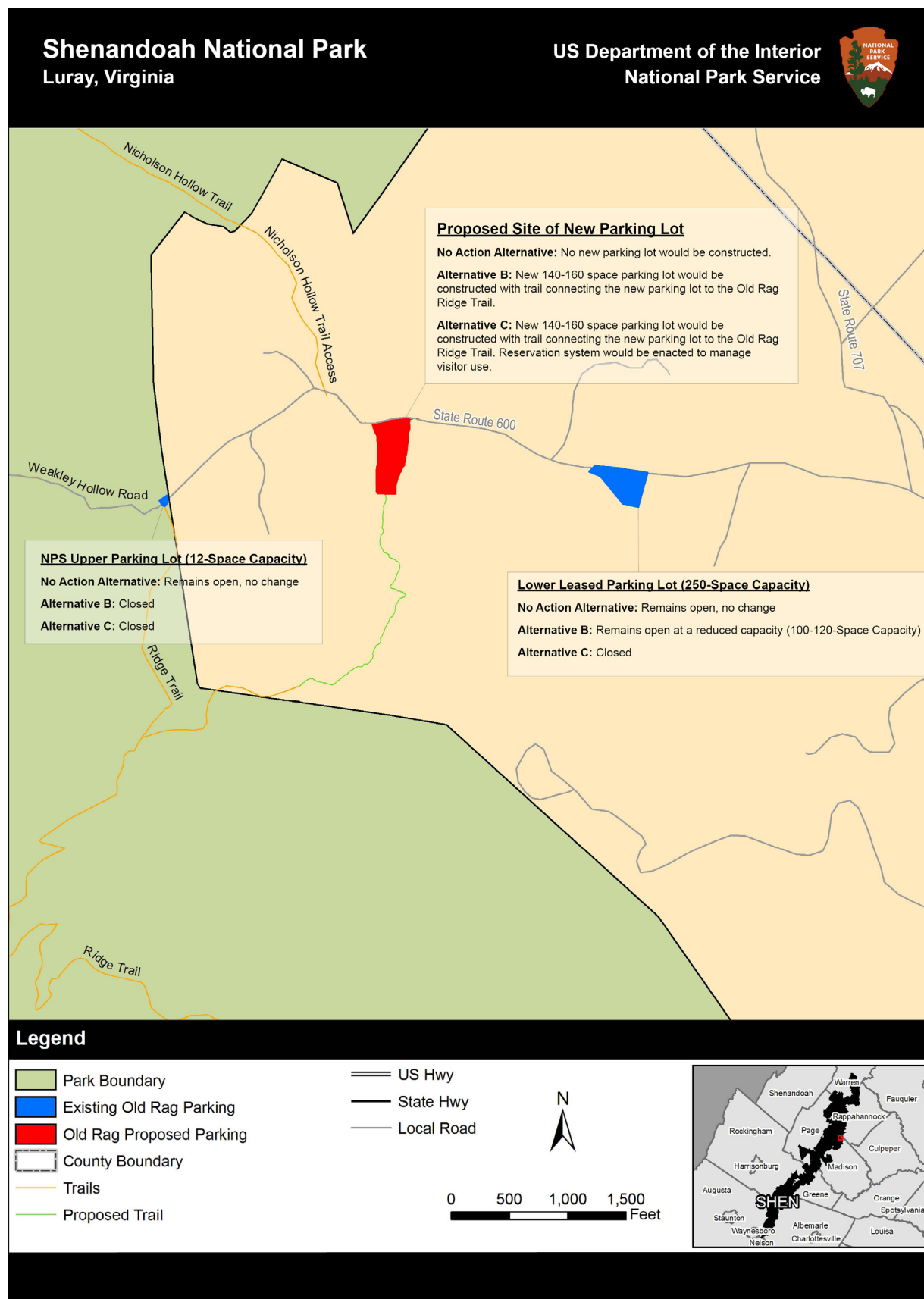


Figure 3: Study Area and Proposed Actions

ALTERNATIVE A – NO ACTION

The NPS would continue to manage two parking areas that serve the Old Rag Mountain Ridge Trail, the NPS upper parking lot and the lower leased parking lot. The NPS upper parking lot is located in close proximity to the Old Rag Ridge Trailhead, within Shenandoah National Park, at the end of State Route 600, and provides parking for up to 12 vehicles (Figure 4). The lower leased parking lot provides overflow parking for up to 250 vehicles and is located in Weakley Hollow, approximately 0.8 miles from the trailhead, on three acres of pastureland along State Route 600 (Figure 5).

The lower parking lot is leased from a private landowner through the year 2017. The lot is undeveloped except for a small shed-style building used as a contact station and graveled driving lanes between the parking spaces. The lot accommodates up to 250 cars. The contact station in the lower leased parking lot is staffed by two NPS employees. Their responsibilities include taking entrance fees, answering questions and providing information to the public and general upkeep of the area. When the NPS upper parking lot is at capacity (i.e., on weekends and during peak visitor season, generally April through early November), park staff place a temporary barricade in the roadway near to the contact station to discourage vehicles from proceeding to the NPS upper parking lot. Visitors are then directed to park in the lower leased parking lot and walk approximately 0.8 miles along State Route 600 to reach the trailhead. Restroom facilities are provided at the lower leased parking lot through rented portable toilets.



Figure 4: NPS Upper Parking Lot



Figure 5: Lower Leased Parking Lot

ELEMENTS COMMON TO BOTH ACTION ALTERNATIVES

In developing a range of reasonable alternatives that would meet the overall purpose and need for this project, several of the elements proposed would be common to both action alternatives considered in this EA. Elements common to both action alternatives include:

- **Parking Lot Design** - a new gravel parking lot to serve Old Rag Ridge Trail would be constructed on the south side of State Route 600 on a six-acre tract of land owned by the PATC and leased to the NPS under a long-term lease agreement. The proposed parking area would have a capacity of between 140 and 160 vehicles, including four spaces for buses and six to eight spaces designed in accordance with the 2006 Architectural Barriers Act Accessibility Standards (ABAAS) for park visitors with limited mobility. To avoid impacts to wetlands on the site, the proposed parking would be broken down into two smaller parking lots. Determination of whether there would be parallel or angle parking would be made during the design phase of the project. The footprint of the proposed parking lot would not exceed two-acres.
- **Visitor Facilities** - The shed-style kiosk (approximately 120 square feet) would be moved to within the footprint of the proposed parking lot and continue to serve as a temporary visitor contact station. Vault toilets would also be constructed within the footprint of the proposed

parking lot. Minimal security lighting would be installed to illuminate the contact station and vault toilets. A permanent, but small, public contact station may be constructed in the future, but this potential project will not be analyzed in this EA. There will be a need for two bridges, one to cross the southernmost wetland as part of the new trail head, and one to cross the wetland area between the two parking lots being considered on the PATC land.

- **Connector Trail** - A connector trail would be constructed that ties the proposed new parking lot to the Old Rag Ridge Trail. A portion of the connector trail would be sited on an adjoining tract of land also owned by the PATC. The width of the trail tread would be up to 5 feet wide and designed to avoid steep and rocky areas. The trail would be designed to accommodate intermittent high use visitation and to avoid trees greater than two inches in diameter. This trail would traverse about 0.4 miles of forested land outside the park. Upon crossing the park boundary, the trail route would be within federally designated Wilderness for about 0.2 miles before connecting with the existing Old Rag Ridge Trail. All trail construction conducted in the designated wilderness area would adhere to regulations provided in the Wilderness Act, which prohibits the use of motorized equipment.
- **Closure of NPS Upper Parking Lot** – The park would discontinue the public use of the current 12-space NPS upper parking lot. The NPS upper parking lot would be rehabilitated, trash cans and portable toilets removed, and a lockable fire road gate would be relocated to the current entrance of the parking lot. The space would be used exclusively by the NPS for administrative emergency access purposes to respond to incidents on Old Rag.
- **Parking Mitigation** - Road shoulder parking along State Route 600 by park visitors would be prohibited, including the road shoulder pull-off frequently used for visitor parking at the Nicholson Hollow Trail trailhead just west of the PATC parcel containing the new lower parking lot. Effective public information and education, signage, and enforcement strategies would be necessary to redirect excess weekend vehicle and public use to other trail areas and Skyline Drive in the park.
- **Construction Staging** - Under the action alternatives, staging areas for construction equipment and vehicles would be located within the new parking lot construction site itself. If necessary, the park would also seek the cooperation of adjacent landowners to stage construction vehicles.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE) – CONSTRUCT NEW PARKING LOT ON PATC LAND, CONTINUE PUBLIC USE OF THE LOWER LEASED PARKING LOT AT A REDUCED VEHICLE PARKING CAPACITY, AND DISCONTINUE PUBLIC USE OF THE NPS UPPER PARKING LOT

Under alternative B, along with the actions listed under the “Elements Common to All Alternatives,” the park would continue to renew its lease when possible, and continue to utilize the lower leased lot for overflow parking when the parking lot on PATC land has reached capacity. The parking capacity of the lower leased parking lot, however, would be reduced by approximately 90 to 110 spaces so that the maximum vehicle parking would not exceed the 262 vehicle capacity currently maintained by the existing lower leased parking lot and NPS upper parking lot.

ALTERNATIVE C – CONSTRUCT A NEW PARKING LOT ON PATC LAND, DISCONTINUE PUBLIC USE OF THE LOWER LEASED PARKING LOT AND PUBLIC USE OF THE NPS UPPER PARKING LOT.

Under alternative C, the park would conduct all the actions listed under the “Elements Common to All Alternatives,” in addition, upon construction completion of the new parking lot on PATC land, both the lower leased parking lot and the NPS upper parking lot would be decommissioned and closed to public vehicle access and use. Upon the decommission of the lower leased parking lot, all property previously installed, maintained, and/or owned by the NPS would be removed from the property and the site would

be made safe for the landowner's use (i.e., all utilities would be cut off, excess debris would be removed, and post holes would be filled). Total vehicle capacity would be between 140 and 160 vehicles.

A reservation system would be implemented to manage parking availability at the new parking lot on PATC land on a seasonal (March through November) basis. Visitors wishing to use the new parking lot would be required to make reservations by mail-in requests or over the phone or internet (as NPS campground reservations are presently conducted), and by self-registration on non-holiday weekdays. An administrative reservation fee, in addition to the park entrance fee, would be collected. A parking reservation system would serve not to limit access to the Old Rag Ridge Trail, since the parking lot size itself would limit access, but would provide visitors with an opportunity to plan a successful trip to Old Rag and secure parking prior to leaving home. If parking is reserved full (seasonal weekends), visitors can be redirected to other park trails prior to their arrival at the park. In the absence of a parking reservation system, upon filling the lot on certain busy weekends on a "first-come, first-served" basis, many visitors may have to be turned away on site and redirected to other areas. These visitors may be left with disappointment and a poor quality park experience.

Public information and education, signage, and enforcement strategies would be implemented to redirect excess and unreserved vehicle and public use to other trail areas and Skyline Drive in the park.

MITIGATION MEASURES OF THE ACTION ALTERNATIVES

The NPS places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of natural and cultural resources and the quality of the visitor experience, the NPS would ensure that the following protective measures are implemented as part of either of the action alternatives. The NPS would implement an appropriate level of monitoring throughout the construction process to help ensure that protective measures are being properly executed and are achieving their intended results.

Additionally, although the EA addresses the entire project, the park would be required to review the document at the commencement of each phase to ensure that all project information is up to date and in compliance with the necessary regulations (i.e., Endangered Species Act).

SOIL RESOURCES

- During construction, alter drainage so that water is not directed down steep slopes, thus decreasing its velocity and erosion potential.
- Armor ditches on a site-by-site basis to prevent scouring and erosion.
- Provide culvert outlet protection (riprap aprons or basins) to reduce water velocity and prevent scour erosion.
- Revegetate all disturbed soil.

AIR QUALITY

- Limit idling times on diesel-powered engines to three to five minutes.
- Utilize water or appropriate liquids for dust control on materials stockpiled on ground surfaces and during land clearing, grading, and other activities.
- Cover open-body trucks while transporting materials.
- Implement dust control measures to the greatest extent practical.

WATER QUALITY

- Prior to construction, the NPS would to apply for registration coverage under the General Permit for Discharges of Stormwater from Construction Activities through the DCR. DCR's construction site stormwater permits are based upon EPA's construction stormwater general permit, and requires construction site operators to develop and implement a stormwater pollution prevention plan that uses best management practices for erosion and sediment control at the construction site.

As part of the General Permit, an erosion and sediment control plan consistent with Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations (VESCL&R) would also be prepared (DCR 2006).

- Avoid impacts to streams associated with the placement of fill, modification of channels, or changes in natural flows.
- Minimize erosion from construction activities through the use of silt fences and/or erosion control blankets.
- Prior to construction, submit a hazardous spill plan stating what actions would be taken in case of a spill. This plan would incorporate preventative measures to be implemented such as the placement of refueling facilities, storage and handling of hazardous materials, and notification procedures for a spill. Ensure that waste oil, antifreeze, hydraulic fluid, and grease are not spilled or disposed of anywhere in the park.
- Minimize adverse effects of fuel spills through the following:
 - Storage of oils and hazardous materials with secondary containment.
 - Locate construction staging areas away from surface water features.
 - Locate activities such as refueling well away from surface water features.
 - Designate areas where refueling or construction vehicle and equipment maintenance would be performed and have containment devices such as temporary earth berms around these areas.
 - Have absorbent pads available to clean up spills.
- Appropriate method(s) for controlling the stormwater runoff generated from the proposed parking lot under both alternatives B and C would be determined during the design phase of the project, and would be based on which would best serve the surrounding watershed. Specific stormwater controls that could be incorporated into the project design either alone or in combination could include:
 - *Vegetated Swales* - A vegetated swale is a broad, shallow channel with a dense stand of vegetation covering the side slopes and bottom. Swales can be natural or manmade and are designed to trap particulate pollutants (suspended solids and trace metals), promote infiltration, and reduce the flow velocity of storm water runoff.
 - *Bio-Retention Basin* – Bio-retention basins are landscaped depressions or shallow basins used to slow and treat on-site stormwater runoff. Stormwater is directed to the basin and then percolates through the system where it is treated by a number of physical, chemical and biological processes. The slowed, cleaned water is allowed to infiltrate native soils or directed to nearby stormwater drains or receiving waters.
 - *Filtterra™ treatment system* - The Filtterra™ treatment system is a manufactured bio-retention stormwater Best Management Practice (BMP) that filters stormwater runoff from impervious surfaces. The Filtterra™ treatment system consists of a concrete container filled with an engineered soil filter media, a mulch layer, an underdrain system and a tree, shrub or other plant selection. This filtration system can be integrated into the site design of both new development and redevelopment projects. Runoff drains directly from the impervious surface, through the filter media, and then out of the container through the under drain system to be discharged to a receiving system or infiltrated into the surrounding soil.
 - *Underground Detention* – Underground detention systems are structural BMPs used to control the flow of stormwater. These provide a temporary storage area for excess stormwater. Runoff is stored and discharged over time whenever runoff inflow exceeds

the allowable discharge rate and would be used in conjunction with the bio-retention basin.

WETLANDS

- The proposed parking lot would be sited to allow for a minimum of a 25-foot vegetated buffer protecting wetlands and the other water resources on the site, wherever possible, 50-foot will be used.
- Any bridge installed over the wetland would span the entire wetland.
- Construction limits would be clearly delineated to ensure no encroachment upon the site wetlands.
- Erosion controls (see above) would be implemented during construction to ensure no sediment-laden runoff would be transported into the wetlands on the site.

NIGHT SKY

- Restrict the use of artificial lighting in parks to those areas where security, basic human safety, and specific cultural resource requirements must be met.
- Use minimal-impact lighting techniques.
- Shield the use of artificial lighting where necessary to prevent the disruption of the night sky.

VEGETATION

- Minimize cutting trees whenever possible.
- Minimize trimming and removing vegetation to accommodate construction equipment ingress and egress.
- Avoid collision of equipment with trees and other vegetation. Place protective fencing around tree trunks in close proximity to construction activities to minimize potential adverse effects to bark or other tree attributes resulting from collision.
- Avoid removing trees greater than two inches in diameter during the construction of the connector trail.
- Assure that any fill material imported to the site is certified free of exotic plants and seeds.
- Require the construction contractor to powerwash all construction vehicles and equipment prior to initial arrival at the park to remove seed and plant material.
- Re-vegetate disturbed areas (including staging areas) as soon as possible with a native seed mix to help prevent the spread of exotic invasive plant species.
- Enact monitoring protocol to ensure no new or additional exotic invasive plant species are spread into the project area.
- Ensure that all protection measures are clearly stated in construction specifications and that workers be instructed to avoid conducting activities beyond the construction zone, as defined by the roadway and construction zone fencing.

WILDLIFE

- Require the project area be surveyed by an NPS biologist prior to the onset of construction for the presence of listed or rare species.
- Prohibit the feeding of wildlife in contracting documents.
- Ensure food is stored in enclosed portions of vehicles or in hard-sided containers.

- Ensure trash from meals is disposed of via complete removal from the work site or via construction site trash cans and dumpsters. Open barrels, pickup truck beds, and dump truck beds are not to be used for disposal or accumulation of food scraps or food wrappers or containers.

THREATENED AND ENDANGERED SPECIES

- Complete another BCD search to ensure the information gathered in the previous 2002 BCD database search is current, and no new species of concern have moved into the project area. To confirm the new BCD search, prior to initiating any of the proposed projects, qualified park staff would survey the area for state-listed species. If a new listed species is found in the project area, NPS would again consult with the DCR and the FWS to develop mitigations measures to ensure no impacts to these species would occur.

CULTURAL RESOURCES

- The one potentially significant archeological site identified on the six-acre PATC parcel during the Phase I archeological survey would be avoided during all construction activities.
- If during construction 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 Virginia State Historic Preservation Officer. 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.

TRANSPORTATION AND TRAFFIC

- Develop a safety plan prior to initiation of construction to ensure the safety of park visitors, workers, and park personnel.

PARK NEIGHBORS

Mitigations would be enacted as part of either action alternative to minimize disturbance to the private landholders located near the proposed parking lot. Such mitigations would include:

- Additional signage would be installed along State Route 600 and within the parking areas, and informational literature would be provided describing where and how to park and delineating the public use areas from private property.
- The park would work closely with the VDOT to develop strategies aimed at reducing illegal parking along State Route 600. The park would also collaborate with the Madison County Sheriff's Department to have greater presence and better enforcement of parking violators.
- Park visitors hiking along the proposed connector trail located on PATC land would be kept from wandering off the trail onto nearby private property with a visually non-obtrusive fence (i.e. fencing or other type of physical barrier). The fencing would end at the park boundary. The trail will be constructed so as to provide the greatest level of land area and vegetation buffer from adjoining private lands.
- Vegetative buffers, including plantings, would be maintained between Route 600 and the new parking lots.
- Project information regarding construction schedules would be made available to visitors and nearby residents by several means and methods, including but not limited to:
 - Local newspapers and media outlets;
 - Visitor centers and contact locations throughout the park;
 - The park's website; and
 - Park mailings.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Council of Environmental Quality (CEQ) regulations for implementing NEPA require federal agencies explore and objectively evaluate all reasonable alternatives to the preferred alternative, and to briefly discuss the rationale for eliminating any alternatives that were not considered in detail. This section describes those alternatives that were eliminated from further study and documents the rationale for their elimination.

During the course of internal scoping, several alternatives were considered but deemed to be unreasonable and were not carried forward for analysis in this EA. Justification for eliminating these options from further analysis was based on the following factors:

- Technical or economic feasibility.
- Inability to meet project objectives or resolve need.
- Duplication with other, less environmentally damaging or less expensive alternatives.
- Conflict with an up-to-date and valid park plan, statement of purpose and significance, or other policy, such that a major change in the plan or policy would be needed to implement.
- Too great an environmental impact.

The following alternatives were considered but dismissed for the listed reasons.

PROVIDE NO PARKING TO ACCOMMODATE PUBLIC ACCESS TO OLD RAG MOUNTAIN FROM THE PARK BOUNDARY

Alternative Description. Under this alternative, all public parking for direct access to Old Rag Mountain trails would be removed and the trailhead parking areas in Weakley and Berry Hollows closed. The only trailheads for Old Rag Mountain access would be lower Whiteoak Canyon and those located along Skyline Drive.

Rationale for Rejection: Given the widespread and historic recreational popularity of the Old Rag Mountain area of Shenandoah National Park, not providing adequate parking and visitor access would result in a level of visitor service that most citizens and the park would consider undesirable. This alternative is not practical due to long-established patterns of visitor use. Regardless of availability of public parking, visitation would continue or perhaps increase the adverse impacts to park neighbors as visitors would seek road shoulder and other off-road parking sites in lieu of established, managed parking availability.

Furthermore, as lower Whiteoak Canyon would be the nearest available public parking in proximity to Old Rag Mountain trails, displaced visitors would overwhelm parking facilities and impact other visitors attempting to hike Whiteoak Canyon Trail from the park boundary. The Whiteoak Canyon and Cedar Run region is also tremendously popular with visitors and presently that boundary parking area is managed for high use on weekends. Inadequate parking for Old Rag Mountain would result in adverse impacts to park neighbors in the Berry Hollow area as well as those in the Weakley Hollow area.

Providing no parking area would directly conflict with the overall purpose of this proposed action by not providing long-term availability for visitor parking and trail access and would not ensure the continued visitor enjoyment of Old Rag Mountain. In addition, by not providing parking, there would be increased adverse impacts to those park neighbors who live along Route 600, in the form of illegal parking, increased traffic, and increased littering.

DISCONTINUE ALL PUBLIC PARKING AND ACCESS TO OLD RAG FROM WEAKLEY HOLLOW AND REDIRECT ACCESS TO OLD RAG FROM SKYLINE DRIVE

Alternative Description. Close the NPS upper parking lot and allow the lease on the lower parking lot to expire in 2017. Direct visitors to access Old Rag trails from Skyline Drive via Old Rag Fire Road from the Limberlost and Whiteoak Canyon Trail trailhead parking areas, and Skyland Resort. Under this

alternative, there would be an option to establish a shuttle service to the Old Rag Ridge Trailhead. The shuttle would travel from a point along Skyline Drive, along Old Rag Fire Road, to the Old Rag Ridge Trailhead.

Rationale for Rejection. As described in the previous alternative, the removal of parking at Weakley Hollow would have undesirable impacts on the Berry Hollow Old Rag and Whiteoak Canyon boundary trailhead accesses and the neighboring community, as many visitors would be displaced to those sites. Discontinuing NPS-managed parking and access would not necessarily eliminate parking and visitor access from Weakley Hollow due to long-established historic public use patterns and the most convenient public access to Old Rag trails. The lack of adequately managed parking in Weakley Hollow would adversely affect park neighbors in the community of Nethers with the increase of illegal parking along State Route 600.

Available parking in the Skyline Drive region for Old Rag Mountain is limited and would not be able to accommodate those park visitors who utilize Skyline Drive and those displaced from the Weakley Hollow boundary trailhead access wishing to hike Old Rag Mountain. In addition, the closest Old Rag Ridge Trail access point from Skyline Drive is the parking lot at Limberlost, a small, 12-car lot intended for mobility-impaired visitors to use the accessible Limberlost Trail. This lot is approximately five miles one-way, via Old Rag Fire Road, to the closest part of the Old Rag circuit trail at Saddle Trail. Visitors wishing to hike Old Rag Mountain from Skyline Drive would be required to hike an extra ten miles round trip in addition to the 7.2-mile Old Rag circuit hike, for a total 17.2-mile hike. Round-trip hiking distance from the high-use larger Whiteoak Canyon Trail trailhead parking lot on Skyline Drive would be increased by two additional miles to 19.2 miles. Parking at the Skyland Resort dining room and lodging area, intended for use by Skyland guests, would add yet more mileage to the hike. The vast majority of Old Rag Mountain hikers are day users and the hiking distance required from Skyline Drive, as proposed by this alternative, would not be possible for a large portion of the approximately 50,000 people who hike Old Rag annually.

The Old Rag Fire Road is a steep, narrow, graveled administrative road (limited to four-wheel or all-wheel drive vehicles) shared with frequent horse rider use and providing hiker access to other trails in the region. Establishment of a shuttle service for visitors to the Old Rag area trails from Skyline Drive would not be feasible due to the inherent operational challenges of a shuttle system, the need to widen and improve the five miles of Old Rag Fire Road to an acceptable standard to handle shuttle vehicle volume safely and effectively, high annual costs of maintaining this five-mile stretch of the Old Rag Fire Road in serviceable condition to support a shuttle program at great expense and impact to resources, and the adverse impacts on horse users and hikers.

Along with the potential adverse impacts to the resources along Skyline Drive, this proposed alternative would not meet the overall purpose of this proposed action by not providing long-term availability for visitor parking and trail access at Old Rag Mountain, and would deny access to the vast majority of people who hike Old Rag annually. In addition, not providing parking would increase adverse impacts to those park neighbors who live along State Route 600, in the form of illegal parking, increased traffic, and increased littering.

DISCONTINUE ALL PUBLIC PARKING AND ACCESS TO OLD RAG FROM WEAKLEY HOLLOW AND CONSTRUCT NEW PARKING LOT TO PROVIDE OLD RAG ACCESS FROM SKYLINE DRIVE

Alternative Description. Close the NPS upper parking lot and allow the lease on the lower parking lot to expire in 2017. Construct new parking lot of equivalent size (i.e., 250 parking spaces) along Skyline Drive to provide park visitors access to Old Rag.

Rationale for Rejection. As described in the previous alternative, the removal of parking at Weakley Hollow would have undesirable impacts on the Berry Hollow Old Rag and Whiteoak Canyon boundary trailhead accesses and the neighboring community, as many visitors would be displaced to those sites. Discontinuing NPS-managed parking and access would not necessarily eliminate parking and visitor access from Weakley Hollow due to long-established historic public use patterns and the most convenient public access to Old Rag trails. The lack of adequately managed parking in Weakley Hollow would

adversely affect park neighbors in the community of Nethers with the increase of illegal parking along State Route 600.

Also, in addition to the approximately 10-miles of hiking that would be required from accessing Old Rag from Skyline Drive, a new parking lot would not be constructed in the vicinity of Skyline Drive due to adverse impacts to the protected natural and cultural resources associated with Skyline Drive and its status as a designated National Historic District and National Historic Landmark.

Along with the potential adverse impacts to the resources along Skyline Drive, this proposed alternative would not meet the overall purpose of providing long-term availability for visitor parking and trail access at Old Rag Mountain and would deny access to the vast majority of people who hike Old Rag annually. In addition, by removing the parking in Weakley Hollow, there would be an increase in adverse impacts to those park neighbors who live along State Route 600, in the form of illegal parking, increased traffic, and increased littering.

CONSTRUCT A 100+ VEHICLE LOT IN UPPER WEAKLEY HOLLOW WITHIN PARK BOUNDARY AND ACCOMMODATE FEWER VISITORS

Alternative Description. Construct a 100-125 space parking lot near the western end of State Route 600 within the park in Weakley Hollow.

Rationale for Rejection: Following surveys of potential parking lot sites within the park since the early 1970s, the NPS determined that no site exists within the park in the Weakley Hollow area to accommodate development of a parking area for greater than 100 vehicles without causing substantial environmental impacts to the park's natural resources. Potential parking lot sites are characterized by forested sloping terrain, large immovable boulders, and wetlands associated with Brokenback Run. Sites located west of the PATC tract, where State Route 600 narrows to a single-lane 12-foot state right-of-way, would require widening of a half mile stretch of road in rocky, steep, and forested terrain to reasonably and safely accommodate two-way traffic volume. This action would require acquiring land from willing private property owners along the route and substantial earth-moving during construction. Because of the excessive adverse impacts to natural and possibly cultural resources that would occur as a result of this alternative, this alternative has been dismissed from further consideration.

CONSTRUCT PARKING IN BERRY HOLLOW TO ACCOMMODATE ALL VISITORS

Alternative Description. Develop a parking lot for 100 or more vehicles along State Route 600 in the north end of Berry Hollow, which would shift primary access from the north side to the south side of Old Rag Mountain. Public parking and trailhead access would be eliminated in Weakley Hollow.

Rationale for Rejection: Combined with presently high levels of road use by park visitors, including guests of the nearby Graves Mountain Lodge to the lower Whiteoak Canyon trailhead and parking area, traffic volume would likely overwhelm the narrow State Route 600 road access through Berry Hollow. This action would require widening of up to one mile of road in steep and rocky, forested terrain to safely accommodate two-way traffic. The action would require acquiring land from willing private property owners along the route and substantial earth-moving during construction. As a result of overflow visitor parking on road shoulders and other off-road sites, impacts would likely continue in Weakley Hollow and increased adverse impacts to park neighbors would occur in and near Berry Hollow.

Historically, nearly all visitors who complete the classic 7.2-mile Old Rag circuit hike travel from Weakley Hollow, ascend the Old Rag Ridge Trail to a series of rock scrambles and the summit, descend the Saddle Trail, and return via the Weakley Hollow Fire Road. Access from Berry Hollow may provide the shorter-but-steeper route via the Saddle Trail to the Old Rag summit, but an important attraction of the Old Rag Mountain hike are the rock scrambles, which occur on the Weakley Hollow side of the mountain. Most park visitors hike up to the area of rock scrambles on Old Rag Ridge Trail as a one-way trip and return via the less steep and less rugged Ridge Trail.

Berry Hollow is a poor choice for a larger parking lot for reasons including narrow road access, steep sloping terrain, local geologic features, and proximity of private property boundaries at the present eight-vehicle Berry Hollow parking area. As with the Weakley Hollow region at Nethers, lot expansion or new construction of a Berry Hollow parking lot would cause substantial impact to natural resources and potentially cultural resources, including those associated with the former village of Old Rag.

CONSTRUCT PARKING LOTS IN BOTH WEAKLEY AND BERRY HOLLOW

Alternative Description. Develop a parking area in Weakley Hollow for 100 or more vehicles and a second lot in Berry Hollow for greater than 100 vehicles.

Rationale for Rejection: As with the previous alternatives, when combined with presently high levels of weekend road use by visitors to lower Whiteoak Canyon, increased traffic volume could easily overwhelm the narrow road access in Berry Hollow. NPS operational costs would increase significantly as additional staffing and support facilities would be required to establish and maintain a second operation in the Old Rag Mountain area. Construction at two sites, instead of one, would also considerably increase project costs and impacts to natural and cultural resources.

As described in the previous alternative, Berry Hollow is a poor choice for a larger parking lot for reasons including narrow road access, steep sloping terrain, local geologic features, and proximity of private property boundaries at the present eight-vehicle Berry Hollow parking area. As with the Weakley Hollow region at Nethers, lot expansion or new construction of a Berry Hollow parking lot would cause substantial impact to natural resources and potentially cultural resources, including those associated with the former village of Old Rag.

CONSTRUCT PARKING LOT AT AN ALTERNATE SITE (NOT DESCRIBED ABOVE) IN THE WEAKLEY HOLLOW AREA

Alternative Description. Consider development at a site in the Weakley Hollow area other than the PATC parcel sites described in this document.

Rationale for Rejection: No other land with adequate road access, suitable building conditions, and sufficient area near the Old Rag Ridge Trail trailhead that could be used for the development of a parking lot is currently, or within the reasonable foreseeable future, available for sale in the Weakley Hollow area.

CONSTRUCT PARKING LOT AT AN ALTERNATE SITE ON RAGGED RUN ON ROUTE 645, SOUTH OF WEAKLEY HOLLOW

Alternative Description. Construct an alternate parking lot at Ragged Run (the end of Route 645), south of Weakley Hollow, and provide access to Old Rag Mountain summit via an old road trace from park boundary on the mountain's west slope.

Rationale for Rejection. This alternative was dismissed due to the lack of available land. The 1.5 miles of Route 645 from Route 643 (Etlan Road) to the park boundary is narrow and graveled. The entire area surrounding the road is privately owned and there is no public access to the park. The only potential area that could accommodate a parking lot for 12 or more cars is on a private area of open pastureland, located approximately one mile from the end of Route 645, one-half mile from Route 643. In 1961, the park opened a road from the end of Route 645 through private and park land to the site of present-day Byrds Nest #1 shelter to transport materials by vehicle to construct the shelter. The road was accessed by permission of the private landowner, and was promptly closed to park administrative access upon completion of the shelter construction. Public access to Old Rag Mountain has never legally existed at this location; the site is gated and heavily signed against hiker access.

UTILIZE SHUTTLE SERVICE DURING WEEKENDS OR FULL-TIME TO TRANSPORT PEOPLE BACK AND FORTH FROM THE LEASED LOWER LOT OR FROM OTHER REGIONAL PARKING SITES TO THE TRAILHEAD.

Alternative Description. Various shuttle service options that have been considered include:

1. The NPS would close the existing NPS upper parking lot to public vehicle access and seek out a contractor to provide weekend shuttle service between the trailhead and lower leased parking lot. Under this option, the NPS assumes the lease for the lower parking lot would be extended indefinitely.
2. The NPS would close both the NPS upper parking lot and the lower leased parking lot (or allow the lease to expire in 2017) and establish and operate a full-time shuttle service out of the nearby community of Nethers or from other communities such as Sperryville or Syria. Park visitors wanting to hike Old Rag Mountain would drive to a designated location in the community of Nethers, Sperryville, or elsewhere and be shuttled to the Old Rag Ridge Trail trailhead. The park would utilize a contractor to provide this shuttle service.

Rationale for Rejection. There would not likely be any net benefits from providing a shuttle service from the lower leased parking lot to the NPS upper parking lot. While a shuttle service may decrease the total volume of park visitors hiking along the road from the lower leased parking lot to the NPS upper parking lot on weekends, it would not eliminate it; and pedestrian traffic on State Route 600 would increase during the weekdays, since the NPS upper parking lot would be closed to public parking. Total traffic on that portion of road would not decrease significantly; instead of inconsistent car traffic (i.e., high in the mornings and afternoons), there would be consistent bus traffic (i.e., busses going back and forth every 15 to 30 minutes). Extending the intervals between shuttle pickups and drop-offs would adversely impact overall visitor use and experience as hikers would have to wait on shuttles and would likely have to travel with more people per shuttle.

There is currently no known available site in Nethers to provide adequate parking for a shuttle service operation. A site in other area communities would have to be sought out, but Sperryville is located nearly 10 miles from Weakley Hollow and a Syria-based operation would be more logically directed to Berry Hollow. Several issues addressed in this and other alternatives make the Berry Hollow scenario infeasible. Operating a shuttle service would be logistically difficult based on the ever-changing use of the Old Rag Ridge Trail. While an estimated 50,000 people hike Old Rag Mountain each year, visitor use fluctuates greatly depending on the time of year, day of the week, time of day, and especially on weather conditions.

In both shuttle service scenarios described above and with other variations on these options, the quality of the visitor experience would also decline with such a service. The visitor experience would be degraded when hikers are necessarily grouped together in clumps, which would occur with a shuttle service, with no regard for the type of experience the hiker(s) might be seeking. The shuttle would drop off a group of hikers at one time forcing them to hike together, at least for the first mile or two. The establishment of a shuttle fee (especially for long-distance shuttle service) in addition to the park entrance fee would probably be objectionable to many visitors. Hikers would be displaced to Berry Hollow and Whiteoak Canyon boundary trailhead parking lots, causing adverse impacts to other hikers and to those communities.

Use of the shuttle service by Old Rag Mountain visitors in Weakley Hollow would probably be required for it to be profitable. To operate a profitable and sustainable shuttle service, hiking along State Route 600 to and from the Old Rag area trailheads might be strongly discouraged or even prohibited. All shuttled visitors would have to be accounted for at the end of the day before the service could go off duty; Old Rag Mountain visitation is notorious for frequency of overdue hikers. No major shuttle service or mass transportation service currently exists in the local region, and start-up costs would be very high. Operational difficulties for a shuttle service to operate successfully with profitability and sustainability are many. This alternative was considered but rejected based on technical and economic feasibility, and the overall impacts to visitor use and experience.

THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is defined by CEQ as the alternative that would promote the national environmental policy as expressed in NEPA Section 101. This includes:

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

The NPS is required to identify the environmentally preferred alternative in its NEPA documents for public review and comment. The NPS, in accordance with the Department of the Interior policies contained in the Departmental Manual (516 DM 4.10) and the Council on Environmental Quality's (CEQ) *NEPA's Forty Most Asked Questions*, defines the environmentally preferred alternative (or alternatives) as the alternative that best promotes the national environmental policy expressed in NEPA (Section 101(b)) (516 DM 4.10). In their *Forty Most Asked Questions*, CEQ further clarifies the identification of the environmentally preferred alternative, stating "Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources" (Q6a).

After completing the environmental analysis, the NPS identified alternative C as the environmentally preferred alternative in this EA because it best meets the definition established by the CEQ. It should be noted, however, that if the lease on the lower lot is not renewed by the property owner after 2017, both alternatives B and C would have similar impacts to the resources analyzed in this EA. Alternative C provides the park visitor a more aesthetically pleasing approach to the trail and also increase visitor safety by not encouraging park visitors to walk along State Route 600 to reach the Old Rag Ridge Trailhead. Alternative C protects all known cultural resources on the PATC property to the greatest extent possible and improves water quality within the watershed by incorporating a properly designed stormwater management system and 25- to 50-foot buffers around all water features into the final parking lot design. In addition, under alternative C there would be less direct impacts to park neighbors. With less available parking and the proposed reservation system under alternative C, over time, there would be a slight decrease in the amount of vehicular traffic traveling along State Route 600. Because of this, the need for people to hike along the road to reach the trailhead would be greatly reduced. In addition, with the proper design, the parking lot would be less visible and produce less noise than the current lower leased parking lot.

A summary of the environmental consequences follows in Table 1.

TABLE 1: SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Impact Topic	Alternative A: No Action Alternative	Alternative B (NPS Preferred Alternative) – Construct New Parking Lot on PATC Land, Continue Public Use of The Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot	Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot.
Physiographic Resources	Implementation of the no action alternative would result in long-term minor adverse impacts to soils at the lower leased lot. There would be no impacts to topography or geology under this alternative. There would be no adverse or beneficial cumulative impacts related to the physiographic resources. There would be no impairment of geologic resources under the no action alternative.	Implementation of alternative B would result in short-term and long-term minor adverse impacts to soils. Long-term, negligible to minor adverse impacts to topography and geology would be expected. There would be no adverse or beneficial cumulative impacts to geologic resources associated with this alternative. There would be no impairment of physiographic resources under alternative B.	Implementation of alternative C would result in short-term and long-term minor adverse impacts to soils. Long-term, negligible to minor adverse impacts to topography and geology would be expected. There would be no adverse or beneficial cumulative impacts to geologic resources associated with this alternative. There would be no impairment of physiographic resources under alternative C.
Water Quality	Implementation of the no action alternative would result in short-term, minor adverse impacts to water. Short-term minor adverse cumulative impacts to the water quality of the Hughes River Watershed would also occur. There would be no impairment of water quality from actions associated with the no action alternative.	Implementation of alternative B would result in short-term minor adverse impacts to water quality within the Hughes River Watershed and would occur only during storm events. Short-term minor adverse cumulative impacts to the water quality of the Hughes River Watershed would also occur. There would be no impairment of water quality from actions associated with alternative B.	Implementation of alternative C would result in short-term minor adverse impacts to water quality within the Hughes River Watershed and would occur only during storm events. Because the land is privately owned, the future impacts associated with discontinuing the use of the lower leased parking lot cannot be determined at this time. Short-term minor adverse cumulative impacts to the water quality of the Hughes River Watershed would also occur. There would be no impairment of water quality from actions associated with alternative C.
Vegetation	Implementation of the no action alternative would result in long-term negligible adverse impacts to vegetation within the lower leased parking lot. No adverse or beneficial cumulative impacts to vegetation would occur. There would be no impairment of vegetation associated with the no action alternative.	Implementation of alternative B would result in long-term minor adverse impacts to vegetation. No adverse or beneficial cumulative impacts to vegetation would occur. There would be no impairment of vegetation associated with alternative B.	Implementation of alternative C would result in long-term minor adverse impacts to vegetation. Because the land is privately owned, the future impacts associated with discontinuing the use of the lower leased parking lot to vegetation cannot be determined at this time. No adverse or beneficial cumulative impacts to vegetation would occur. There would be no impairment of vegetation associated with alternative C.

Impact Topic	Alternative A: No Action Alternative	Alternative B (NPS Preferred Alternative) – Construct New Parking Lot on PATC Land, Continue Public Use of The Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot	Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot.
Wildlife and Wildlife Habitat	Implementation of the no action alternative would result in long-term negligible adverse impacts and no beneficial or adverse cumulative impacts to wildlife and wildlife habitat. There would be no impairment of wildlife or wildlife habitat associated with the no action alternative.	Implementation of alternative B would result in short-term minor adverse impacts, long-term negligible beneficial impacts, long-term negligible adverse impacts, and no beneficial or adverse cumulative impacts to wildlife. There would be no impairment of wildlife or wildlife habitat associated with alternative B.	Implementation of alternative C would result in short-term minor adverse impacts, long-term negligible beneficial impacts, long-term negligible adverse impacts, and no beneficial or adverse cumulative impacts to wildlife and wildlife habitat. There would be no impairment of wildlife or wildlife habitat associated with alternative C.
Visitor Use and Experience	Implementation of alternative A would result in long-term, minor adverse impacts to visitor use and experience. If, however, the lease for the lower parking lot is not renewed after 2017, the resulting adverse impacts to visitor use and experience would be long-term and moderate. If the lease is renewed after 2017, there would be long-term minor adverse cumulative impacts, if the lease is now renewed, there would be long-term moderate adverse cumulative impacts.	Implementation of alternative B would result in long-term minor beneficial and short-term minor adverse impacts on visitor use and experience. There would also be long-term minor beneficial cumulative impacts.	Implementation of alternative C would result in short-term minor adverse impacts and long-term minor beneficial and adverse impacts on visitor use and experience. There would be long-term minor beneficial cumulative impacts.
Health and Safety	Implementation of alternative A would result in long-term minor adverse impacts to human health and safety. There would be no adverse or beneficial cumulative impacts associated with the no action alternative.	Implementation of alternative B would result in short-term negligible adverse impacts and long-term minor beneficial impacts to the health and safety of park visitors and staff. There would be no adverse or beneficial cumulative impacts associated with alternative B.	Implementation of alternative C would result in short-term negligible adverse impacts and long-term minor beneficial impacts to the health and safety of park visitors and staff. There would be no adverse or beneficial cumulative impacts associated with alternative C.
Park Neighbors	Implementation of the no action alternative would result in long-term minor adverse impacts to park neighbors; however, if the lease of the lower lot is not renewed in 2017, the expected adverse impacts would be long-term and moderate. There would be no adverse or beneficial cumulative impacts to park neighbors under the no action alternative.	Implementation of alternative B would result in short-term minor adverse impacts and long-term minor beneficial impacts to park neighbors. There would be no adverse or beneficial cumulative impacts to park neighbors under alternative B.	Implementation of alternative C would result in short-term minor adverse impacts and long-term minor beneficial impacts to park neighbors. There would be no adverse or beneficial cumulative impacts to park neighbors under alternative C.

Impact Topic	Alternative A: No Action Alternative	Alternative B (NPS Preferred Alternative) – Construct New Parking Lot on PATC Land, Continue Public Use of The Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot	Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot.
Park Operations and Management	Implementation of the no action alternative would result in long-term minor adverse impacts to park operations and management; however, if the lease of the lower lot is not renewed in 2017, the expected adverse impacts would be long-term and moderate. Long-term minor adverse cumulative impacts park operation and management would occur.	Implementation of alternative B would have long-term minor adverse impacts on park operations and management. Long-term minor adverse cumulative impacts park operation and management would also occur.	Implementation of alternative C would have long-term minor adverse impacts on park operations and management. Long-term minor adverse cumulative impacts park operation and management would also occur.

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AFFECTED ENVIRONMENT

This chapter of the EA describes existing environmental conditions in the areas potentially affected by the alternatives evaluated. This section describes the following resource areas: geologic resources, water quality, vegetation, wildlife and wildlife habitat, visitor use and experience, health and safety, socioeconomics (park neighbors), and park management and operations. Potential impacts are discussed in the “Environmental Consequences” section following the same order.

PHYSIOGRAPHIC RESOURCES (GEOLOGY, TOPOGRAPHY, AND SOILS)

Unison loam and Trego loam are the two most prevalent soil types found within and adjacent to the lower leased parking lot and the six-acre PATC parcel. Unison loam is well drained with medium or rapid runoff and moderate permeability. This soil is typically found on mountain footslopes, alluvial fans, or stream terraces. Trego loam consists of very deep, moderately well drained soils with slow permeability. These soils formed in acid alluvial materials, weathered from metamorphic crystalline rocks. It occurs on nearly level old alluvial fans and gently sloping colluvial foot slopes of the Blue Ridge province (NRCS 2007). Detailed wetland delineations in 2002 indicated soils located on this site that were not mapped previously by NRCS but were field tested and shown to have hydric soils characteristics. Soils found higher on the slope of the PATC parcel are thin where the terrain is more steep and punctuated by boulders and small outcrops.

The soils found within and adjacent to the NPS upper parking lot are comprised entirely of colluvial land. Colluvial land consists of soil and rock material rolled from adjacent mountainsides (NRCS 2007). Coarse fragments of granodiorite and greenstone, ranging from fine gravel to huge boulders 10 feet or greater in diameter, make up 40 to 90 percent of the total mass. The soil material between the coarse fragments is commonly loam, but ranges to fine sandy loam and silt loam. The lot itself has been leveled and surfaced with gravel (NRCS 2007).

The topography of the area comprising the two existing parking areas and the site of the proposed PATC parking lot slopes to the northeast. Elevations range from approximately 1,050 feet above sea-level at the NPS upper parking lot, to approximately 1,000 feet above sea-level at the proposed PATC lot, to approximately 900 feet above sea-level at the lower leased parking lot (NPS 2003). Slopes within the NPS upper parking lot and lower leased parking lot are flat, while the general slopes within the currently undeveloped six-acre PATC parcel range from two to ten percent.

The granite associated with Old Rag Mountain is regionally important because it is one of four places in the eastern United States where an intact, ancient, igneous intrusion is visible and creates a major landscape feature. Exposed bedrock and boulders occur in areas within and adjacent to the NPS upper parking lot and six-acre PATC parcel (NPS 1998a).

WATER QUALITY

The proposed project is within the Hughes River watershed, part of the Rapidan-Upper Rappahannock Watershed. The two major streams in the area are the Hughes River and Brokenback Run, which intersect just to the north of the six-acre PATC parcel, off State Route 600. Three unnamed streams are present on the PATC as well, although none of these streams are shown on the U.S. Geological Survey (USGS) topographic map for the area. The northern and central drainages originate from on site springs in the western part of the PATC parcel and flow northeast through wetland areas before joining and flowing off-site to the northeast. The southern drainage enters the site in its southwestern corner and flows east/northeast. All three unnamed streams are perennial and drain into the Hughes River.

In June 2003, the Virginia Department of Environmental Quality (DEQ) nominated segments and tributaries of Brokenback Run and the Hughes River in Shenandoah National Park as Exceptional Waters. According to DEQ’s May 2006 Fact Sheet on Exceptional Waters, “U.S. law allows for the extra protection of waters that have exceptional qualities. This protection can be applied to Virginia waters under the Exceptional State Water or Tier III section of Virginia’s water quality regulation” (DEQ 2006).

The U.S. Environmental Protection Agency's (EPA) National Assessment Database for 2006 lists the attainment status for Brokenback Run as "fully supporting" recreation and aquatic life, which is the highest ranking that a waterbody can receive (EPA 2006). According to the Shenandoah National Park Resource Management Plan, with the exception of two streams that flow from private land into the park, the remaining streams in the park are all headwater streams (NPS 1998). Shenandoah National Park's website on water quality indicates that these streams are formed from numerous springs near the ridge tops. The water from the springs is very cool and contributes to the numerous highly oxygenated streams found in the park. Also, large blocks of undisturbed forests located within the park ensure that the streams are of high quality and low sediment load (NPS 2007a).

The Shenandoah National Park Water Resources Scoping Report indicates both the Hughes River and Brokenback Run support brook trout (*Salvinus fontinalis*) and brown trout (*Salmo trutta*). According to this report, brown trout are only found in five streams within the park (NPS 2004). Virginia Department of Game and Inland Fisheries' website indicates wild trout populations require cold, well-oxygenated water; a clean stream bottom and good fish cover are critical factor for Virginia's trout populations (VDGIF 2007).

VEGETATION

The proposed site identified for the parking lot is composed of second growth mixed deciduous forest (approximately 30 to 40 years old) located on land that was previously farmed. The canopy is fairly open, permitting a dense forest ground cover dominated by a variety of species such as green briar (*Smilax* spp.), blackberry (*Rubus* spp.), false hellebore (*Veratrum viride*), Christmas fern (*Polystichum acrostichoides*), ladyfern (*Athyrium filix-femina*), stilt grass (*Microstegium vimineum*), wingstem (*Verbesina alternifolia*), saxifrage (*Saxifraga* spp.), impatiens (*Impatiens* spp), violets (*Viola* spp.), sensitive fern (*Onoclea sensibilis*), ragwort (*Senecio* spp.), New York fern (*Thelypteris noveboracensis*), Japanese honeysuckle (*Lonicera japonica*), multiflora rose (*Rosa multiflora*), Virginia creeper (*Parthenocissus quinquefolia*), wild grape (*Vitis* spp.), false Solomons seal (*Smilacina racemosa*), and wood nettle (*Laportea canadensis*). Shrub species include common elderberry (*Sambucus canadensis*), spicebush (*Lindera benzoin*), alder (*Alnus* spp.), witch hazel (*Hamamelis virginiana*), American hazelnut (*Corylus americana*), holly (*Ilex* spp.), and mountain laurel (*Kalmia latifolia*). The forest cover is primarily a cove hardwood type. Tree species predominant to this forest type include tulip poplar (*Liriodendron tulipifera*), sycamore (*Platanus* spp.), princess tree (*Paulownia tomentosa*), ailanthus (*Ailanthus altissima*), red maple (*Acer rubrum*), black locust (*Robinia pseudoacacia*), black cherry (*Prunus serotina*), red oak (*Quercus rubra*), eastern hemlock (*Tsuga canadensis*), yellow birch (*Betula allegheniensis*), white pine (*Pinus strobus*), striped maple (*Acer pennsylvanicum*), black birch (*Betula lenta*), mimosa (*Albizia julibrissin*), sassafras (*Sassafras albidum*), umbrella magnolia (*Magnolia tripetala*), and ironwood (*Carpinus caroliniana*) (NPS 2003).

The vegetation on the proposed 0.7 mile long trail corridor consists of a mixture of hardwood species. The proposed trail would connect the site of the proposed parking area to the Old Rag Ridge Trail. The corridor traverses a hill side dominated by tulip poplar forest. This forest type is common on deep well-drained soil along stream valleys at low to mid-elevations. The tree canopy along the trail route is composed primarily of mature tulip poplar, mixed with red maple, yellow birch, and black birch. Other associated tree species include red oak and hickories (*Carya* spp.). The understory contains a mixture of shrubs including spicebush, flowering dogwood (*Cornus florida*), and striped maple. At the ground level, Christmas fern, Virginia creeper, green brier, and blackberry are most evident (NPS 2003).

No rare plants are documented within the PATC parcel or within the trail corridor outside or inside the park. A review of Ludwig et al. (1993) confirmed no state rare plants have been recorded on or near the six-acre PATC parcel (Ludwig 1993).

WILDLIFE AND WILDLIFE HABITATS

The second growth mixed deciduous forest, old fields and agricultural lands, riparian areas, and wetlands in and around the project area provide a wide variety of habitats for wildlife species, including birds,

mammals, reptiles, amphibians, and fish. Wildlife includes a variety of common Central Appalachian species. Currently white-tailed deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), and coyote (*Canis latrans*) are the primary large mammals. Approximately 50 species of small mammals have been documented in the park. Gray squirrels (*Sciurus carolinensis*), opossums (*Didelphis virginiana*), raccoons (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), white-footed mice (*Peromyscus leucopus noveboracensis*), short-tailed shrew (*Blarina brevicauda*), are among the mammals identified (NPS 1998a).

Over 200 species of resident and transient birds are known to use the park's habitat. Due to the park's location along the crest of the Blue Ridge and the extent of the forested habitat, Shenandoah National Park provides habitat for neotropical migratory birds, both for nesting and as a travel corridor. Birds commonly seen within the project area include wild turkey (*Meleagris gallopavo*), turkey vulture (*Cathartes aura*), grey catbird (*Dumetella carolinensis*), blue jay (*Cyanocitta cristata*), rufous-sided towhees (*Pipilo erythrophthalmus*), junco (*Junco spp.*), nuthatches (*Sitta spp.*), titmouse (*Baeolophus spp.*), chickadees (*Poecile spp.*), and various warblers and woodpeckers (NPS 1998a).

The streams and wetlands found within the project area support a wide variety of amphibians and reptile species. There are 27 species of reptiles, including 18 snakes (two poisonous); five turtles; three skinks; and one lizard, and 24 species of amphibians, including ten frogs and toads; and 14 salamanders and newts (NPS 2005a). Amphibians include northern red salamander (*Pseudotriton ruber*), spotted salamanders (*Ambystoma maculatum*), pickerel frogs (*Rana palustris*), and wood frogs (*Rana sylvatica*). Reptiles include northern water snakes (*Nerodia sipedon*), eastern box turtle (*Terrapene carolina*) and snapping turtles (*Chelydra serpentina*).

Thirty-two species of fish have been recorded in park waters since the 1940s. Four park streams support established populations of exotic rainbow trout (*Oncorhynchus mykiss*) and brown trout, and the tiger trout, a hybrid fish that is a cross between a female brown trout and a male brook trout, has been found in several streams. Populations of eastern brook trout predominate. Of the approximately 90 small streams in the park, 50 contain brook trout. Brook trout populations in most streams are maintaining an adequate population size to perpetuate the species, but acidification has had a measurable effect on its population productivity and diversity. Chronic and episodic acidification from air pollution has adversely impacted the park's streams and fish populations; particularly brook trout and blacknose dace have suffered measurable impacts at the community, population, and individual level. Angling pressure is controlled to alleviate excessive depopulation. There are no federal or state-listed fish species known to exist in park waters (NPS 2005a).

VISITOR USE AND EXPERIENCE

Shenandoah National Park provides a diverse range of easily accessible mountain recreation opportunities in close proximity to major eastern population centers. From Skyline Drive to wilderness trails, these facilities offer opportunities for outstanding scenic vistas and exposure to the diversity of Blue Ridge habitats and culture.

The large majority of visitors to Shenandoah National Park arrive by personal vehicle. Visitors can enter the park at Front Royal, Thornton Gap, Swift Run Gap, and Rockfish Gap; two additional boundary contact stations are staffed on weekends. Shenandoah is a "drive-through" type of park. More than half of all visitors reported that the only park activity they participated in was sightseeing along Skyline Drive. As part of Shenandoah National Park's 2001 Visitor Study, it was shown that most visitors (74 percent) spent less than one day (24 hours) at the park (Littlejohn 2002). The most important reasons for visiting the park were to see the views from the scenic drive/overlooks and enjoy solitude/natural quiet. Other activities shown to be important to park visitors included:

- Wildlife observation/nature study
- Photography
- Spending time in visitor centers

- Walking for pleasure
- Day hiking
- Picnicking (NPS 2007b)

According to NPS Visitation Database Reports, over the past decade annual visitation levels have decreased somewhat and have stabilized in recent years at a level of approximately 1.1 million visitors annually (Figure 6). In 2006, total annual visitation was 1,069,992 persons (NPS 2007c).

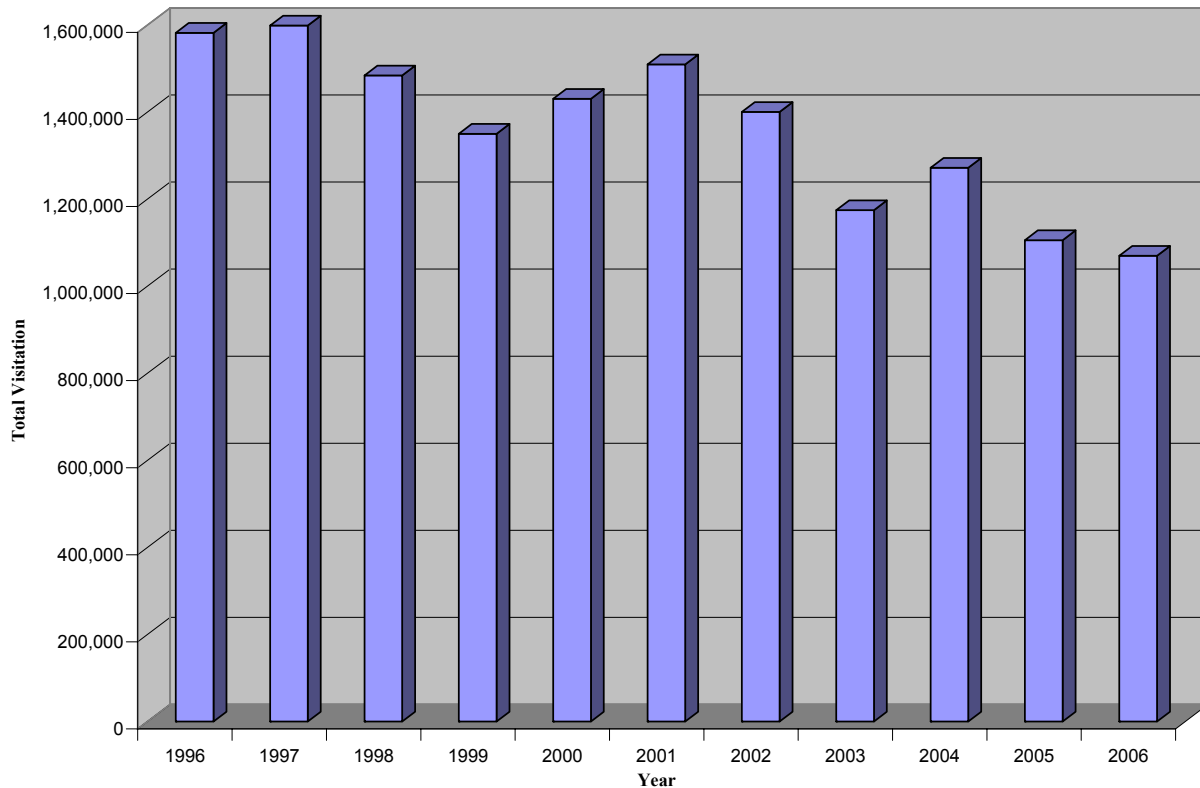


Figure 6: Annual Visitation to Shenandoah National Park (1996 to 2006)

Since 1996, park visitation has been heaviest between May and November, with the highest monthly visitation occurring in October, in response to peak autumn colors (Figure 7). The next highest monthly visitations occur during July and August; this accounts for more than 30 percent of the total annual visits. These three months alone account for approximately 51 percent of total annual park visitation (NPS 2007c). While summer visitation tends to be spread throughout all the days of the month, visitation during the October peak is concentrated more heavily on the weekends, when day visitors from nearby metropolitan areas predominate.

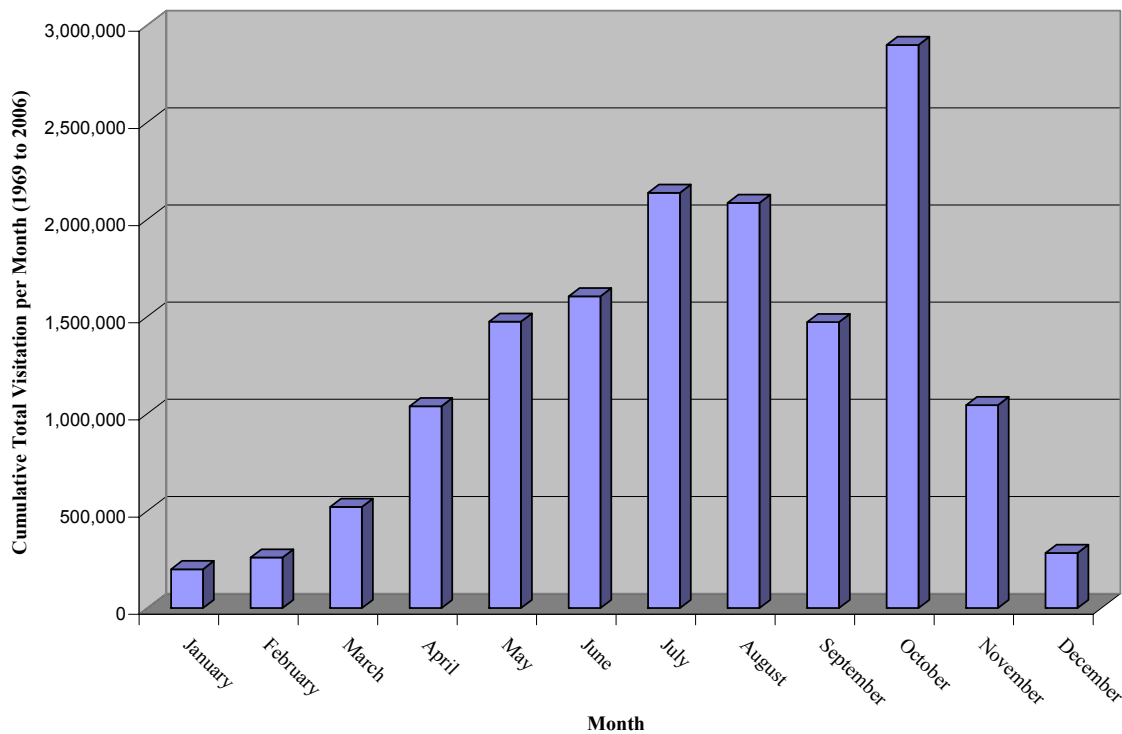


Figure 7: Total Visitation at Shenandoah National Park by Month (1966 – 2006)

There are over 500 miles of hiking trails, including 101 miles of the Appalachian Trail and 200 miles of designated horse trails, in Shenandoah National Park. Visitors hiking Old Rag must have a valid Shenandoah National Park entrance permit. Seven-day permits or yearly passes may be purchased from rangers (when present), or via self-pay at the Old Rag parking area. The Old Rag Ridge Trail climbs Old Rag Mountain (3,291 feet), and is one of the most popular hikes in the park. Annually, approximately 50,000 park visitors hike Old Rag, which in 2006 (Figure 6), constituted approximately five percent of all visitors to the park. Unlike most of the mountains in the Blue Ridge, Old Rag stands alone as an outlying mountain rather than as part of a continuous chain. Old Rag Ridge Trail is a 7.2-mile loop and features an elevation gain of 2,200 feet.

Apart from the visitation statistics conducted for the whole park, car counts at the two existing parking lots that serve Old Rag Mountain Trailhead were conducted between March 2004 and November 2006. Counts were taken primarily during weekends (Friday, Saturday, and Sunday) and days of expected heavy use. Counts were not conducted during the winter months of December, January, and February because these months generally experience low usage. In total, 251 weekend days were surveyed. Of the weekend days surveyed, approximately 89 percent of the time the total parking required was at or below 162 spaces (224 weekend days out of 251 weekend days surveyed). Approximately nine percent of the time parking exceeded 162 spaces (23 weekend days out of the 251 weekend days surveyed). Only about one percent of the time did the required parking exceed the 262 total spaces available at both the NPS upper parking lot and the lower leased lot (4 weekend days out of the 251 weekend days surveyed).

Coinciding with the overall visitation trends of Shenandoah National Park (Figure 7), people are most likely to visit Old Rag in the fall. Approximately 70 percent of those days that exceeded 162 spaces, occurred in September, October, and November to coincide with the fall colors (19 weekend days out of 27 weekend days that exceeded 162 spaces). The remaining 8 days (30 percent) occurred in April and May.

In 1997, Shenandoah National Park commissioned a Backcountry and Wilderness Visitor Study for the park. This study showed that although the majority of Old Rag visitors felt crowded, only 35 percent of Old Rag users agreed that opportunities for solitude were less than expected, while 45 percent of Old Rag hikers felt not crowded at all in an overall assessment of their hike. According to the Study, the majority of Old Rag visitors clearly felt crowded, but they felt crowded just 21 percent of the time on Old Rag.

HUMAN HEALTH AND SAFETY

The NPS is committed to providing appropriate, high-quality opportunities for visitors and employees to enjoy the parks in a safe and healthful environment. The NPS strives to protect human life and provide for injury-free visits. One of the core values, as stated in the NPS 2006 Management Policies (NPS 2006) and Director's Order 50B, *Occupational Safety and Health Program*, is the safety and health of its employees, contractors, volunteers, and the visiting public. It is the policy of the NPS to provide a safe and healthful place of employment to protect federal and private property from accidental damage or loss, and to meet or exceed all applicable statutory, regulatory, and policy requirements relating to safety, health, and the environment.

Currently, most visitors to the Old Rag Mountain/Weakley Hollow area of the park share the roadway with vehicular traffic as they walk between the lower leased parking lot and the Old Rag Ridge Trailhead. The trailhead is currently located 0.8 miles from the lower leased parking lot and is used when the 12-space NPS upper parking lot is at capacity. The western half of this road is narrow, winding, and lacks road shoulders. When combined with the presence of vegetation right up to the road edge, sight distances are poor. While there has never been a vehicle/pedestrian accident along this stretch of road, the park, VDOT traffic engineers, law enforcement officials, and some neighbors share the belief that the current situation poses a hazardous situation, especially during times of high visitor use. Since 1995, the NPS has used a temporary road barricade on busy visitation days. The barricade is manned by NPS staff during periods of heavy visitor use to help control traffic between the NPS upper parking lot and the lower leased parking lot. This has reduced the hazard, but such road barricades are not authorized under Virginia law and thus, in the view of VDOT, do not present a viable long-term measure (NPS 2003).

In addition, on days when both the upper and lower parking lots are filled to capacity, trespass and roadside parking occurs along State Route 600. The traffic problem poses a safety issue since it may interfere with access by large emergency vehicles. This is primarily of concern to those property owners in the western 0.4 miles of State Route 600, after the road narrows.

PARK NEIGHBORS

For the purposes of this EA, the area of focus, with regard to the existing conditions of park neighbors, is the portion of State Route 600 from the existing lower leased parking lot to the NPS upper parking lot. It is assumed the amount of vehicular/pedestrian traffic and noise and its seasonal and daily (temporal) distribution would not change outside of this area as a result of the proposed action alternatives. Along its entire length, State Route 600 is comprised of rural residential development. Between the lower leased parking lot and the NPS upper parking lot and trailhead, there are six private residences and a sportsmen's club. Three of those private residences are set back from the road separated by a vegetative buffer, while the other three are located near the road (Bair 2007).

County records indicate an average daily volume of traffic on the project area segment at 210 vehicles. Approximately 73 percent of this daily use within the project area is attributed to resident access (NPS 2003), with the remaining traffic being associated with the Old Rag Ridge Trail access.

While the majority of park visitors who travel down State Route 600 to get to the Old Rag Ridge Trailhead respect the rights of the private landowners who live along the road, some either disregard or are unaware that the land surrounding the road is private property. Issues that affect park neighbors include:

- Trespassing;

- Illegal camping;
- Illegal parking along State Route 600;
- Sanitation/littering on private property; and
- Noise from vehicles and/or pedestrians.

On some days when both the upper and lower lots are filled to capacity, people have trespassed on private property, illegally camped, and parked illegally along State Route 600, sometimes blocking the driveways of local residents.

Park neighbors between the lower leased parking lot and the NPS upper parking lot have also experienced problems caused by littering and sanitation. When visitors walking along State Route 600 cannot or do not wait until they reach the portable toilets at the lower leased parking lot, they generally utilize the vegetation off the road for privacy, which many times is private property. The issue of potential noise increase associated with traffic as a result of the proposed action is set in the context of impacts on neighbors situated along State Route 600 within the project area.

PARK OPERATIONS AND MANAGEMENT

Currently, the park staffs the contact station located at the lower leased parking lot with two employees during all weekends from April through early November. They collect entrance fees, answer questions, perform general interpretive activities, barricade the road between the lower leased parking lot and the NPS upper parking lot if the NPS upper parking lot is at capacity, and are the first point of contact if any emergencies occur on the trail. The contact station is not staffed during the week or winter months.

Additional management actions occurring at the NPS upper parking lot and the lower leased parking lot include general maintenance of the lots, garbage pick up, and scheduling the maintenance of the portable toilets with contractor.

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ENVIRONMENTAL CONSEQUENCES

GENERAL METHODOLOGY FOR ESTABLISHING IMPACT THRESHOLDS AND MEASURING EFFECTS

This chapter addresses the potential impacts to each of the impact topics discussed under the “Affected Environment” chapter for each of the alternatives. The action alternatives are compared to the no action alternative, or baseline condition of the project area within Shenandoah National park, to determine impacts to impact topics. In the absence of quantitative data, best professional judgment was used. In general, effects were determined through consultation and collaboration with a multidisciplinary team of NPS and other professional staff. Regulatory agency consultation with the USFWS, Virginia Department of Conservation and Recreation and other existing data sources such as park planning documents and the Shenandoah National Park website were also used to assess the potential impact of each alternative.

Potential impacts of all alternatives are described in terms of type (beneficial or adverse); context; duration (short- or long-term); and intensity (negligible, minor, moderate, major). Definitions of these descriptors include:

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

Adverse: A change that declines, degrades, and/or moves the resource away from a desired condition or detracts from its appearance or condition.

Context: Context is the affected environment within which an impact would occur, such as local, park-wide, regional, global, affected interests, society as whole, or any combination of these. Context is variable and depends on the circumstances involved with each impact topic. As such, the impact analysis determines the context, not vice versa.

Duration: The duration of the impact is described as short-term or long-term. Duration is variable with each impact topic; therefore, definitions related to each impact topic are provided in the specific impact analysis narrative.

Intensity: Because definitions of impact intensity (negligible, minor, moderate, and major) vary by impact topic, intensity definitions are provided separately for each impact topic analyzed.

CUMULATIVE IMPACTS

NEPA regulations require an assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as “the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively moderate or major actions that take place over a period of time.

Cumulative impacts are considered for all alternatives, including the no action alternative. Cumulative impacts were determined by combining the impacts of the alternative being considered with other past, present, and reasonably foreseeable future actions. The following actions were identified as having the potential for impacts to the resources that are evaluated in this environmental assessment.

Rock Outcrop Management Plan (ROMP)

The Shenandoah National Park rock outcrop areas are some of the largest in the region and contain many significant vegetation communities and rare plant and animal populations. These rock outcrops often draw visitors to the views and sweeping vistas they afford. Intense use of these areas by hiking, climbing, and camping enthusiasts has led to severe degradation of vegetation and soils at some outcrop sites, including impacts to rare species and communities.

Important information (such as outcrop locations, geologic and biological composition, and visitor use impacts) necessary to make management decisions was lacking. Given that park management personnel are mandated to protect natural resources including rock outcrops while still providing opportunities for visitor enjoyment of these resources, an intensive study of rock outcrops became necessary.

The ROMP was funded by the NPS Natural Resource Preservation Program from 2005 to 2007 to conduct natural resource and recreation use assessments. These assessments will culminate in the implementation of the ROMP to mitigate current impacts, accommodate visitor use, and direct the future management of rock outcrop areas and their resources. This document would assist Shenandoah National Park management personnel in directing appropriate visitor recreation use to minimize impacts, mitigate resource degradation associated with visitor use, preserve valuable outcrop resources, restore damaged cliff and rock outcrop areas, and direct the future management of fragile cliff areas.

Rehabilitation of Skyline Drive Overlooks

The NPS would rehabilitate 49 of the 69 historic overlooks located along Skyline Drive in Shenandoah National Park, located within Warren, Page, Rappahannock, Madison, Rockingham, Augusta, Greene, Albemarle, and Nelson Counties, Virginia. The rehabilitation would be done in a manner that preserves the historic character of the overlooks and Skyline Drive, while improving public safety and enhancing visitor enjoyment and historic interpretation of the park (NPS 2007b).

This action is needed because of the deteriorating condition of the historic stone guardwalls, retaining walls, and parking areas, which has created public safety concerns and diminished overall visitor enjoyment. In addition, the overall historic characteristics of the overlooks have been diminished by some inappropriate later additions of some elements of the overlooks (i.e., rolled asphalt curbs and paved sidewalks).

NPS and Federal Highway Administration (FHWA) Roadway Improvement Projects Within the Park – Various Roadway Rehabilitation

All proposed roadway improvement projects would take place within their original prisms. Projects scheduled to occur by 2010 include:

- **Repair Byrd Visitor Center Access Road**

This project would repair the Byrd Visitor Center Access Road Route 38 in the Big Meadows developed area in Shenandoah National Park. The work would include milling and paving the existing road, performing spot repairs to aggregate base course, and overlaying with new asphalt pavement. Work would also include replacing drainage structures, grading ditches, stabilizing road shoulders, and restriping the road surface.

- **Repair Road to Stables, Wastewater Treatment Plant, and Housing Area at Skyland Area**

This project would repair the administrative road to the stables, wastewater treatment plant, and housing area of the Skyland developed area in Shenandoah National Park. The work would include milling and paving the existing road, performing spot repairs to aggregate base course, and overlaying with new asphalt pavement. Work would also include replacing drainage structures, grading ditches, stabilizing road shoulders, and restriping the road surface.

- **Repair Big Meadows Old Campground Access Road**

This project would repair the campground loops in the Old Campground of the Big Meadows developed area in Shenandoah National Park. The work would include milling and paving the existing road, performing spot repairs to aggregate base course, and overlaying with new asphalt pavement. Work would also include replacing drainage structures, grading ditches, stabilizing road shoulders, and restriping the road surface.

▪ **FHWA Spot Repair Along Skyline Drive**

This project would rehabilitate Skyline Drive in the Central District by removing and replacing asphalt pavement and aggregate base material in specified locations along Skyline Drive; placing 1-inch deep by 2-feet wide aggregate/topsoil shoulder mix; milling and overlaying asphalt pavement through Mary's Rock Tunnel; removing and replacing (in-kind) seven stone headwalls; removing and replacing (in-kind) one headwall/ drainage well; removing and replacing seven concrete drop inlets (lids to match historic lids); removing and replacing 12 culverts; placing aggregate rip rap at one culvert outfall; widening asphalt pavement in specified curves; regarding two culvert outlet ditches; and constructing two stone masonry aprons at drop inlets.

Area Projects

Area projects for transportation improvement and other development in the general vicinity of the road but outside of the park were examined. Agencies responsible for planning construction projects in the area of Shenandoah National Park include VDOT and local communities. No projects for VDOT or the local communities were identified that would collectively interact with the actions proposed in the alternatives being considered.

IMPAIRMENT ANALYSIS

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

The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact, in the professional judgment of the responsible NPS manager, that would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts. An impact to any park resource or value may constitute impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the 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 NPS planning documents.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. An impairment determination is included in the conclusion statement for all impact topics related to all Shenandoah National Park natural resources (soils, surface waters, vegetation, cultural landscapes, and historic structures). Impairment determinations are not made for visitor use and enjoyment, health and safety, socioeconomics, or park operations and management, because impairment findings relate back to park resources and values and these impact areas are not generally considered to be park resources or values. Impairment determinations are not made for visitor use and experience because, according to the Organic Act, enjoyment cannot be impaired in the same way an action can impair park resources and values.

PHYSIOGRAPHIC RESOURCES (GEOLOGY, TOPOGRAPHY, AND SOILS)

Methodology and Assumptions

Potential impacts to geologic resources are assessed based on the extent of disturbance to natural geologic and topographic resources, natural undisturbed soils, the potential for soil erosion resulting from disturbance, and limitations associated with the soils. Analysis of possible impacts to geologic resources was based on on-site inspection of the resource within the project area, review of existing literature and maps, and information provided by the NPS and other agencies.

Study Area

The geographic study area for geologic resources is contained within the boundaries of the two existing parking areas and the six-acre PATC parcel proposed for development. It is expected that construction/rehabilitation activities would not occur outside these areas.

Impact Thresholds

The following thresholds were used to determine the magnitude of impacts on geologic resources:

Negligible – Geologic resources would not be impacted or the impact would be below or at the lower levels of detection. Any impacts to soils, topography, and geology would be slight.

Minor – Impacts to geologic resources would be detectable. Impacts to undisturbed areas would be small. Mitigation would be needed to offset adverse impacts and would be relatively simple to implement and would likely be successful.

Moderate – Impacts to geologic resources would be readily apparent and result in a change to the soil, topographic, and geologic character over a relatively wide area. Mitigation measures would be necessary to offset adverse impacts and would likely be successful.

Major – Impacts to geologic resources would be readily apparent and substantially change the character of the soils, topography, and geology over a large area both in and out of the park. Mitigation measures necessary to offset adverse impacts would be needed, extensive, and their success would not be guaranteed.

Duration – Short-term impacts occur during the implementation of the alternative; long-term impacts extend beyond implementation of the alternative.

Impacts of Alternative A – No Action Alternative

Analysis. Under the no action alternative, the upper and lower leased parking lots would continue to be used and there would be no new construction or any other ground-disturbing activities. Soil compaction would continue to occur on the lower leased parking lot from the continued use of this unpaved, grassed field as a parking lot. Compacted soils contribute to reduce water infiltration rates, allowing for greater runoff and increased potential for erosion. Compacted soils can also inhibit seed germination and plant growth, which over the long-term decreases the amount of organic material within the soils and decreases overall soil productivity (i.e., the capacity of the soil to produce vegetative biomass). Under this alternative, adverse impacts to soils would be long-term and minor. There would be no impacts to soils from the continued use of the NPS upper parking lot.

Under the no action alternative, there would be no modification to the topography or geology of the lower leased parking lot, the NPS upper parking lot, or the six-acre PATC parcel.

Cumulative Impacts. Impacts to geologic resources are site specific and are not affected by cumulative development outside the study area. Cumulative impacts would only occur if development immediately within or adjacent to the site directly or indirectly affected the geology, topography, and/or soils of the site. There are no present or future actions that would result in any impacts to the geologic resources within or adjacent to the site. As a result, implementation of the no action alternative would result in no beneficial or adverse cumulative impacts to the existing geologic resources of the area.

Conclusion. Implementation of the no action alternative would result in long-term minor adverse impacts to soils due to continued compaction of soils occurring in the lower leased parking lot. There would be no impacts to soils from the continued use of the NPS upper parking lot. There would be no impacts to topography geology under this alternative. There would be no adverse or beneficial cumulative impacts related to the physiographic resources. There would be no impairment of geologic resources under the no action alternative.

Alternative B (NPS Preferred Alternative) – Construct New Parking Lot on PATC Land, Continue Public Use of the Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot

Analysis. Alternative B would include the construction of a new parking lot on PATC land and a connecting trail from the parking lot to the Old Rag Ridge Trailhead. In addition, the shed-style kiosk from the leased lower lot (approximately 120 square feet) would be moved within the footprint of the proposed parking lot and continue to serve as a temporary visitor contact station. Vault toilets would also be constructed within the footprint of the proposed parking lot. A permanent but small public contact station may be constructed in the future. A short foot trail would be constructed from the primary parking area to State Route 600 to provide pedestrian access to the Nicholson Hollow Trailhead. Additionally, two span bridges would be constructed: one to cross the southernmost wetland as part of the new trail head, and one to cross the wetland area between the two parking lots being considered on the PATC land. These proposed activities would disturb approximately two acres of soils.

In preparing the two-acre site for the proposed parking lot on the PATC parcel, heavy machinery would be used to remove vegetative cover to prepare the site for construction (i.e., grading and leveling), and for construction of the proposed parking lot. The vault toilet and kiosk would be located within the two-acre footprint of the parking lot and would not result in any additional area being disturbed. As a result of construction activities, soils would be compacted, soil layer structure would be disturbed and modified, and soils would be exposed, increasing the overall potential for erosion. Soil productivity would decline in disturbed areas and be completely eliminated for those areas within the footprint of the new parking lot and connector trail. Impacts to soils associated with the implementation of the new parking lot would be long-term and minor.

During all construction activities associated with alternative B, mitigation measures (detailed in the “Alternatives” chapter) would be implemented to minimize adverse impacts to soils. Mitigation measures could include but are not be limited to the following:

- Armor ditches on a site-by-site basis to prevent scouring and erosion.
- Provide culvert outlet protection (riprap aprons or basins) to reduce water velocity and prevent scour erosion.
- Revegetate all disturbed soil.

Additional short-term minor adverse impacts to soils surrounding the footprint of the proposed parking lot would occur from construction equipment working on-site. These impacts would be mitigated after construction has been completed by tilling the soil and replanting the surrounding areas impacted, as needed. Adverse impacts related to construction activities would be short-term as they would only occur during construction.

Soil compaction would continue to occur in the lower leased parking lot from the use associated with vehicles parking on the grass lot, though the area affected would be reduced from current conditions. Compacted soils reduce water infiltration rates, allowing for greater runoff and increased potential for erosion. Compacted soils can also inhibit seed germination and plant growth, which over the long-term decreases the amount of organic material within the soils and decreases overall soil productivity.

The proposed connector trail would be 0.7 miles in length and approximately five feet wide. This would result in approximately 0.4 acres (18,400 sq. ft.) of ground disturbance. Clearing the trail would involve

removing trees less than two inches diameter, brush, and rock from the tread of the trail. Finalizing the tread of the trail would consist of leveling the soil surface with no more than six inches of cut and fill. Erosion control features such as water bars or grade dips would probably have to be installed in order to reduce erosion of the trail surface over time. Generally, installation of these features is done with hand tools and results in a negligible amounts of cut and fill. Adverse impacts to soils associated with trail construction would be long-term and minor.

Under this alternative, the NPS upper parking lot would be closed to the public, trash cans and portable toilets removed, and the fire road locked gate relocated to the current entrance of the parking lot. The space would be then used exclusively by the NPS for administrative emergency access purposes related specifically to search and rescue response incidents on Old Rag. No adverse or beneficial impacts to soils would occur at the NPS upper parking lot, because while this lot would no longer be publically used, it would still exist and be used for NPS administrative purposes.

The granite associated with Old Rag Mountain is regionally important because it is one of the four places in the eastern United States where an intact, ancient, igneous intrusion is visible and creates a major landscape feature. Many locations throughout the park have boulders that are detached from bedrock outcrops and are perched or balanced in a semi-stable state. Construction activities would include shallow excavation for the installation of the parking lot and excavating approximately four to five feet in depth for the construction of the vault toilets. None of the igneous landscape features would be affected although there would probably be the need to excavate and crush some underlying boulders, which would result in long-term, negligible adverse impacts to geologic features at the site of the proposed PATC parking lot.

The topography in the proposed parking lot development area gently slopes to the southeast, with elevations in the area ranging from 940 to 900 feet above sea level. Alteration of existing topography on two acres of the PATC parcel would be expected as a result of grading and associated cut and fill necessary to accommodate the proposed parking lot. Since the site is gently sloping and the proposed construction would work with its natural terrain, alteration of the existing topography would be minimal, resulting in long-term minor adverse impacts.

Under alternative B, topography and geology at the lower leased parking lot and the NPS upper parking lot would remain the same; therefore, no effects to topography and geology would be expected.

Cumulative Impacts. Impacts to geologic resources are site specific and are not affected by cumulative development outside the study area. Cumulative impacts would only occur if development immediately within or adjacent to the site directly or indirectly affected the geology, topography, and/or soils of the site. There are no present or future actions that would result in any impacts to the geologic resources within or adjacent to the site. As a result, implementation of alternative B would result in no beneficial or adverse cumulative impacts to the existing geologic resources of the area.

Conclusion. Implementation of alternative B would result in short-term and long-term minor adverse impacts to soils from the increased potential for erosion, compaction, loss of productivity, and disturbance of soils resulting from construction activities. In addition, implementation of this alternative would result in long-term minor adverse impacts to soils due to continued compaction of soils in the lower leased parking lot. No impacts to soils would occur at the NPS upper parking lot. Long-term, negligible to minor adverse impacts to topography and geology would be expected from cut and fill operations and the excavation of some underlying boulders on the PATC site. There would be no impacts to the geology or topography to either the lower leased parking lot or NPS upper parking lot under this alternative. There would be no adverse or beneficial cumulative impacts to geologic resources associated with this alternative. There would be no impairment of physiographic resources under alternative B.

Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot

Analysis. The proposed construction under alternative C would be the same as those described under alternative B. The only difference is that under alternative C, the lower leased parking lot would be permanently closed. The proposed construction activities (i.e., construction of a new parking lot, connecting trail, an approximately 120 square foot public contact station, vault toilets, and two span bridges would be constructed (one to cross the southernmost wetland as part of the new trail head, and one to cross the wetland area between the two parking lots being considered on the PATC land) would disturb approximately two acres of soils.

In preparing the two-acre site for the proposed parking lot on the PATC parcel, heavy machinery would be used to remove vegetative cover to prepare the site for construction (i.e., grading and leveling). The vault toilet and kiosk would be located within the two-acre footprint of the parking lot and would not result in any additional area being disturbed. As a result of construction activities, soils would be compacted, soil layer structure would be disturbed and modified, and soils would be exposed, increasing the overall potential for erosion. Soil productivity would decline in disturbed areas and be completely eliminated for those areas within the footprint of the new parking lot and connector trail. Adverse impacts to soils associated with the implementation of the new parking lot would be long-term and minor. During all construction activities, the same mitigation measures described under alternative B would be implemented to minimize adverse impacts to soils.

Under alternative C, the lower leased lot would be decommissioned and would no longer be used by the NPS as a parking lot. Upon the decommission of the lower leased parking lot, all property previously installed, maintained and/or owned by the NPS would be removed from the property and the site would be made safe for the landowner's use (i.e., all utilities would be cut off, excess debris would be removed, and post holes would be filled). Because no further agreement between the NPS and landowner has been developed regarding what would be done to the lot after NPS has vacated the site, potential future impacts to soils cannot be determined at this time.

Additional short-term minor adverse impacts to soils surrounding the footprint of the proposed parking lot would occur from construction equipment working on-site. These impacts would be mitigated after construction has been completed by tilling the soil and replanting the surrounding areas impacted, as needed. Adverse impacts related to construction activities would be short-term as they would only occur during construction.

The proposed connector trail would be 0.7 miles in length and approximately five feet wide. This would result in approximately 0.4 acres (18,400 sq. ft.) of ground disturbance. Clearing the trail would involve removing trees less than two inches diameter, brush, and rock from the tread. Finalizing the tread of the trail would consist of leveling the soil surface with no more than six inches of cut and fill. Erosion control features such as water bars or grade dips would probably have to be installed in order to reduce erosion of the trail surface over time. Generally, installation of these features is done with hand tools and results in a minor amount of cut and fill. Adverse impacts to soils associated with trail construction would be long-term and minor.

Like alternative B, the NPS upper parking lot would be closed to the public, trash cans and portable toilets removed, and the fire road locked gate relocated to the current entrance of the parking lot. The space would be used exclusively by the NPS for administrative emergency access purposes to respond to incidents on Old Rag. No adverse or beneficial impacts to soils would occur at the NPS upper parking lot, because while this lot would no longer be publically used, it would still exist and be used for NPS administrative purposes.

The granite associated with Old Rag Mountain is regionally important because it is one of the four places in the eastern United States where an intact, ancient, igneous intrusion is visible and creates a major landscape feature. Many locations throughout the park have boulders that are detached from bedrock outcrops and are perched or balanced in a semi-stable state. Construction activities would include shallow

excavation for the installation of the parking lot and excavating approximately four to five feet in depth for the construction of the vault toilets. None of the igneous landscape features would be affected although there would probably be the need to excavate and crush some underlying boulders, which would result in long-term, negligible adverse impacts to geologic features at the site of the proposed PATC parking lot.

The topography in the proposed parking lot development area gently slopes to the southeast, with elevations in the area ranging from 940 to 900 feet above sea level. Alteration of existing topography on two-acres of the PATC parcel would be expected as a result of grading and associated cut and fill necessary to accommodate the proposed parking lot. Since the site is gently sloping and the proposed construction would work with its natural terrain, alteration of the existing topography would be minimal, resulting in long-term minor adverse impacts.

Under alternative C, topography and geology at the existing NPS upper parking lot would remain the same; therefore, no effects to topography and geology would be expected.

Cumulative Impacts. Impacts to geologic resources are site specific and are not affected by cumulative development outside the study area. Cumulative impacts would only occur if development immediately within or adjacent to the site directly or indirectly affected the geology, topography, and/or soils of the site. There are no present or future actions that would result in any impacts to the geologic resources within or adjacent to the site. As a result, implementation of alternative C would result in no beneficial or adverse cumulative impacts to the existing geologic resources of the area.

Conclusion. Implementation of alternative C would result in short-term and long-term minor adverse impacts to soils from the increased potential for erosion, compaction, loss of productivity, and disturbance of soils resulting from construction activities. Since the lower leased parking lot is privately owned, determining the potential impacts to soils from closing discontinuing the use of that lot cannot be determined at this time. No impacts to soils would occur at the NPS upper parking lot. Long-term, negligible to minor adverse impacts to topography and geology would be expected from cut and fill operations and the excavation of some underlying boulders on the PATC site. There would be no impacts to the geology or topography to either the lower leased parking lot or NPS upper parking lot under this alternative. There would be no adverse or beneficial cumulative impacts to physiographic resources associated with this alternative. There would be no impairment of geologic resources under alternative C.

WATER QUALITY

Methodology and Assumptions

The NPS 2006 Management Policies state that the NPS would “take all necessary actions to maintain or restore the quality of surface waters and ground waters within the parks consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations” (sec 4.6.3).

A water quality standard defines the water quality goals of a water body by designating uses to be made of the water, setting minimum criteria to protect the uses, and preventing degradation of water quality through anti-degradation provisions. The anti-degradation policy is only one portion of a water quality standard. Part of this policy (40 CFR 131.12(a) (2)) strives to maintain water quality at existing levels if it is already better than the minimum criteria. Anti-degradation should not be interpreted to mean that “no degradation” can or would occur, as even in the most pristine waters, degradation may be allowed for certain pollutants as long as it is temporary and short-term.

Other considerations in assessing the magnitude of water quality impacts are the effect on those resources dependent on a certain quality or condition of water. Sensitive aquatic organisms, submerged aquatic vegetation, riparian areas, and wetlands are impacted by changes in water quality from direct and indirect sources.

Study Area

The geographic study area for surface water resources includes the existing areas within and immediately adjacent to boundaries of the two existing parking areas and the six-acre PATC parcel proposed for development, including the Hughes River and Brokenback Run.

Impact Thresholds

The following thresholds were used to determine the magnitude of impacts on surface waters:

Negligible – Impacts (chemical, physical, or biological) would not be detectable, would be within desired water quality standards or criteria, and would be within historical or desired water quality conditions. Modification of natural stream channel and flow characteristics would be below detection.

Minor – Impacts (chemical, physical, or biological) would be detectable but would be within desired water quality standards or criteria and within historical or desired water quality conditions. Modification of natural stream channel would be detectable and would measurably alter stream flows. Mitigation, if needed, would be simple and successful.

Moderate – Impacts (chemical, physical, or biological) would be detectable and historical baseline or desired water quality conditions would be temporarily altered; however, overall water quality would remain within regulatory standards. Modification of the natural stream channel would be readily apparent and result in changes to instream flow characteristics during high flow or low flow conditions. Mitigation measures to offset potential adverse impacts could be extensive, but would be successful.

Major – Impacts (chemical, physical, or biological) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would temporarily be slightly and singularly exceeded. Modification of the natural stream channel would be readily apparent and would cause substantial changes to instream flow characteristics. Mitigation measures to offset potential adverse impacts would be extensive and their success could not be guaranteed.

Duration – Short-term impacts occur during all or part of alternative implementation; long-term impacts extend beyond implementation of the alternative.

Impacts of Alternative A - No Action Alternative

Analysis. Alternative A would call for the continued use of both existing parking lots without any new construction activities. No new impervious surfaces would be created and no ground-disturbing activities would take place. The six-acre PATC parcel would remain forested and, therefore, water quality would remain the same in the immediate area. Under alternative A, the potential for sediment and pollutants to be transported into the surrounding surface waters through stormwater runoff from the ongoing use of the lower leased parking lot and NPS upper parking lot would continue. Based on the proximity of these parking lots to the nearest stream, the fact that the parking lot is not hardened and it is interspersed with grassy vegetation that helps to slow precipitation and allows infiltration into the soil, any adverse impacts to the water quality to the surrounding streams would be minor and occur only during storm events.

Cumulative Impacts. During storm events, stormwater runoff flows derived from other impervious surfaces (i.e., State Route 600, driveways, rooftops) within the project area transports sediment and other pollutants into the Hughes River Watershed. This increased transport would only occur during storm events and would result in short-term minor adverse impacts to water quality within this watershed. These impacts, in combination with the short-term minor adverse impacts of the no action alternative, would likely result in short-term minor adverse cumulative impacts to the water quality of the Hughes River Watershed.

Conclusion. Implementation of the no action alternative would result in short-term, minor adverse impacts to water quality as a result of the transport of sediments and other pollutants into surrounding watershed. Short-term minor adverse cumulative impacts to the water quality of the Hughes River

Watershed would also occur. There would be no impairment of water resources from actions associated with the no action alternative.

Alternative B (NPS Preferred Alternative) – Construct New Parking Lot on PATC Land, Continue Public Use of the Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot

Analysis. Alternative B would call for the construction of a new parking lot on PATC land and construction of a connecting trail from the parking lot to the trailhead. In addition, the shed-style kiosk from the leased lower lot (approximately 120 square feet) would be moved within the footprint of the proposed parking lot and continue to serve as a temporary visitor contact station. Vault toilets would also be constructed within the footprint of the proposed parking lot. A permanent but small public contact station may be constructed in the future. A short foot trail would be constructed from the new parking area to State Route 600 to provide pedestrian access to the Nicholson Hollow Trailhead. Additionally, two span bridges would be constructed: one to cross the southernmost wetland as part of the new trail head, and one to cross the wetland area between the two parking lots being considered on the PATC land.

Activities associated with alternative B that could impact water quality include actions associated with:

- Ground disturbance and vegetation removal associated with the construction of the new parking lot and other visitor facilities; and
- Increased stormwater runoff that would occur after the proposed development.

During construction operations on the PATC site, vegetation would be removed and soils would be disturbed and compacted. These effects would both increase the amount of runoff from the site and increase the level of sediment and nutrients that could be delivered from the site to the local drainage system. To minimize these effects, and as part of the General Permit for Discharges of Stormwater From Construction Activities, an approved sediment and erosion control plan would be developed and implemented pursuant to Virginia's Erosion and Sediment Control Law and Regulations. Up to two acres (approximately 93,000 square feet) of soils would be disturbed from the actions proposed under this alternative.

Implementation of erosion and sediment control plan would help reduce erosion of exposed soils, slow the rate at which water leaves the site, and help capture eroded soils and concentrated nutrients before they enter downstream water flow. Increases in surface stormwater runoff during construction would be controlled by stormwater BMPs as well as erosion and sedimentation controls to reduce potential impacts to adjacent land and waters. BMPs could include, but are not limited to:

- Using erosion containment controls such as silt fencing and sediment traps to contain sediment on site where necessary;
- Covering disturbed soil or soil stockpiles with plastic sheeting, jute matting, erosion netting, straw, or other suitable cover material (where applicable);
- Inspecting erosion and sediment control BMPs on a regular basis and after each measurable rainfall to ensure that they are functioning properly, and maintain BMPs (repair, clean, etc.) as necessary to ensure that they continue to function properly;
- Sequencing BMP installation and removal in relation to the scheduling of earth disturbance activities, prior to, during and after earth disturbance activities; and
- Phasing clearing to coincide with construction at a given location to minimize the amount of area exposed to erosion at a given time.

In addition, to reduce the risk of adverse impacts to water quality from the use of construction vehicles and equipment, the contractor would submit a hazardous spill plan stating the protocols to be taken in the event of a fuel leak or spill. This plan would incorporate preventative measures to be implemented such as

the placement of refueling facilities, storage and handling of hazardous materials, and notification procedures for a spill. Containment devices and absorbent pads or other materials would be available to ensure that any spills that do occur are contained and do not enter any surface waters via either overland flows.

Proper implementation of these plans and associated BMPs with the construction of this proposed alternative would ensure that any adverse impacts to water quality related to construction operations would be minor and of short duration, and would not likely exceed the historical water quality conditions in the streams within or adjacent to the site and within the Hughes River Watershed

Development of the site would require the conversion of up to two acres of forested area to parking lots and connecting trails, which would lead to greater levels of stormwater runoff from the site. The proposed surface of the parking lot and connecting trails would be gravel or some other semi-pervious surface. Semi-pervious surfaces allow some infiltration of precipitation to occur; however, because these are hardened surfaces, much of that precipitation would run off. This increase in semi-pervious surface could increase both the volume of stormwater runoff and the amount of sediments and pollutants transported to streams within or adjacent to the PATC site and within the Hughes River Watershed during storm events. During the design phase of alternative B, a stormwater management plan would be implemented by NPS. This plan would address the increase in semi-pervious surfaces and subsequent increases in overland runoff by incorporating stormwater control designs into the project to manage the rate at which runoff and associated nutrients leave the site. Specific stormwater controls that could be incorporated into the project design, where applicable, include, but are not limited to:

- vegetated swales;
- bioretention basins;
- a FilterraTM treatment system; and/or
- an underground detention system.

In addition to the use of structural stormwater control measures, the design of the project would involve retaining forested buffers of 25 to 50 feet around streams and wetlands. These buffers would help to maintain current water temperature in the streams and protect water quality by filtering pollutants and sediment from stormwater runoff. With greater levels of stormwater runoff from the site expected once the area is developed, the use of both structural control measures and vegetative buffers would manage the rate of runoff and sediment load leaving the site. Adverse impacts from increased stormwater runoff to the streams within or adjacent to the PATC site and within the Hughes River Watershed would be minor and occur only during storm events.

Under alternative B, there is the potential for pollutants to be transported into the surrounding surface waters through stormwater runoff from both the PATC parking lot and lower leased parking lot. Based on the proximity of the parking lot to the nearest stream, and the fact that the parking lot is not hardened and is interspersed with grassy vegetation that slows precipitation and infiltration into the soil, any adverse impacts to the water quality to the surrounding streams would be minor and occur only during storm events.

Discontinuing visitor use of the NPS upper parking lot would decrease the amount of vehicle related pollutants deposited on the site that could be transported into the surrounding surface waters through overland runoff; however, the NPS would continue to use this lot and the amount of hardened area would remain unchanged. As a result of the NPS continued use of the NPS upper parking lot and its potential to transport sediments and other pollutants through stormwater runoff, adverse impacts to water quality would be minor and occur only during storm events.

Cumulative Impacts. During storm events, stormwater runoff flows derived from other impervious surfaces (i.e., State Route 600, driveways, rooftops) within the project area transports sediments and other pollutants into the Hughes River Watershed. This increased transport would only occur during storm

events, and would result in short-term minor adverse impacts to water quality within this watershed. These impacts, in combination with the short-term minor adverse impacts of alternative B, would likely result in short-term minor adverse cumulative impacts to the water quality of the Hughes River Watershed.

Conclusion. Implementation of alternative B would result in short-term minor adverse impacts to water quality as a result of the transport of sediments and other pollutants into surrounding watershed during construction of the new lot, and stormwater runoff created by the use of the lower leased parking lot. Greater levels of stormwater runoff from the PATC site would be expected once the new parking area is constructed. The use of both structural control measures and vegetative buffers would manage the rate of runoff and sediment load leaving the site. As a result, adverse impacts from increased stormwater runoff to the streams within or adjacent to the PATC site and within the Hughes River Watershed would be minor and occur only during storm events. Short-term minor adverse cumulative impacts to the water quality of the Hughes River Watershed would also occur. There would be no impairment of water resources from actions associated with alternative B.

Alternative C – Construct a New Parking Lot On PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot

Analysis. Alternative C would call for the construction of a new parking lot on PATC Land, construction of a connecting trail from the parking lot to the trailhead. In addition, the shed-style kiosk from the leased lower lot (approximately 120 square feet) would be moved within the footprint of the proposed parking lot and continue to serve as a temporary visitor contact station. Vault toilets would also be constructed within the footprint of the proposed parking lot. A permanent but small public contact station may be constructed in the future. A short foot trail would be constructed from the primary parking area to State Route 600 to provide pedestrian access to the Nicholson Hollow Trailhead, and two span bridges would be constructed across separate sections of the wetlands to accommodate pedestrian traffic to and from the Old Rag Ridge Trail.

Impacts from this alternative would be similar to those associated with alternative B except that the use of the lower leased parking lot would be discontinued under alternative C, which could result in a change in the potential water quality impacts. Because the future use of the lower leased parking lot parcel would be dependant upon the decisions of the landowner, the potential water quality impacts associated with the use of this area cannot be determined at this time

Activities associated with the alternative C that could impact water quality include actions associated with:

- Ground disturbance and vegetation removal associated the construction of the new parking lot and other visitor facilities; and
- Increased stormwater runoff that would occur after the parking lot was constructed.

During construction operations on the PATC site, vegetation would be removed and soils would be disturbed and compacted. These effects would both increase the amount of runoff from the site and increase the level of sediment and nutrients that could be delivered from the site to the local drainage system. To minimize these effects, an approved sediment and erosion control plan would be developed and implemented pursuant to Virginia's Erosion and Sediment Control Law and Regulations. In Virginia, any land-disturbing activities on private or public land equal to or exceeding 10,000 square feet in area are required to submit a sediment and erosion control plan.

Implementation of erosion and sediment control plans would help reduce erosion of exposed soils, slow the rate at which water leaves the site, and capture eroded soils and concentrated nutrients before they enter downstream water flow. Increases in surface stormwater runoff during construction would be controlled by stormwater BMPs as well as erosion and sedimentation controls to reduce potential impacts to adjacent land and waters. BMPs could include, but are not limited to:

- Using erosion containment controls such as silt fencing and sediment traps to contain sediment on site where necessary;
- Covering disturbed soil or soil stockpiles with plastic sheeting, jute matting, erosion netting, straw, or other suitable cover material (where applicable);
- Inspecting erosion and sediment control BMPs on a regular basis and after each measurable rainfall to ensure that they are functioning properly, and maintain BMPs (repair, clean, etc.) as necessary to ensure that they continue to function properly;
- Sequencing BMP installation and removal in relation to the scheduling of earth disturbance activities, prior to, during and after earth disturbance activities; and
- Phasing clearing to coincide with construction at a given location to minimize the amount of area exposed to erosion at a given time.

In addition, to reduce the risk of adverse impacts to water quality from the use of construction vehicles and equipment, the contractor would submit a hazardous spill plan stating the protocols to be taken in the event of a fuel leak or spill. This plan would incorporate preventative measures to be implemented such as the placement of refueling facilities, storage and handling of hazardous materials, and notification procedures for a spill. Containment devices and absorbent pads or other materials would be available to ensure that any spills that do occur are contained and do not enter any surface waters via either overland flows.

Proper implementation of these plans and associated BMPs with the construction of this proposed alternative would ensure that any adverse impacts to water quality related to construction operations would be minor and of short duration, and would not likely exceed the historical water quality conditions in the streams within or adjacent to the site and within the Hughes River Watershed.

Development of the site would require the conversion of up to two acres of forested area to parking lots and connecting trails, which would lead to greater levels of stormwater runoff from the site. The proposed surface of the parking lot and connecting trails would be gravel or some other semi-pervious surface. Semi-pervious surfaces allow some infiltration of precipitation to occur, however, because these are hardened surfaces, much of that precipitation would run off. The total net increase of semi-pervious surfaces would be less than two acres. This increase in semi-pervious surface could increase both the volume of stormwater runoff and the amount of sediments and pollutants transported to streams within or adjacent to the PATC site, and within the Hughes River Watershed during storm events. During the design phase of alternative C, a stormwater management plan would be implemented by NPS. This plan would address the increase in semi-pervious surfaces and subsequent increases in overland runoff by incorporating stormwater control designs into the project to manage the rate at which runoff and associated nutrients leave the site. Specific stormwater controls that could be incorporated into the project design, where applicable, include, but are not limited to:

- vegetated swales;
- bioretention basins;
- a FilterraTM treatment system; and/or
- an underground detention system.

In addition to the use of structural stormwater control measures, the design of the project involves retaining forested buffers of 25 to 50 feet around streams and wetlands. These buffers would help to maintain current water temperature in the streams and protect water quality by filtering pollutants and sediment from stormwater runoff. With greater levels of stormwater runoff from the site expected once the area is developed, the use of both structural control measures and vegetative buffers would manage the rate of runoff and sediment load leaving the site. Adverse impacts from increased stormwater runoff

to the streams within or adjacent to the PATC site and within the Hughes River Watershed would be minor and long-term but occur only during storm events.

Under alternative C, there is the potential for pollutants to be transported into the surrounding surface waters through stormwater runoff from the PATC parking lot. Based on the proximity of the parking lot to the nearest stream, and the fact that the parking lot is not hardened, surrounded by vegetated buffers, and has proper stormwater management system, any adverse impacts to the water quality to the surrounding streams would be minor and occur only during storm events.

Discontinuing visitor use of the NPS upper parking lot and the lower leased lot would decrease the amount of vehicle related pollutants deposited on the site that could be transported into the surrounding surface waters through overland runoff; however, the NPS would continue to use this lot and the amount of hardened area would remain unchanged. As a result of the NPS continued use of the NPS upper parking lot and its potential to transport sediments and other pollutants through stormwater runoff, adverse impacts to water quality would be minor and occur only during storm events.

Cumulative Impacts. During storm events, stormwater runoff flows derived from other impervious surfaces (i.e., State Route 600, driveways, rooftops) within the project area transports sediments and other pollutants into the Hughes River Watershed. This increased transport would only occur during storm events, and would result in short-term minor adverse impacts to water quality within this watershed. These impacts, in combination with the short-term minor adverse impacts of alternative C, would likely result in short-term minor adverse cumulative impacts to the water quality of the Hughes River Watershed.

Conclusion. Implementation of alternative C would result in short-term minor adverse impacts to water quality as a result of transport of sediments and other pollutants into surrounding watershed during construction of the new lot. Greater levels of stormwater runoff from the PATC site would be expected once the new parking area is constructed. The use of both structural control measures and vegetative buffers would manage the rate of runoff and sediment load leaving the site. As a result, adverse impacts from increased stormwater runoff to the streams within or adjacent to the PATC site and within the Hughes River Watershed would be minor and occur only during storm events. Because the land is privately owned, the future impacts associated with discontinuing the use of the lower leased parking lot cannot be determined at this time. Short-term minor adverse cumulative impacts to the water quality of the Hughes River Watershed would also occur. There would be no impairment of water resources from actions associated with alternative C.

VEGETATION

Methodology and Assumptions

Available information on vegetation and vegetative communities occurring within the project area was compiled and reviewed. Predictions about short- and long-term project impacts on vegetation were based on general characteristics and proposed actions affecting vegetated areas associated with the alternatives.

Study Area

The geographic study areas for vegetation are contained within the boundaries of the two existing parking areas and the six-acre PATC parcel proposed for development. Construction/rehabilitation activities would not occur outside this area.

Impact Thresholds

The following thresholds were used to determine the magnitude of impacts on vegetation:

Negligible – No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be on a small scale and no species of special concern would be affected.

Minor – The alternative would affect some individual native plants and would also affect a relatively minor portion of that species' population. Mitigation to offset adverse effects, including special measures to avoid affecting species of special concern, could be required and would be effective.

Moderate – The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population and over a relatively large area. Mitigation to offset adverse effects could be extensive, but would likely be successful. Some species of special concern could also be affected.

Major – The alternative would have a considerable effect on native plant populations, including species of special concern, and affect a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

Duration – Short-term impacts would last less than one year; long-term impacts would occur longer than one year.

Impacts of Alternative A - No Action Alternative

Analysis. Alternative A would call for the continued use of both existing parking lots without any new construction or ground-disturbing activities. Under the no action alternative, there would be no change to existing vegetation and the six-acre PATC parcel would remain forested. The vegetation within the lower leased parking lot would continue to experience adverse impacts from damage caused by cars and trampling from park visitors. These long-term impacts would localize within the lower leased parking lot and considered negligible since most of the driving lanes, parking spaces, and social trails are already established, which would minimize impacts to the existing vegetation of the site.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to vegetation that would occur under the no action alternative. As a result there would be no adverse or beneficial cumulative impacts to vegetation under the no action alternative.

Conclusion. Implementation of the no action alternative would result in long-term negligible adverse impacts to vegetation within the lower leased parking lot. There would be no beneficial or adverse cumulative impacts to existing vegetation in the study area. There would be no impairment of vegetation associated with the no action alternative.

Alternative B (NPS Preferred Alternative) – Construct New Parking Lot on PATC Land, Continue Public Use of the Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot

Analysis. Alternative B would call for the construction of a new parking lot on PATC land and construction of a connecting trail from the parking lot to the trailhead. In addition, the shed-style kiosk from the leased lower lot (approximately 120 square feet) would be moved within the footprint of the proposed parking lot and continue to serve as a temporary visitor contact station. Vault toilets would also be constructed within the footprint of the proposed parking lot. A permanent but small public contact station may be constructed in the future. A short foot trail would be constructed from the primary parking area to State Route 600 to provide pedestrian access to the Nicholson Hollow Trailhead, and a span bridge would be constructed across the upper stream to accommodate pedestrian traffic to and from the Old Rag Ridge Trail.

This alternative would result in the removal of all vegetation in an approximately two-acre area to facilitate the construction of the new parking lot. Construction of the 0.7 mile connector trail would require that vegetation with stems less than two inches diameter inside the trail path (4-5 feet in width) be cut and cleared. The terrain in the project area is steep and rocky in places and is punctuated by boulders and small outcrops with very thin soil; a vegetation cover that could be easily disturbed by hiker traffic. However, the trail would be designed to avoid these steep and rocky areas, and therefore pose little threat to outcrop vegetation.

No rare plants have been found within the six-acre PATC parcel or the connector trail corridor inside the park boundaries.

Although mitigation measures would be implemented, removal, breakage, or root damage from construction staging could result in impacts to vegetation immediately outside of the parking lot footprint. Mitigation measures would be implemented during construction to minimize the potential adverse impacts to vegetation. Such mitigation measures may include but are not limited to the following:

- Ensure that all protection measures are clearly stated in construction specifications, and that workers would be instructed to avoid conducting activities beyond the construction zone, as defined by the construction zone fencing;
- Minimize trimming and removing vegetation to accommodate construction equipment ingress and egress;
- Avoid collision of equipment with trees and other vegetation. Place protective fencing around tree trunks in close proximity to construction activities to minimize potential adverse effects to bark or other tree attributes resulting from collision; and
- Minimize cutting trees whenever possible.

Under this alternative, there is the potential for the introduction of invasive species to the area from construction equipment or soil brought in from other areas. Construction activities that disturb the forest edge could induce the spread of existing invasive species by creating conditions that promote the spread of such species. Mitigation measures would be implemented during construction to minimize the potential for the introduction or spread of invasive species. Such mitigation measures may include but are not limited to the following:

- Assure that any fill material imported to the site is certified free of exotic plants and seed.
- Require the construction contractor to powerwash all construction vehicles and equipment prior to initial arrival at the park to remove seed and plant material.
- Re-vegetate disturbed areas (including staging areas) as soon as possible with a native seed mix to help prevent the spread of exotic invasive plant species.
- Enact monitoring protocol to ensure no new or additional exotic invasive plant species are spread into the project area.

Alternative B would involve the continued public use of the leased lower lot at a reduced vehicle parking capacity and the discontinued public use of the NPS upper parking lot. Neither of these management actions would result in impacts to existing vegetation. While the NPS upper parking lot would be closed to public use, it would still be used by NPS staff for maintenance purposes and no new impacts to the vegetation occurring adjacent to this area would likely occur.

Implementation of alternative B would result in long-term minor adverse impacts to vegetation within and adjacent to the six-acre PATC parcel area due to removal of vegetation associated with the construction of the new parking lot and connector trail and the potential for the introduction and spread of invasive species.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to vegetation that would occur under alternative B. As a result there would be no adverse or beneficial cumulative impacts to vegetation under alternative B.

Conclusion. Implementation of alternative B would result in long-term minor adverse impacts to vegetation within and adjacent to the PATC parcel area due to complete removal of two acres of vegetation associated with the construction of the new parking lot and the potential for the introduction and spread of invasive species. No impacts to vegetation within or adjacent to the lower leased parking lot or NPS upper parking lot would likely occur. No adverse or beneficial cumulative impacts to vegetation

would occur under alternative B. There would be no impairment of vegetation associated with alternative B.

Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot

Analysis. Alternative C would call for the construction of a new parking lot on PATC land, construction of a connecting trail from the parking lot to the trailhead. In addition, the shed-style kiosk from the leased lower lot (approximately 120 square feet) would be moved within the footprint of the proposed parking lot and continue to serve as a temporary visitor contact station. Vault toilets would also be constructed within the footprint of the proposed parking lot. A permanent but small public contact station may be constructed in the future. A short foot trail would be constructed from the primary parking area to State Route 600 to provide pedestrian access to the Nicholson Hollow Trailhead, and a span bridge would be constructed across the upper stream to accommodate pedestrian traffic to and from the Old Rag Ridge Trail.

This alternative would result in the removal of all vegetation in an approximately two-acre area to facilitate the construction of the new parking lot. Construction of the 0.7 mile connector trail would require that vegetation with stems less than two inches diameter inside the trail path (4 to 5 feet in width) be cut and cleared. The terrain in the project area is steep and rocky in places and is punctuated by boulders and small outcrops, with very thin soil, and a vegetation cover that could be easily disturbed by hiker traffic. However, the trail would be designed to avoid these steep and rocky areas and, therefore, pose little threat to outcrop vegetation.

No rare plants have been found within the six-acre PATC parcel or the connector trail corridor inside the park boundaries.

Although mitigation measures would be implemented, impacts to trees and other vegetation immediately outside of the parking lot footprint could occur due to root damage. Removal, breakage, or root damage from construction staging also would result in impacts to vegetation. Mitigation measures would be implemented during construction to minimize the potential adverse impacts to vegetation. Such mitigation measures may include but are not limited to the following:

- Ensure that all protection measures are clearly stated in construction specifications, and that workers would be instructed to avoid conducting activities beyond the construction zone, as defined by the construction zone fencing;
- Minimize trimming and removing vegetation to accommodate construction equipment ingress and egress;
- Avoid collision of equipment with trees and other vegetation. Place protective fencing around tree trunks in close proximity to construction activities to minimize potential adverse effects to bark or other tree attributes resulting from collision; and
- Minimize cutting trees whenever possible.

Under this alternative, there is the potential for the introduction of invasive species to the area from construction equipment or soil brought in from other areas. Construction activities that disturb the forest edge could induce the spread of existing invasive species by creating conditions that promote the spread of such species. Mitigation measures would be implemented during construction to minimize the potential for the introduction or spread of invasive species. Such mitigation measures may include but are not limited to the following:

- Assure that any fill material imported to the site is certified free of exotic plants and seed;
- Require the construction contractor to powerwash all construction vehicles and equipment prior to initial arrival at the park to remove seed and plant material;

- Re-vegetate disturbed areas, including staging areas, as soon as possible with a native seed mix to help prevent the spread of exotic invasive plant species; and
- Enact monitoring protocol to ensure no new or additional exotic invasive plant species are spread into the project area.

Impacts from this alternative would be similar to those associated with Alternative B except that the use of the lower leased parking lot would be discontinued under Alternative C. Because the future use of the lower leased parking lot parcel would be dependant upon the decisions of the landowner, the impacts to vegetation associated with the use of this area cannot be determined at this time

Implementation of Alternative C would result in minor long-term adverse impacts to vegetation within and adjacent to the six-acre PATC parcel area due to removal of vegetation associated with the construction of the new parking lot and the potential for the introduction and spread of invasive species.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to vegetation that would occur under alternative C. As a result there would be no adverse or beneficial cumulative impacts to vegetation under alternative C.

Conclusion. Implementation of alternative C would result in long-term minor adverse impacts to vegetation within and adjacent to the PATC parcel area due to complete removal of two acres of vegetation associated with the construction of the new parking lot and the potential for the introduction and spread of invasive species. Because the land is privately owned, the future impacts associated with discontinuing the use of the lower leased parking lot to vegetation cannot be determined at this time. No impacts to vegetation within or adjacent to the NPS upper parking lot would likely occur. No adverse or beneficial cumulative impacts to vegetation would occur under alternative C. There would be no impairment of vegetation associated with alternative C.

WILDLIFE AND WILDLIFE HABITAT

Methodology and Assumptions

The Organic Act of 1916, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the agency to mean that native animal life should be protected and perpetuated as part of the park's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible; otherwise they are protected from harvest, harassment, or harm by human activities. According to The NPS 2006 Management Policies (NPS 2006), the restoration of native species is a high priority (sec. 4.1). Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, along with the natural abundance, diversity, and the ecological integrity of plants and animals. Information on wildlife and wildlife habitat occurring within the project area was taken from park documents and records.

Study Area

The geographic study area for wildlife and wildlife habitat includes areas within and adjacent to the boundaries of the two existing parking areas and the six-acre PATC parcel proposed for development. Construction activities would not occur outside the PATC parcel.

Impact Thresholds

The following thresholds were used to determine the magnitude of impacts on wildlife and wildlife habitat:

Negligible – There would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them. Impacts would be well within natural fluctuations.

Minor – Impacts would be detectable, but they would not be expected to be outside the natural range of variability of native species' populations, their habitats, or the natural processes sustaining them. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate – Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or juvenile stages; mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in the park unit. Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.

Major – Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability. Key ecosystem processes might be disrupted. Loss of habitat might affect the viability of at least some native species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Duration – Short-term impacts would last less than one year; long-term impacts would occur longer than one year.

Impacts of Alternative A - No Action Alternative

Analysis. Under the no action alternative, current management and visitor use would remain unchanged and no new impacts to wildlife would be expected. No new construction would be implemented and both existing parking lots would continue to be used. Because no new construction would take place, no additional habitat would be lost. While the wildlife that inhabit the area of the NPS upper parking lot and the lower leased parking lot have probably become habituated to the attendant human activity over the past 25 years any long-term adverse impacts that would occur would be negligible.

There would be no disturbance of habitat adjacent to the parking lots because maintenance activities would generally occur in the confines of the parking lots and the entrance road. Maintenance activities at the NPS upper parking lot include maintaining trails, picking up litter, and cleaning toilets. The lower leased parking lot requires occasional mowing, but no snow removal. Park maintenance removes litter and trash and cleans the toilets.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to wildlife and wildlife habitat that would occur under alternative A. As a result, there would be no adverse or beneficial cumulative impacts to wildlife and wildlife habitat under the no action alternative.

Conclusion. Implementation of the no action alternative would result in long-term negligible adverse impacts to wildlife and wildlife habitat due to disturbance from cars and attendant human activity. No beneficial or adverse cumulative impacts to wildlife would occur from actions associated with the no action alternative. There would be no impairment of wildlife or wildlife habitat associated with the no action alternative.

Alternative B (NPS Preferred Alternative) – Construct New Parking Lot On PATC Land, Continue Public Use of the Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot

Analysis. Under alternative B, activities that would occur during the construction of the PATC parking lot, connector trail, and other visitor facilities (i.e., contact station, vault toilets) would adversely affect wildlife and wildlife habitat of the park. Activities associated with the proposed new parking lot construction under either action alternative would result in the clearing of approximately two acres of secondary mixed deciduous forest habitat, which would disturb or displace the wildlife that utilize that area. Some individuals would be forced to relocate outside the construction limits and could be susceptible to increased levels of predation or competitive stress. This displacement could result in a slight population depression within and adjacent to the area of construction, but following project completion and successful revegetation efforts, wildlife would again reoccupy areas adjacent to the parking area. Further impacts from construction would include noise disturbance from heavy machinery

and the presence of work crews. The increase in human and mechanical activity would temporarily deter some species from utilizing the adjacent habitat. Construction would result in short-term minor impacts on the wildlife and habitat within and adjacent to the area of construction as a result of displacement and disturbance caused by the use of heavy machinery and attendant human activities.

During all construction activities the NPS would employ mitigation measures to ensure the protection of its natural and biological resources, as well as mitigation that specifically addresses wildlife and wildlife habitat. Such mitigation measures would include:

- Prohibiting feeding wildlife;
- Ensuring that food is stored in enclosed portions of vehicles or in hard-sided containers; and
- Ensuring that trash from meals is disposed of via complete removal from the work site or via construction site trash cans and dumpsters. Open barrels, pickup truck beds, and dump truck beds are not to be used for disposal or accumulation of food scraps or food wrappers or containers.

Under alternative B the park would discontinue use of the NPS upper parking lot. The park would remove trash cans and portable toilets, move the locked gate at the fire road to the current entrance of the parking lot, and the connector trail that leads from the NPS upper parking lot to the Old Rag Ridge Trailhead would be discontinued. As a result, there would be less human activity in this area, which would result in long-term negligible beneficial impacts to wildlife and wildlife habitat.

After construction of the new parking lot and visitor facilities has been completed, wildlife would again utilize the available adjacent habitats. Long-term negligible adverse impacts to wildlife would likely occur (as they are described under the no action alternative) from disturbance created by cars and attendant human activities associated with the operation of the new parking lot.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to wildlife and wildlife habitat that would occur under alternative B. As a result, there would be no adverse or beneficial cumulative impacts to wildlife and wildlife habitat under this alternative.

Conclusion. Implementation of alternative B would result in short-term minor adverse impacts associated with construction activities, long-term negligible beneficial impacts, and the long-term negligible adverse impacts to wildlife from disturbance created by cars and attendant human activities. No beneficial or adverse cumulative impacts to wildlife or wildlife habitat would occur from actions associated with alternative B. There would be no impairment of wildlife or wildlife habitat associated with alternative B.

Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot

Analysis. Under alternative C, many of the impacts associated with the construction of the new parking lot would be similar to those analyzed in alternative B. Activities associated with the proposed new parking lot construction under either action alternative would result in the clearing of approximately two acres of secondary mixed deciduous forest habitat, which would disturb or displace the wildlife that utilize that area. Some individuals would be forced to relocate outside the construction limits and could be susceptible to increased levels of predation or competitive stress. This displacement could result in a slight population depression within and adjacent to the area of construction, but following project completion and successful revegetation efforts, wildlife would again reoccupy areas adjacent to the parking area. Further impacts from construction would include noise disturbance from heavy machinery, and the presence of work crews. The increase in human and mechanical activity would temporarily deter some species from utilizing the adjacent habitat. Construction would result in short-term minor impacts on the wildlife and habitat within and adjacent to the area of construction as a result of displacement and disturbance caused by the use of heavy machinery and attendant human activities.

During all construction activities the NPS would employ mitigation measures to ensure the protection of its natural and biological resources, as well as mitigation that specifically addresses wildlife and wildlife habitat. Such mitigation measures would include:

- The requirement that the project area be surveyed by an NPS biologist prior to the onset of construction for the presence of listed or rare species;
- Prohibiting feeding wildlife;
- Ensuring that food is stored in enclosed portions of vehicles or in hard-sided containers; and
- Ensuring that trash from meals is disposed of via complete removal from the work site or via construction site trash cans and dumpsters. Open barrels, pickup truck beds, and dump truck beds are not to be used for disposal or accumulation of food scraps or food wrappers or containers.

Under alternative C, the park would discontinue the use of both the NPS upper parking lot and the lower leased parking lot. At the NPS upper parking lot, the park would remove trash cans and portable toilets, move the locked gate at the fire road to the current entrance of the parking lot, and the connector trail that leads from the NPS upper parking lot to the Old Rag Ridge Trailhead would be discontinued. Within the lower leased lot, all NPS structures would be removed. As a result, there would be less human activity in these areas, which would result in long-term negligible beneficial impacts to wildlife and wildlife habitat.

After construction of the new parking lot and visitor facilities has been completed, wildlife would again utilize the available adjacent habitats. Long-term negligible adverse impacts to wildlife would likely occur (as they are described under the no action alternative) from disturbance created by cars and attendant human activities associated with the operation of the new parking lot.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to wildlife and wildlife habitat that would occur under alternative C. As a result, there would be no adverse or beneficial cumulative impacts to wildlife and wildlife habitat under this alternative.

Conclusion. Implementation of alternative C would result in short-term minor adverse impacts associated with construction activities, long-term negligible beneficial impacts, and the long-term negligible adverse impacts to wildlife from disturbance created by cars and attendant human activities. There would be no beneficial or adverse cumulative impacts to wildlife and wildlife habitat would occur from actions associated with this alternative. There would be no impairment of wildlife or wildlife habitat associated with alternative C.

VISITOR USE AND EXPERIENCE

Methodology and Assumptions

Impacts to visitor use and experience were determined by considering the effect of the existing conditions and the proposed construction/operation of a parking lot on the overall experience of those park visitors who utilize the area.

Study Area

The geographic study area for visitor experience is within the two existing parking areas and the six-acre PATC parcel proposed for development, and the trail they serve.

Impact Thresholds

The following thresholds were defined:

Negligible — Visitors would likely be unaware of impacts 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 and 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. The number of participants engaging in a specified activity would be altered. Some visitors who desire their

continued use and enjoyment of the activity/visitor experience might be required to pursue their choices in other available local or regional areas. Visitor satisfaction would begin to either decline or increase.

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. Visitors who desire their continued use and enjoyment of the activity/visitor experience would be required to pursue their choices in other available local or regional areas. Visitor satisfaction would markedly decline or increase.

Duration – Short-term impacts would be immediate, occurring during implementation of the alternative. Long-term impacts would persist after implementation of the alternative.

Impacts of Alternative A - No Action Alternative

Analysis. Under the no action alternative, parking facilities and parking capacity would remain the same. The park would continue to utilize both the upper and the lower parking lots. No new construction would be implemented and regular maintenance activities would remain in place.

Currently, if the upper 12-space parking lot is full, park visitors wanting to climb Old Rag Mountain need to park at the lower leased parking lot and walk approximately 0.8 miles along State Route 600 to reach the Old Rag Ridge Trailhead. Having to hike approximately 1.6 miles round-trip along a roadway could decrease the overall visitor experience. Impacts from this additional walk could include increased stress from an extended hike, potential conflicts between pedestrians and vehicles, and a decreased visitor experience because of the time spent walking on a road instead of on the trail. Overall, the adverse impacts from the 1.6 mile round-trip walk would be minor, and last as long as the lease of the lower parking lot is maintained.

The lower leased parking lot has a current capacity of 250 cars. This lot is used to accommodate visitor parking at Old Rag Mountain and is leased from a private landowner through the year 2017. If the lease is not renewed by 2017, the approximately 50,000 annual visitors to Old Rag Mountain would only have the 12 parking spaces available at the NPS upper parking lot. Aside from a lack of accessibility to the trailhead because of inadequate amount of parking, the loss of the lower leased parking lot could also lead to overcrowding in the NPS upper parking lot and illegal parking along the road. Overcrowding would lead to visitor conflicts due to a lack of adequate parking and decreased safety as visitors attempt to park along the entrance road. The lack of adequate parking facilities would result in long-term moderate adverse impacts to visitor use and experience under the no action alternative.

Cumulative Impacts. NPS projects within Shenandoah National Park such as the rehabilitation of the Skyline Drive Overlooks and other various roadway projects within the park, and the park's new ROMP, would have long-term beneficial impacts to visitor use and experience by improving the park's facilities, increasing interpretation, and by directing appropriate visitor recreation use. However, the overlook rehabilitation and roadway improvement projects could potentially have short-term minor adverse impacts to Skyline Drive with more trucks and/or other construction equipment going to and from these sites. In addition, for some, the Rock Outcrop Management Plan may be perceived as limiting their recreational opportunities within the park.

These impacts, in combination with the long-term minor adverse impacts of the no action alternative, would result in long-term minor adverse cumulative impacts. If the lease of the lower leased parking lot is not renewed in 2017, there would be long-term moderate adverse impacts to visitor use and experience.

Conclusion. Implementation of alternative A would result in long-term, minor adverse impacts to visitor use and experience from the additional 1.6 miles of hiking required for those park visitors parking in the lower leased parking lot. If, however, the lease for the lower parking lot is not renewed after 2017, the resulting adverse impacts to visitor use and experience would be moderate and of long duration, as the total amount of parking spaces to serve 50,000 people per year is decreased from 262 to just the 12 spaces in the NPS upper parking lot. If the lease is renewed after 2017, there would be long-term minor adverse

cumulative impacts, if the lease is not renewed, there would be long-term moderate adverse cumulative impacts.

Alternative B (NPS Preferred Alternative) – Construct New Parking Lot On PATC Land, Continue Public Use of the Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot

Analysis. Under alternative B, a new parking lot would be constructed on PATC land and the lower leased lot would continue to be used at a reduced rate so that the total vehicle capacity would not exceed its current levels of 262. This alternative would decrease total available visitor parking at the trailhead. If the park decided not to renew the lease on the lower parking lot there would still be adequate parking facilities for the Old Rag Mountain Trailhead with between 140 and 160 vehicles spaces available at the newly constructed parking lot. The newly constructed parking lot would allow for more visitors to park in designated areas and would decrease the incidence of overcrowding and undesignated parking.

Alternative B would result in long-term minor beneficial impacts on visitor use and experience. During those times where visitors have to park in the lower leased parking lot, those people would have to walk approximately 0.4 miles down the road to reach the new parking lot and connector trail that leads to the Old Rag Ridge Trailhead, which would result in long-term minor adverse impacts for those visitors.

Construction activities associated with alternative B would involve loud noises and heavy machinery in the parking lots for Old Rag Ridge Trailhead. Some effects of the construction would be noise pollution from heavy machinery and air pollution from the operation of construction vehicles. Visitors would not be able to experience quiet and solitude around the construction zones because of the noise of the machinery. Opportunities for wildlife viewing would be diminished because wildlife would be temporarily displaced due to construction. Construction activities would have short-term, minor adverse impacts on visitor use and experience.

After construction of the new lot and connecting trail is complete, visitors parking in the new parking lot would no longer have to walk along the road to reach the trailhead, but instead walk along a wooded trail to reach the Old Rag Ridge Trail. This would allow visitors to access the trailhead without having to walk 0.8 miles to and from the lower leased parking lot to the trailhead along the entrance road. The trail would provide a wooded, natural environment from which visitors would start their hike. The benefits of this new trail would be long-term minor and beneficial as pedestrians would no longer have to risk incidents with traffic.

During the construction of the new parking lot, the NPS would implement mitigation measures to ensure the enjoyment and safety of visitors. These measures include:

- Conducting all construction activities during daylight hours to avoid noise impacts to park neighbors;
- Avoiding construction during peak visitor use periods (i.e., weekends, holidays, and in the fall during peak colors);
- Developing a safety plan prior to initiation of construction to ensure the safety of park visitors, workers, and park personnel; and
- Ensuring that any lighting, such as security lighting, would be directional and shielded to prevent intrusions into the night sky.

Under alternative B, staging areas for construction equipment and vehicles would be located within the new parking lot construction site itself and possibly, with the permission of the private landowner, the area of the leased lower lot. If staging occurs on the lower leased lot, there would be a reduction in the number of available parking spaces could lead to temporary overcrowding. Overcrowding would lead to visitor conflicts due to a lack of adequate parking and decreased safety as visitors attempt to park along the entrance road. The adverse impacts of visitor use and experience from the use of a portion of the lower leased parking lot as a staging area would be short-term and minor.

The NPS upper parking lot would be rehabilitated for exclusive use by the NPS for administrative emergency access purposes to respond to incidents on Old Rag.

Cumulative Impacts. NPS projects within Shenandoah National Park such as the rehabilitation of the Skyline Drive Overlooks and the various roadway projects within the park, and the park's new ROMP, would have long-term beneficial impacts to visitor use and experience by improving the park's facilities, increasing interpretation, and by directing appropriate visitor recreation use. However, the overlook rehabilitation and roadway improvement projects could potentially have short-term minor adverse impacts to Skyline Drive with more trucks and/or other construction equipment going to and from these sites. In addition, for some, the Rock Outcrop Management Plan may be perceived as limiting their recreational opportunities within the park.

These impacts, when combined with the long-term minor beneficial, and the short-term and long-term minor adverse impacts associated with alternative B, would result in long-term minor beneficial cumulative impacts to the overall visitor use and experience of Shenandoah National Park.

Conclusion. Overall, implementation of alternative B would result in long-term minor beneficial impacts on visitor use and experience, as visitors would be able to access the Old Rag Ridge Trailhead without having to walk along the road. Short-term minor adverse impacts would occur from construction and construction staging. There would be long-term minor beneficial cumulative impacts to the overall visitor use and experience of Shenandoah National Park associated with the implementation of alternative B.

Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot

Analysis. Alternative C would call for the construction of a new parking lot on PATC land and the discontinuation of use of both the NPS upper parking lot and lower leased parking lot. This alternative would decrease the number of available parking spaces from 262 to approximately 160 spaces. This reduced number of spaces would be adequate, based on visitor use statistics that show that for 90 percent of the year visitation at the trailhead is below 160 visitors. Ten percent of the time, it is expected that the capacity of the single parking lot would be insufficient. To alleviate this problem, a reservation system would be implemented to manage parking availability on a seasonal basis (March through November). The reservation system would create an orderly system to manage visitor use at the trailhead. Visitors would be instructed to reserve a parking space prior to driving to the parking lot. This would help prevent overcrowding of the parking lot and conflicts between visitors. Visitors who are unable to book a reservation at the trailhead would be referred to other areas of interest in the park by park staff in the relocated kiosk. The kiosk would be moved from the leased lower lot to the new parking lot on a temporary basis. In addition, visitors trying to make parking reservations from home could be redirected to other areas of the park prior to leaving home. Staff would provide effective public information and education, signage, and enforcement strategies to redirect excess and unreserved weekend vehicle and public use to other trail areas and Skyline Drive in the park. This system would have long-term minor beneficial impacts on visitor use and experience because it would allow visitors to enjoy less crowding in the parking lots and on the trails. Those visitors unable to reserve space within the parking lot would experience short-term minor adverse impacts to visitor experience.

Construction activities associated with alternative C would involve heavy machinery and loud noises in the parking lots and near the Old Rag Ridge Trailhead. Some effects of the construction would be noise pollution from heavy machinery and air pollution from the operation of construction vehicles. Visitors would not be able to experience quiet and solitude around the construction zones because of the noise of the machinery. Opportunities for wildlife viewing would be diminished because wildlife would be temporarily displaced due to construction. Construction activities would have short-term minor adverse impacts on visitor use and experience.

After construction of the new lot and connecting trail is complete, visitors parking in the new parking lot would no longer have to walk along the road to reach the trailhead, but instead walk along a wooded trail to reach the Old Rag Ridge Trail. The trail would provide a wooded, natural environment from which

visitors would start their hike. The benefits of this new trail would result in long-term minor beneficial impacts to the overall visitor experience.

During the construction of the new parking lot, the NPS would implement mitigation measures to ensure the enjoyment and safety of visitors. These measures include:

- Conducting all construction activities during daylight hours to avoid noise impacts to park neighbors;
- Avoiding construction during peak visitor use periods (i.e., weekends, holidays, and in the fall during peak colors);
- Developing a safety plan prior to initiation of construction to ensure the safety of park visitors, workers, and park personnel; and
- Ensuring that any lighting, such as security lighting, would be directional and shielded to prevent intrusions into the night sky.

Under alternative C, staging areas for construction equipment and vehicles would be located within the new parking lot construction site itself and possibly, with the permission of the private landowner, the area of the leased lower lot. If the lower leased parking lot is used for staging, there would be a reduction in the number of available parking spaces would lead to temporary overcrowding. Overcrowding would lead to visitor conflicts due to a lack of adequate parking and decreased safety as visitors attempt to park along the entrance road. The adverse impacts from the use of the staging areas would be short-term and minor.

Cumulative Impacts. NPS projects within Shenandoah National Park such as the rehabilitation of the Skyline Drive Overlooks and the various roadway projects within the park, and the park's new ROMP, would have long-term beneficial impacts to visitor use and experience by improving the park's facilities, increasing interpretation, and by directing appropriate visitor recreation use. However, the overlook rehabilitation and roadway improvement projects could potentially have short-term minor adverse impacts to Skyline Drive with more trucks and/or other construction equipment going to and from these sites. In addition, for some, the Rock Outcrop Management Plan may be perceived as limiting their recreational opportunities within the park.

These impacts, when combined with the long-term, minor beneficial; and the short-term and long-term minor adverse impacts associated with alternative C; would result in long-term minor beneficial cumulative impacts to the overall visitor use and experience of Shenandoah National Park.

Conclusion. Overall, implementation of alternative B would result in long-term minor beneficial impacts on visitor use and experience, as visitors would be able to access the Old Rag Ridge Trailhead without having to walk along the road. Long-term minor adverse impacts would occur to those park visitors who are unable to get a reservation for the day they want to hike Old Rag Mountain. Short-term minor adverse impacts would occur from construction and the staging of construction staging. There would be long-term minor beneficial cumulative impacts to the overall visitor use and experience of Shenandoah National Park associated with alternative C.

HEALTH AND SAFETY

Methodology and Assumptions

Impacts to visitor and NPS staff health and safety were determined qualitatively based on the existing conditions of the site and the safety concerns.

Study Area

The geographic study area for visitor health and safety is within the two existing parking areas, the six-acre PATC parcel proposed for development and State Route 600 from the lower leased parking lot to the NPS upper parking lot.

Impact Thresholds

The impact intensities for health and safety were defined as follows:

Negligible — The impact to health and safety would not be measurable or perceptible.

Minor — The impact would be detectable but would not have an appreciable effect on overall public health and safety. Individuals could be affected in a localized area. If mitigation were needed, it would be relatively simple and would likely be successful.

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

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

Duration — Short-term impacts would be immediate, occurring during implementation of the alternative. Long-term impacts would persist after implementation of the alternative.

Impacts of Alternative A - No Action Alternative

Analysis. Under this alternative, visitors would continue to walk 0.8 miles from the lower leased parking lot to reach the Old Rag Ridge Trailhead. There have been no recorded incidents between vehicles and pedestrians, however, because both cars and pedestrians have to share the 0.8 miles along State Route 600, there is a potential for an incident. There are no sidewalks along this route and there is only a small shoulder in some places. Pedestrians and vehicles share the narrow road en route to the trailhead. The road narrows as it approaches the trailhead so that only one car can effectively pass at a time. Viewing distance is sufficient so that both pedestrians and motorists can see the other on the road. If these conditions continue this would result in long-term, minor adverse impacts to human health and safety. In addition, potential safety concerns also exist from illegal parking along the roadside. Illegal parking narrows the traffic flow, which could restrict access by emergency vehicles. Overall, the no action alternative would likely result in long-term, minor adverse impacts to human health and safety.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to human health and safety that would occur under the no action alternative. As a result there would be no adverse or beneficial cumulative impacts to human health and safety under the no action alternative.

Conclusion. Implementation of alternative A would result in long-term minor adverse impacts to human health and safety as vehicles and pedestrian must share the road, increasing the potential for accidents. In addition, illegal parking could restrict access by emergency vehicles. There would be no adverse or beneficial cumulative impacts associated with the no action alternative.

Alternative B (NPS Preferred Alternative) – Construct New Parking Lot On PATC Land, Continue Public Use of the Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot

Analysis. Activities with the potential to impact human health and safety in alternative B include those measures required to construct new parking facilities, such as clearing forest, grading soils, and resurfacing the parking areas. To protect the public from potential risks associated with construction activities, signs and barriers would be installed around the construction area, restricting motorists and pedestrian access to the site. With these measures in place, public safety risks during construction activities would be very low and would result in short-term negligible adverse impacts to health and safety.

Following construction of the parking lot and the connector trail most pedestrians would no longer have to walk down State Route 600 to reach the trailhead. Those visitors must park in the lower leased parking

lot would be required to walk approximately 0.4 miles down State Route 600, to reach the new parking lot and connector trail. While these people would be at risk sharing the road with other vehicles, the frequency that park visitors would have to walk along the road would be much less than the no action alternative (about 10 percent of the time). As a result of the decrease in pedestrian use of State Route 600, long-term minor beneficial impacts to health and safety would occur.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to human health and safety that would occur under alternative B. As a result there would be no adverse or beneficial cumulative impacts to human health and safety under alternative B.

Conclusion. Overall, implementation of alternative B would result in long-term minor beneficial impacts to the health and safety of park visitors and staff. During construction activities, risks to public safety activities would be very low, resulting in short-term negligible adverse impacts to health and safety. There would be no adverse or beneficial cumulative impacts associated with alternative B.

Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot

Analysis. Activities with the potential to impact human health and safety in alternative C include those measures required to construct new parking facilities such as clearing forest, grading soils, installing restrooms, and laying cement and blacktop. Under alternative C, the park would also install restrooms and construct information kiosks. Impacts to human health and safety would include noise pollution from the use of construction equipment, the use of heavy machinery during construction, and the presence of construction materials at the work-site. In addition, activities associated with constructing a new parking lot on PATC land could potentially cause traffic hazards along the entry road by blocking off certain sections with construction vehicles and equipment and preventing the use of the entrance road temporarily.

To protect the public and employees from potential risks associated with repaving and reconfiguring the parking areas Old Rag Mountain Trailhead, signs would be installed around the construction zone along State Route 600 to notify motorists of the need to reduce speed. With all of these measures in place, public safety risks during construction activities would be very low, resulting in negligible to minor adverse impacts to health and safety.

There would be long-term minor beneficial impacts from the construction of an access trail between the new parking lot and Old Rag Mountain Ridge Trailhead as a result of removing all pedestrian use from State Route 600.

Alternative C also includes the stipulation that the upper NPS parking lot would be rehabilitated and used exclusively by the NPS for administrative emergency access purposes related specifically to search and rescue response incidents on Old Rag. The rehabilitated parking lot would create an area where park employees can assemble and assess emergency situations on the Old Rag Mountain Trail. Park employees would be able to conduct a centralized and coordinated effort from the rehabilitated parking area. This would lead to efficient and effective rescue missions and would increase the general health and safety of both park visitors and staff. The rehabilitation of the NPS upper parking lot would result in long-term minor beneficial impacts to visitor health and safety.

Under alternative C, the park would also implement a reservation system for the newly constructed parking lot. This system would enforce a maximum amount of visitor use at the trailhead and would create a safer environment at the trailhead by reducing the amount of visitors to a manageable level. Visitors who are unable to book a reservation at the trailhead would be referred to other areas of interest in the park by park staff in the relocated kiosk. The kiosk would be moved from the leased lower lot to the new parking lot on a temporary basis. In addition, visitors trying to make parking reservations from home could be redirected to other areas of the park prior to leaving home. Staff would provide effective public information and education, signing, and enforcement strategies to redirect excess and unreserved weekend

vehicle and public use to other trail areas and Skyline Drive in the park. The impacts of this system would be long-term, minor and beneficial to human health and safety.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to human health and safety that would occur under alternative C. As a result, there would be no adverse or beneficial cumulative impacts to human health and safety under alternative C.

Conclusion. Overall, implementation of alternative C would result in long-term minor beneficial impacts to the health and safety of park visitors and staff. The newly resurfaced parking areas and the newly created access trails would correct the safety deficiencies that currently exist at the trailhead and construction of an access trail between the new parking lot and Old Rag Mountain Ridge Trailhead would increase visitor health and safety by avoiding pedestrian use of the entrance road. During construction activities, risks to public safety activities would be very low, resulting in short-term negligible adverse impacts to health and safety. As a result of implementing the reservation system, visitor safety would increase as the number of visitors would be maintained at a manageable level, creating a safer environment on the trail. There would be no adverse or beneficial cumulative impacts associated with alternative C.

PARK NEIGHBORS

Methodology and Assumptions

Impacts to park neighbors were determined qualitatively based on the existing conditions created by visitor use and their impacts on park neighbors, with regards to noise, trespassing, and illegal parking. For the purposes of this analysis, it is assumed that the amount of traffic and its seasonal and daily (temporal) distribution would not change beyond its current usage.

Study Area

Because the current use of State Route 600 to the current lower leased parking lot is not expected to change, the geographic area examined to determine the potential impacts to park neighbors are the residents located along the stretch of State Route 600, between the current lower leased parking lot and the NPS upper parking lot.

Impact threshold definitions focus on traffic and noise impacts to park neighbors in the area from the existing lower leased parking lot to the NPS upper parking lot, and were defined as follows:

Negligible – No effects would occur, or the effects on neighboring landowners would be below or at the level of detection.

Minor – The effects on neighboring landowners would be small but detectable. The impact would be slight, but would not be detectable outside the neighboring lands and would affect only a few adjacent landowners.

Moderate – The effects on neighboring landowners would be readily apparent. Changes in would be limited and confined locally, and they would affect more than a few landowners.

Major - The effects on neighboring landowners would be readily apparent. Changes would be substantial, extend beyond the local area, and affect the majority of landowners.

Impacts of Alternative A - No Action Alternative

Analysis. Under the no action alternative, park neighbors would continue to be affected by the large numbers of park visitors who access the Old Rag Ridge Trail via Weakley Hollow, especially during periods of heavy visitor use. These impacts include trespassing on private land (especially from roadside parking and camping), sanitation/littering on private property, traffic/noise from vehicles and/or pedestrians, and roadside aesthetics. The NPS tries to limit these problems by placing a temporary barricade across the road at the lower leased parking lot on weekends and during peak visitor season, generally April through early November. This is meant to discourage vehicles from proceeding closer to

the trailhead and parking illegally. While this helps relieve the problems caused by vehicles, the residents located above the barrier would still have to contend with those impacts created by pedestrian traffic such as littering, noise (loud voices, barking from local and visiting dogs, etc.), and residents' dogs being attracted off their properties by visitors (a concern repeatedly voiced by several residents). Overall, the adverse impacts to park neighbors living between the lower leased parking lot and the NPS upper parking lot would be minor and of long duration. The extent of the impacts on individual neighbors diminishes as the distance between their properties and the NPS upper parking lot and trailhead increases. For those neighbors that may reside far enough away not to experience trespass parking and blocked traffic flow, they would at least experience the same traffic volume as those neighbors located closer to the trailhead.

These impacts to park neighbors are expected to remain consistent throughout the life of the lease of the lower parking lot. However, if the lease is not renewed after 2017, the impacts to park neighbors would be expected to increase dramatically. If the lease on the lower lot was not renewed, it would be expected that there would be moderate long-term adverse impacts to park neighbors.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to park neighbors that would occur under the no action alternative. As a result, there would be no adverse or beneficial cumulative impacts to park neighbors under the no action alternative.

Conclusion. Implementation of the no action alternative would result in long-term minor adverse impacts to park neighbors; however, if the lease of the lower lot is not renewed in 2017, the expected adverse impacts would be long-term and moderate. There would be no adverse or beneficial cumulative impacts to park neighbors under the no action alternative.

Alternative B (NPS Preferred Alternative) – Construct New Parking Lot On PATC Land, Continue Public Use of the Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot

Analysis. During construction, park neighbors could be impacted through increased noise and dust from the operation of construction vehicles. Under alternative B, staging areas for construction equipment and vehicles would be located within the new parking lot construction site itself and possibly, with the permission of the private landowner, the area of the leased lower lot. If the lower leased parking lot is used for staging, there would be a reduction in the number of available parking spaces, which could lead to temporary overcrowding. This could increase trespassing and illegal parking along State Route 600, which could result in short-term minor adverse impacts to park neighbors.

After construction of the new PATC lot, illegal parking would likely decrease as there would be more available spaces closer to the trailhead. Park staff would work with VDOT and the county sheriff's office to enforce no illegal parking, and the new PATC parking lot would have sufficient capacity to accommodate between 140 and 160 vehicles with the overflow going to the lower leased parking lot. In addition, visitors parking in the new parking lot would be able to utilize the connecting trail to reach the trailhead instead of State Route 600; further decreasing impacts associated with pedestrian traffic and the potential for trespassing onto private property. Overall, implementation of alternative B would result in long-term, minor beneficial impacts to park neighbors as impacts from visitors to park neighbors would diminish once the new PATC lot is in use.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to park neighbors that would occur under alternative B. As a result, there would be no adverse or beneficial cumulative impacts to park neighbors under alternative B.

Conclusion. Implementation of alternative B would result in short-term minor adverse impacts to park neighbors during the initial construction of the new parking lot. Long-term minor beneficial impacts to park neighbors would occur as illegal parking decreases along with the overall amount of pedestrian traffic traveling between the lower leased lot and the NPS upper parking lot. There would be no adverse or beneficial cumulative impacts to park neighbors under alternative B.

Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot

Analysis. Under alternative C, noise impacts created by pedestrian traffic would continue. Park staff would work with VDOT to enforce no illegal parking, trespassing, and littering on private property with appropriate signage.

During construction, park neighbors could be impacted through increased noise and dust from the operation of construction vehicles. Under alternative C, staging areas for construction equipment and vehicles would be located within the new parking lot construction site itself and possibly, with the permission of the private landowner, the area of the leased lower lot. If the lower leased parking lot is used for staging, there would be a reduction in the number of available parking spaces, which could lead to temporary overcrowding. This could increase trespassing and illegal parking along State Route 600, which could result in short-term minor adverse impacts to park neighbors.

After construction of the new PATC lot, illegal parking would likely decrease as there would be more available spaces closer to the trailhead. Park staff would work with VDOT to enforce no illegal parking, and the new PATC parking lot would have sufficient capacity to accommodate between 140 and 160 vehicles. A reservation system would be implemented to manage parking availability at the lot on PATC land on a seasonal (March through November) basis. This reservation system would create an orderly system to manage visitor use at the trailhead and prevent overcrowding and impacts to park neighbors. In addition, visitors would be able to utilize the connecting trail to reach the trailhead instead of State Route 600, effectively doing away with pedestrian traffic along the road and further decreasing the potential for trespassing onto private property. Overall, implementation of alternative C would result in long-term, minor beneficial impacts to park neighbors as impacts from visitors to park neighbors would diminish once the new PATC lot is in use.

Cumulative Impacts. There are no present or proposed future actions that would act cumulatively to the impacts to park neighbors that would occur under alternative C. As a result, there would be no adverse or beneficial cumulative impacts to park neighbors under alternative C.

Conclusion. Implementation of alternative C would result in short-term minor adverse impacts to park neighbors during the initial construction of the new parking lot. Long-term minor beneficial impacts to park neighbors would occur as the potential for visitors to illegally park on the roadside and/or trespass would be diminished. There would be no adverse or beneficial cumulative impacts to park neighbors under alternative C.

PARK OPERATIONS AND MANAGEMENT

Shenandoah National Park is responsible for providing staff to perform all of the day-to-day operations and maintenance required to manage and maintain the parking lots that serve park visitors.

Study Area

The geographic study area for park operations and management are the two existing parking areas and the six-acre PATC parcel proposed for development, and the park trails that these parking lots serve.

Impact Thresholds

The impact intensities for health and safety were defined as follows:

Negligible — Park operations would not be impacted, or the impacts would be at low levels of detection and would not have an appreciable effect on park operations.

Minor — The impact would be detectable and would be of a magnitude that would not have an appreciable effect on park operations. If mitigation was needed to offset adverse effects, it would be simple and likely successful.

Moderate — The impacts would be readily apparent and result in a substantial change in park operations in a manner noticeable to staff and the public. Mitigation measures would be necessary to offset adverse effects and would likely be successful.

Major — The effects would be readily apparent, result in a substantial change in park operation in a manner noticeable to staff and the public, and be markedly different from existing operations. Mitigation measures to offset adverse effects would be needed and extensive, and success could not be guaranteed.

Duration — Short-term impacts would be immediate, occurring during implementation of the alternative. Long-term impacts would persist after implementation of the alternative.

Impacts of Alternative A - No Action Alternative

Analysis. Under the no action alternative, there would be no change to the current parking configuration. Currently, two park employees staff the contact station at the lower leased parking lot on the weekends to take fees, provide information, conduct car counts, and manage the barricade across State Route 600 and place the temporary barricade on weekends during peak visitor season, generally April through early November. Maintenance at the parking lots involves occasional mowing of the lower leased parking lot. Park maintenance staff also empties trash receptacles, picks up litter, and maintains the portable toilets at the parking lot. Because of the high visitor use of the area and the fact that the site is relatively isolated from other visitor use areas, there would be long-term, minor adverse impacts to park operations and management.

There would be no change to the current park operation and management associated with the Old Rag parking lots until 2017. If the lease is extended beyond 2017, these impacts would continue. However, if the existing lease is not renewed, parking capacity for Old Rag would decrease from 262 spaces to the 12 spaces available at the NPS upper parking lot. As a result, conflicts between park neighbors and visitors along State Route 600 would increase and an overall increased demand on other park resources as park visitors seek additional places to recreate. This would likely require the park to divert additional manpower and funds to address these problems, which would reduce the amount of available funds from other park operations. As conditions continue, there would be long-term, moderate adverse impacts on park management and operations.

Cumulative Impacts. Development of the ROMP, along with the rehabilitation of the Skyline Drive overlooks and the NPS and FHWA roadway improvement projects throughout the park would all increase park operation and management requirements, resulting in long-term, minor adverse impacts. However, with the rehabilitation of the overlooks and the repair of the park roads, there would be less future maintenance needs resulting in long-term, minor beneficial impact to park operations and management.

These impacts, in combination with the long-term, minor adverse impacts of the no action alternative, would result in long-term, minor adverse cumulative impacts, since park operation and management requirements would increase overall.

Conclusion. Implementation of the no action alternative would result in long-term, minor adverse impacts to park operations and management; however, if the lease of the lower lot is not renewed in 2017, the expected adverse impacts would be long-term and moderate. Long-term, minor adverse cumulative impacts to park operation and management would occur.

Alternative B (NPS Preferred Alternative) – Construct New Parking Lot On PATC Land, Continue Public Use of the Lower Leased Parking Lot at a Reduced Vehicle Parking Capacity, and Discontinue Public Use of the NPS Upper Parking Lot

Analysis. Under alternative B, the park would oversee the construction of a new parking lot, continue the use of the lower leased parking lot at a smaller capacity, and discontinue the use of the NPS upper parking lot. The construction of the parking lot on the PATC parcel would be handled by contractors and would not directly involve the park staff. Park staff would be involved in the planning efforts associated with the project and may be asked to assist with communication and visitor outreach programs involving the

project. Actions associated with the continued use of the lower leased parking lot and the closing of the NPS upper parking lot would likely be done by park maintenance staff and involve reconfiguring the lower leased parking lot, removing the trash cans, and relocating the NPS gate of the NPS upper parking lot.

After construction, two park employees would staff the contact station at the PATC parking lot on the weekends to take fees, provide information and conduct car counts. General maintenance would include occasional mowing of the lower leased parking lot, emptying of trash receptacles, and maintaining the restrooms at the parking lot.

The construction and operations of the proposed parking lot, along with the proposed activities associated with the lower leased and NPS upper parking lots, would have long-term, minor adverse impacts on park operations and management because park staff would have to divert attention to overseeing the overall planning and construction and future management of the proposed parking lot and lower leased parking lot.

Cumulative Impacts. Development of the ROMP, along with the rehabilitation of the Skyline Drive overlooks and the NPS and FHWA roadway improvement projects throughout the park would all increase park operation and management requirements, resulting in long-term, minor adverse impacts. However, with the rehabilitation of the overlooks and the repair of the park roads, there would be less future maintenance needs, resulting in long-term, minor beneficial impact to park operations and management.

These impacts, in combination with the long-term, minor adverse impacts of the alternative B, would result in long-term, minor adverse cumulative impacts since park operation and management requirements would increase overall.

Conclusion. Implementation of alternative B would have long-term, minor adverse impacts on park operations and management as park personnel and resources would be diverted to overseeing the construction and operation of the new PATC lot. Long-term, minor adverse cumulative impacts to park operation and management would also occur.

Alternative C – Construct a New Parking Lot on PATC Land, Discontinue Public Use of the Lower Leased Parking Lot and Public Use of the NPS Upper Parking Lot

Analysis. Under alternative C, the park would oversee the construction of a new parking lot and close the lower leased and NPS upper parking lots to public use. The construction of the parking lot on the PATC parcel would be handled by contractors and would not directly involve the park staff. Park staff would be involved in the planning efforts associated with the project and may be asked to assist with communication and visitor outreach programs involving the project. Actions associated with the closing of the lower leased and upper lots would likely be done by park maintenance staff and involve removing all NPS property from the lower leased parking lot, removing the trash cans, and relocating the NPS gate of the NPS upper parking lot.

After construction, two park employees would staff the contact station at the PATC parking lot on the weekends to take fees, provide information, conduct car counts, and to place the temporary barricade on weekends during peak visitor season (generally April through early November). Park staff would be needed to implement and operate the reservation system to manage parking availability at the new PATC lot. The park would also provide effective public information and education, signage, and enforcement strategies to redirect excess and unreserved weekend vehicle and public use to other areas within the park. The park would allocate employee time to handle public outreach and communication under this alternative. General maintenance would include occasional mowing, emptying of trash receptacles, and maintaining the restrooms at the parking lot.

The construction and operations of the proposed PATC parking lot along with the proposed activities associated with the lower leased and NPS upper parking lots would have long-term, minor adverse impacts on park operations and management because park staff would have to divert attention to

overseeing the overall planning and construction and future management of the proposed PATC parking lot.

Cumulative Impacts. Development of the ROMP, along with the rehabilitation of the Skyline Drive overlooks and the NPS and FHWA roadway improvement projects throughout out the park would all increase park operation and management requirements, resulting in long-term, minor adverse impacts. However, with the rehabilitation of the overlooks and the repair of the park roads there would be less future maintenance needs, resulting in long-term minor beneficial impact to park operations and management.

These impacts, in combination with the long-term minor adverse impacts of alternative C, would result in long-term, minor adverse cumulative impacts since park operation and management requirements would increase overall.

Conclusion. Implementation of alternative C would have long-term, minor adverse impacts on park operations and management as park personnel and resources would be diverted to overseeing the construction and operation of the new PATC lot. Long-term, minor adverse cumulative impacts to park operation and management would also occur.

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COORDINATION AND CONSULTATION

Coordination with state and federal agencies was conducted during the NEPA process to identify issues and/or concerns related to natural and cultural resources within Shenandoah National Park.

All consultations with the State Historic Preservation Officer, as mandated in Section 106 of the National Historic Preservation Act of 1966, are occurring as part of the development of this EA. There are no National Register structures or cultural landscape features of any significance located on the six-acre PATC parcel. A Phase I archaeological survey of the PATC parcel, conducted as part of the EA and Section 106 process, identified a potentially significant archeological site in one location on the site. All other areas have been heavily impacted by previous plowing, excavation, and recent use; and thus, have little potential for having archaeological resources. A detailed report of these findings was presented to the Virginia Department of Historic Resources. On July 3, 2002 the Virginia State Historic Preservation Officer (VA SHPO) responded in a letter, concurring with the findings of the archaeology report, and agreed to participate in a Memorandum of Agreement (MOA) with the NPS proposed construction of a parking lot on the PATC parcel (Appendix B). The MOA assured that any adverse effects on potential National Register eligible archaeological sites would be mitigated in consultation with the VA SHPO. There is no National Register cultural landscape significance to the site.

The original MOA was good for five years, or until July 3, 2007. On January 19, 2007, the VA SHPO extended the MOA for an additional three years.

In accordance with Section 7 of the Endangered Species Act of 1973, in the winter of 2002, letters were sent by Shenandoah National Park to solicit comments from the USFWS and DCR regarding the proposed construction of a parking lot on the six-acre PATC parcel and the potential for this action to affect any state or federally listed species. The DCR responded on December 9th, 2002, stating that it had searched its Biological and Conservation Data System (BCD) for occurrences of natural heritage resources for the area. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations. While the BCD search documented the presence of a few natural heritage resources in the project area, they stated that, due to the scope of the activity and the distance between these resources and construction, the DCR did not anticipate that the proposed project would adversely impact any of these natural heritage resources.

On January 28, 2003, the FWS responded to the park's initial letter, stating that they had concerns about the potential for the federally-threatened small whorled pogonia (*Isotria medeoloides*) to occur on the PATC site. This conclusion was based on the potential habitat on the site and the FWS recommended surveys be conducted. No other federally species known to inhabit the park were mentioned in the letter. The small whorled pogonia is protected under the Virginia Endangered Plant Act, which is administered by the Virginia Department of Agriculture and Consumer Services (VDACS). Under a MOA established between VDACS and the DCR, the DCR has the authority to report for VDACS on state-listed plant and insect species. Since the DCR has authority to report for VDACS, and the DCR did not anticipate that the proposed project would adversely impact any of natural heritage resources, concurrence with Section 7 has been fulfilled.

In March of 2008, as part of its ongoing review and to ensure no federal- or state-listed species would be impacted from the proposed actions, the NPS requested DCR to conduct another BCD search to confirm the findings gathered in the previous 2002 BCD database search. If a new listed species is found in the project area, NPS would again consult with the DCR and the FWS to develop mitigation measures to ensure no impacts to these species would occur.

In addition, during the initial public scoping meeting and throughout the NEPA process, NPS received several comments from the public regarding the proposed action. Those individuals who attended the public scoping meeting and/or provided comments, park neighbors who live in the immediate vicinity of

the proposed parking lot, and the following agencies/organizations will be provided a copy of this EA and afforded 30 days to review and comment.

FEDERAL GOVERNMENT

U.S. Fish and Wildlife Service

STATE/LOCAL GOVERNMENT

Virginia Department of Conservation and Recreation

Virginia Department of Game & Inland Fish

Virginia State Historic Preservation Officer

Page County Administrator

Rappahannock County Administrator

Madison County Administrator

Virginia Council on Indians

Honorable John W. Warner

Honorable Jim Webb

Honorable Frank R. Wolf

Honorable Virgil Goode

Honorable Robert W. Goodlatte

Honorable Eric I. Cantor

OTHER

Potomac Appalachian Trail Club

National Parks Conservation Association

Shenandoah Mountain Touring LLC

LIST OF PREPARERS

NATIONAL PARK SERVICE - SHENANDOAH NATIONAL PARK

Steve Bair, Backcountry, Wilderness and Trails Manager

Karen Beck-Herzog, Public Affairs Officer Shenandoah National Park

Chas Cartwright, Superintendent

Steve Herzog, Chief of Maintenance

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Paul Wharry, Natural Resource Specialist

THE LOUIS BERGER GROUP, INC.

Ashley Cobb, Environmental Planner

Joel Gorder, AICP, Project Manager/Environmental Planner

Dana Otto, AICP, Senior Environmental Scientist

Doug Wetmore, Environmental Scientist

Julia Yuan, Environmental Scientist

Mike Bresnahan, Editor

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GLOSSARY OF TERMS AND ACRONYMS

ABAAS	Architectural Barriers Act Accessibility Standards
BCD	Biological and Conservation Data System
BMPs	Best Management Practices
BWMP	Backcountry Wilderness Management Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dBA	a-weighted decibels
DCR	Virginia Department of Conservation and Recreation
DEQ	Virginia Department of Environmental Quality
EA	Environmental Assessment
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
HQGCWF	High Quality Cold Water Fishery
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
PATC	Potomac Appalachian Trail Club
Pub. L.	Public Law
ROMP	Rock Outcrop Management Plan
USACE	U.S. Army Corps of Engineers
U.S. EPA	U.S. Environmental Protection Agency
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VDACS	Department of Agriculture and Consumer Services
VDOT	Virginia Department of Transportation
VESCL&R	Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations
VOC	volatile organic compound

Affected Environment — The existing environment to be affected by a proposed action and alternatives.

Best Management Practices — Methods that have been determined to be the most effective, practical means of preventing or reducing pollution or other adverse environmental impacts.

Contributing Resource — A building, site, structure, or object that adds to the historic significance of a property or district.

Council on Environmental Quality (CEQ) — Established by Congress within the Executive Office of the President with passage of the *National Environmental Policy Act of 1969*. CEQ coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives.

Cultural Resources — Historic districts, sites, buildings, objects, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason.

Cumulative Impacts — Under NEPA regulations, the incremental environmental impact or effect of an action together with the effects of past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR 1508.7).

Deciduous — Describing tree species that have leaves that fall off every season.

Emergency Services — Public services that respond to emergency situations including police, fire, rescue, and EMS.

Enabling Legislation — National Park Service legislation setting forth the legal parameters by which each park may operate.

Endangered Species — “...any species (including subspecies or qualifying distinct population segment) that is in danger of extinction throughout all or a significant portion of its range (ESA Section 3(6)).” The lead federal agency, U.S. Fish and Wildlife Service, for the listing of a species as endangered is responsible for reviewing the status of the species on a five-year basis.

Endangered Species Act (ESA) (16 USC 1531 et seq.) — An Act to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved and to provide a program for the conservation of such endangered species and threatened species.

Environmental Assessment (EA) — An environmental analysis prepared pursuant to the *National Environmental Policy Act* to determine whether a Federal action would significantly affect the environment and thus require a more detailed environmental impact statement (EIS).

Executive Order — Official proclamation issued by the President that may set forth policy or direction or establish specific duties in connection with the execution of federal laws and programs.

Finding of No Significant Impact (FONSI) — A document prepared by a federal agency showing why a proposed action would not have a significant impact on the environment and thus would not require preparation of an Environmental Impact Statement. A FONSI is based on the results of an Environmental Assessment.

Floodplain — The flat or nearly flat land along a river or stream or in a tidal area that is covered by water during a flood.

Imbrication - Shingled arrangement of platy particles, produced by currents or waves.

National Environmental Policy Act (NEPA) — The Act as amended articulates the federal law that mandates protecting the quality of the human environment. It requires federal agencies to systematically assess the environmental impacts of their proposed activities, programs, and projects including the “no action” alternative of not pursuing the proposed action. NEPA requires agencies to consider alternative ways of accomplishing their missions in ways which are less damaging to the environment.

National Historic Preservation Act of 1966 (16 USC 470 et seq.) — An Act to establish a program for the preservation of historic properties throughout the nation, and for other purposes, approved October 15, 1966 [Public Law 89-665; 80 STAT.915; 16 USC 470 as amended by Public Law 91-243, Public Law 93-

54, Public Law 94-422, Public Law 94-458, Public Law 96-199, Public Law 96-244, Public Law 96-515, Public Law 98-483, Public Law 99-514, Public Law 100-127, and Public Law 102-575].

National Register of Historic Places (National Register) — A register of districts, sites, buildings, structures, and objects important in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior under authority of Section 2(b) of the *Historic Sites Act of 1935* and Section 101(a)(1) of the *National Historic Preservation Act of 1966*, as amended.

Organic Act — Enacted in 1916, this Act commits the National Park Service to making informed decisions that perpetuate the conservation and protection of park resources unimpaired for the benefit and enjoyment of future generations.

Scoping — Scoping, as part of NEPA, requires examining a proposed action and its possible effects; establishing the depth of environmental analysis needed; determining analysis procedures, data needed, and task assignments. The public is encouraged to participate and submit comments on proposed projects during the scoping period.

Topography — The physical features of a surface area including relative elevations and the position of natural and man-made (anthropogenic) features.

Wetlands — The U.S. Army Corps of Engineers (Federal Register, 1982) and the Environmental Protection Agency (Federal Register, 1980) jointly define wetlands as: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

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APPENDIX A:
Coordination With U.S. Fish and Wildlife Service and the Virginia
Department of Conservation and Recreation

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
6669 Short Lane
Gloucester, VA 23061



January 28, 2003

Mr. Rolf Gubler
Mr. Clayton Jordan
Shenandoah National Park
3655 US Hwy 211 East
Luray, Virginia 22835

Re: Old Rag Mountain Access
Development Project, #2732,
Madison County, Virginia

Dear Mr. Gubler and Mr. Jordan:

The U.S. Fish and Wildlife Service has received your request for information on Federally listed or proposed endangered and threatened species and their habitats for the referenced project. This letter is submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The Potomac Appalachian Trail Club proposes to purchase land which would be leased by the National Park Service for the purpose of constructing a parking lot to accommodate about 250 vehicles and to build a trail across the property connecting the parking lot and Shenandoah National Park in Madison County, Virginia. The proposed parking lot will be used by people who hike Old Rag Mountain. A visitor contact station would also be constructed on the site. The favored alternative is alternative C. Based on the information you sent, the Service recommends that surveys be conducted for the following species:

- o Small whorled pogonia (*Isotria medeoloides*) - Federally listed threatened. Appropriate habitat for this orchid is mixed-deciduous or mixed deciduous/coniferous forests with an open understory on terrain that is almost level or gently to moderately sloping, but it has been found on steep slopes. Although the pogonia may be found more often on slopes with northerly or easterly exposures, all aspects with appropriate habitat may contain the pogonia. Small whorled pogonia sites can be generally characterized by their proximity to canopy openings, the presence of dead standing trunks, little herbaceous ground cover, and wood litter on the ground. The Service recommends a survey within appropriate habitat at the project site. Surveys should be conducted from June 1 through July 20 in Caroline County and counties to the north. Outside of these months, a site visit by a qualified individual can determine if appropriate habitat exists at the project site.

Mr. Rolf Gubler and Mr. Clayton Jordan

Page 2

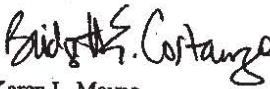
The small whorled pogonia is protected under the Virginia Endangered Plant and Insect Act, which is administered by the Virginia Department of Agriculture and Consumer Services (VDACS). Under the Memorandum of Agreement established between VDACS and the Virginia Department of Conservation and Recreation (VDCR), VDCR has the authority to report for VDACS on state-listed plant and insect species. You should contact VDCR at the address below:

Virginia Department of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 3rd Floor
Richmond, VA 23219
(804) 786-7951

The attached list contains individuals who are qualified to conduct surveys for the species listed above. This list does not include all individuals qualified or authorized to survey for this species. If you select someone not on the pre-approved surveyor list, please provide the proposed surveyor's qualifications to this office 30 days prior to the start of the survey. To ensure that an adequate survey is conducted, the surveyor names and proposed survey design should be submitted to this office prior to the survey. Send copies of all survey results to this office or inform this office if a survey will not be conducted. If the survey determines that any rare species are present, please contact this office to allow us the opportunity to work with you to ensure that this project avoids or minimizes adverse effects to rare species and their habitats.

The Service also recommends that you consider survey needs of and potential effects to state listed endangered and threatened species. If you have any questions or need further assistance, please contact Kerry Linehan of this office at (804) 693-6694, extension 127

Sincerely,


Karen L. Mayne
Supervisor
Virginia Field Office

Enclosures

W. Tayloe Murphy, Jr.
Secretary of Natural
Resources



Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
Telephone (804) 786-7951 FAX (804) 371-2674 TDD (804) 786-2121

December 9, 2002

Rolf Guber
Project Compliance Coordinator
Shenandoah National Park
3655 US Hwy 211 East
Luray, Virginia 22835

Re: Weakley Hollow/Old Rag Mountain Access Development Project

Dear Mr. Guber:

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

BCD documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

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

New and updated information is continually added to BCD. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in dark ink, appearing to read "S. René Hypes".

S. René Hypes
Project Review Coordinator

An Agency of the Natural Resources Secretariat

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APPENDIX B:
Memorandum of Agreement Between NPS and the Virginia
Department of Historic Resources

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COMMONWEALTH of VIRGINIA

Department of Historic Resources

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.state.va.us

July 3, 2002

Douglas K. Morris, Superintendent
Shenandoah National Park
United States Department of Interior
National Park Service
3655 U.S. Hwy. 211 East
Luray, Virginia 22835-9036

RE: Proposed Parking Lot for the Old Rag Trail Extension
Shenandoah National Park
Augusta County, Virginia
DHR File No. 2002-0833

Dear Mr. Morris:

Thank you for offering us the opportunity to participate in the Memorandum of Agreement for the referenced project. Our director's signature on the document evidences our concurrence. We appreciate the efforts of you and your staff, in particular Mr. Reed Engle, to bring this project to a successful conclusion.

If you have any questions or if we may provide any further assistance, please do not hesitate to contact me at (804) 367-2323, ext. 112; fax (804) 367-2391; e-mail eeaton@dhr.state.va.us. We look forward to working with you on future projects.

Sincerely,

Ethel R. Eaton, Ph.D., Manager
Office of Review and Compliance

Administrative Svcs.
11 Courthouse Avenue
Petersburg, VA 23803
Tel: (804) 863-1685
Fax: (804) 863-6196

Petersburg Office
19-B Bollingbrook Street
Petersburg, VA 23803
Tel: (804) 863-1620
Fax: (804) 863-1627

Portsmouth Office
612 Court Street, 3rd Floor
Portsmouth, VA 23704
Tel: (757) 396-6709
Fax: (757) 396-6712

Roanoke Office
1030 Penmar Avenue, SE
Roanoke, VA 24013
Tel: (540) 857-7585
Fax: (540) 857-7588

Winchester Office
107 N. Kent Street, Suite 203
Winchester, VA 22601
Tel: (540) 722-3427
Fax: (540) 722-7535



WHEREAS, Shenandoah National Park (hereinafter the Service) in partnership with the Potomac Appalachian Trail Club (PATC) desires to develop a parking lot for visitors of the Old Rag Trail extension, and

WHEREAS, the PATC is seeking grant funding from the Federal Highways Work Administration (FHWA) through the Virginia Department of Conservation and Recreation (DCR) Trails Fund Program for partial purchase of the parking lot site, and

WHEREAS, the Service is coordinating NHPA 106 and NEPA environmental review for the proposed project as the lead federal governmental agency, and

WHEREAS, the Service has conducted an Identification (Phase I) Survey of all areas of ground disturbance proposed for this project;

THEREFORE, the Service will ensure that the following measures are carried out:

Identification and Evaluation of Archeological Properties.

The Service shall submit two copies of the draft report of the Identification (Phase I) Survey to the Virginia SHPO for a thirty-day review period. All comments received within thirty days shall be addressed. If no comments are received within thirty days, the Service may assume concurrence with its findings and proceed.

Prior to affecting any potentially eligible sites, the Service shall develop a program to evaluate archeological sites in consultation with the Virginia SHPO. The testing program shall be of sufficient intensity to provide an evaluation of eligibility for the National Register of Historic Places by the Service in consultation with the Virginia SHPO for all identified properties, following the regulations outlined in 36 CFR 800.4 (c).

Treatment of Archeological Properties.

If archeological properties are identified as a result of the testing program, the Service will develop a plan for their avoidance, protection, or recovery of information in consultation with the Virginia SHPO and approved by the Virginia SHPO prior to implementation.

All data recovery plans prepared under the terms of this agreement shall include the following elements

- Information on the archaeological property or properties where data recovery is to be carried out, and the context in which such properties are eligible for the National Register;

- Information on any property, properties, or portions of properties that will be destroyed without data recovery;
- Discussion of the research questions to be addressed through the data recovery, with an explanation/justification of their relevance and importance;
- Description of the recovery methods to be used, with an explanation of their pertinence to the research questions;
- The plan should contain the expected timetable for excavation, analysis and preparation of the final report. The Service shall notify the Virginia SHPO in writing once the fieldwork portion of the data recovery program is complete so that a site visit may be scheduled, if the Virginia SHPO finds it appropriate. The proposed construction may proceed following this notification while the technical report is in preparation.
- Description of the proposed disposition of recovered materials and records
- Proposed methods for disseminating results of the work to the interested public (e.g. slide packet for use in the County Schools, an exhibit in the County Library during Virginia Archaeology Month, etc.); and
- Proposed methods by which any relevant Indian tribes, and other specific groups/interested parties will be kept informed of the work, and if human remains or grave goods are expected to be encountered, information on consultation with the Virginia Council on Indians, the United Indians of Virginia and any other relevant Indian tribe regarding final disposition of the materials.

Construction Plans.

The Service shall submit final plans for the proposed construction to the Virginia SHPO for review and comment.

Unanticipated Discoveries.

The Service will develop a plan for the treatment of unexpected discoveries, to include:

In the event that a previously unidentified archeological resource is discovered during ground disturbing activities, all construction work involving subsurface disturbance will be halted in the area of the resource and in the surrounding area where further subsurface remains can reasonably be expected to occur. An archeologist approved by the Service will immediately inspect the work site and determine the area and the nature of the affected archeological property.

Construction work may then continue in the project area outside the site area. Within 10 working days of the original notification of discovery, the Service in consultation with the Virginia SHPO will determine the National Register eligibility of the resource.

If the resource is determined to meet the National Register Criteria (36 CFR Part 60.6), the Service will ensure compliance with Section 800.13 of the Council's regulations. Work in the affected area shall not proceed until either (a) the development and implementation of an appropriate data recovery or other recommended mitigation procedures, or (b) the determination is made that the located remains are not eligible for inclusion on the National Register.

Dispute Resolution.

Should the Virginia SHPO object within 30 days to any actions proposed pursuant to this Agreement, the Service shall consult with the SHPO to resolve the objection. If the objection cannot be resolved, the Service shall request the further comments of the Council pursuant to 36 CFR § 800.6(b). Any Council comment provided in response to such a request will be taken into account by the Service in accordance with 36 CFR § 800.6 (c)(2).

At any time during the implementation of the measures stipulated in this agreement, should an objection to any such measures or its manner of implementation be raised by a member of the public, the Service shall take the objection into account and consult as needed with the objecting party, the SHPO, or the Council to resolve the objection.

Administrative Provisions:

All archeological work, including data recovery plan(s), shall be consistent with the Secretary of the Interior's *Standards and Guidelines for Archeological Documentation* (48 FR 4434-37) and the Virginia SHPO's *Guidelines For Conducting Cultural Resource Survey In Virginia: Additional Guidance for the Implementation of the Federal Standards Entitled Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines* (48 FR 44742, September 29, 1983) 1999, rev. 2000 and take into account the Council's publication, *Consulting About Archeology Under Section 106* (1990).

All archeological work will be conducted under the direct supervision of a qualified archeologist who meets, at a minimum, the qualifications set forth in the Secretary of Interior's *Professional Qualifications Standards* (48 FR 44738-9).

All appropriate field and research notes, maps, drawing and photographic records collected as part of this project (with the exception of the artifacts which remain the property of the land owner and human skeletal remains) will be cared for in accordance with the

requirements in 36 CFR Part 79, *Curation of Federally Owned and Administered Archeological Collections*. All such items will be made available to the County, educational institutions and individual scholars for appropriate exhibit and/or research under the operating policies of the Service and the Shenandoah National Park.

Expiration

This Agreement will continue in full force and effect for 5 years. At any time in the six-month period prior to expiration of the Agreement, the Service and the SHPO can agree to extend this agreement with or without amendments.

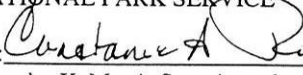
EXECUTION AND IMPLEMENTATION of this Agreement evidences that the Service has afforded the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking, and that the Service has taken into account the effects of this undertaking on historic properties.

SIGNATURES

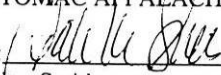
VIRGINIA STATE HISTORIC PRESERVATION OFFICER

By:  Date: 7/2/02
Kathleen S. Kilpatrick
Virginia State Historic Preservation Officer

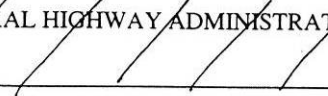
NATIONAL PARK SERVICE

By:  Date: 6/1/02
Douglas K. Morris Superintendent
Shenandoah National Battlefield Park

POTOMAC APPALACHIAN TRAIL CLUB

By:  Date: June 4, 2002
Walter Smith
President, PATC

FEDERAL HIGHWAY ADMINISTRATION

By:  Date: 7/1/02



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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