Environmental Assessment

Multi-use Visitor Path
September 2014

National Park Service
U.S. Department
of the Interior

Bryce Canyon National Park
Utah

United States Department
of Agriculture Forest Service

Dixie National Forest
Utah

ENVIRONMENTAL ASSESSMENT

Multi-use Visitor Path

National Park Service

and

United States Forest Service

Bryce Canyon National Park
and Dixie National Forest
Utah

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Multi-use Visitor Path

Environmental Assessment

SUMMARY

The National Park Service and cooperating agencies on this environmental assessment—United States Forest Service, Federal Highway Administration, Utah Department of Transportation, Garfield County, and Bryce Canyon City—are considering developing a multi-use visitor path that would connect Bryce Canyon City, Dixie National Forest, and Bryce Canyon National Park. The proposed project would begin at the shuttle bus staging area in Bryce Canyon City and continue through Dixie National Forest to key developed visitor use areas in the park. No portion of the proposed path would be constructed below the canyon rim on city, forest, or park lands, nor in proposed wilderness areas inside the park. To complete the planned connection to the Red Canyon National Recreation Trail along State routes 12 and 63, a future partnership effort separate from this project would include the design and construction of the remaining 4.4 miles between the end of the Red Canyon National Recreation Trail and the shuttle staging area.

The primary purpose of the proposed project is to relieve safety issues for all visitors who choose to use nonmotorized transportation—such as walking, jogging, cycling, and cross-country skiing—to experience the park and adjacent United States Forest Service areas near Bryce Canyon City. Increases in visitation at the park (30% increase between 2008 and 2012) are leading to transportation system capacity issues and traffic congestion. Cyclists and pedestrians need a way to travel to and within the park that is more safe, provides a better visitor experience, promotes nonmotorized travel between nearby communities and the park as well as between key destinations in the park. The proposed path project would also connect to the existing transportation system, including visitor shuttle buses, hiking trails and walking paths, parking lots, and roads linking major visitor attractions and facilities with both nonmotorized and motorized transportation modes. Visitor safety would be improved by separating motor vehicles from bicyclists, pedestrians, and other nonmotorized user groups where possible. The path is also intended to help manage congestion, improve visitor experience, and provide alternative means of accessing United States Forest Service and National Park Service lands. Doing so would enhance the park's transportation system by connecting the park's gateway communities with high visitor use areas along the canyon rim in the Bryce Amphitheater and other key features of the park. To facilitate easy transition between transportation modes, the proposed project would connect Bryce Canyon City to current and future multimodal transportation hubs in the park as identified in the Bryce Canyon National Park Multimodal Transportation Plan.

This environmental assessment examines three alternatives that address the path and the shared use of the path: the No-action Alternative and two action alternatives, one of which is the Preferred Alternative for both the park and forest. To prevent and minimize potential adverse impacts associated with the action alternatives, mitigation measures and best management practices would be implemented during construction and post-construction activities for the proposed project.

The No-action Alternative represents the park's and the forest's ongoing operations and implementing approved plans. The No-action Alternative assumes that the multi-use visitor path would not be constructed. Existing conditions such as congestion, user conflicts, and multimodal safety issues would continue and possibly worsen as visitation increases in the future.

Under Alternative Alignment A, the Preferred Alternative, the multi-use visitor path would be designed to fit into the natural topography to the greatest extent possible and would generally parallel State Route 63 and the main park road while providing separation between nonmotorized user groups and vehicles. The path would also provide maximum direct access to key visitor destinations in the park such as the General Store; the Lodge; and Sunrise, Sunset, Inspiration, and Bryce points. The path would begin at the shuttle staging area in Bryce Canyon City and continue for approximately 7.3 miles through Dixie National Forest and in Bryce Canyon National Park.

Under Alternative Alignment B, the multi-use visitor path would also be designed as a separated path, distinct from park roads; however it would remain as close to existing roads as possible. It would begin at the shuttle staging area and continue for roughly 7.2 miles through Dixie National Forest and in Bryce Canyon National Park. This alignment for the proposed path would not connect directly to visitor destinations such as the Lodge and Sunrise, Sunset, Inspiration, and Bryce points. Instead, it would largely rely on visitors making connections via low-speed, existing park roads to provide access to these destinations.

This environmental assessment has been prepared in compliance with the National Environmental Policy Act to provide the decision-making framework that (1) analyzes a reasonable range of alternatives to meet objectives of the proposal, (2) evaluates potential issues and impacts on Bryce Canyon National Park's and Dixie National Forest's resources and values, and (3) identifies mitigation measures to lessen the degree or extent of these impacts. Because the resultant impacts may be greater than minor, resource topics included in this document include air quality, geology and soils, vegetation, special status species, wildlife, cultural landscapes, ethnographic resources, recreation opportunities, visitor use and experience, gateway communities, park operations, and socioeconomics. All other resource topics were dismissed, because the project would result in negligible or minor effects on those resources. No major effects are anticipated as a result of this project. Public scoping was conducted to assist with the development of this document.

This environmental assessment has also been prepared in compliance with the National Park Service Bike Rule, 36 Code of Federal Regulations 4.30, which places greater emphasis on an individual park planning document that incorporates environmental compliance procedures and input from the public to decide whether or not bicycle use is appropriate on a trail in a unit of the National Park Service. This environmental assessment serves as the planning document for the multi-use visitor path and has considered and evaluated the cost of construction and life cycle maintenance costs of the path, has prescribed a sustainable design for construction of the path, and has considered safety, strategies to prevent or minimize user conflicts, methods of protecting natural and cultural resources, and integration with alternative transportation systems. The National Park Service may be required to promulgate Special Regulations to authorize use of the path by bicyclists depending on the alternative selected.

Public Comment

If you wish to comment on this environmental assessment, you may post comments online at http://parkplanning.nps.gov/brca or mail comments to: Multi-use Visitor Path Environmental Assessment, Superintendent, Bryce Canyon National Park, P.O. Box 640201, Bryce, Utah 84764-0201.

This environmental assessment will be on public review for 30 days. 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. Although 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.

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PURPOSE AND NEED

INTRODUCTION

The National Park Service (NPS), in cooperation with the United States Forest Service (USFS), Federal Highway Administration (FHWA), Utah Department of Transportation, Garfield County, and Bryce Canyon City, is proposing to design and construct a multi-use visitor path connecting Bryce Canyon City, Dixie National Forest, and popular viewpoints and trailheads in Bryce Canyon National Park. Under all alternatives, biking would continue to be prohibited below the rim according to current park regulations and NPS management policies. Visitors would be required to leave bikes parked above the rim and to walk or hike all other trails in the park. The proposed multi-use visitor path project would be developed to relieve safety issues for all visitors who choose to use nonmotorized transportation to reach key viewpoints and trailheads in the park and adjacent USFS areas. The proposed project would also be closely coordinated with implementation projects described in the park's Multimodal Transportation Plan, which addresses long-range transportation planning to accommodate increasing visitation from a public with diverse interests and needs.

The proposed project would be designed as a multi-use path intended for primary use by bicyclists and pedestrians, including pedestrians with disabilities, to provide safe alternative transportation and access to recreation uses in the project area. Other nonmotorized uses, exclusive of equestrians, would also be accommodated if deemed to not threaten safety of other users. The proposed multi-use path alignment alternatives would be physically separated from motor vehicle traffic by an open space or barrier to provide safety for path users and motorists. Alignments for the multi-use path alternatives would be primarily within the highway (on forest lands) and park road transportation corridors, park utility corridor, and park Development Zone. Alternative Alignment A would generally parallel State Route 63 and the main park road, beyond the transportation corridor and / or take advantage of utility and trail routes and other developments to minimize impacts to cultural and natural resources. Alternative Alignment B would be largely within the transportation corridor for State Route 63, and along the main park road and Lodge / Sunset Loop roads. Although the alignments and lengths for the proposed project would vary by alternative, both alignments for the multi-use visitor path would begin at the Bryce Canyon shuttle staging facility in Bryce Canyon City, near the southern edge of town, where a park interpretation kiosk and a large parking area are available to visitors. The path would continue approximately 0.3 mile through Bryce Canyon City and 0.8 mile through Dixie National Forest to the boundary with Bryce Canyon National Park. The path would enter the park, where it would enhance the existing transportation system by connecting with key visitor destinations as well as the existing and future multimodal transportation hubs as identified in the Bryce Canyon National Park Multimodal Transportation Plan Environmental Assessment (NPS 2014a). These connections would include the park's visitor center, campgrounds, the Lodge, general store, viewpoints above the canyon rim in the Bryce Amphitheater area, and the path terminus at Bryce Point. The alignment corridor between the start of the proposed path in Bryce Canyon City and its terminus in the park comprises the proposed project area.

The multi-use visitor path project environmental assessment (EA) has been developed jointly with the USFS–Dixie National Forest, with input from cooperating agencies and the public. This EA evaluates three alternatives—the No-action Alternative and two action alternatives—and addresses the path and shared use of the path.

This EA has been prepared in compliance with the NPS Bike Rule, 36 Code of Federal Regulations (CFR) 4.30, which places greater emphasis on an individual park planning document that incorporates environmental compliance procedures and input from the public to decide whether or

not bicycle use is appropriate on a trail in a unit of the NPS. This EA serves as the planning document for the multi-use visitor path and has considered and evaluated the cost of construction and life cycle maintenance costs of the path; has prescribed a sustainable design for construction of the path; and has considered safety, strategies to prevent or minimize user conflicts, methods of protecting natural and cultural resources, and integration with alternative transportation systems.

As the lead agency for National Environmental Policy Act (NEPA) compliance, Bryce Canyon National Park has been working in partnership with USFS, Utah Department of Transportation, FHWA, Garfield County, and Bryce Canyon City as cooperating agencies during the development of the multi-use visitor path project and EA. This EA was prepared in accordance with NEPA, regulations of the Council on Environmental Quality (CEQ; 40 CFR §1508.9), and NPS Director's Order (DO) 12 (*Conservation Planning, Environmental Impact Analysis, and Decision-Making*).

Bryce Canyon National Park was originally established as a national monument in 1923 to protect the spectacular geologic structures known as hoodoos and other natural and cultural resources. In 1924, Bryce Canyon National Monument was declared Utah National Park. An act of Congress doubled the amount of protected land (now 35,835 acres), and Bryce Canyon National Park was officially designated on February 25, 1928.

The Dixie National Forest, established in 1903, is the largest of the six national forests in Utah, covering nearly 2 million acres and stretching for over 200 miles. The forest is in Garfield, Iron, Kane, Piute, Wayne, and Washington counties in south-central and southwestern Utah. Dixie National Forest is within the Powell Ranger District, headquartered in Panguitch, Utah.

Bryce Canyon National Park and the Dixie National Forest are on the western edge of the Colorado Plateau in portions of Garfield and Kane counties in Utah (Figure 1). The project area, including the applicable portions of the forest and park, is on the southeast escarpment of the Paunsaugunt Plateau where the plateau breaks abruptly to the east and south in a series of steep walls and slopes. There are numerous natural amphitheaters cut into the Pink Cliffs formation on this eastern side of the plateau, with great contrast between the colorful lowlands along the eastern flank of the park and forest and timbered hillsides and tablelands to the west. Elevations range from 6,580 feet to 9,115 feet above sea level. The climate is characterized by cold snowy winters and cool summers with episodic monsoonal moisture in July and August.

Much of the land surrounding Bryce Canyon National Park is managed by the USFS as part of the Powell Ranger District of Dixie National Forest (see Figure 1). As the largest national forest in Utah, Dixie National Forest occupies nearly 2 million acres and stretches for 170 miles across southern Utah. Elevations vary from 2,800 feet near St. George, Utah, to 11,322 feet at Blue Bell Knoll on Boulder Mountain. High-altitude forests in gently rolling hills characterize the Markagunt, Paunsaugunt, and Aquarius plateaus. The forest has many climatic extremes. Annual precipitation ranges from 10 inches in the lower elevations to more than 40 inches near Brian Head Peak. In the higher elevations, most of the annual precipitation falls as snow. In most areas, August is the wettest month of the year. Temperatures range from over 100 degrees Fahrenheit in the summer near St. George to minus 30 degrees Fahrenheit in the winter on plateau tops. Forest vegetation in the lower elevations consists of stands of low-growing piñon pine, juniper trees dominate the middle elevations, and aspen, pine, spruce, and fir are common at the higher elevations.

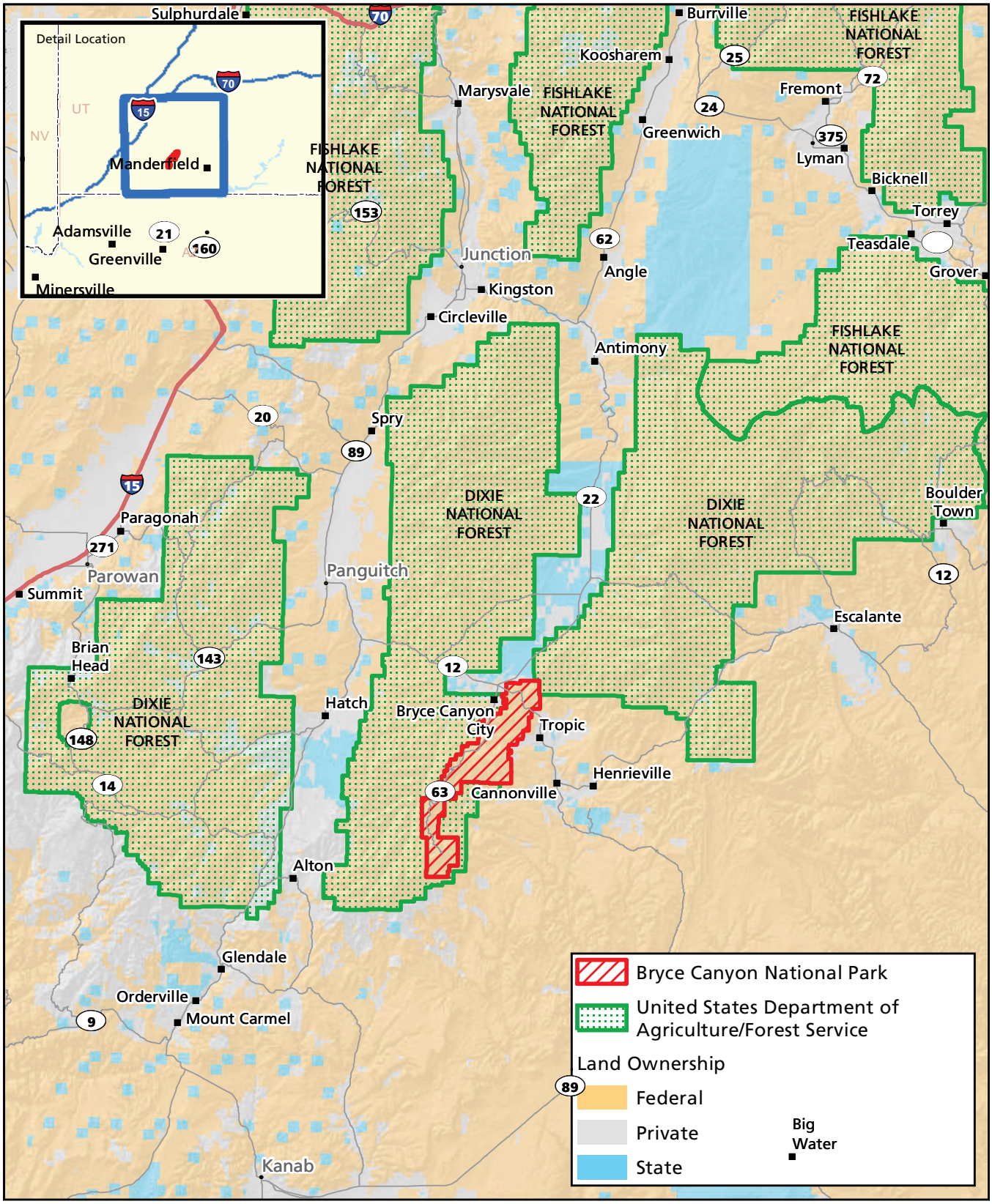

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FIGURE 1
Regional Area

Multi-use Visitor Path

United States Department of the Interior / National Park Service / Bryce Canyon National Park
United States Department of Agriculture / Forest Service / Dixie National Forest

September 2014

BACKGROUND

In 1992, the park recorded its first year with more than one million visitors and since that time has recorded only five years of visitation under one million. Park visitation exceeded 1.2 million in 1996 and in 2009–2013. The park has seen a continuous increase in annual visitation from 2005 to 2012. In 2010, the most recent year for which traffic data are available, over 436,500 vehicles entered the park, an increase of approximately 90,000 vehicles from 2005 (NPS unpublished data). With such increases in visitation and traffic congestion, cyclists and pedestrians need a way to travel to and within the park that is more safe, provides a better visitor experience, and promotes pedestrian and cycling travel between nearby communities and the park. The increasing number of vehicles entering Bryce Canyon National Park bring with them increasing pressure on the park's transportation system and infrastructure.

Regional Context

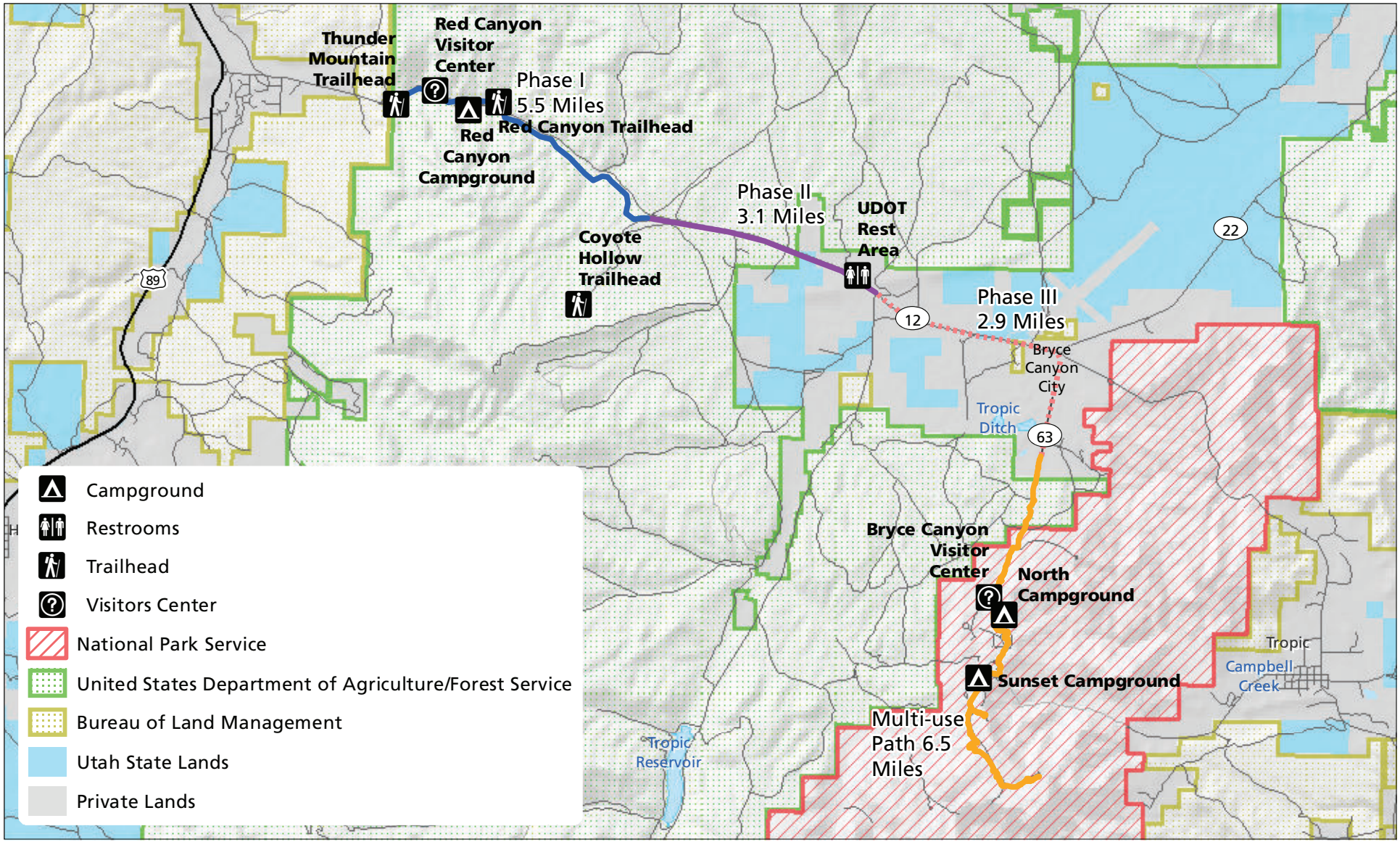
In Garfield County, Utah, the Red Canyon National Recreation Trail System is being built in phases. Phases 1 and 2 have been constructed by the USFS. Future phases of this trail system would be built through partnerships between Garfield County, Utah Department of Transportation, and Bryce Canyon City, among others. These future phases would eventually link with the proposed project.

The existing Red Canyon National Recreation Trail is an 8.6-mile paved multi-use pathway accommodating nonmotorized transportation. The trail begins at the mouth of Red Canyon approximately 9.5 miles outside Panguitch, Utah, where State Route 12 enters Dixie National Forest (Figure 2), then follows Scenic Byway 12 east through the Dixie National Forest. The trail ends abruptly about 3 miles from State Route 63, which leads to Bryce Canyon City, and 5.4 miles from the entrance to Bryce Canyon National Park. This gap between the Red Canyon National Recreation Trail and Bryce Canyon National Park creates safety hazards when trail users and park visitors share the road with vehicular traffic on State routes 12 and 63. These safety hazards increase during the summer months, where traffic on State routes 12 and 63 is heavy with buses, recreational vehicles, and passenger vehicles.

Extending the Red Canyon National Recreation Trail to Bryce Canyon City, the forest, and the park would provide connectivity between Red Canyon and Bryce Canyon National Park and enhance recreation opportunities in the area by creating a safe path for cyclists and pedestrians to travel the Scenic Byway 12 and State Route 63 corridors. This EA covers only the development of a multi-use visitor path from the Bryce Canyon City shuttle staging area through Dixie National Forest and through the northern portion of Bryce Canyon National Park terminating at Bryce Point. To complete the planned connection to the Red Canyon National Recreation Trail, a future partnership effort separate from this project would design and construct the remaining 4.4 miles outside the park between the end of the Red Canyon National Recreation Trail and the Bryce Canyon City shuttle staging area.

PURPOSE AND NEED

Bryce Canyon National Park launched an alternative transportation system in 2000 to address congestion and traffic safety in the park and the adjacent community of Bryce Canyon City, improve safe access and visitor experience, and minimize impacts on park resources from transportation infrastructure. With increasing visitation over the past decade, however, the transit system is now at or near full capacity during peak visitation periods. In addition, State Route 63 provides the only



Proposed Multi-Use Visitor Path
Red Canyon Trail, Phase I
Red Canyon Trail, Phase II
Future Red Canyon Trail, Phase III

FIGURE 2
Red Canyon National Recreation Trail System
Multi-use Visitor Path
United States Department of the Interior / National Park Service / Bryce Canyon National Park
United States Department of Agriculture / Forest Service / Dixie National Forest
September 2014

paved, motor vehicle public access into the developed part of the park, which means vehicles, bicyclists, and pedestrians must all share the same access road. Traffic congestion complicates this problem, creating additional conflicts between vehicles, bicyclists, and pedestrians and increasing the potential for accidents, particularly along the main park road, near the park visitor center, and near rim locations in the Bryce Amphitheater area. At high visitor use areas, visitors are also negatively impacted when parking areas are full or shuttle service is over capacity. Resource damage from vehicle emissions, illegal roadside parking, and social trailing also result from this kind of traffic and parking congestion.

The primary purpose of the proposed project is to relieve safety issues for visitors of all ages who choose to use nonmotorized transportation to experience the park, adjacent USFS areas, and Bryce Canyon City. Visitor safety would be improved by separating motor vehicles from bicyclists, pedestrians, and other nonmotorized user groups where possible. The proposed project is also intended to help manage traffic congestion, improve visitor experience, and provide alternative means of accessing Dixie National Forest and Bryce Canyon National Park. Doing so would enhance the park's transportation system by connecting the park's gateway community with high visitor use areas along the canyon rim in the Bryce Amphitheater and other key features of the park. To facilitate easy transition between transportation modes, the proposed project would connect Bryce Canyon City to current and future multimodal transportation hubs in the park as identified in the Bryce Canyon National Park Multimodal Transportation Plan.

The proposed project would promote health and well-being in support of national initiatives such as America's Great Outdoors and Let's Move Outside, as well as NPS efforts such as A Call to Action, Healthy Parks–Healthy People, and Hike the Hoodoos. The proposed project would provide the opportunity for a variety of nonmotorized activities for visitors and residents of nearby communities, including walking, jogging, cycling, and cross-country skiing in the winter. It would also provide options for visitors with mobility impairments. Encouraging these kinds of active self-propelled transportation modes would also facilitate new interpretive programming at the park and help relieve crowding on the park's shuttle system and roadways by providing alternative means of experiencing the park. In addition, the proposed project would encourage economic development in the surrounding region by creating opportunities for associated commercial services.

Project Goals

The proposed project has several primary goals that would also help meet the planning goals established under the separate but associated Bryce Canyon National Park Multimodal Transportation Plan. In consultation with partner agencies, regulatory agencies, key stakeholders, and the public, the following goals have been developed for this project:

Visitor Experience

- Reduce safety risks resulting from traffic and parking congestion by separating nonmotorized uses from State Route 63 and the main park road.
- Provide a safe, efficient, and family-friendly way to access the park, Dixie National Forest, and gateway community amenities.

- Increase and enhance the visitor experience by providing opportunities for interpretation of natural and cultural resources in Dixie National Forest, Bryce Canyon National Park, and Bryce Canyon City.
- Where feasible, maximize universal accessibility throughout the path alignment in the park, Bryce Canyon City, and Dixie National Forest to enhance opportunities for visitors with mobility impairments and other disabilities.
- Promote health and well-being by increasing opportunities for active transportation and recreation.

Access and Connectivity

- Provide bicycle and pedestrian connections between key destinations inside the park and Dixie National Forest, the existing shuttle staging area in Bryce Canyon City, and by making these connections available for integration with the eventual extension of the Red Canyon National Recreation Trail system in the surrounding area.
- Facilitate easy transition between various transportation modes, such as walking, cycling, driving, and taking the shuttle.
- Enhance opportunities for partnerships and economic development in surrounding communities.

Resource Protection

- Design and construct the path to avoid or minimize disturbance to sensitive resources.
- Incorporate design techniques to reduce the likelihood and presence of social trailing.
- Protect and enhance cultural resources by recognizing the values of cultural landscapes and historic features as part of the project in both path design and interpretation.
- Reduce greenhouse gas emissions resulting from increasing visitor motor traffic, parking congestion, construction activities, and other related transportation activities.

Asset Management

- Design and construct the path to minimize additional maintenance, equipment, and staff training needs.
- To the extent possible, achieve design consistency with existing Red Canyon National Recreation Trail network.
- Efficiently construct the proposed multi-use visitor path project while minimizing impacts on visitors.
- Design and manage the path to allow adaptive management approaches such as phasing improvements over time, monitoring use, and reacting to lessons learned.

Sustainable Operations

- As feasible, construct the path and supporting elements using state-of-the-art, sustainable construction methods and materials.

RELATIONSHIP TO OTHER PLANS AND POLICIES

This proposed project has been developed in a manner consistent with NPS and USFS legal mandates and management policies. The Bryce Canyon National Park General Management Plan (1987) provides broad direction for management of the park and identifies actions to improve the quality of visitor experience, improve management and protection of resources, and to improve public transportation alternatives for park visitors; the proposed project analyzed in this document is consistent with the General Management Plan. The proposed project is also consistent with the goals and objectives of the 2006 NPS Management Policies, which emphasize the need for alternative transportation systems, especially those that promote nonmotorized means of accessing and moving within parks.

The Dixie National Forest Land and Resource Management Plan guides all natural resource management activities and establishes management standards and guidelines for the forest (USFS 1986). USFS direction and authority for the proposed project come from the National Forest Management Act, NEPA, and CEQ, all of which provide general land management and environmental analysis direction. The National Forest Management Act requires that all projects and activities proposed and considered be consistent with the Land and Resource Management Plan. If a project or activity cannot be conducted consistent with the forest plan, it cannot go forward as planned unless the plan is amended.

The proposed project has been reviewed for conformance with the following planning directives, decision documents, and plans:

- NPS Organic Act
- NPS Director's Orders
- Bryce Canyon National Park Enabling Legislation
- Bryce Canyon National Park Asset Management Plan
- Bryce Canyon National Park Multimodal Transportation Plan EA
- Bryce Canyon National Park Foundation Statement
- Bryce Canyon National Park Superintendent's Jurisdictional Compendium
- USFS Renewable Resource Assessment and Program
- USFS Regional Guide for the Intermountain Region
- Scenic Byway 12 Corridor Management Plan

- Bryce Canyon City General Plan
- 36 CFR 4.30 Vehicles and Traffic Safety—Bicycles
- National Historic Preservation Act
- Endangered Species Act
- Migratory Bird Treaty Act
- Executive Order 13186
- Memorandum of Understanding between the NPS and the U.S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds

In addition, the proposed project has been designed to meet the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) and the Shared Use Path Accessibility Guidelines Supplement to the PROWAG guidelines (U.S. Access Board 2011). The Manual on Uniform Traffic Control Devices, which is the national standard for traffic control devices installed on public streets, highways, and bicycle trails, has also been considered in the design of the proposed project.

SCOPING

Scoping is a process to identify the resources that may be affected by a project proposal and to explore possible alternative ways of achieving the proposal while minimizing adverse impacts. As required by NEPA, NPS conducted scoping for this project with park staff; the public; associated Native American tribes; and federal, state, and local agencies. These scoping activities and the comments provided are summarized below. More specific information is provided in the Consultation and Coordination section of this EA.

The park initiated public scoping with a press release on April 11, 2013, to inform the public of the proposal to develop a multi-use visitor path in the park. The press release was also posted to the NPS Planning, Environment, and Public Comment (PEPC) website at http://parkplanning.nps.gov/brca. The park invited the public to provide comments via e-mail and the PEPC website. The public comment period for initial scoping was from April 16 to May 16, 2013. Letters were also mailed to representatives of 23 tribes traditionally associated with the park.

The park initiated additional public scoping specific to the alternative alignments for the proposed project with a press release on November 20, 2013. The press release was distributed to the same cooperating agencies, American Indian tribes, and other park partners as for initial scoping. It was also published in the Garfield News Insider and the Richfield Reaper and on the PEPC website.

The majority of the comments received were supportive in nature, agreeing that the path would be beneficial and noting the need for less motorized vehicle traffic and increased accessibility in the park. Some comments raised concerns about mountain bike trails and their impacts on park resources. Comments about mountain bike trails required a factual correction, as the scope of the project is to develop a path that would have a hardened surface and accommodate a wide range of nonmotorized uses in the park above the rim. Other comments questioned the degree to which any new path would impact park resources and whether those impacts are justified. Input received

during the scoping period was categorized and used to inform the discussion and analysis of existing conditions, transportation issues, and the development of alternatives (NPS 2013).

All public scoping comments received by the park have been considered in the scoping stage of the NEPA process. More information about external scoping, as well as information on agency and tribal consultation, may be found in the Consultation and Coordination section of this EA.

IMPACT TOPICS RETAINED FOR FURTHER ANALYSIS

Specific impact topics were developed considering the public scoping and through internal scoping with the park, forest, and the other cooperating agencies for discussion and to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, and executive orders; NPS and USFS management policies and guidance; and NPS and USFS knowledge of limited or easily impacted resources. Impact topics that are carried forward for further analysis in this EA are listed in Table 1 along with the reasons for retaining the topic for further analysis.

TABLE 1. IMPACT TOPICS RETAINED FOR FURTHER ANALYSIS

Impact Topic	Reasons for Retaining Impact Topic
Air Quality	Construction activities could result in temporary increases of vehicle exhaust, emissions, and fugitive dust in the project area. Any exhaust, emissions, and fugitive dust generated from construction activities would be temporary and local and would likely dissipate rapidly.
Geology and Soils	Construction of the multi-use visitor path would affect soil resources in and near the project area. Construction activities would result in disturbance to and removal of soil in previously undisturbed areas, in previously disturbed but revegetated areas, and in recently disturbed but non-revegetated areas. Mitigation measures would be implemented to reduce construction impacts on soils. The proposed project would not likely affect geological resources in the project area.
Vegetation Resources	Construction of the proposed project would likely affect vegetation resources in and near the project area. Construction activities would result in disturbance to and removal of vegetation in previously undisturbed areas and in previously disturbed but revegetated areas. Revegetation measures would be implemented to mitigate impacts on vegetation communities. The potential increase in invasive species in the project area would impact vegetation communities.
Special Status Species	Federally listed, proposed, and candidate species that may inhabit the project area include Mexican spotted owl (*Strix occidentalis lucida*), California condor (*Gymnogyps californianus*), southwestern willow flycatcher (*Empidonax traillii extimus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and Utah prairie dog (*Cynomys parvidens*). Of these species, the Utah prairie dog is the only species known to inhabit the project area. The remaining four federally listed species have been observed in the project area, but observations have been few and infrequent. There are seven USFS sensitive species, several Dixie National Forest Management Indicator Species, and five species listed by the State of Utah, as well as migratory birds known in the project area. There are known populations of rare plants in the project
Special Status Species (cont.)	area. Construction and visitor use of the proposed project would result in impacts on Utah prairie dogs and special status species. A reduction in vehicles may result in minor effects on Utah prairie dogs and other special status species due to reduced visitor traffic along roadways and a reduction of potential injury or death from vehicle strikes.

TABLE 1. IMPACT TOPICS RETAINED FOR FURTHER ANALYSIS

Impact Topic	Reasons for Retaining Impact Topic
Wildlife or Wildlife Habitat and Introduction of Native or Nonnative Wildlife Species	Construction of the proposed project would affect wildlife and wildlife habitat in and near the alternative alignment corridors. Construction and visitor use of the path would result in disturbance to wildlife and habitat. Invasive wildlife species may also increase due to vegetation disturbance and edge effects. Mitigation measures would be implemented to reduce or avoid impacts on wildlife and wildlife habitat.
Cultural Landscapes	The proposed multi-use visitor path does not represent a change in land use. No cultural landscapes exist within Segment I or Segment II. There are existing paths within the Bryce Canyon Lodge Historic District boundary. The addition of another path with appropriate design features and the removal of some trees would not affect the overall integrity and eligibility of the cultural landscape for listing in the National Register of Historic Places. The Segment III alignment under both action alternatives would affect the Bryce Canyon Lodge Historic District. This portion of the visitor path would run through the center of the district boundary. Some trees between the Lodge and Sunrise Motel may need to be removed for the construction of the alignment. The use of mitigation measures would minimize impacts on native vegetation near cultural landscapes.
Ethnographic Resources	No specific ethnographic resources in the park have been identified by traditionally associated tribes, and no ethnographic resource issues were raised during public scoping. Ethnographic resources likely include vegetation, wildlife, geological features, and park and USFS lands in general where ancestral activities, as well as current tribal practices, have occurred. Although no impacts on significant ethnographic resources are expected, the potential exists for impacts to exceed minor in degree because there is lack of information about these resources in the project area; therefore, ethnographic resources are addressed as an impact topic in this EA.
Recreation Opportunities	Construction activities could temporarily affect recreation opportunities, including visitor access, vehicle touring, hiking, and wildlife / bird watching. Implementation of the proposed project would provide nonmotorized alternatives to access recreation opportunities in the forest and park.
Visitor Use and Experience	Construction activities could temporarily affect visitor use and experience. Implementation of the proposed project would provide safe nonmotorized access to the forest and park as well as provide connectivity to key locations in the Bryce Amphitheater area.
Gateway Communities	Any changes in visitation patterns, visitation numbers, or ways that visitors enter the park resulting from developing the proposed project could affect gateway communities.
Park and Forest Operations	The proposed project would likely have an effect on park or forest operations. Development and construction of the path would result in minor to moderate adverse effects on operations and operating costs as compared to existing levels due to development and maintenance costs. A change in financial balance between revenue sources and operating costs would also occur.
Socioeconomics	Construction and maintenance spending associated with the proposed project would provide a temporary stimulus to the local or regional economy. Wages, overhead expenses, material costs, and profits would last only as long as the construction period. Constructing the proposed project would produce minimal increases in employment opportunities in surrounding communities.

IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS

In this section of the EA, NPS and USFS provide a limited evaluation and explanation as to why some impact topics are not evaluated in more detail. Impact topics are dismissed from further evaluation in this EA if:

- the resources or issues do not exist in the project area, or
- the resources or issues would not be affected by the proposal, or the likelihood of impacts are not reasonably expected, or
- through the application of mitigation measures, there would be no measurable effects from the proposal, and there is little controversy on the subject or reasons to otherwise include the topic.

The NPS defines measurable impacts as moderate or greater effects. It equates no measurable effects as minor or less effects. No measurable effect is used by the NPS in determining if a categorical exclusion applies or if impact topics may be dismissed from further evaluation in an EA or environmental impact statement. The use of "no measurable effects" in this EA pertains to whether the NPS dismisses an impact topic from further detailed evaluation in the EA. The reason the NPS uses "no measurable effects" to determine whether impact topics are dismissed from further evaluation is to concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail in accordance with CEQ regulations at 1500.1(b).

The USFS has its own regulations for preparing EAs and other NEPA documents, and at times uses terminology that differs from that used by the NPS. For example, in the context of an EA the NPS uses the term "mitigation measures" to describe actions that will be taken to avoid or lessen adverse environmental effects, while the USFS uses the term "project design features" to describe the same actions. There are also differences in how the two agencies describe issues and environmental effects. The underlying requirements and analysis procedures are essentially the same. To avoid confusion, this document uses NPS terminology.

The following issues have been considered but dismissed from detailed analysis. Issues dismissed from detailed analysis are not addressed further in this document. A brief rationale for dismissing specific topics from further consideration is provided for each impact topic.

Greenhouse Gases and Climate Change

The NPS has formed a partnership with the U.S. Environmental Protection Agency to collaborate on controlling greenhouse gases (GHGs), which have been linked to climate change. This program is called the Climate Friendly Parks Program, which provides management tools and resources to address, promote, and establish climate-sensitive practices. The program approach involves measuring existing emissions, developing strategies to mitigate emissions and adapt to impacts, sharing information, and educating the public about measures they can use to lessen their effect on climate change.

Climate change refers to the shifts in Earth's long-term (decades to millennia) weather patterns as a result of changes to the concentrations of GHGs in Earth's atmosphere. A GHG is a gas that traps heat when emitted into Earth's atmosphere. Although climatologists are unsure about the long-term results of global climate change, it is clear that the planet is experiencing a warming trend that affects

ocean currents, sea levels, polar sea ice, and global weather patterns. Although these changes will likely affect weather patterns in the park and forest, it would be speculative to predict local changes in temperature, precipitation, or other weather changes, in part because there are many variables that are not fully understood and there may be variables not currently defined.

The park monitors GHG emissions from park operations, visitors, and concessionaires (URS 2012). GHGs would be emitted from private vehicles and truck and equipment exhaust in and near the park under all alternatives. Automobile exhaust and the emissions from diesel generators contribute only minor amounts of pollutants and GHG emissions, however, and would have a negligible effect on climate change. Therefore, this topic is dismissed from further analysis in this EA.

Soundscapes

In accordance with 2006 NPS Management Policies and DO-47 Sound Preservation and Noise Management, an important component of the NPS's mission is the preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. In a national park setting, soundscapes can contribute to or hinder visitor enjoyment of the park. For example, noise produced by vehicles or aircraft can detract from that natural soundscapes visitors expect as part of the park environment. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among NPS units as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. There are several ways to measure noise, depending on the source of the noise, the receiver, and the reason for the noise measurement. Environmental noise levels are typically stated in terms of decibels on the A-weighted scale (dBA). Noise levels stated in terms of dBA reflect the response of the human ear by filtering out some of the noise in the low- and high-frequency ranges that the ear does not detect well. The A-weighted scale is used in most community ordinances and standards. Human hearing typically encompasses the sound range from just above 0 dBA at the quietest end to approximately 140 dBA, where pain is produced in most listeners and permanent hearing loss would result.

Preservation of the natural soundscapes in Bryce Canyon National Park is a key part of the park's mission. Natural quiet is important for visitors seeking opportunities for solitude. The park's 1987 General Management Plan states:

> A large percentage of the park is also noted for its extremely low noise level. This has been evaluated and identified as an important park element especially for those visitors seeking opportunities for solitude. The elevation of the park in relation to the surrounding topography makes it highly vulnerable to impacts on solitude. As development increases, especially outside the park, noise levels as well as sources of artificial light will increase creating impacts on the solitude of the park.

In the absence of human-caused sound, ambient noise levels in the park often fall below 20 decibels (NPS 2011a). Disturbances to the park's natural soundscapes primarily come in the form of aircraft,

in addition to idling buses, shuttles, and recreational vehicles. The park has placed "Turn off Engine" signs at viewpoint parking areas to discourage idling. Visitors in the area near the visitor center experience soundscape disturbances from the constant noise of traffic entering and exiting the park. Once a visitor ventures from traveled roadways, unnatural sound diminishes markedly. A Bryce Canyon National Park visitor study conducted from July 26 to August 1, 2009 by the National Park Service Visitor Services Project, showed that 68% of visitors felt that natural quiet / the sounds of nature were either extremely important or very important park resources. The study also reported that noise from loud visitors was the third most commonly listed factor that contributed to a negative experience of the visitors who experienced detractions from enjoying the park, with crowding (unspecified) and inclement weather being the first and second detractions mentioned. The type of noise created by visitors (such as talking, cell phones, or other noise) was not specified; however, noise created by campers, motorcycles, shuttles, and other human-caused sounds were also cited as detractions from enjoying park attributes or resources (NPS 2010a). Existing sounds in the developed areas of the park are most often generated from vehicular traffic (visitors and employees entering / leaving the park), people, climate controls on the buildings, some wildlife such as birds, and wind.

Visitor use of the proposed path could potentially concentrate sounds of visitors on the path. Sounds from visitor vehicles would be short-term and local and would dissipate once vehicles leave the park and forest. Increases in visitor and vehicle sounds would occur primarily along existing roads, in parking areas, and in highly visited areas such as the General Store, the Lodge, and scenic overlooks in the park. Human-generated sounds in these areas come from multiple sources and are relatively constant during the day. Visitors would not expect natural quiet in these areas, which would affect how they respond to the noise. Increased noise from construction and visitor use of the path would not be readily apparent to most visitors because of the existing human-related activity in the area. Implementing the proposed project would result in long-term minor adverse and local impacts on soundscapes. Because effects would be minor or less, soundscapes is dismissed from further analysis in this EA.

Night Sky

In accordance with 2006 NPS Management Policies, the NPS strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human-caused light (NPS 2006a). Natural lightscapes are critical for nighttime scenery, such as viewing a starry sky, but are also critical for maintaining nocturnal habitat. Many wildlife species rely on natural patterns of light and dark for navigation, to cue behaviors, or hide from predators (International Dark Sky Association 2010). Lightscapes can be cultural as well, and may be integral to the historical and / or ethnographic fabric of a place. Human-caused light may be obtrusive in the same manner that noise can disrupt a contemplative or peaceful scene. Light that is undesirable in a natural or cultural landscape is often called light pollution.

The NPS recognizes that a clear view of the night sky is an important value to park visitors. Artificial light pollution can affect opportunities for night-sky viewing and enjoyment. The expanse of land or viewshed that can be seen from Bryce Canyon National Park is vast. On a clear day at the park, visitors can see nearly 200 miles to the Black Mesas in eastern Arizona. On a clear dark night, visitors can see approximately 7,500 stars and 2.2 million light years to the Andromeda Galaxy. The absence of light pollution in the park and forest, the excellent air quality, and the remoteness of the project area make for exceptional stargazing. Bryce Canyon has become a leader in night sky protection and appreciation. The park's astronomy program, which began in 1969, is thought to be the longest active NPS astronomy program. By 2001, the clear, dark skies and astronomy interpretive programs at

Bryce Canyon National Park had become so popular that the park began hosting an annual astronomy festival. In each of the past three years, over 35,000 visitors participated in astronomy events that included evening programs and ranger-hosted stargazing and telescope viewing. Bryce Canyon National Park strives to limit the use of artificial outdoor lighting to what is necessary for basic safety requirements. The park also strives to ensure that all outdoor lighting is shielded to the maximum extent possible and keep light on the intended subject and from diffusing to impact the night sky. The primary sources of light are concentrated in the northern area of the park, near the visitor center and the Lodge Loop.

Implementing the proposed project would not change the existing lightscape in and around the forest and park. Additional light sources may include a signaled crosswalk or visitor use of bike lights or headlamps. Construction and maintenance activities could potentially include minimal temporary lighting. As a result, impacts on the local night sky would be short-term negligible adverse. Because effects would be minor or less, night sky is dismissed from further analysis in this EA.

Wetlands

For regulatory purposes under the Clean Water Act, the term wetlands means "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."

Executive Order 11990 Protection of Wetlands requires federal agencies to avoid, where possible, adversely impacting wetlands. Further, Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to prohibit or regulate, through a permitting process, discharge of dredged or fill material or excavation within waters of the United States. The NPS policies for wetlands as stated in 2006 Management Policies and DO-77-1 Wetlands Protection strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In accordance with DO 77-1 Wetlands Protection, proposed actions that have the potential to adversely impact wetlands must be addressed in a statement of findings for wetlands.

NPS uses the Cowardin definition to classify wetlands. Under that definition, a wetland must have at least one of the following attributes: 1) at least periodically, the land supports predominantly hydrophytes, 2) the substrate is predominantly undrained hydric soil, and 3) the substrate is non-oil and is saturated with water or covered by shallow water at some time during the growing season of each year. The Cowardin wetland definition encompasses more aquatic habitat types than the definition (33 CFR 328.3) and delineation manual used by the U.S. Army Corps of Engineers for identifying wetlands subject to Section 404 of the Clean Water Act. The Cowardin wetland definition includes those wetlands as identified by the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, but adds some areas that, though lacking vegetation and / or soils due to natural physical or chemical factors such as wave action or high salinity, are still saturated or shallow inundated environments that support aquatic life.

The project area has limited wetland areas due to the generally dry conditions; however, small wetland communities are found in areas near drainages or in depressions near seeps and springs. These communities are highly dependent on runoff and local groundwater conditions. Both proposed path alignments would avoid wetlands. Therefore wetlands are dismissed as an impact topic and a wetlands statement of finding is not required.

A desktop jurisdictional features survey was conducted to evaluate non-park land along the potential corridor for potential of waters of the U.S., including wetlands. The land between the park and Bryce Canyon City had three potential jurisdictional authorities: USFS, U.S. Army Corps of Engineers, and State of Utah. The State of Utah defers to the U.S. Army Corps of Engineers in matters of waters and wetlands. Utah will typically certify the water quality of any project issued a U.S. Army Corps of Engineers permit. The USFS uses the U.S. Army Corps of Engineers' method for determining waters and wetlands. In a letter to Bryce Canyon City, the U.S. Army Corps of Engineers declared that the area between the park and Bryce Canyon City is not jurisdictional under current conditions. The U.S. Army Corps of Engineers reaffirmed this position in a letter to the park as part of the desktop survey.

NPS policy directs parks to revise projects that would impact wetland resources. Because both proposed alignments would avoid wetlands, this topic is dismissed from further analysis in this EA. Should there be any new disturbance in areas determined to potentially be wetlands or waters, then a field delineation would be conducted to determine the exact extent of the features and the amount of any impacts. Otherwise, impacts on potential wetland areas would be avoided. The NPS has determined that a statement of findings for wetlands will not be prepared for the proposed plan.

Floodplains

Executive Order 11988, Floodplain Management, requires all federal agencies to take action to reduce the risk of flood loss, to restore and preserve the natural beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. The NPS under 2006 Management Policies and DO 77-2 Floodplain Management will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to DO 77-2, certain construction within a 100-year floodplain requires preparation of a statement of findings for floodplains.

Flood maps do not exist for the park; however, the following discussion is based on information from known flood areas of the park. The park is not known to be susceptible to severe flooding. Implementation of the action alternatives would not result in threats to public health and safety or the potential for property damage. None of the alternatives would involve major filling or modification of the ground surface such that people or structures would be exposed to flooding. The alternatives would not adversely affect the functions of a floodplain or increase flood risk. The activities associated with the alternatives would not violate National Flood Insurance Program requirements or result in changes that would increase an existing floodway or the flood elevation level associated with the 100-year flood event. Implementing any of the alternatives would not result in permanent effects on floodplains in the park, Bryce Canyon City, or Dixie National Forest. Any temporary effects from developing the proposed project would be minor or less and flood areas would be avoided, therefore this topic is dismissed from further analysis in this EA. A statement of findings for floodplains is not required.

Livestock Grazing

Livestock grazing has been an historic and traditional use of the Dixie National Forest for over 100 years. Grazing on Dixie National Forest is authorized by Congress and is considered a significant use. Livestock forage is an important product and many permittees use this forage to meet at least part of their year-round grazing needs.

There are 104 grazing allotments on the Dixie National Forest (81 cattle and 23 sheep allotments). All allotments have an approved Allotment Management Plan, currently being implemented. Approximately 18,000 head of cattle and their calves and 11,000 head of sheep and their lambs are permitted on Dixie National Forest land (USFS 2006). To facilitate livestock management on the allotments, over 800 miles of fencing and 49 corrals have been constructed to control the distribution of livestock grazing in the forest. The USFS has also provided water basins for use by livestock and wildlife in dry areas.

The project area on the Dixie National Forest path segment is in a grazing allotment; however, that allotment is not currently grazed. Although the allotment is not active, it could become active in the future. Regardless, no impacts on grazing operations would be anticipated under any of the alternatives, therefore this topic is dismissed from further analysis in this EA.

Timber Harvest

USFS timber management policies are based on land use classes as described in the 75-85 Timber Plan. Timber harvesting is managed using land use classes to ensure that management practices are compatible with other resource values (e.g., visual resources; USFS 1986).

Dixie National Forest contains 331,200 acres of land classified as available and tentatively suitable for timber production. The eight commercial timber species found in the forest are ponderosa pine, Douglas-fir, white fir, Engelmann spruce, Colorado blue spruce, subalpine fir, limber pine, and aspen. Trees on USFS lands in the project area are primarily ponderosa pine that, while large enough to form a visually attractive canopy, have not reached maturity. The Forest Plan management areas within the forest portion of the project area allow timber harvest and, once mature, these trees could provide commercially valuable timber. However, the area is relatively small for a commercial harvest, and no harvest is planned or foreseen. Some trees would need to be removed to make way for the path. On USFS land, trees cut for construction of the path that have commercial value, be it for firewood, post and poles, or saw logs, would, in adherence to USFS policy, be sold or otherwise utilized to meet public demand. No impacts on timber harvest operations would be anticipated under any of the alternatives, therefore this topic is dismissed from further analysis in this EA.

Historic Structures

NPS DO-28 Cultural Resource Management Guideline defines “historic properties” as any site, district, building, structure, or object eligible or listed in the National Register of Historic Places (NRHP), which is the nation’s inventory of historic places and the national repository of documentation on property types and their significance. The term “historic structures” refers to constructed works that are architecturally designed or engineered to serve a human activity. These may include buildings, roads, trails, bridges, irrigation ditches, or earthen berms, to name a few. Historic districts are groups of buildings, properties, or sites that have been designated as historically or architecturally significant. USFS definitions for historic structures and districts, and management for these resources, are similar to those of the NPS.

Implementing any of the alternatives would not represent a change to the existing land use or structure types such that overall integrity of the historic structures at the park, the forest, or along the route would be degraded. The eligibility of the historic structures at the park for listing in the NRHP would not be in jeopardy.

This topic is dismissed from further analysis in this EA because no historic structures or historic features would be impacted by any of the alternatives. The NPS and USFS have agreed that the NPS will handle required cultural resource consultations for this project. As lead agency for a separate National Historic Preservation Act (NHPA) Section 106 compliance process, NPS will identify measures to mitigate effects on historic properties, including historic structures, should any effects be identified as the plan is implemented along the length of the path.

Archeological Resources

Section 106 of NHPA requires federal agencies to take into account the effect of their projects on archeological sites. NPS follows guidance, from the NPS 2006 Management Policies and DO-28A Archeology affirms a long-term commitment to the appropriate investigation, documentation, preservation, interpretation, and protection of archeological resources inside units of the National Park System. Archeological resources are nonrenewable and irreplaceable, so it is important that all management decisions and activities throughout the National Park System reflect a commitment to the conservation of archeological resources as elements of our national heritage.

The majority of the project has been surveyed for cultural and historical resources. Neither of the alignment corridors for Segment I (0.3 mile) under either alternative has been surveyed. These corridors are on private lands, primarily in previously disturbed areas, and would encompass a former all-terrain vehicle trail.

Four surveys have been conducted that include portions of the proposed project. The earliest survey, completed in 1990, included an area adjacent to the west side of State Route 63, approximately half a mile from the northern boundary of the park. No historic properties were found (USFS 1990). Approximately one mile of State Route 63 north of the park was surveyed in 1993 and no historic properties were identified (USFS 1993). The most recent survey (2014) was conducted on the east side of State Route 63 north of the park boundary on USFS land. No archeological resources were found (K. Hyatt, pers. comm.).

The Bryce Canyon 2000-2002 Archeological Inventory Survey was the first large-scale intensive archeological survey conducted in the park. This resulted in a comprehensive and detailed view of the archeological resources on nearly 11,000 acres on the Paunsaugunt Plateau. A total of 194 sites were recorded.

In the alignment corridor for Alternative Alignment A, one archeological site (42GA5250) is within the limits of work, a portion of Site 42GA5276 is within the limits of work, and Site 42GA5274 is adjacent to the limits of work. Site 42GA5250 is Euro-American refuse dump with glass, cans, and other miscellaneous historic artifacts. Site 42GA5276 is a Native American lithic scatter (Wenker 2004). A site visit was conducted in October 2013 to assess the current condition. A paved road runs through the site. Additionally, manholes and risers of a sewer line that appear to predate 1942 were noted (Dominguez 2013). Site 42GA5274 is a Native American lithic scatter (Wenker 2004). Additionally, there are numerous check dams within the limits of work. Check dams are considered isolated occurrences that can be described as single artifacts, isolated features lacking associated artifacts, sparse artifact scatters, and features of certain cultural origin. The check dams were built as erosion control measures and are located in erosional channels, perpendicular to the direction of stream flow (Wenker 2004). None of these sites have been tested to determine their NRHP eligibility.

In the alignment corridor for Alternative Alignment B, portions of four archeological sites (42GA5271, 42GA5273, 42GA5276, and 42GA5277) are within the limits of work and one archeological site (42GA5275) is adjacent to the limits of work. Sites 42GA5271, 42GA5273, and

42GA5275 are Euro-American refuse scatters with glass, cans, historic ceramics, and miscellaneous historic artifacts. Site 42GA5277 is a Euro-American refuse scatter with glass, cans historic ceramics, miscellaneous historic artifacts, and a leveled structure pad. As noted above, site 42GA5276 is a Native American lithic scatter. None of these sites have been tested to determine their NRHP eligibility.

Best management practices and mitigation measures (as outlined below in "Mitigation Measures") would be implemented to protect historic properties in all areas of disturbance; therefore Archeological Resources was dismissed as an impact topic in this EA.

Paleontological Resources

According to 2006 NPS Management Policies, paleontological resources (fossils), including both organic and mineralized remains in body or trace form, will be protected, preserved, and managed for public education, interpretation, and scientific research. Paleontological resources have been found in the park, primarily in the geological formations below the canyon rim. Significant fossils have been recovered that have provided a basis to date the Cretaceous rock sequence in the park (NPS 1996).

Should currently unidentified paleontological resources be discovered during construction of the multi-use visitor path, work in that location would stop until the resources are properly evaluated and avoided, if necessary. Because none of the alternatives would disturb any known paleontological sites in the project area, and because the potential exists for the discovery of paleontological resources during any ground-disturbing activities, the effect on these resources is expected to be minor and this topic is dismissed from further analysis in this EA.

Wilderness

The 1964 Wilderness Act defines wilderness as "an area where the earth and its community of life are untrammeled by man." Although there is no designated wilderness in or near the park (including Dixie National Forest), 22,325 acres (62%) of the park have been recommended as wilderness. While not yet legislatively designated, this recommended wilderness (which was proposed in 1974) is managed as wilderness in accordance with NPS Management Policies (2006a).

Neither of the alternative alignments for the proposed project would be in recommended wilderness. Construction activities would not directly encroach upon any of the recommended wilderness areas in the park, although there would be an indirect impact from noise disturbance related to those activities. Impacts from the no-action and action alternatives to recommended wilderness and wilderness visitors would be temporary and minor, therefore this topic is dismissed from further analysis in this EA.

Visual Resources / Scenic Resources

The primary visual attractions in the project area are scenic vistas found at a number of high panoramic viewpoints. From these viewpoints, visitors can see nearly 200 miles beyond the project area on clear days. Visitors also can enjoy the changes in the scenic character of the landscape and hoodoo formations from above or below the rim. The visual quality of the park's and forest's scenic resources is a significant factor in a visitor's experience. Visibility is generally highest during winter and lowest during summer. While air quality in the area is considered good, important park vistas are sometimes obscured by pollution-caused haze consisting of fine particulate and gaseous pollutants in

the atmosphere. Visibility is a measure of how far and how well the naked eye can see. Visitor surveys have consistently concluded good visibility and clean air are very important to visitors' experience of the park. Pollutant particles and aerosols scatter and absorb light, which impairs visibility. During 2000 through 2009, visibility on the 20% clearest days at the park did improve significantly, but remained unchanged on the 20% haziest days (NPS unpublished data).

Construction activities may result in temporary and minor effects on the landscape character, but overall scenic quality would not change. The alternatives would not alter the scenic vistas at the viewpoints. These effects would be minor in degree and any impacts would be avoided or minimized through design features. Because impacts would be minor or less, this topic is dismissed from further analysis in this EA.

Resource, including Energy, Conservation Potential, Sustainability

The NPS and USFS strive to incorporate the principles of sustainable design and development into all facilities and park operations. Sustainability can be described as the result achieved by doing things in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices minimize the short- and long-term environmental impacts of developments and other activities through resource conservation, recycling, waste minimization, and the use of energy-efficient and ecologically responsible materials and techniques. Value analysis and value engineering, including life-cycle cost analysis, has also been performed to examine energy, environmental, and economic implications of proposed management decisions and development. The NPS and USFS also encourage suppliers, permittees, and contractors to follow sustainable practices. The total gallons of diesel fuel used for path construction would range between approximately 148,000 and 272,000 gallons over a period of 148 to 170 days. Consequently, any adverse impacts relating to energy use, availability, or conservation would be minor. Therefore, energy requirements and conservation potential were dismissed from further consideration.

Prime and Unique Farmlands

The Farmland Protection Policy Act of 1981, as amended, requires federal agencies to consider adverse effects on prime and unique farmlands that would result in the conversion of these lands to non-agricultural uses. Prime or unique farmland is classified by the U.S. Department of Agriculture's Natural Resources Conservation Service and is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. According to resource assessments for Garfield and Kane counties, neither of the alternative alignments for the proposed project contain prime or unique farmlands (Natural Resources Conservation Service 2005); therefore, this topic is dismissed from further analysis in this EA.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts on American Indian trust resources from a proposed project or action by the Department of the Interior agencies be explicitly addressed in environmental documents. The federal American 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 American Indian trust resources at Bryce Canyon National Park or the Powell Ranger District of Dixie National Forest. The lands comprising the park and forest are not held in trust by the Secretary of the Interior for the benefit of American Indians due to their status as Indians. Because there are no American Indian trust resources, this topic is dismissed from further analysis in this EA.

Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities.

Minority populations are Black / African American, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, Aleut, and other non-Caucasian persons. Low-income populations are defined as persons living below the poverty level based on their total income. The Environmental Protection Agency defines a community with potential Environmental Justice populations as one that has a greater percentage of minority or low-income populations than an identified reference community. The standard for identifying minority populations is either 1) the minority population of the affected area exceeds 50%, or 2) the minority population percentage of the affected area is “meaningfully greater” than the minority population percentage in the general population or other appropriate unit of geographic analysis, such as a reference community. Poverty and minority rates in the communities considered for socioeconomics in Garfield and Kane counties were reviewed. Based on U.S. Census Bureau data (2013a), the City of Panguitch low-income community would be considered for Environmental Justice concerns. Panguitch has a poverty level of 20%, as compared to 14.2% for Garfield County and 11.4% for the state of Utah (U.S. Census Bureau 2013a).

Because the park, the forest, and the proposed multi-use visitor path project would be available for use by all visitors, local community members, and agency staff regardless of race or income and because the construction workforces would not be hired based on their race or income, none of the alternatives would have disproportionate effects on minorities or low income populations or communities, including the community of Panguitch. Because there would be no disproportionate effects, Environmental Justice is dismissed from further analysis in this EA.

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ALTERNATIVES

This chapter describes the range of alternatives, including the No-action Alternative and two action alternatives, considered to address the purpose of and need for the proposed action.

A No-action Alternative is considered, as required by law, to establish a baseline against which the effects from the action alternatives will be compared. The Preferred Alternative presents the NPS and USFS preferred management action and defines the rationale for the action in terms of park and forest goals, such as resource protection and management, visitor and operational use, cost, and other applicable factors. Other alternatives considered but eliminated from detailed analysis are also discussed in this chapter. Also included in this chapter is a comparison of how well the alternatives meet the project goals and a summary comparison of the environmental effects of each of the alternatives.

ALTERNATIVES DEVELOPMENT

On May 22 through May 24, 2013, NPS held a workshop to plan the design and construction of a multi-use visitor path connecting Bryce Canyon City, Dixie National Forest, and popular visitation areas in Bryce Canyon National Park. Workshop participants included park staff, NPS Denver Service Center and Intermountain Region staff, FHWA, USFS, Utah Department of Transportation, Bryce Canyon City, and Utah Scenic Byway 12 Council. Garfield County was unable to attend. In consultation with partner agencies, regulatory agencies, key stakeholders, and through earlier public scoping (April 16 – May 16, 2013), the project team developed and refined draft project goals for visitor experience, access and connectivity, resource protection, asset management, and sustainable operations. The team then developed a reasonable range of draft alternatives (one no-action and two action alternatives—Alternative Alignment A and Alternative Alignment B). Each of the alternatives was developed to respond to the purpose and need: to relieve safety issues for visitors of all ages who choose to use nonmotorized transportation to experience the park, adjacent USFS areas, and Bryce Canyon City, as well as to meet the project goals.

On July 1, 2013, the project team conducted a Choosing By Advantages workshop with park staff, cooperating agencies, and partners to identify a preferred alternative. Choosing By Advantages is a decision-making process used to evaluate potential plans and projects and identify the course of action that provides the greatest value for each dollar invested. Through this decision-making process, workshop participants compared the relative advantages of how the draft alternatives respond to the project goals, a specific set of evaluation factors, and the attributes of each draft alternative. The comparison focused on the differences between draft alternatives and the relative importance of those advantages, including the importance to cost relationships between alternatives. During the workshop, participants confirmed the initial range of draft alternatives, conducted the comparative analysis of the draft alternatives, and developed a draft Preferred Alternative, Alternative Alignment A. The No-action Alternative would not meet the project goals, but each action alternative would meet the project goals to a greater or lesser degree. The project team determined that the draft Preferred Alternative would meet all project goals (see “Alternative Summaries” below). Alternative Alignment A would improve visitor safety and nonmotorized access, provide connections to the local transportation system and key visitor destinations, meet accessibility requirements, and increase opportunities for recreation, partnerships, and economic development while protecting the natural and cultural resources in the project area. The public was provided an opportunity to review and comment on the draft alternatives during the November 2013 public scoping period. Each of the alternatives is described in more detail later in this document.

On September 3 through 5, 2013, FHWA conducted a scoping trip to gather data for the draft alternative path alignments, which was followed by engineering and design work to develop appropriate and accessible grades and materials for the path. The project team met again December 3 through 5, 2013 to confirm accessible grades, make small adjustments to the alternative path alignments, and confirm Alternative Alignment A as the Preferred Alternative. Both alternative alignments are shown on Figure 3.

ALTERNATIVES CARRIED FORWARD

No-action Alternative

Under the No-action Alternative, the proposed multi-use visitor path project would not be constructed. Existing conditions such as congestion, user conflicts, and visitor and transportation safety issues would continue and possibly worsen as visitation increases in the future. Bicyclists, and pedestrians in some locations, would continue to share State Route 63 and the main park road with automobiles, buses, and recreational vehicles. Biking would continue to be prohibited below the rim according to current park regulations and NPS management policies. Visitors would be required to leave bikes parked above the rim and to walk or hike all other trails in the park. Much of the vegetation and soil in the park and forest would remain undisturbed, although social trailing would likely continue in high visitor use areas of the park. Should the No-action Alternative be selected, NPS and USFS would respond to future needs and conditions without major actions or changes in the present course.

Common to Both Action Alternatives

As previously stated, this EA evaluates the No-action Alternative described above, as well as two action alternatives. The elements described below would be common to both action alternatives.

Overall Path Design and Sustainability. The proposed multi-use visitor path project would be designed to provide improved access to park and forest lands and would not be constructed in any portion of recommended wilderness or adjacent backcountry areas. For most sections, the path would consist of a 10-foot-wide paved asphalt surface. Integration of sustainable practices such as recycled asphalt or warm mix asphalt would be explored to the maximum extent practicable to reduce environmental impacts from the construction process. In some areas, such as those that traverse a cultural landscape, surface materials may vary to incorporate treatments that are consistent with historic character such as concrete, brick, or other paving applications. In high use areas, the width of the path may also widen to accommodate increased use, improve safety, and reduce the potential for user conflicts. The path would be designed to use surfaces that satisfy all accessibility requirements and to accommodate projected volumes and types of use. Design and construction techniques such as retaining walls and rolling contours would help manage stormwater and prevent excessive erosion or site disturbance. In addition to building retaining walls and implementing erosion control measures, path construction activities would include clearing, grading, drainage, paving, signage, pavement marking, traffic control, and site furnishings at rest areas.

Rest areas would be located approximately every one-half mile. The path also would be designed to minimize impacts on natural and cultural resources and to avoid wetlands and Utah prairie dog colonies. Spurs from the main path alignment would be designed to provide visitors access to key

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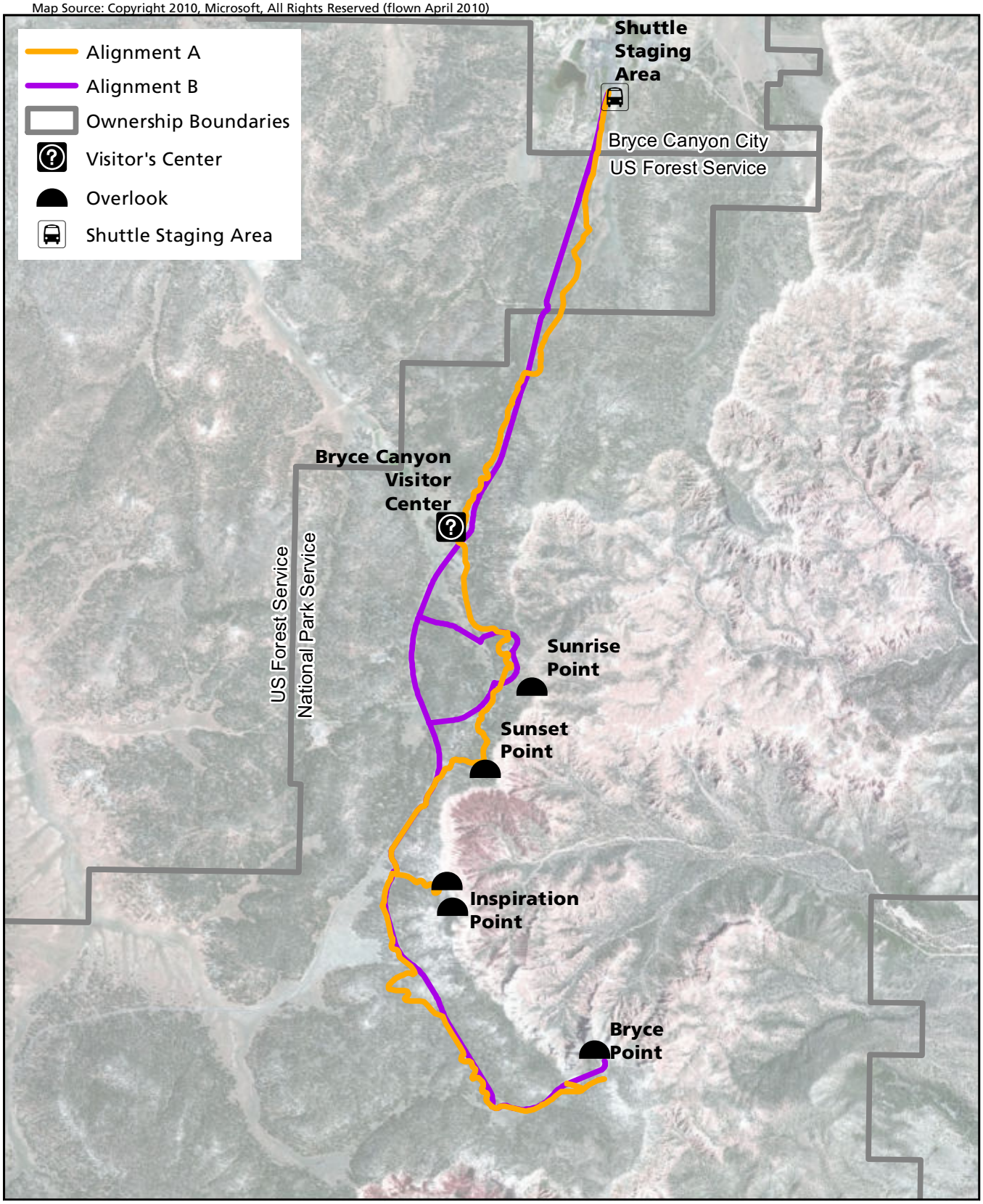

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FIGURE 3
Proposed Alignments A and B

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viewpoints and other landscape features, such as those to the amphitheater along the Sunrise Loop Road and to Sunrise Motel along the Lodge Loop Road, and would use the same typical sections and meet Americans with Disability Act and PROWAG requirements for pedestrian accessibility.

There would be no change in the park entrance fee structure. Park entrance fees would be collected for path users via the entrance station booths, the visitor center, and other fee collection options, including those considered in the Multimodal Transportation Plan.

Allowable Use. Allowable uses for the proposed project would include running, walking, bicycling, skateboarding, skating, rollerblading, and winter uses such as skiing or snowshoeing. Bicycle use may be designated on the park segments of the path through promulgation of a special regulation pursuant to 36 CFR 4.30. Mobility impairment devices would be allowed on the path, but other motorized vehicles (e.g., all-terrain vehicles) would not be allowed. Leashed dogs would also be allowed on the path, but equestrian use of the path would be prohibited.

Path Signage and Amenities. Wayfinding would be incorporated into the path design. Wayfinding and interpretive signs along the path would maintain a consistent look and feel while also meeting NPS and USFS guidelines. Wayfinding information could include the length of the path, distances between key points, and the grades along the path. At major intersections with other trails, signs would be placed to identify the connecting trail, and appropriate regulatory signs would be placed near these intersections to describe prohibited uses on the adjoining trails (for example, “No bikes”), as well as on the path (for example, “No ATVs”). Where needed, other signs such as warnings for pedestrian and vehicle crossings would be placed along the path, and intersecting roads and trails to minimize potential conflicts at intersections. To the extent possible, regulatory signs and other path markings would be coordinated to meet the intent of the Manual on Uniform Traffic Control Devices and American Association of State Highway and Transportation Officials Guidelines, while also meeting design needs specific to the NPS and USFS context.

Amenities such as bike racks, signs, and benches would be designed and placed at key rest area locations along the path.

Safety and Strategies to Minimize User Conflicts. Under proprietary jurisdiction, the park and forest will follow and maintain compliance with current state bike helmet regulations. Access points for emergency response and future maintenance of the path would be identified and developed. Advanced warning at intersections of the path with roadways would be placed in accordance with the Manual on Uniform Traffic Control Devices. Routine maintenance of the proposed project could include restriping, chip-sealing, repairing retaining walls, stabilizing slopes, and cleaning culverts.

Integration with Commercial Services and Transportation System. The path would provide a connection to the shuttle bus staging area in Bryce Canyon City, which would help encourage visitors to leave their vehicles outside the park, bring their own bikes, or rent bikes locally. In addition to existing bike racks on the shuttles, bike racks would be provided at shuttle stops. The park will closely integrate the final design of the multi-use visitor path with proposals for future development and strategies in the Multimodal Transportation Plan.

Path Construction Staging and Access. Areas near the proposed project would be used temporarily for construction staging, material stockpiling, portable restroom, and equipment

storage. All staging areas would be chosen in consideration of their proximity to the proposed project and their previously disturbed state or status. Construction staging and access would be limited to already disturbed areas in Bryce Canyon City and Dixie National Forest. Construction staging and access areas in the park would include disturbed areas at Fairyland, Bryce Point, and parking areas planned for development under the park's Multimodal Transportation Plan. Existing roadway pullouts in the park may be also used for staging during construction activities. Staging areas would be safety-fenced for visitor protection.

Utah Prairie Dog Conservation Measures. The park is in the process of preparing a Utah Prairie Dog Stewardship Plan, which would provide park managers with a conservation and habitat management framework to protect and enhance Utah prairie dog colonies in the park while allowing for administrative activities and visitor use. Best management practices developed in that planning document would be incorporated proactively into the selected alternative to address ongoing challenges with Utah prairie dog conservation, such as habitat fragmentation and colony isolation, roadkill, loss of meadow habitat due to natural and human caused encroachments, and habituation to park management and visitor use activities. Proactive management actions would assist with addressing and mitigating existing challenges as well as avoiding new impacts to colonies due to project implementation. For the proposed project, conservation measures to protect Utah prairie dogs and their habitat would be based on the final Utah Prairie Dog Stewardship Plan in consultation with the U.S. Fish and Wildlife Service (USFWS) and could include, but are not limited to, vegetative and physical barriers, enhanced movement corridors via addition / expansion of underground culverts, and interpretive material at rest areas describing the best way to view and enjoy Utah prairie dogs along the path.

The USFS does not have a specific stewardship plan that will directly address Utah prairie dogs within the affected area. No occupied habitat has been found on USFS land within 500 feet of the proposed action. Historic unoccupied habitat can be found in meadow areas adjacent to the proposed action area. For the proposed project, conservation measures to protect Utah prairie dogs and their habitat will likely be based upon the final determination from informal consultation with the USFWS. In general, these measures usually include:

- Visual barriers where work is found adjacent to active colonies.
- Speed limits along existing roads and trails as well as installed trail.
- Installing signs and interpretive messages.
- Monitoring all construction activities within 350 feet of active colonies.
- Informing all construction workers and staff regarding the status of Utah prairie dog and stopping all activities that would have any detrimental effects.
- Storing all construction equipment (500 feet) away from active colonies.

In June of 2014, USFS personnel met with NPS personnel regarding the preferred alternative and route selected on National Forest system land. At this time it was determined that a modification would be made to the proposed route to avoid an existing meadow that offered potential habitat for Utah prairie dog. The preferred alternative now includes this modification, which will reduce future impacts of the proposed path on historic and potential Utah prairie dog habitat. The revised alignment now serves as the primary conservation measure to avoid impacts to Utah prairie dogs on forest land.

Alternative Alignment A (Preferred Alternative)

Alternative Alignment A, the Preferred Alternative, would begin at the shuttle staging area in Bryce Canyon City and continue in a southerly direction through Dixie National Forest land and into Bryce Canyon National Park where it would end at Bryce Point (see Figure 3). The estimated linear distance of the Preferred Alternative would be approximately 7.3 miles, and approximately 12 rest areas would be developed along the length of the path.

Under the Preferred Alternative, the path would fit into the natural topography to the greatest extent possible to reduce the amount of cut and fill required to construct it. Alternative Alignment A would generally parallel State Route 63 and the main park road while providing separation between users and vehicles to reduce the likelihood of related safety issues. It would also provide maximum direct access to key visitor destinations, including the Lodge and Sunrise, Sunset, Inspiration, and Bryce points. Spurs would be designed to Inspiration Point, the Sunset Point parking lot, and the future parking lot west of Bryce Point (as identified in the Multimodal Transportation Plan). In addition, the park anticipates that staff may occasionally use temporary routes to access the path for emergencies. The Preferred Alternative would be designed to meet the PROWAG Shared Use Path Accessibility Guidelines, which require that a shared use path have a slope of 0 to 5%, unless the path is within an existing road right-of-way (transportation corridor). In that case, the path would have the same slope as that of the road.

The construction corridor is the area in which permanent and temporary disturbance may occur during path construction. The construction corridor width also reflects an allowance for slight adjustments to the alignment as needed during final design and construction due to terrain or other constraints such as avoiding individual trees or rare plants. Based on preliminary design, the construction corridor width would vary between approximately 50 feet to 300 feet along the path alignment, with the widest portion occurring at steep slopes along the section to Bryce Point, and would include already disturbed areas (e.g., for construction staging and access). Permanent disturbance within the construction corridor would be limited to the 12-foot path width along the length of the alignment, rest areas, spurs, and retaining walls. Temporary disturbance within this corridor beyond the 12-foot path width would depend on the terrain and the need for cut, fill, ditches, or retaining walls. Final path design would reduce the extent of the construction corridor and the disturbance within the corridor as much as feasible.

Implementing the Preferred Alternative would require cut and fill, grading, and paving operations. The permanent disturbance associated with the proposed project would be approximately 11.3 acres. This disturbance area includes the path, rest areas, spurs, and potential retaining walls. Areas of temporary disturbance resulting from construction of the path would be revegetated. Construction staging for the path would be limited to previously disturbed areas and those planned for disturbance (e.g., new parking lots) under the Multimodal Transportation Plan.

The pavement width would be 10 feet with 1-foot aggregate shoulders on either side of the path. The cross slope of the pavement would be 1.8% to meet Americans with Disabilities Act requirements (less than 2%) while still providing adequate drainage. A small ditch (approximately 2 feet wide and 6 inches deep) would be included on all cut sides to promote drainage and to help keep water and debris off the path.

Retaining walls may be used as a mitigation measure to stabilize cut slopes in the park where terrain features vary; none are anticipated on national forest land or in Bryce Canyon City. Any retaining walls constructed along the path would be consistent in design appearance with existing retaining walls in the park.

Under Alternative Alignment A, the path would connect to six existing shuttle stops, as well as three shuttle stops planned for development under the Multimodal Transportation Plan, helping support the plan's strategy to encourage alternative transportation and reduce reliance on personal vehicles. The path would also provide physical connections to current and planned parking areas, which would accommodate visitors who bring their own bikes to the park.

The Preferred Alternative would consist of three segments as described below.

Segment I: Bryce Canyon City. The path centerline for Segment I under the Preferred Alternative would primarily be in a previously disturbed area and would encompass a former all-terrain vehicle trail. Segment I would extend from the shuttle staging area in Bryce Canyon City to the boundary with Dixie National Forest for approximately 0.3 mile. The approximate minimum distance of the path from the edge of State Route 63 along Segment I would be 49 feet and the approximate maximum distance would be 94 feet (Figure 4). Total permanent disturbance for this segment would be approximately 0.5 acre. Construction costs for Segment I would be $169,400 and life cycle maintenance costs (over 30 years) would be $21,800.

Segment II: USFS – Dixie National Forest. The path centerline for Segment II under the Preferred Alternative would roughly parallel State Route 63, include disturbed and undisturbed areas, and encompass an obliterated motorized trail. Portions of the path would be located on previously disturbed USFS routes U31656 and U31655A, which are currently closed under the 2009 Dixie National Forest Motorized Travel Plan. Segment II would extend for approximately 0.8 mile to the park boundary. The approximate minimum distance of the path from the edge of State Route 63 along Segment II would be 101 feet and the approximate maximum distance would be 768 feet (Figure 5). Total permanent disturbance for this segment would be approximately 1.3 acres. Construction costs for Segment II would be $468,600 and life cycle maintenance costs (over 30 years) would be $52,200.

Segments IIIa-c: Bryce Canyon National Park. The path centerline for Segments IIIa-c under the Preferred Alternative would roughly parallel the main park road and would cross at Fairyland Road with appropriate safety measures such as visible crossing signals. The alignment corridor would continue to the visitor center and North Campground area. There the path would run southeast toward the canyon rim, behind the General Store and Lodge area, and to Sunset Point parking lot where it would turn back to parallel the main park road. At the turnoff to Inspiration and Bryce points, the path would leave the main park road and would branch toward each viewpoint: one branch would follow the road to the Inspiration Point parking area and the other would mostly follow the Bryce Point road to a terminus at a trailhead just below the Bryce Point parking area.

Segment IIIa would run from the park boundary to North Campground Road and then to Sunrise Loop Road. The path's approximate minimum distance from the main park road between the park boundary and North Campground Road would be 5 feet. The path's approximate maximum distance would be 1,004 feet where it follows an existing utility line disturbed corridor. From the North Campground Road to the Sunrise Loop Road, the path alignment would be on an existing, recently disturbed utility corridor (Figure 6a). From the visitor center to the Bryce Point Road

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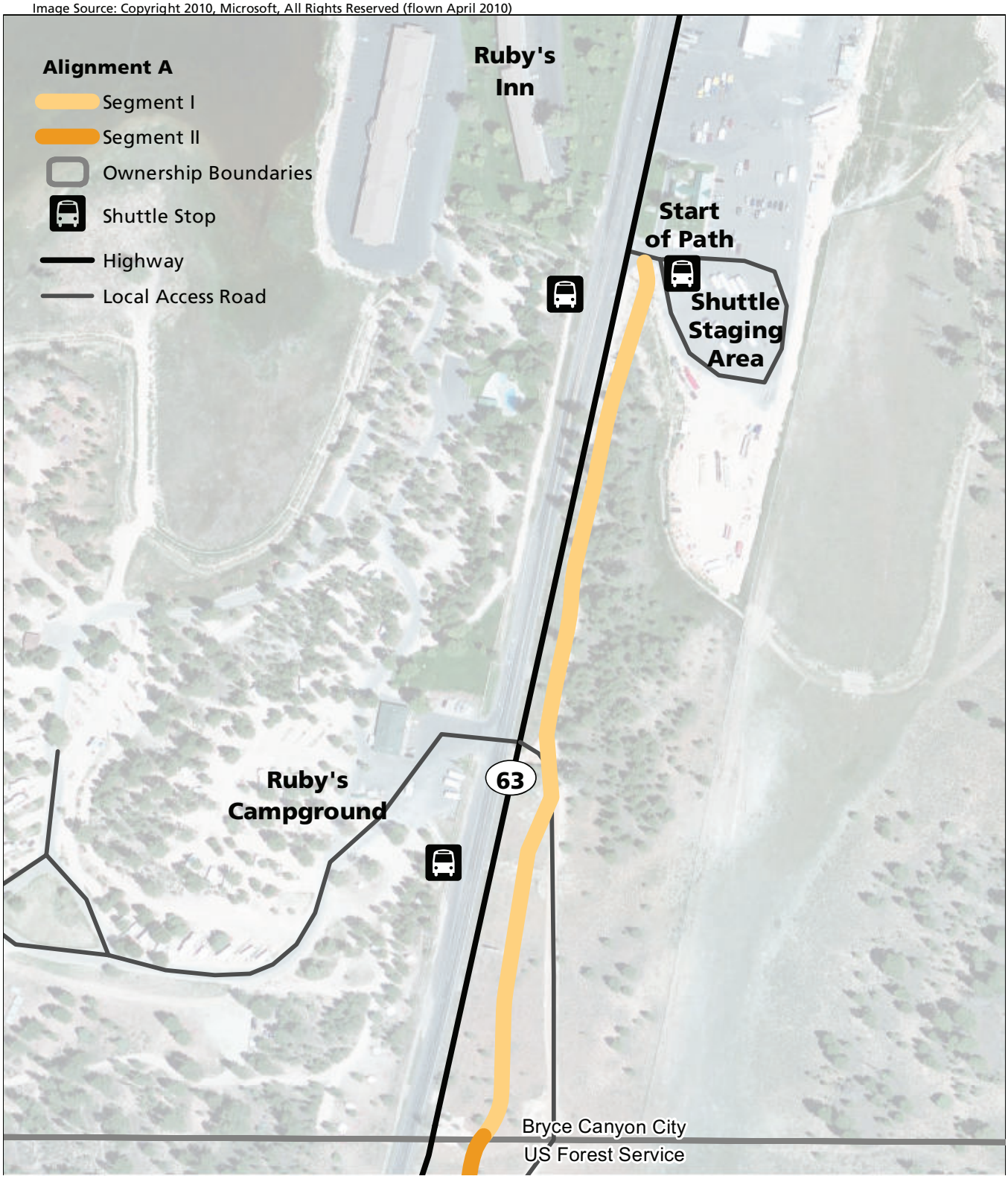

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FIGURE 4
Alternative Alignment A
Segment I: Bryce Canyon City

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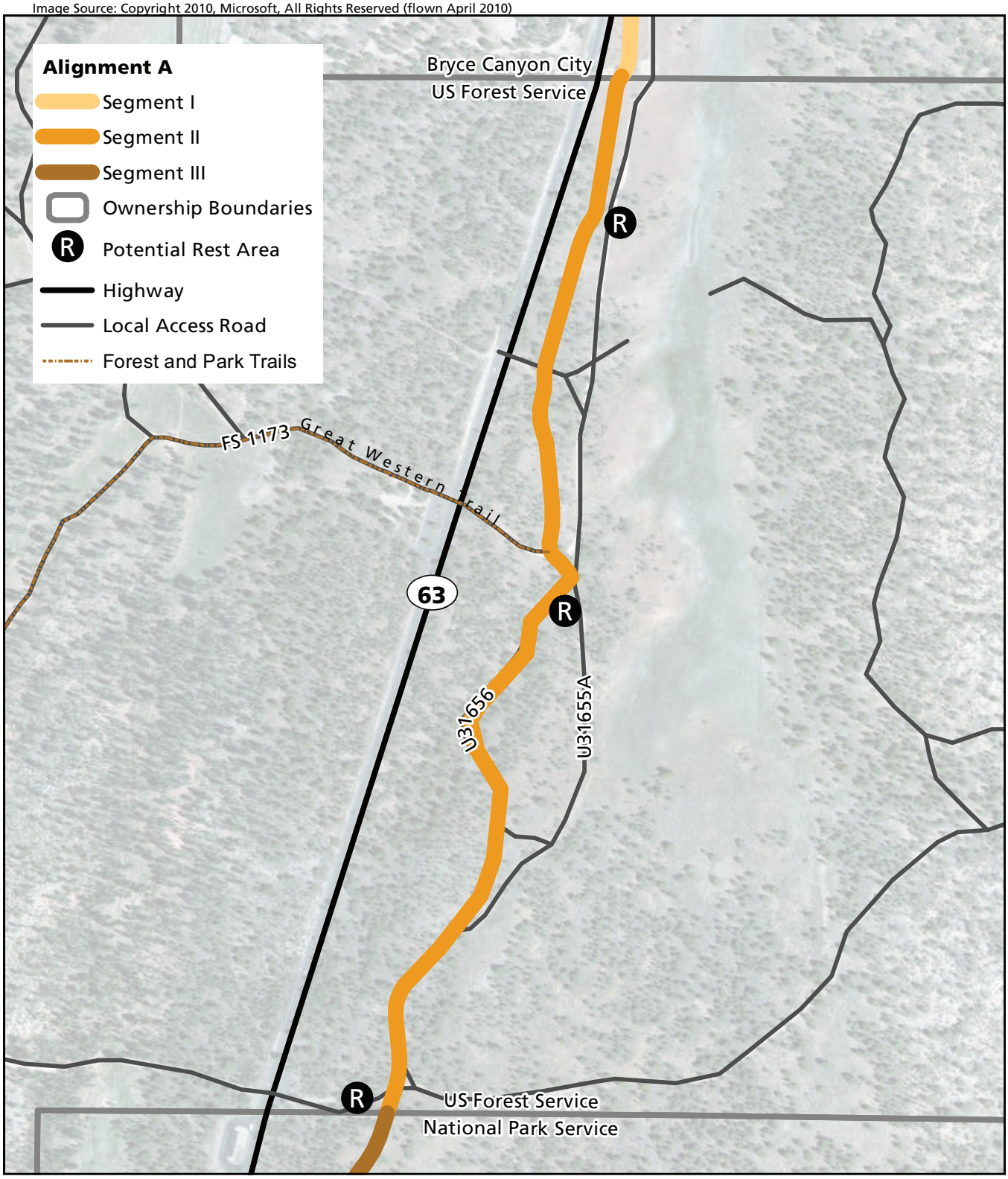

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FIGURE 5
Alternative Alignment A
Segment II: Dixie National Forest

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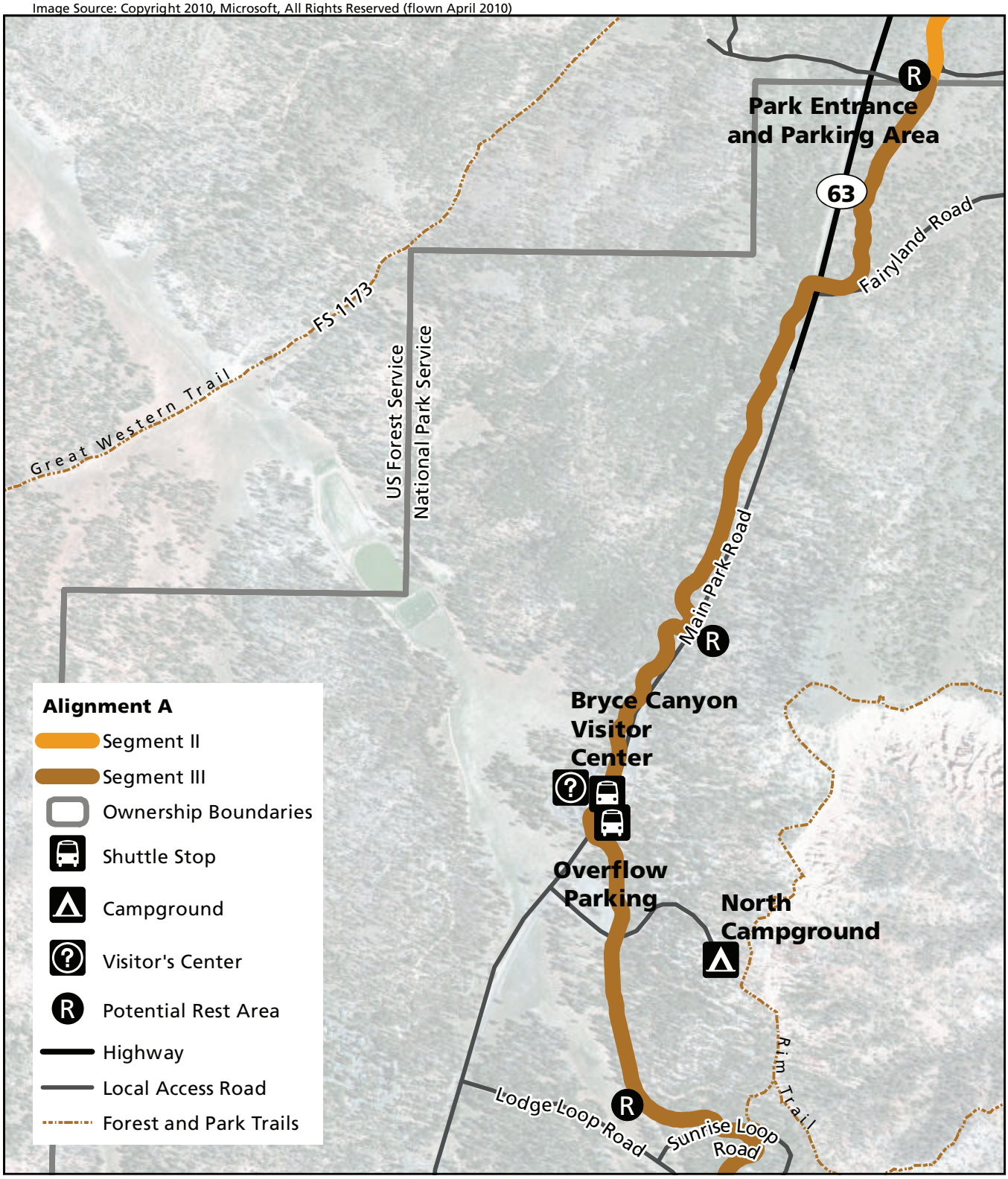

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FIGURE 6a
Alternative Alignment A Segment IIIa: Park Boundary to Lodge Loop Road Turnoff

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turnoff, the path alignment is within the Development Zone defined in the 1987 General Management Plan.

Segment IIIb runs from Sunrise Loop Road to Bryce Point Road turnoff. From Sunrise Loop Road, the path alignment would continue on an existing, recently disturbed utility corridor to the General Store. From the General Store, through the Lodge area, and to Bryce Point Road turnoff, the alignment would remain within the park's Development Zone and involve routing on utility corridors, existing paved areas, and segments of undisturbed terrain (Figure 6b). The approximate minimum distance of the path from the road along Segment IIIc (Bryce Point Road turnoff to path terminus) would be 17 feet and the approximate maximum distance would be 907 feet (Figure 6c). Total permanent disturbance for all park segments would be approximately 9.5 acres.

Segments IIIa-c would extend for approximately 6.2 miles and would include disturbed and undisturbed areas (see Figures 6a-c). Construction costs for Segment III are estimated to be $3,505,000 and life cycle maintenance costs (over 30 years) would be $457,000.

Alternative Alignment B

Under Alternative Alignment B, the path would be designed as a separated path, distinct from State Route 63 and park roads; however it would remain as close to the alignment of existing roads as possible. This alignment would not connect directly to the Lodge or Sunrise, Sunset, or Inspiration points. Instead, it would largely rely on low-speed, existing park roads to provide this access, such as the roads branching from the main park road to Sunset Point and Inspiration Point.

As with the Preferred Alternative, Alternative Alignment B would begin at the shuttle staging area in Bryce Canyon City and continue in a southerly direction through USFS land and into the park where it would end at Bryce Point (see Figure 3). The total linear distance of Alternative Alignment B would be approximately 7.2 miles, and approximately 9 rest areas would be developed along the length of the path. Alternative Alignment B would be designed to meet the PROWAG Shared Use Path Accessibility Guidelines, which require that a shared use path within an existing road right-of-way (transportation corridor) have the same slope as that of the road.

The construction corridor is the area in which permanent and temporary disturbance may occur during path construction. The construction corridor width also reflects an allowance for slight adjustments to the alignment as needed during final design and construction due to terrain or other constraints such as avoiding individual trees or rare plants. Based on preliminary design, the construction corridor width would vary between approximately 50 feet and 150 feet along the path alignment. Permanent disturbance within the construction corridor would be limited to the 12-foot path width along the length of the path alignment, rest areas, spurs, and any retaining walls. Temporary disturbance within this corridor beyond the 12-foot path width would depend on the terrain and the need for cut, fill, ditches, or retaining walls. Final designs would reduce the extent of construction limits and disturbance within the corridor as much as feasible.

Construction of Alternative Alignment B would require grading, cut and fill, and paving operations. The permanent disturbance associated with Alternative Alignment B would be approximately 11.1 acres. This disturbance area includes the path, rest areas, spurs, and potential retaining walls. Areas of temporary disturbance resulting from construction of the path would be

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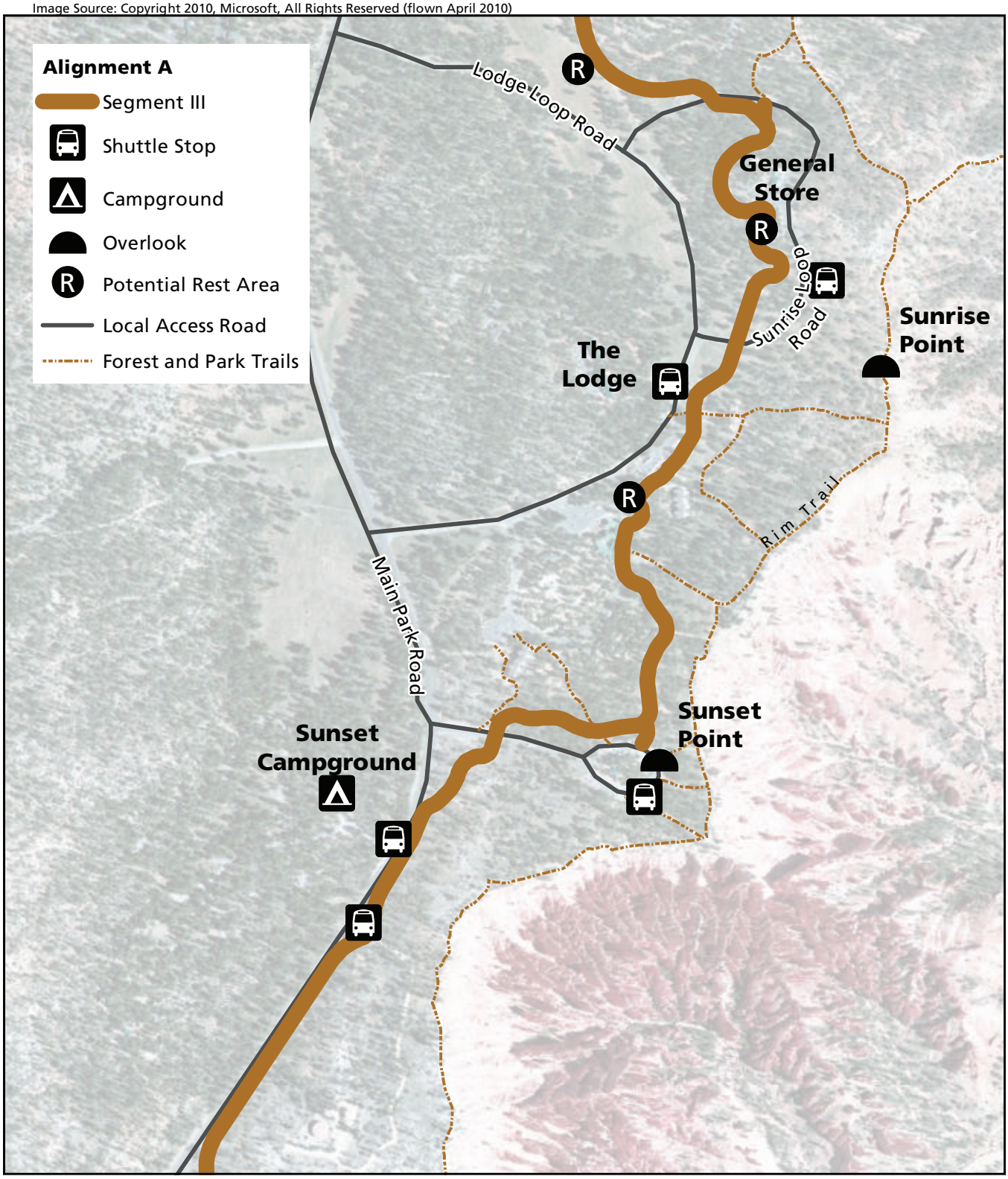

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FIGURE 6b
Alternative Alignment A Segment IIIb: Lodge Loop Road Turnoff to Bryce Point Road Turnoff

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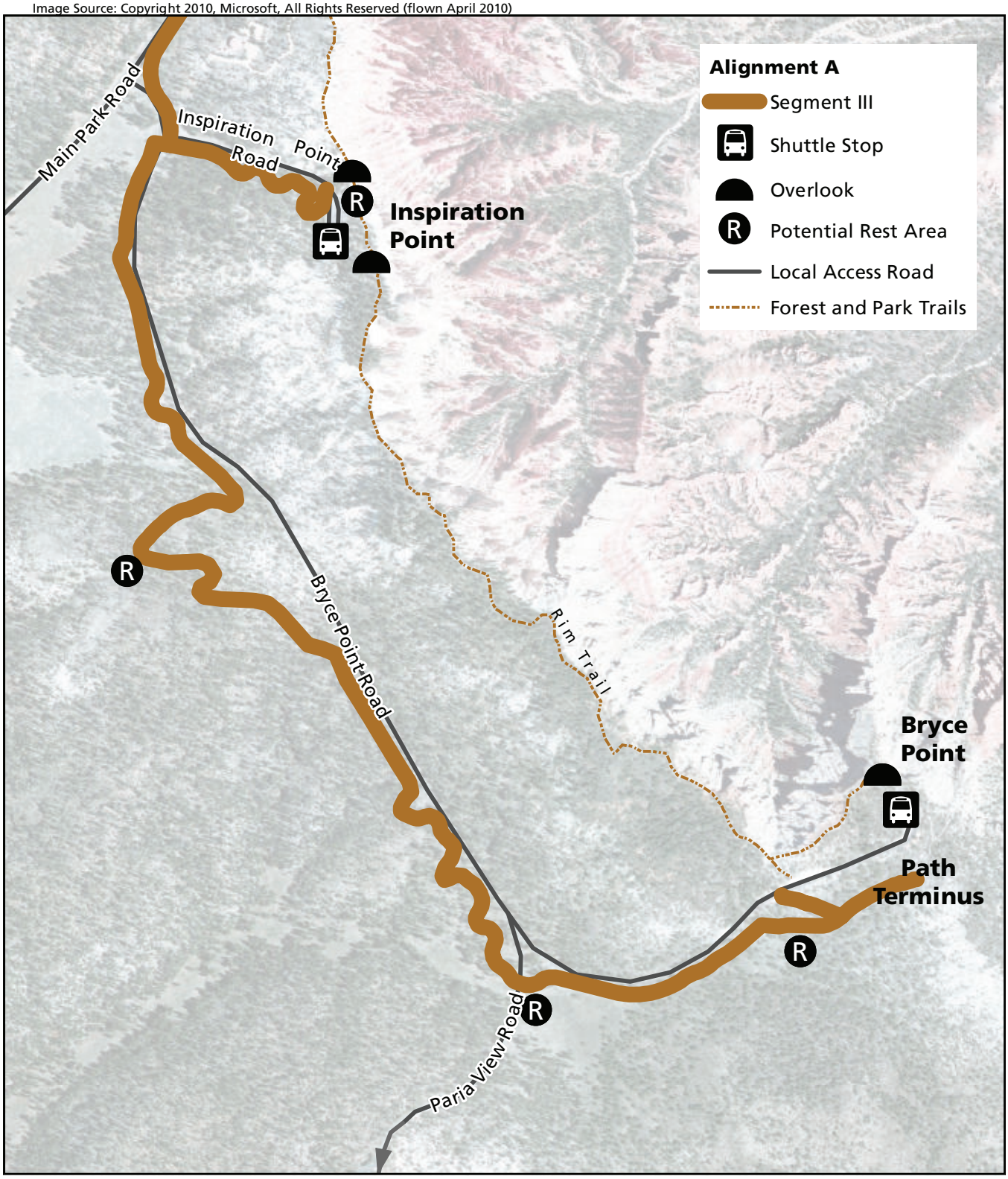

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FIGURE 6c
Alternative Alignment A Segment IIIc: Bryce Point Road Turnoff to Path Terminus

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revegetated. Construction staging for the path would be limited to previously disturbed areas and those planned for disturbance (e.g., new parking lots) under the Multimodal Transportation Plan.

A typical path section for Alternative Alignment B would include a 5- to-10-foot-wide separation between the roadway and the path. The same structural sections for asphalt and concrete pavement used for Alternative Alignment A would be used for Alternative Alignment B. The same 10-foot-wide path with 1-foot aggregate shoulders would also be used in Alternative Alignment B. The ditch and cut slope under this alternative would be a 2-foot-wide and 6-inch-deep graded ditch with a variable slope cut.

The path would connect to three existing shuttle stops, as well as three shuttle stops planned for development under the Multimodal Transportation Plan, helping support the plan's strategy to encourage alternative transportation and reduce reliance on personal vehicles. The path would also provide physical connections to current and planned parking areas, which would accommodate visitors who bring their own bikes to the park.

Segment I: Bryce Canyon City. The path centerline for Segment I under Alternative Alignment B would primarily be in a previously disturbed area within the existing transportation corridor for State Route 63. Segment I would extend from the shuttle staging area in Bryce Canyon City to the boundary with Dixie National Forest for approximately 0.3 mile (Figure 7). The distance of the path from the road for the Segment I would range from 5 feet to 10 feet, and the path would have the same slope as that of the road since it would be within an existing transportation corridor. Total permanent disturbance for this segment would be approximately 0.5 acre. Construction costs for Segment I would be $288,100 and life cycle maintenance costs (over 30 years) would be $21,200.

Segment II: USFS – Dixie National Forest. The path centerline for Segment II under Alternative Alignment B would roughly parallel State Route 63 within the existing transportation corridor and would include disturbed and undisturbed areas. Segment II would extend for approximately 0.8 mile to the park boundary (Figure 8). The distance of the path from the road for Segment II would range from 5 feet to 10 feet, and the path would have the same slope as that of the road since it would be within an existing transportation corridor. Total permanent disturbance for this segment would be approximately 1.2 acres. Construction costs for Segment II would be $784,900 and life cycle maintenance costs (over 30 years) would be $55,800.

Segments IIIa-c: Bryce Canyon National Park. The path centerline for Segments IIIa-c under Alternative Alignment B would roughly parallel the main park road to the Lodge Loop Road area. There a segment of the path would parallel the Lodge Loop and Sunrise Loop roads, approaching the General Store from the front (east side), and connect back to where it parallels the main park road. At the turnoff to Inspiration and Bryce points, the path would leave the main park road and would follow closely along the Bryce Point Road to a terminus at the Bryce Point parking area. Segments IIIa-c would extend for approximately 6.1 miles, and would include disturbed and undisturbed areas (Figures 9a-c). The distance of the path from the road for the Segments IIIa-c would range from 5 feet to 10 feet, and the path would have the same slope as that of the road since it would be within an existing transportation corridor. Total permanent disturbance for all park segments would be approximately 9.4 acres. The construction costs for Segments IIIa-c are estimated to be $6,299,000 and life cycle maintenance costs (over 30 years) would be $478,100.

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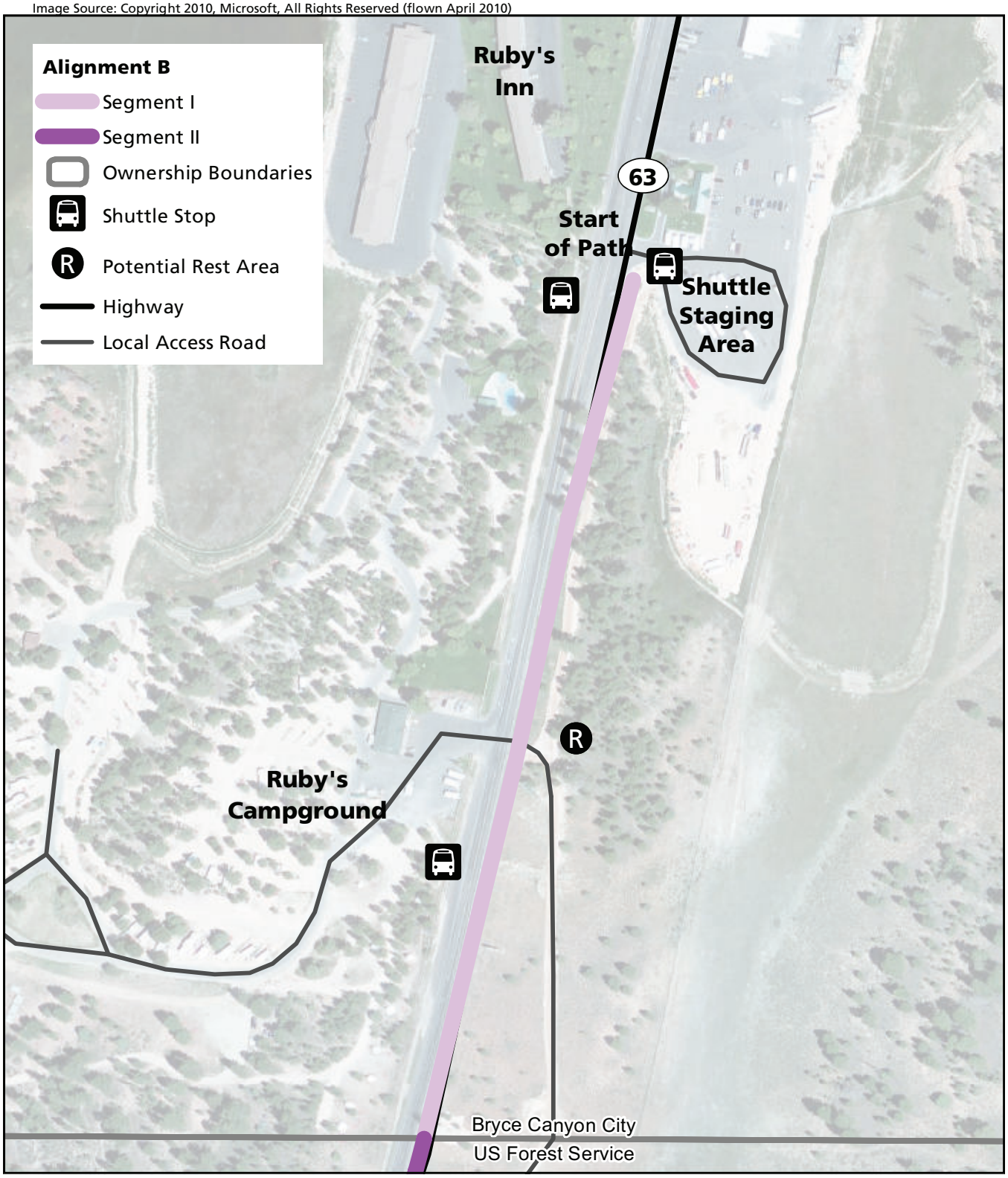

0 Feet 250

FIGURE 7
Alternative Alignment B
Segment I: Bryce Canyon City

Multi-use Visitor Path

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United States Department of Agriculture / Forest Service / Dixie National Forest

September 2014

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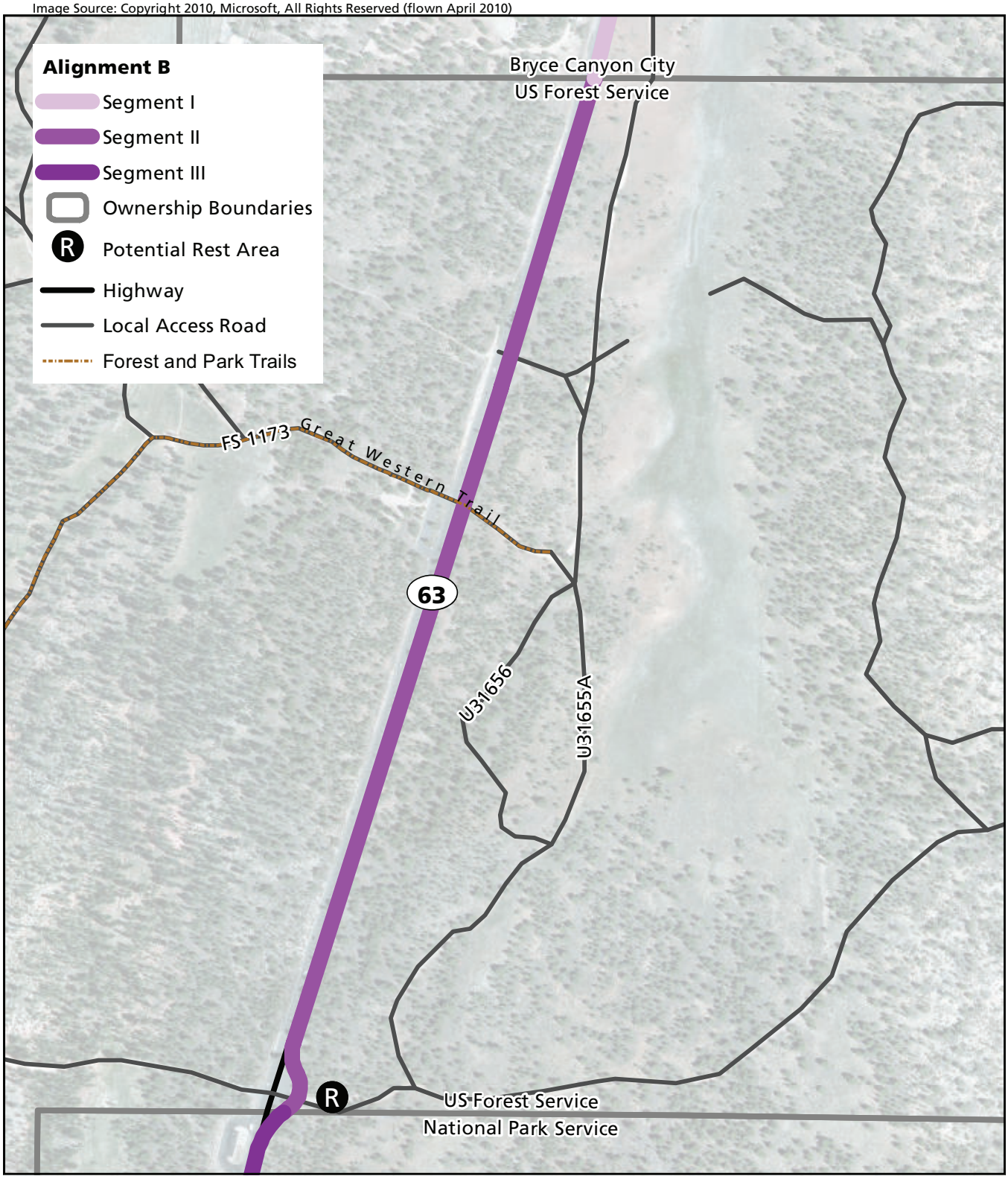

0 Feet 550

FIGURE 8
Alternative Alignment B
Segment II: Dixie National Forest

Multi-use Visitor Path

United States Department of the Interior / National Park Service / Bryce Canyon National Park
United States Department of Agriculture / Forest Service / Dixie National Forest

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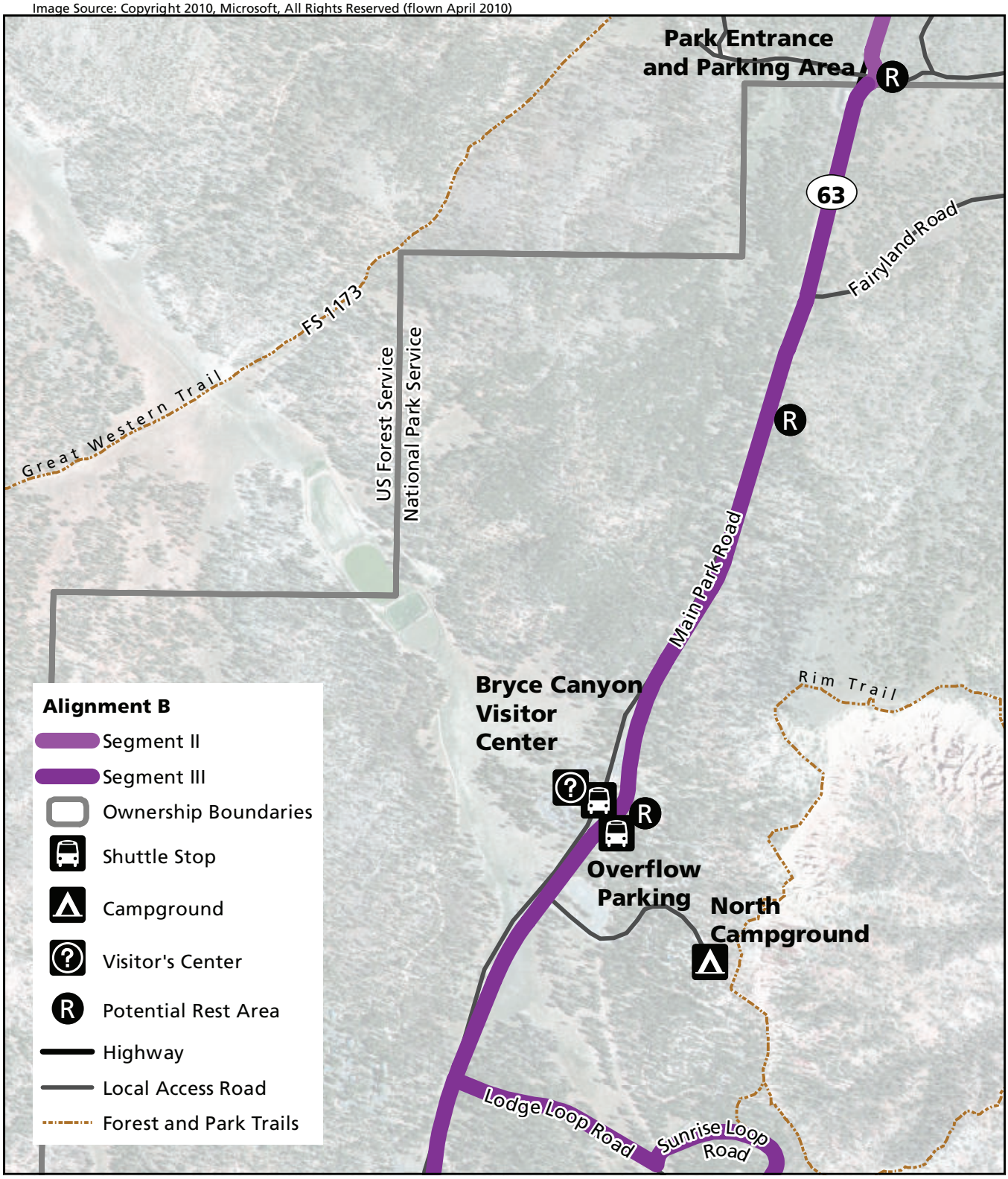

0 Feet 1,200

FIGURE 9a
Alternative Alignment B Segment IIIa: Park Boundary to Lodge Loop Road Turnoff

Multi-use Visitor Path

United States Department of the Interior / National Park Service / Bryce Canyon National Park
United States Department of Agriculture / Forest Service / Dixie National Forest

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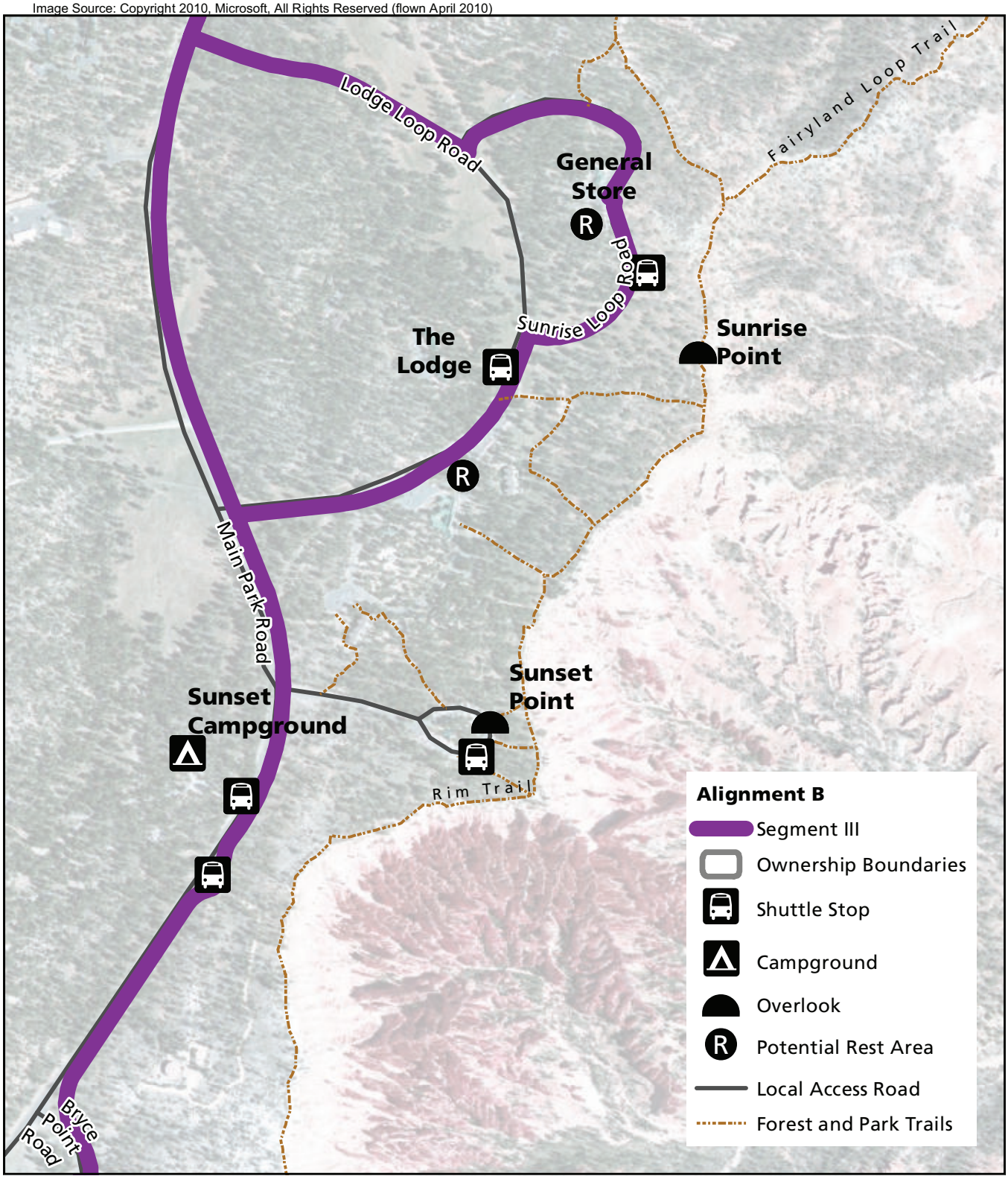

0 Feet 1,200

FIGURE 9b
Alternative Alignment B Segment IIIb: Lodge Loop Road Turnoff to Bryce Point Road Turnoff

Multi-use Visitor Path

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United States Department of Agriculture / Forest Service / Dixie National Forest

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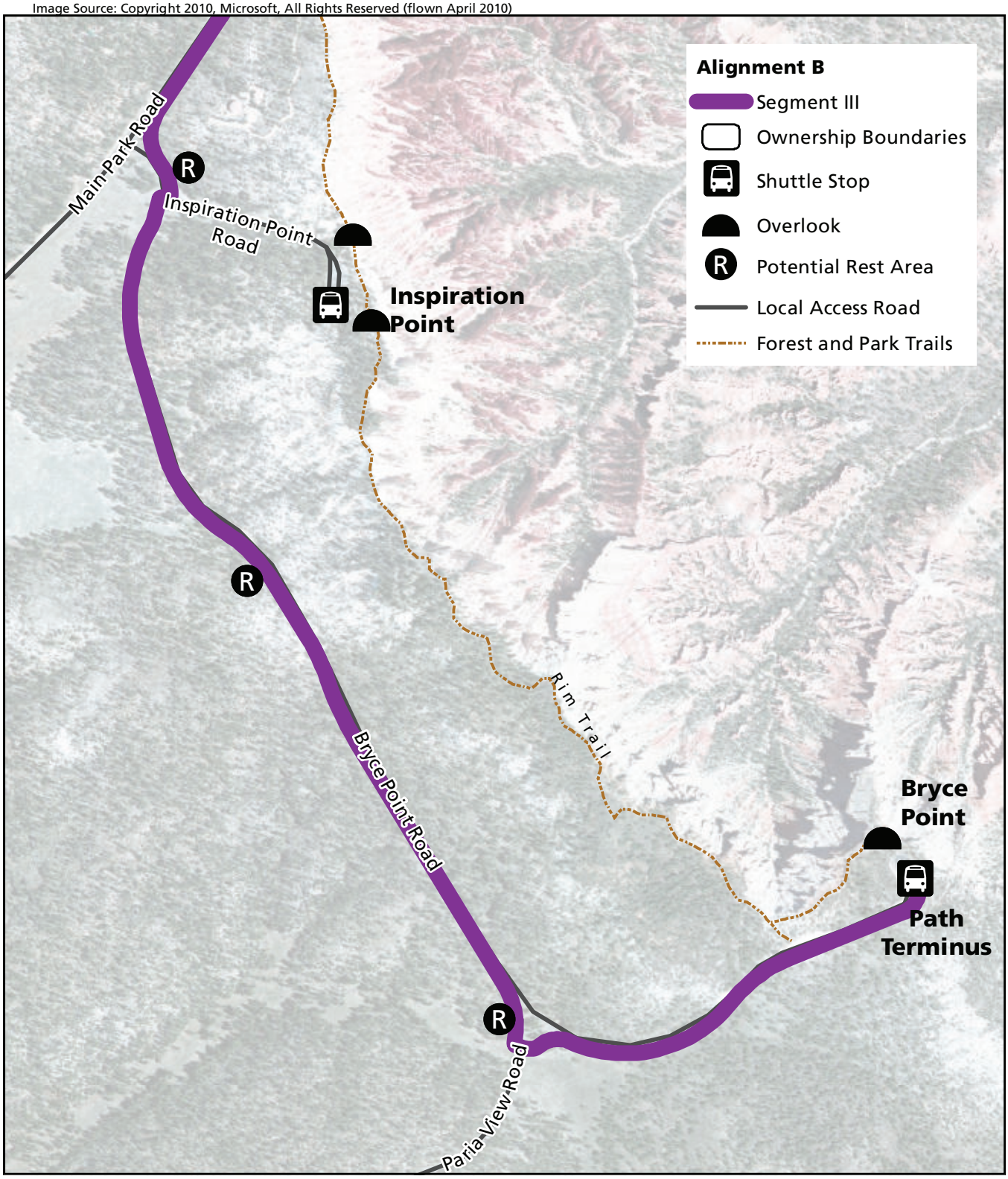

FIGURE 9c
Alternative Alignment B Segment IIIc: Bryce Point Road Turnoff to Path Terminus

Multi-use Visitor Path

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United States Department of Agriculture / Forest Service / Dixie National Forest

September 2014

MITIGATION MEASURES OF THE ACTION ALTERNATIVES

Mitigation measures are specific actions that, when implemented, reduce impacts and protect park resources and visitors. To prevent and minimize potential adverse impacts associated with the action alternatives, mitigation measures, best management practices, and project design features would be implemented prior to and during the construction and post-construction activities for the proposed multi-use visitor path project and are assumed in the analysis of effects. General and resource-specific best management practices and mitigation measures for the proposed project are listed in Table 2. (Note: This list is not all-inclusive, as there would be additional mitigation measures included in construction contract specifications.)

TABLE 2. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

General Measures
• All active construction areas will be appropriately marked and fenced to ensure visitor and worker safety. • Impact areas and buffer zones will be flagged prior to construction to ensure that resource damage (as determined by the project footprint and buffer zone surrounding construction areas) would not be exceeded during construction. • Staging areas for the construction office (a trailer), construction equipment, and material storage will either be located in previously disturbed areas near project sites (such as at existing parking areas), other disturbed areas that best meet project needs and minimize new ground disturbance, or areas identified for future development. All staging areas will be returned to pre-construction conditions or better once construction has been completed. Standards for this, and methods for determining when the standards are met, will be developed in consultation with the forest's and park's vegetation program manager. • Before construction, the contractor(s) for individual projects will work with park staff to develop a construction traffic management plan. The plan will include information on construction phases and duration, traffic scheduling, proposed haul routes, staging area management, visitor safety, detour routes, and pedestrian and bicyclist movements on adjacent routes. The NPS will limit the transport of debris, construction equipment, and materials to periods of off-peak traffic whenever possible. • Garbage, trash, and other solid waste associated with construction operations will be disposed of in trash bins and disposed of weekly, or sooner if warranted, outside the park at an approved facility. • All tools, equipment, barricades, signs, surplus materials, and rubbish will be removed from the project work limits upon project completion. Any asphalt surfaces damaged during construction of the project will be repaired to original conditions. All demolition debris except felled trees will be removed from the project site. This material will be disposed of outside the park at an approved facility or recycled as appropriate. • All equipment on projects will be maintained in a clean and well-functioning state to avoid or minimize contamination from mechanical fluids. All equipment will be checked daily. Spill remediation kits will be available on-site every day and contractor staff trained in their use. • A hazardous spill plan will be in place, stating what actions would be taken in the case of a spill, notification measures, and preventive measures to be implemented, such as the placement of refueling facilities, storage, and handling of hazardous materials. • Construction vehicles will not be allowed to park within meadow or other specified sensitive habitats.
Air Quality
• Fugitive dust generated by construction will be controlled by spraying water on the construction site, if necessary. • To reduce dust from hauling material, loose material loads (aggregate, soils, etc.) will be covered with tarps. • To reduce burning of fossil fuels, construction equipment will not be permitted to idle for longer than 5 minutes following initial engine warm-up unless specifically authorized by park management.

TABLE 2. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

Water Quality
• Erosion will be minimized to the extent possible by designing paved or hardened surfaces to direct water flows away from sensitive areas. Existing roads and paved surfaces will be used as much as possible for construction activities and for keeping heavy equipment off undesignated paths and trails. • The requirements for a storm water pollution prevention plan will be addressed by the contractor during the construction contract and will meet all statutory USFS and NPS standards. All National Pollutant Discharge Elimination System requirements will be met. • Standard erosion control measures—such as sand bags or equivalent control methods—will be used to minimize any potential sediment delivery to ephemeral streams.
Soundscapes
• To reduce noise, construction equipment will not be permitted to idle for longer than 5 minutes following initial engine warm-up unless specifically authorized by park management. • Construction foremen will include briefings to crews on vehicle use as a part of pre-construction conferences. • Contractors will be required to properly maintain construction equipment (e.g., mufflers) to minimize noise from equipment use. • Work will be restricted to 8 a.m.–6 p.m., unless pre-approved by the park superintendent, forest district ranger, or city manager (as appropriate) to reduce noise impacts to guests in the campgrounds and lodging areas, as well as reduce impacts to wildlife active from dusk to dawn.
Night Sky
• Construction activities will occur only during daylight hours, from dawn to dusk, to avoid the need for night work or night lighting unless specifically authorized by park management. • Lighting will only be provided where necessary for the mobility or safety of visitors and workers.
Soils
• Before path construction begins, the path alignment will be clearly marked to minimize the amount of disturbance. • Only those areas necessary for construction will be cleared and grubbed. • Because disturbed soils are susceptible to erosion until revegetation takes place, standard erosion control measures such as straw wattles (must be certified weed free) and / or sand bags will be used to minimize any potential soil erosion. • The amount of disturbed earth area will be minimized, and the duration of soil exposure to rainfall limited. • Topsoil will be removed and stockpiled separately from deeper excavations and used to assist native plant revegetation in disturbance corridors that are not converted to pavement, asphalt, or gravel surfaces, including buffer areas and path shoulders.
Vegetation
• To reduce the spread of noxious invasive species, surveys of the project area will be completed prior to any ground-disturbing activities and will include inventories of existing populations of nonnative species. If noxious invasive species are found, a pre- and post-construction treatment of the area would be conducted using species-specific targeted herbicides as approved in the park's Vegetation Management Plan. As design plans develop, they will be cross-referenced with existing vegetation survey information to ensure that no new survey is necessary before work starts. • A pre-construction survey for rare plants will be conducted in any areas suspected of containing populations of these species. Salvage via transplant will be conducted when feasible. • Vegetation program staff at the park will provide input on salvage potential and tree avoidance at project sites where necessary. A supervisory biologist will also spot-check work in progress. • Revegetation and recontouring of disturbed areas in the alignment corridor will take place following construction and will be designed to minimize impacts on native vegetation and deter the possible spread of invasive species. Revegetation efforts will strive to reconstruct the natural spacing, abundance, and diversity of native plant species

TABLE 2. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

found in similar vegetated landscapes of the park. All disturbed areas surrounding newly constructed / improved areas will be restored as nearly as possible to pre-construction or better conditions shortly after construction activities are completed.

- All revegetation efforts will use site-adapted native species and / or site-adapted native seed, and park policies regarding revegetation and site restoration will be incorporated. These efforts will consider, among other things, use of native species, plant salvage potential, nonnative vegetation management, and pedestrian barriers. Policies related to revegetation would be referenced from the Bryce Canyon National Park Vegetation Management Plan (2010b) and NPS Management Policies (2006a).
- Social trails created by construction activities will be obliterated, revegetated, and protected from pedestrian impact upon the completion of the project in each individual area to reduce further resource damage.
- Weed control methods will be implemented to minimize the introduction of noxious weeds including power-washing of all earth-moving equipment and project-related vehicles prior to being brought into the park. The location selected for vehicle washing will be approved by a supervisory biologist and power washing will be approved by the Contracting Officer's Representative or park-approved Contracting Officer's Technical Representative.
- Staging area locations for construction equipment will be approved by the park, and the need to treat nonnative vegetation would be considered.
- Nonnative species encroachment and distribution will be monitored for 2–3 years after construction.
- Revegetation efforts will be initiated as soon as possible following construction to minimize the competition of native species with nonnative species.
- The impact of tree removal will be minimized by salvaging as many suitable trees as possible for use in revegetating disturbed areas in each project segment following construction. Salvage will be limited to small trees and would not constitute a one-to-one tree loss because of slow growth patterns and high percentage of transplant die-off.
- Vehicle parking will be limited to existing roads or the staging areas.
- Any fill, rock, or additional topsoil needed will be obtained from a park-approved source. Topsoil from the project area will be retained and used for site restoration whenever feasible.

Special Status Species

- General conservation measures included in the park's Utah Prairie Dog Stewardship Plan (currently in progress) will be incorporated into best management practices to reduce and mitigate any associated impacts to colonies during and following construction. These measures will be implemented in a proactive manner to address road mortality, habitat fragmentation, impacts from noise disturbance, and human habituation. Management actions could include, but are not limited to, installation of vegetative and physical barriers, enhanced movement corridors via clearing / addition / expansion of underground culverts, temporary road closures, interpretive material such as wayside exhibits, and speed-calming measures.
- Conservation measures to protect Utah prairie dogs and their habitat on forest land will be based upon the final determination from informal consultation with the USFWS. In general, these measures usually include:
  - Visual barriers where work is found adjacent to active colonies.
  - Speed limits along existing roads and trails as well as installed trail.
  - Installing signs and interpretive messages.
  - Monitoring all construction activities within 350 feet of active colonies.
  - Informing all construction workers and staff regarding the status of Utah prairie dog and stopping all activities that would have any detrimental effects.
  - Storing all construction equipment (500 feet) away from active colonies.
- During construction in areas adjacent to active Utah prairie dog colonies, the park will install a visual barrier surrounding a Utah prairie dog colony to deter road crossings and reduce the impacts of construction traffic and activity on the colony. Movement between colonies that are bisected by roads will be enhanced via clearing out underground drainage culverts prior to installation of visual barriers. Visual barriers may be removed following construction, or a more permanent barrier (e.g., metal fence or rock wall with an underground barrier) may be

TABLE 2. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

constructed depending on monitoring results. • The park will monitor Utah prairie dog behavior during and following construction activities in areas within 350 feet of active colonies. If roadkill mortalities increase from baseline conditions (at a level >10% or other increase percentage as determined in consultation with the USFWS), the park would implement conservation measures to further protect colonies. Mitigation measures will be determined through consultation with the USFWS and follow recommendations as outlined in park's Utah Prairie Dog Stewardship Plan. • Construction activities within 350 feet of an occupied Utah prairie dog colony will be monitored by the park's biologist or qualified staff. Monitoring will occur no less than 8 hours per colony in 2-hour (or greater) observation increments. A monitoring plan will be developed by the park and submitted for approval by the USFWS prior to implementation of any proposed improvements. Activities that have an observably detrimental impact on Utah prairie dog colonies and which extend beyond acceptable impacts as outlined in the biological opinion for this project will cause cessation of construction and result in reconsultation with the USFWS. • Construction workers and supervisors will be informed about the status of the Utah prairie dog and appropriate activities around active colonies. Contract provisions will require the cessation of construction activities that have a detectably detrimental effect on Utah prairie dogs in the project area, until the park's biologist re-evaluates the project and its impact on the prairie dog. This may include modification of the contract for any determined protection measures, which may include timing or equipment restrictions. • No construction equipment will be stored within 500 feet of an occupied colony or within mapped Utah prairie dog habitat in the park. • Path construction within mapped habitat would occur between June 15 and August 31 to reduce impacts to Utah prairie dogs pre-hibernation. • The USFS and park will conduct nesting surveys for flammulated owl (*Psiloscops flammeolus*) and northern goshawk (*Accipiter gentilis*) to minimize impacts to these species. If a nest is found, then construction would not occur within a one-half-mile radius until the birds have fledged or the path alignment would be relocated outside of this radius.
Wildlife
• To minimize effects on wildlife, construction activities will be restricted to daylight hours, from dawn to dusk. • Construction and staging in areas of unique or ecologically important wildlife habitat will be avoided or minimized. This will include meadow ecosystems, assemblages of structurally diverse vegetation, mature tree stands, known wildlife movement corridors, known nesting sites for raptors, and habitat known to be significant for foraging or breeding. • To minimize negative impacts to nesting birds, trees needing removal will not be cut during nesting season for northern goshawk or any birds protected under the Migratory Bird Treaty Act, generally from April 1 through July 31. If construction activities or tree cutting is required during this time, pre-construction / pre-tree cutting bird surveys would be conducted for nests. Consultation with the park's wildlife biologist will be required prior to any tree removal. Pre-tree cutting bird surveys may also be required outside this timeframe. No construction activities will be conducted in identified nesting areas until the young have fledged. • To minimize negative impacts to bats, any large trees (over 24 inches diameter at breast height) needing removal will be removed between mid-October and April, and / or the path would be designed to avoid such trees.
Historic Properties
• If previously unknown archeological resources are discovered during the project, a forest or park archeologist will be contacted immediately. All work in the immediate vicinity of the discovery will be halted until the resources could be identified and documented and an appropriate mitigation strategy developed, if necessary, in consultation with the Utah State Historic Preservation Office (SHPO) and tribes traditionally associated with the project area. If the site will be adversely affected, a treatment plan will also be prepared as needed. Treatment plans will fully evaluate avoidance, project redesign, and data recovery alternatives. • All workers will be informed of appropriate site etiquette and the penalties of illegally collecting artifacts or of intentionally damaging any archeological or historic property. Workers will also be informed of correct procedures if previously unknown resources were uncovered during construction activities.

TABLE 2. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

- Staging areas for construction equipment and materials storage would be in designated areas where there is no potential for archeological resource disturbance. If the sites selected for these activities changed during later design phases for any alternative, additional archeological surveys would be conducted to ensure that the staging areas are clear of archeological resources.
- Known archeological sites and isolated occurrences will be flagged and avoided during any construction activities associated with the project, and a NPS archeologist will be on-site during the entire ground disturbance near the site.
- Contractor-selected, noncommercial areas outside the project limits including, but not limited to, material sources, disposal sites, waste areas, haul roads, and staging areas will not encroach upon sites listed or eligible for listing in the NRHP. Written proof satisfactory to the NPS and the Utah SHPO will document, for compliance with section 106, that no historic properties would be affected because:
  - there are no historic resources present, or
  - there is no effect on historic properties.
- In compliance with Native American Graves Protection and Repatriation Act, the NPS would also notify and consult concerned American Indian tribal representatives for the proper treatment of human remains and funerary and sacred objects should these be discovered during project construction.
- Minimize impacts to native vegetation in and near cultural landscapes and historic districts. Degraded vegetation should receive an appropriate vegetation treatment based on the results of the vegetation study (i.e., post-construction revegetation).
- Match existing design and materials and physical appearance for ramp, curbs, gutters, and sidewalks within cultural landscapes and historic districts. Color treatments may be necessary to ensure that new materials blend with the existing features.
- All work, including new construction, should be done in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Ethnographic Resources

- If Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony are uncovered during construction, all work will cease immediately, and the tribes will be contacted per regulations regarding inadvertent discoveries covered by the Native American Graves Protection and Repatriation Act.
- If ethnographic resources are identified by tribes during consultation for this project, NPS will work with the tribes, SHPO, USFS, and other partners to eliminate, reduce, and / or mitigate impacts.

Visitor Experience and Health and Safety

- The park or its contractor will develop and implement a visitor protection / safety plan for park review and approval that will:
  - provide procedures for managing staging areas to restrict public access and maintain site safety
  - ensure that visitors are safely and efficiently routed around construction areas
  - outline measures to protect the safety of visitors by providing established and maintained walkways across the site, as well as barrier fencing along trails and paths
- To the extent practicable, work will be scheduled to avoid construction activity and construction-related delays during peak visitation times. In general, no holiday or nighttime work will be allowed. Unless otherwise approved by the park, operation of heavy construction equipment will be restricted to dawn to dusk, year-round. Weekend work (Saturday and Sunday) will not be allowed unless authorized by park staff overseeing the construction.
- As allowed by time and funding, information about this transportation project will be shared with the public through park publications and other appropriate means during construction periods. This could take the form of an informational brochure or flyer distributed at the gate and sent to those with reservations at park facilities, postings on the park's website, press releases, and other methods. The purpose would be to minimize the potential for negative impacts to visitor experience during project implementation during the construction season.
- NPS employees, residents, and concessioners will be notified about project implementation and road delays or road closures, as appropriate.

TABLE 2. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

• The contractor will provide a weekly construction schedule with daily updates to the NPS field supervisor to assist the park in managing visitation and park operations during construction. • A traffic control plan will be developed in conjunction with the construction documents for use during the construction period(s) associated with project implementation. The plan will be provided by the contractor to the park superintendent for review and approval before implementation. Traffic delays could be possible; however, emergency vehicle access will be provided immediately. • If required, flaggers, signs, or other new technology, as appropriate, will be used to manage traffic around work areas.
Gateway Communities
• To coordinate with gateway communities during project implementation, the NPS will develop and maintain a constructive dialogue and outreach effort with public and private organizations and businesses, including state and local tourism and travel offices and establish positive and effective working relationships with park concessioners and others in the tourism industry to ensure a high quality of service to park visitors. • NPS will consider installing signs on construction fences and elsewhere that advertise the partnership aspect of the proposed project (e.g., "brought to you by" or "thanks to our partners").

ALTERNATIVES CONSIDERED BUT DISMISSED

During the scoping and alternatives development phases of this planning effort, other path segment alignments were proposed for incorporation into the alternatives. These path segment alignments were dismissed from subsequent consideration or inclusion as alternatives. These path segment alignments and their rationale for dismissal are described below.

Alignment around Science Peak

Routing the path around Science Peak was dismissed as an option, because the potential disturbance to and impacts on sensitive plant habitat would increase when engineering the path from the current 17% grade of Science Peak to the 5% maximum allowed under the Shared Use Path Accessibility Guidelines.

Alignment on West Side of State Route 63

Routing the path on the west side of State Route 63 outside the park and inside the park on the west side of the main park road was dismissed as an option because of the potential impacts on threatened Utah prairie dog habitat. Impacts from construction would be high because there is no existing disturbance in this area other than an approximate 0.25-mile footpath on USFS land. In addition, the path would further disturb and fragment wildlife habitat. Safety issues from visitors crossing State Route 63 were also a concern.

Shared Use Bike Lanes Attached to Roadway / Shoulder

Designing the path to include shared use bike lanes along the roadway or roadway shoulder was dismissed as an option because it would not meet the purpose and need to accommodate all appropriate types of nonmotorized use and would be less safe. In addition, the path's proximity to the roadway could result in a low-quality visitor experience, which would ultimately discourage use by visitors. Construction and maintenance of these shared-use bike lanes would require a higher level of effort, including needing more cut and fill, building the path to road standards, and

maintaining the path in accordance with regular road maintenance and operation. This option could also preclude any future minor roadway realignment, modification, and repair.

Paving a Portion of the Under-the-Rim Trail

Paving a portion of the historic Under-the-Rim Trail near Bryce Point to connect the multi-use visitor path to the existing Bryce Point parking lot was dismissed as an option, because there would be a high level of impacts to a significant historic trail.

Alignment on East Side of Sunset Motel

Routing the path on the east side of Sunset Motel was dismissed as an option because of the potential for unacceptable noise impacts near the motel.

Alignment Connecting Concession Day Corral with Sunset Point

Routing the path close to the rim and to connect the Concession Day Corral with Sunset Point was dismissed as an option, because there would be no direct connection to key destinations and because this segment would also re-open a past development scar that has revegetated naturally in comparison to the proposed routing that is within an existing disturbed area.

Alignment Down from Science Peak to Inspiration Point

Routing the path down from Science Peak to Inspiration Point was dismissed as an option because of the topographical constraints and because the design would require substantial engineering and infrastructure solutions.

Alignment on North Side of Road to Bryce Point

Routing the path on the north side of the road to Bryce Point was dismissed as an option because of the topographical constraints and the inability to avoid sensitive natural resources in the area.

ALTERNATIVE SUMMARIES

Table 3 summarizes the major components of each alternative, and Table 4 summarizes the anticipated environmental impacts for each alternative. Only those impact topics that have been carried forward for further analysis are included in Table 4. The “Affected Environment and Environmental Consequences” chapter provides more detail on these impacts.

THE ENVIRONMENTALLY PREFERABLE ALTERNATIVE

According to the CEQ regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative:

> that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different

alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative.

NPS and USFS have determined that Alternative Alignment A (the Preferred Alternative) is the environmentally preferable alternative for this project. Alternative Alignment A would generally parallel State Route 63 and the main park road to provide a more aesthetically and culturally pleasing surrounding while at the same time providing separation from motor vehicles on the highway and the safest possible travel corridor for nonmotorized transportation. The path is also intended to improve visitor experiences and provide alternative means of accessing key forest and park resources. The construction of Alternative Alignment A would result in soil and vegetation disturbance and loss, as well as wildlife habitat fragmentation. Alternative Alignment A would avoid direct impacts on Utah prairie dog habitat and could lead to a reduction in impacts on air quality from visitor vehicles. Alternative Alignment A follows old road beds and an existing, recently disturbed utility corridor from the park visitor center to the General Store. From the Lodge to Sunset Campground Alternative Alignment A follows existing roads, trails, and utilities for most of its length, reducing the area of new disturbance in the park compared to Alternative Alignment B.

The No-action Alternative is not the environmentally preferable alternative because vehicle emissions would continue and likely increase, which would contribute to impacts on air quality. Vehicular traffic on State Route 63 would continue to increase, and visitors choosing to use alternate (nonmotorized) forms of transportation to access the park would be at increased risk of collisions with motor vehicles. Although there would be no construction or ground-disturbing activities that would damage previously undisturbed elements of the biological and physical environment, this alternative would not formalize the existing social trail or encourage visitors to stay on one trail so as to minimize damage to sensitive soils, vegetation, and cultural resources. Social trailing would continue in the park as visitors on foot try to find more direct routes to highly visited areas.

Similarly, Alternative Alignment B is not the environmentally preferable alternative because it would be designed as a separated path, distinct from park roads; however, it would remain as close to the alignment of the existing roads as possible. This alignment would not connect directly to destinations such as the General Store, the Lodge, and Sunset and Inspiration points. It would instead rely on low-speed, existing park roads to provide this access, such as those roads branching from the main park road to Sunset Point and Inspiration Point. Therefore, impacts on soil and vegetation resources associated with construction of a separated path would be similar to Alternative Alignment A, but visitors would continue to create social trails to those places not served by the path under Alternative Alignment B. Where bicyclists and pedestrians would be forced to rely on busy, low-speed park roads to access key visitor destinations, visitor safety would continue to decrease as visitation and motor vehicle use increase.

TABLE 3. SUMMARY OF ALTERNATIVES

	No-action Alternative	Alternative Alignment A – Preferred Alternative	Alternative Alignment B
Overall Description	Under the No-action Alternative, the proposed multi-use visitor path project would not be constructed. Existing conditions such as congestion, user conflicts, and visitor and transportation safety issues would continue and possibly worsen as visitation increases in the future. Bicyclists would continue to share State Route 63 and the main park road with automobiles. Much of the vegetation and soil in the park and forest would remain undisturbed, although social trailing would likely continue in the park.	Alternative Alignment A, the Preferred Alternative, would be approximately 7.3 miles in length, and approximately 12 rest areas would be developed along the length of the path. Alternative Alignment A would be generally constructed to parallel State Route 63 and the main park road to provide separation between users and vehicles and reduce the likelihood of related safety issues. The path would be separated from the roads by distances ranging from 5 to 1,004 feet (see Figures 4, 5, 6a–c). It would also provide maximum direct access to key visitor destinations, including the Lodge, Sunrise and Sunset points, and Inspiration Point. Spurs would be designed between the main park road and Inspiration Point, as well as between parking areas for Sunrise Motel and Sunset cabins. Spurs would also connect the path to the Sunset Point parking lot and to the future parking lot west of Bryce Point. The path would connect to six existing shuttle stops, as well as three shuttle stops planned for development under the Multimodal Transportation Plan. The Preferred Alternative would be designed to meet the PROWAG Shared Use Path Accessibility Guidelines.	Alternative Alignment B would be approximately 7.2 miles in length, and approximately 9 rest areas would be developed along the length of the path. The path would be designed as a separated path, distinct from park roads; however it would remain as close to the alignment of existing roads as possible (between 5 and 10 feet). This alignment would not connect directly to the Lodge, Sunset Point, or Inspiration Point. Instead, it would largely rely on low-speed, existing park roads to provide this access, such as the roads branching from the main park road to Sunset Point and Inspiration Point. The path would connect to three existing shuttle stops, as well as three shuttle stops planned for development under the Multimodal Transportation Plan. Alternative Alignment B would be designed to meet the PROWAG Shared Use Path Accessibility Guidelines.

TABLE 3. SUMMARY OF ALTERNATIVES

	No-action Alternative	Alternative Alignment A – Preferred Alternative	Alternative Alignment B
Planning-level Cost Estimates (construction and life-cycle)	—	Construction costs: $4,143,000 Life cycle maintenance costs: $531,000 over 30 years.	Construction costs: $7,372,000 Life cycle maintenance costs: $555,100 over 30 years.
Approximate Acreage of Permanent Disturbance	—	11.3 acres	11.1 acres
Project Goals	*Meets Project Goals?*	*Meets Project Goals?*	*Meets Project Goals?*
Visitor Experience • Reduce safety risks resulting from traffic and parking congestion by separating nonmotorized uses from State Route 63 and the main park road. • Provide a safe, efficient, and family-friendly way to access the park, Dixie National Forest, and gateway community amenities. • Increase and enhance the visitor experience by providing opportunities for interpretation of natural and cultural resources in Dixie National Forest, Bryce Canyon National Park, and Bryce Canyon City. • Where feasible, maximize universal accessibility throughout the path alignment in the park, Bryce Canyon City, and Dixie National Forest to enhance opportunities for visitors with mobility impairments and other disabilities. • Promote health and well-being by increasing opportunities for active transportation and recreation.	The No-action Alternative would not meet project goals because it would not reduce safety risks or provide safe access to the park, forest, or gateway communities, because bicyclists and pedestrians would continue to share the road with motor vehicles. Traffic congestion would continue, as would conflicts between motorists, bicyclists, and pedestrians. The potential for accidents would continue, especially in areas with high visitor use.	Alternative Alignment A would meet project goals because it would reduce safety risks and provide safe access to the park, forest, and gateway communities, as bicyclists and pedestrians would no longer share the road with motor vehicles. The path would be developed to separate motorized and nonmotorized users from the road. Traffic congestion would likely decrease, as would conflicts between motorists, bicyclists, and pedestrians. The potential for accidents could also decrease, especially in areas with high visitor use. The Preferred Alternative would provide bicyclists and pedestrians an accessible (5% slope or less) and more safe route for access by separating these users from State Route 63 and park roads. Rest areas along the path could provide ample interpretive opportunities for users. Overall, the path would meet accessibility requirements and would provide increased opportunities for transportation and recreation.	Alternative Alignment B would partially meet project goals because it would reduce safety risks and provide safe access to the park, forest, and gateway communities, as bicyclists and pedestrians would no longer share the road with motor vehicles. The path would provide limited separation of motorized and nonmotorized users, as it would be constructed primarily within the existing transportation corridor. Traffic congestion would likely decrease. Conflicts between motorists, bicyclists, and pedestrians, as well as the potential for accidents may also decrease, but to a limited degree due to the proximity of the path to the road. Alternative Alignment B would provide bicyclists and pedestrians an accessible (matching the slope of the road) route for access on forest and park land, but the path alignment would be adjacent to existing roads. Rest areas along the path could provide interpretive opportunities for users. Overall, the path would meet accessibility requirements and would provide increased opportunities for transportation and recreation.

TABLE 3. SUMMARY OF ALTERNATIVES

	No-action Alternative	Alternative Alignment A – Preferred Alternative	Alternative Alignment B
Access and Connectivity • Provide bicycle and pedestrian connections between key destinations inside the park and Dixie National Forest, the existing shuttle staging area in Bryce Canyon City, and by making these connections available for integration with the eventual extension of the Red Canyon National Recreational Trail system in the surrounding area. • Facilitate easy transition between various transportation modes, such as walking, cycling, driving, and taking the shuttle. • Enhance opportunities for partnerships and economic development in surrounding communities.	The No-action Alternative would not meet project goals because it would not provide direct access to key destinations in the park, facilitate transition between various transportation modes, or integrate with the Red Canyon National Recreation Trail system. It would continue to provide access to Bryce Canyon City, Dixie National Forest, and the park, however. The No-action Alternative would not enhance opportunities for partnerships or economic development in nearby communities.	Alternative Alignment A would meet project goals because it would provide access to Bryce Canyon City, Dixie National Forest, and the park, including direct access to key destinations and shuttle stops in the park. Alternative Alignment A would also facilitate transition between various transportation modes, and integrate with the Red Canyon National Recreation Trail system. Alternative Alignment A would also enhance opportunities for partnerships or economic development in nearby communities.	Alternative Alignment B would partially meet project goals because it would provide access to Bryce Canyon City, Dixie National Forest, and the park. Access to key destinations in the park would be provided, but it would not be considered direct as the path would follow the existing road alignment. Alternative Alignment B would also facilitate transition between various transportation modes, and integrate with the Red Canyon National Recreation Trail system. Alternative Alignment B would also enhance opportunities for partnerships or economic development in nearby communities.
Resource Protection • Design and construct the path to avoid or minimize disturbance to sensitive resources. • Incorporate design techniques to reduce the likelihood and presence of social trailing. • Protect and enhance cultural resources by recognizing the values of cultural landscapes and historic features as part of the project in both path design and interpretation. • Reduce greenhouse gas emissions resulting from increasing visitor	The No-action Alternative would not meet project goals because it would not reduce social trailing, would not provide interpretive opportunities for cultural landscapes and historic features in the park, and it would not contribute to a reduction in greenhouse gases. The No-action Alternative would not disturb sensitive natural or cultural resources, as no path construction would occur and there would be no ground disturbance.	Alternative Alignment A would meet project goals because it could help reduce the likelihood of social trailing by providing direct access to key locations in the park. The possibility also exists that social trailing could increase in some areas. Interpretive opportunities for cultural landscapes and historic features in the park would be provided along the path, and the path would be designed to avoid disturbing sensitive natural or cultural resources. Alternative Alignment A would also contribute to a reduction in greenhouse gases.	Although Alternative Alignment B would partially meet project goals because it would provide interpretive opportunities for cultural landscapes and historic features in the park. It would not, however, reduce social trailing because it would not provide direct access to key locations in the park. The path would follow the existing transportation corridor and would avoid disturbing sensitive natural or cultural resources. Alternative Alignment B would also contribute to a reduction in greenhouse gases.

TABLE 3. SUMMARY OF ALTERNATIVES

	No-action Alternative	Alternative Alignment A – Preferred Alternative	Alternative Alignment B
motor traffic, parking congestion, construction activities, and other related transportation activities.			
Asset Management • Design and construct the path to minimize additional maintenance, equipment, and staff training needs. • To the extent possible, achieve design consistency with existing Red Canyon National Recreational Trail network. • Efficiently construct the proposed multi-use visitor path project while minimizing impacts to visitors. • Design and manage the path to allow adaptive management approaches such as phasing improvements over time, monitoring use, and reacting to lessons learned.	The No-action Alternative would not meet project goals because it would not minimize additional maintenance, equipment, or staff training needs. Maintenance needs for the park road and shoulders would continue. A path would not be designed or constructed; therefore, there would be no construction-related impacts on visitors or design consistency with the Red Canyon Trail network. Choosing the No-action Alternative would not preclude the park from using adaptive management to respond to needs identified for transportation and visitor use.	Alternative Alignment A would meet project goals because it would be designed, constructed, and managed to minimize impacts to visitors and to allow adaptive management approaches. The path would also be designed to help minimize maintenance (e.g., through choice of pavement materials), equipment, and staff training needs. Because the path would be considered an extension of the Red Canyon Trail, the design of the path (markings and signage) would be consistent with the Red Canyon Trail system to the extent feasible.	Alternative Alignment B would meet project goals because it would be designed, constructed, and managed to minimize impacts to visitors and to allow adaptive management approaches. The path would also be designed to help minimize maintenance (e.g., through choice of pavement materials), equipment, and staff training needs. Because the path would be considered an extension of the Red Canyon Trail, the design of the path (markings and signage) would be consistent with the Red Canyon Trail system to the extent feasible.
Sustainable Operations • As feasible, construct the path and supporting elements using state-of-the-art, sustainable construction methods and materials.	The No-action Alternative would not meet the sustainable operations goal, as no path would be designed or constructed. Therefore, opportunities to use sustainable construction methods and materials would be limited.	Design of the path for Alternative Alignment A would meet the sustainable operations goal because it would include opportunities to use sustainable construction methods and materials where feasible. In addition, supporting elements in the path design (e.g., signs and bike racks) could also provide opportunities to use sustainable materials.	Design of the path for Alternative Alignment B would meet the sustainable operations goal because it would include opportunities to use sustainable construction methods and materials where feasible. In addition, supporting elements in the path design (e.g., signs and bike racks) could also provide opportunities to use sustainable materials.

TABLE 4. ENVIRONMENTAL IMPACT SUMMARY BY ALTERNATIVE

Impact Topic	No-action Alternative	Alternative Alignment A—the Preferred Alternative	Alternative Alignment B
Air Quality	Under the No-action Alternative, ongoing and planned management activities would result in long-term minor adverse impacts on local air quality. Cumulative effects would be short- and long-term minor adverse and local.	Implementing the Preferred Alternative would result in short-term minor adverse and beneficial impacts on local air quality. Cumulative effects would be short- and long-term minor beneficial and local.	Implementing Alternative Alignment B would result in short-term minor adverse and beneficial impacts on local air quality. Cumulative effects would be short- and long-term minor beneficial and local.
Geology and Soils	Under the No-action Alternative, ongoing and planned activities would result in short- and long-term negligible adverse effects at a local scale on geological and soil resources. Cumulative effects would be long-term minor adverse and local.	Implementing the Preferred Alternative would result in short- and long-term minor adverse impacts on soils from construction activities. Mitigation measures would be implemented to reduce the extent and duration of impacts. Approximately 11.3 acres would be permanently disturbed. Negligible beneficial impacts would result from reduced parking and visitor use along road shoulders and adjacent to parking areas. Cumulative effects would overall be long-term minor adverse and local.	Implementing Alternative Alignment B would result in short- and long-term minor adverse impacts on soils from construction activities. Mitigation measures would be implemented to reduce the extent and duration of impacts. Approximately 11.1 acres would be permanently disturbed. Negligible beneficial impacts would result from reduced parking and visitor use along road shoulders and adjacent to parking areas. Cumulative effects would overall be long-term minor adverse and local.

TABLE 4. ENVIRONMENTAL IMPACT SUMMARY BY ALTERNATIVE

Impact Topic	No-action Alternative	Alternative Alignment A—the Preferred Alternative	Alternative Alignment B
Vegetation	Under the No-action Alternative, ongoing and planned activities would result in short- and long-term negligible to minor adverse effects at a local scale on vegetation communities. Cumulative effects would be long-term minor adverse and local.	Approximately 10.5 acres of vegetation communities would be permanently disturbed and additional areas of vegetation within the construction limits adjacent to the path would be temporarily disturbed and revegetated. Mitigation measures would be implemented to reduce the extent and duration of impacts. Implementing the Preferred Alternative would result in in short- and long-term minor adverse impacts at a local scale on vegetation communities. Cumulative effects would be long-term minor adverse and local. Negligible beneficial impacts would result from reduced parking and visitor use along road shoulders and adjacent to parking areas.	Approximately 8.2 acres of vegetation communities would be permanently disturbed and additional areas of vegetation within the construction limits adjacent to the path would be temporarily disturbed and revegetated. Mitigation measures would be implemented to reduce the extent and duration of impacts. Implementing the Preferred Alternative would result in short- and long-term minor adverse impacts at a local scale on vegetation communities. Cumulative effects would be long-term minor adverse and local. Negligible beneficial impacts would result from reduced parking and visitor use along road shoulders and adjacent to parking areas.

TABLE 4. ENVIRONMENTAL IMPACT SUMMARY BY ALTERNATIVE

Impact Topic	No-action Alternative	Alternative Alignment A—the Preferred Alternative	Alternative Alignment B
Special Status Species	Under the No-action Alternative, the proposed path would not be developed. No impacts due to path related construction and recreational use would occur on Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, or rare and sensitive plants. Ongoing and likely continuing disturbance of special status species from visitor use of the proposed path would result in long-term minor adverse impacts. Cumulative effects would be long-term moderate adverse and local.	Under Alternative Alignment A, development of the proposed path would result in impacts from path-related construction and recreational use on Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, and rare and sensitive plants. Mitigation measures would be implemented to reduce the extent and duration of impacts. Impacts would be short- and long-term negligible to minor adverse and local. Alternative Alignment A would likely contribute to the cumulative impacts on these species in the project area; impacts would be long-term minor adverse and local.	Under Alternative Alignment B, development of the proposed path would result in impacts from path-related construction and recreational use on Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, and rare and sensitive plants. Mitigation measures would be implemented to reduce the extent and duration of impacts. Impacts would be short- and long-term negligible to moderate adverse and local. Alternative Alignment B would likely contribute to the cumulative impacts on these species in the project area; impacts would be long-term moderate adverse and local.
Wildlife or Wildlife Habitat	Under the No-action Alternative, the proposed path would not be developed, and no impacts on wildlife would occur from path-related construction and recreational use. Ongoing and planned activities would continue would and the expected trend of increasing visitation would likely result in adverse impacts. Ongoing and likely continuing disturbance of wildlife species from visitor use would result in long-term minor adverse impacts. Cumulative effects would be long-term minor adverse and local.	Under Alternative Alignment A, development of the proposed path would result in impacts from path-related construction and recreational use on wildlife. Mitigation measures would be implemented to reduce impacts. Impacts would be short- and long-term minor adverse and local. Alternative Alignment A would likely contribute to the cumulative impacts on wildlife species in the project area; cumulative impacts would be long-term minor adverse and local.	Under Alternative Alignment B, development of the proposed path would result in impacts from path-related construction and recreational use on wildlife. Mitigation measures would be implemented to reduce impacts. Impacts would be short- and long-term minor adverse and local. Alternative Alignment B would likely contribute to the cumulative impacts on wildlife species in the project area; cumulative impacts would be long-term minor adverse and local.

TABLE 4. ENVIRONMENTAL IMPACT SUMMARY BY ALTERNATIVE

Impact Topic	No-action Alternative	Alternative Alignment A—the Preferred Alternative	Alternative Alignment B
Cultural Landscapes	Under the No-action Alternative, ongoing and planned transportation management activities would result in short-term negligible to minor adverse impacts on cultural landscapes. Cumulative effects would be long-term negligible adverse.	Implementing the Preferred Alternative would result in short- and long-term negligible to minor adverse impacts on cultural landscapes. Cumulative effects would be long-term minor adverse and negligible beneficial.	Implementing Alternative Alignment B would result in short-and long-term negligible to minor adverse impacts on cultural landscapes. Cumulative effects would be long-term minor adverse and negligible beneficial.
Ethnographic Resources	Implementing the No-action Alternative would result in short-term negligible adverse effects on ethnographic resources. Cumulative effects would be short-term negligible adverse.	Implementing the Preferred Alternative would result in short- and long-term, negligible adverse and beneficial effects on ethnographic resources. Cumulative effects would be short- and long-term negligible adverse.	Implementing Alternative Alignment B would result in short- and long-term negligible adverse and beneficial effects on ethnographic resources. Cumulative effects would be short- and long-term negligible adverse.
Recreation Opportunities	Implementing the No-action Alternative would result in short- and long-term minor to moderate adverse impacts on recreation opportunities. Cumulative effects of the No-action Alternative would be short-and long-term minor adverse and moderate beneficial.	Implementing the Preferred Alternative would result in short- and long-term negligible to minor adverse and minor to moderate beneficial impacts on recreation opportunities. Cumulative effects of the Preferred Alternative would be short- and long-term minor adverse and moderate beneficial.	Implementing Alternative Alignment B would result in short- and long-term minor adverse and minor beneficial impacts on recreation opportunities. Cumulative effects would be short- and long-term minor adverse and moderate beneficial.
Visitor Use and Experience	Implementing the No-action Alternative would result in short- and long-term moderate to major adverse and short-term negligible beneficial impacts on visitor use and experience. Cumulative effects of the No-action Alternative would be short-and long-term minor adverse and moderate beneficial.	Implementing the Preferred Alternative would result in short- and long-term minor adverse and moderate beneficial impacts on visitor use and experience. Cumulative effects of the Preferred Alternative would be short- and long-term minor adverse and moderate beneficial.	Implementing Alternative Alignment B would result in short- and long-term minor to moderate adverse and minor beneficial impacts on visitor use and experience. Cumulative effects would be short- and long-term minor adverse and moderate beneficial.

TABLE 4. ENVIRONMENTAL IMPACT SUMMARY BY ALTERNATIVE

Impact Topic	No-action Alternative	Alternative Alignment A—the Preferred Alternative	Alternative Alignment B
Gateway Communities	Implementing the No-action Alternative would result in short- and long-term minor adverse and short-term negligible beneficial impacts on gateway communities. Cumulative effects would be short- and long-term minor adverse and moderate beneficial.	Implementing the Preferred Alternative would result in short-term negligible adverse and short- and long-term minor beneficial effects on gateway communities. Cumulative effects would be short- and long-term minor beneficial.	Implementing Alternative Alignment B would result in short-term negligible adverse and short- and long-term minor beneficial effects on gateway communities. Cumulative effects would be short- and long-term minor beneficial.
Park and Forest Operations	Under the No-action Alternative, ongoing and planned management activities would result in short- and long-term minor to moderate adverse impacts on park and forest operations. Cumulative effects would be short- and long-term moderate adverse. A change in financial balance between revenue sources and operating costs would also occur.	Under the Preferred Alternative, ongoing and planned management activities would result in short- and long-term minor adverse and short-term negligible beneficial impacts on park and forest operations. Cumulative effects would be short- and long-term minor adverse. A change in financial balance between revenue sources and operating costs would also occur.	Implementing Alternative Alignment B, ongoing and planned management activities would result in short- and long-term minor adverse and short-term negligible beneficial impacts on park and forest operations. Cumulative effects would be short- and long-term minor adverse. A change in financial balance between revenue sources and operating costs would also occur.
Socioeconomics	Under the No-action Alternative, ongoing and planned management activities would result in short-term minor and long-term moderate adverse and short- and long-term negligible beneficial effects on the social and economic condition. Local communities would also be adversely affected by a deterioration of visitor experience and adverse effects on visitor attendance. Cumulative effects would be short- and long-term minor adverse and local.	Implementing the Preferred Alternative would result in short-term negligible to minor adverse and short- and long-term minor beneficial effects on social and economic conditions. Cumulative effects would be short- and long-term minor beneficial and local.	Implementing Alternative Alignment B would result in short-term negligible to minor adverse and short- and long-term minor beneficial effects on social and economic conditions. Cumulative effects would be short- and long-term minor beneficial and local.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter summarizes the existing environmental conditions of the natural and human environment that may be affected by the proposed action and alternatives under consideration.

This chapter also analyzes the potential environmental consequences that would occur as a result of implementing the proposed plan or its alternatives. A summary of the alternatives can be found in Table 3. In the Environmental Consequences or impacts discussions, the NPS and USFS take a "hard look" at all potential impacts by considering the direct and indirect, and cumulative effects of the proposed action on the environment, along with connected and cumulative actions. Impacts are described in terms of context and duration. The context or extent of the impact is described as local or widespread. The duration of impacts is described as short term, ranging from days to three years in duration, or long term, extending up to 20 years or longer. The intensity and type of impact is described as negligible, minor, moderate, or major, and as beneficial or adverse. The NPS equates "major" effects as "significant" effects. The identification of "major" effects would trigger the need for an environmental impact statement. Where the intensity of an impact could be described quantitatively, the numerical data are presented; however, most impact analyses are qualitative and use best professional judgment in making the assessment.

While the USFS may use different terminology to describe the above-referenced analysis procedures, the analysis adheres to the same protocol and the outcome is the same.

METHODOLOGY

The NPS and USFS based the impact analyses and conclusions that follow on the review of existing literature and park studies, information provided by Bryce Canyon City, Dixie National Forest, experts in the park and other agencies, professional judgments, park staff insights, consultation with the state historic preservation office and interested local tribes, and public input. Requirements of the National Forest Management Act, Land and Resource Management Plan for the Dixie National Forest, and Healthy Forests Restoration Act have been met and the Bryce Canyon City General Plan has been considered.

Type

Type describes the classification of the impact as either beneficial or adverse, direct or indirect. Impacts can be beneficial or adverse. Beneficial impacts would improve resource conditions; adverse impacts would deplete or negatively alter resources. Both direct and indirect impacts are analyzed, consistent with CEQ regulations (40 CFR 1502.16), and DO-12. The following definitions of direct and indirect impacts are used but not specifically identified in the environmental analysis:

> *direct* – an effect that is caused by an action and occurs at the same time and place
>
> *indirect* – an effect that is caused by an action but is later in time or farther removed in distance, but still reasonably foreseeable

Context

Context is the affected environment within which an impact would occur, such as local, park-wide, regional, global, affected interests, society as a 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. The CEQ requires that impact analyses include discussions of context.

Impact Intensity

Impact intensity is the degree to which a resource would be beneficially or adversely affected. The criteria that were used to rate the intensity of the impacts for each resource topic is presented later in this section under each topic heading.

Duration

The duration of an impact is the time period for which the impact is evident and is expressed as short term or long term. A short-term impact would be temporary in duration and would be associated with road construction activities. Depending on the resource, impacts may last as long as construction takes place, a single year, a growing season, or longer. The duration for each resource topic is presented later in this section under each resource topic heading.

CUMULATIVE IMPACT SCENARIO

The CEQ regulations which implement NEPA require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for all alternatives.

Cumulative impacts were determined by combining the impacts of each of the alternatives with other past, present, and reasonably foreseeable future actions (e.g., the impacts of the No-action Alternative plus the impacts of past, present, and future actions). Past, ongoing, and reasonably foreseeable future projects at Bryce Canyon National Park were identified. In addition, relevant past, present, and reasonably foreseeable future actions in the surrounding region of the park were considered. The geographic scope of the analysis includes elements primarily in the park's boundary and the project study area. The temporal scope includes projects within a range of approximately 10 years. Given this, the following actions were identified for the purpose of conducting the cumulative effects analysis.

Past Actions in the Park

Past actions in the park include the following:

- Bryce Canyon acoustic monitoring: soundscape study in park focusing on areas where American peregrine falcon (*Falco peregrinus*) territories were known (2009 to 2010).

- Vegetation Management Plan: plan efforts to protect and restore plant communities while controlling the spread of invasive plants (2010).
- Main park road chip sealing: chip-seal of main park road from park entrance to the Farview Viewpoint entrance (2009).
- Paria View rehabilitation: reconstruction of the walkway, fencing, and parking area (2008).
- Horse concession fence: construction of a single rail fence near the Mixing Circle junction to direct horse / mule traffic more efficiently (2008).
- Fire Management Plan: plan was developed in cooperation with the neighboring Dixie National Forest to implement wildland and prescribed fire to reduce fuel loads, restore native vegetative communities, and safeguards structures from fire hazards (2005).
- Rim Road reconstruction: rerouted main park road and improved road in several sections, widened and stabilized road in several sections, and installed erosion control features in areas of high grade (2004).
- Mossy Cave Trail rehabilitation and resource protection project: repair damage due to erosion from a large storm event (2006).
- Tropic Canyon Highway stabilization project: highway repair project to fix portions of highway that had eroded as a result of high moisture and repeat flooding (2006).
- Active trails wayside installation.
- Replace Sunset Campground comfort stations.
- Rehabilitate failing park sewage system.

Present and Future Actions in the Park

Present and future actions in the park include the following:

- Reinstall brick pavers at Bryce Canyon Lodge.
- Campground roads rehabilitation and upgrade.
- Scenic Byway 12 park boundary and Lodge signs (wood signs indicating park boundaries and entrance to Lodge).
- Rehabilitate Sunset Overlook access trails.
- Construct wildlife viewing pullouts (as described in the Wildlife Viewing Pullouts EA [NPS 2010c]) and associated interpretive panels to increase opportunities for park visitors to learn about wildlife and habitats of the park.
- Rehabilitate visitor center lighting to provide safe visitor access for evening programs.
- Rehabilitate / replace wayside / backcountry exhibits.

- Replace plastic bike racks with metal racks (and expand bike rack locations throughout the park).
- Routine maintenance of roads and trails (includes restriping, chip-sealing, repairing rock walls, stabilizing slopes, replacing culverts).
- Rehabilitate Bryce Point access trail from the edge of the parking area to the overlook to make area more accessible and enable viewing of Bryce Amphitheater.
- Continue to restore land disturbed by vehicles and foot traffic (per the Vegetation Management Plan).
- Expand / replace utility lines (water, sewer, electric) throughout developed areas of park.
- Visitor use, which is projected to continue to increase.
- Develop and implement a Multimodal Transportation Plan, including construction staging areas for the multi-use visitor path project that would be located in areas previously assessed in the 2014 EA for the plan.
- Develop and implement a Utah Prairie Dog Stewardship Plan.

Past, Present, and Future Actions outside the Park

Past, present, and future actions near the park include the following:

- Development and population increase in the nearby communities of Bryce Canyon City and Tropic.
- Purchase of an 800-acre preserve at Johnson Bench for the protection of the Utah prairie dog.
- Bryce Canyon City Habitat Conservation Plan, being developed to mitigate impacts on the Utah prairie dog from city actions.
- Garkane transmission line from Tropic to Hatch, north of the park, which would cross several Utah prairie dog colonies.
- Translocation and flea insecticide dusting (for prevention of plague) of Utah prairie dogs in the Dixie National Forest.
- Extend the Red Canyon National Recreation Trail to Bryce Canyon City
- Coordinate with Bryce Canyon City and other entities regarding the potential for shuttle staging area expansion, parking agreements, parking garage, bike rental commercial services, bicycle and pedestrian network maps, trail ambassador program, and shuttle service expansion.
- USFS activities in areas adjacent or near the park, including prescribed burns (specifically in the Dave's Hollow area), invasive (weed) species management, revegetation projects, and temporary road construction projects.

- Garfield County projects include a planned bike trail along State Route 12 and improvements to Hole in the Rock Road south of Escalante. These projects are tourism related and may draw additional visitors to the area.

- Utah Department of Transportation projects include: past improvements to State Route 63 / State Route 12 junction to Bryce Canyon; planned roadway improvement projects along U.S. Highway 89 and State Route 12; and planned enhancements to Bryce Canyon City Main Street and the NPS shuttle access area.

- Bryce Canyon City tourism-related services, including lodging, restaurants, all-terrain vehicles, horse and helicopter tours, rodeo, winter sports, and retail businesses. The city is also planning a Wayfinding Master Plan (3- to 5-year project).

AIR QUALITY

Affected Environment

The Clean Air Act of 1963 (42 United States Code [USC] 7401 et seq.) was established to promote the public health and welfare by protecting and enhancing the nation's air quality. The act establishes specific programs that provide special protection for air resources and air quality related values associated with NPS units. Section 118 of the Clean Air Act requires a park unit to meet all federal, state, and local air pollution standards. Further, the Clean Air Act provides that the federal land manager has an affirmative responsibility to protect air quality related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse pollution impacts. Bryce Canyon National Park is designated a Class I area under the Clean Air Act. Class I areas are given additional protection through programs and goals established by the Clean Air Act legislation.

The project area is in Garfield County, Utah, which is classified as an attainment area. An attainment area is an area with concentrations of criteria pollutants that are below the levels established by National Ambient Air Quality Standards (Utah Department of Environmental Quality 2014). Vistas in Garfield County are occasionally obscured by pollution-caused haze, which typically consists of fine particulates and gases in the atmosphere. Air quality-related values in Garfield County may also be at risk from atmospheric deposition of nitrogen and sulfur compounds. Particulates in the atmosphere can cause inflammation and irritation of the respiratory system, increased nitrogen has been shown to promote growth of exotic and invasive plant species and decrease biodiversity, and sulfates can cause acidification and changes to soil and water chemistry (NPS 2012).

Five-year estimates of air quality conditions are used to evaluate conditions in parks for visibility, deposition, and ozone. Ozone is not monitored in Bryce Canyon National Park. Recent trends for visibility and deposition for the park are as follows (NPS 2012):

- Visibility – In 2005–2009, the average visibility at the park was 3.7 deciviews above natural conditions, which does not meet the NPS desired condition of less than 2 deciviews above natural conditions. Between 2000 and 2009, visibility at the park on the 20 percent clearest days improved significantly, but remained unchanged on the 20 percent haziest days (NPS 2012).

- Deposition – In 2000–2009, ammonium increased significantly, nitrate decreased significantly, and sulfate was relatively unchanged.

Pollutants affecting Garfield County come primarily from the large urban source of Las Vegas and from nearby sources including fossil fuel production and power-generation facilities (NPS 2012). Emissions from these sources have the potential to increase haze, ozone, and deposition of nitrogen and sulfate compounds in the project area. Local fires, both prescribed and wild, also create occasional air quality disturbances (NPS 1996).

Intensity Level Definitions

Impacts on air quality were determined based on the following impact definitions and thresholds.

Negligible. Impacts would result in a change to local air quality, but the change would be so slight that it would not be of any measurable or perceptible consequence.

Minor. Impacts would result in a detectable change to local air quality, but the change would be small and of little consequence. Change in mobile source emissions from motor vehicles would be small and of little consequence resulting from changes in availability / level of shuttle services, increase / decrease in automobile trips, and / or changes in average daily traffic volume. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate. Impacts would result in a change to local air quality that would be readily detectable. Without mitigation, short-term impacts from construction equipment and dust would be readily detectable. Change in mobile source emissions from motor vehicles would be readily detectable resulting from changes in availability / level of shuttle services, increase / decrease in automobile trips, and / or changes in average daily traffic volume. Mitigation measures, however, would be extensive and likely successful.

Major. Impacts would result in changes to regional air quality that would be severe. Without mitigation, short-term impacts from construction equipment and dust would be severe. Change in mobile source emissions from motor vehicles would be severe resulting from changes in availability / level of shuttle services, increase / decrease in automobile trips, and / or changes in average daily traffic volume. Extensive mitigation measures would be needed to offset any adverse effects, and their success would not be guaranteed.

Short-term Impacts. Construction-related emissions (air quality typically recovers in 7 days or less).

Long-term Impacts. Outside the construction period (air quality typically takes more than 7 days to recover).

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed. The park would continue to operate and maintain the existing transportation network as it is currently managed. Vehicle congestion and associated vehicle emissions in the project area would continue and possibly worsen as visitation increases in the future. The existing local air quality would likely continue to deteriorate. Mobile source emissions would increase as the number of private vehicles increases in the project area. Ongoing and planned construction and maintenance

activities under the No-action Alternative would likely be minimal and would include best management practices and mitigation measures, if required. Any mobile source emissions and fugitive dust generated from visitor vehicles or construction activities would be short-term and local and would likely dissipate rapidly. As a result, impacts on local air quality from the No-action Alternative would be short- and long-term minor adverse.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect local air quality include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities (inside and near the park), facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails), vegetation management activities (such as prescribed burns and weed management), utility development adjacent to the park, urban development adjacent to the park (primarily in Bryce Canyon City and Tropic), and energy development in the region, such as coal and natural gas mining. These activities would continue and may increase due to continued increases in visitor automobile trips in the project area and Garfield County. Impacts on local air quality are occurring on adjacent lands. Activities in and near Garfield County contribute to air emissions and adverse effects on local air quality. The overall cumulative impacts on local air quality from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term minor adverse.

Conclusion. Under the No-action Alternative, ongoing and planned management activities would result in short- and long-term minor adverse impacts on local air quality. Cumulative effects would be short- and long-term minor adverse and local.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, the proposed multi-use visitor path project would be developed and would provide a connection to the Red Canyon National Recreation Trail system as well as maximum direct access to key park destinations such as the General Store, the Lodge, and Sunrise and Sunset points. Connections to existing shuttle stops would help link visitors to these and other locations in the park. Visitor use of the path could lead to fewer private vehicles, less vehicle congestion, and fewer traffic and parking delays in these areas and average daily traffic volume in the park, but the overall trend of increasing visitation would continue. Mobile source emissions and fugitive dust generated from visitor vehicles are typically temporary and dissipate rapidly. Visitors who park in Bryce Canyon City and use the path to access the forest, the park, or shuttle system in the park would generate lower levels of mobile source emissions and fugitive dust than visitors who use private vehicles. As a result, impacts on local air quality would be short-term, minor and beneficial.

Temporary increases in local air pollution would occur during project construction, primarily from construction equipment operation. Emissions are expected to rapidly dissipate by air drainage. Mitigation measures, such as water sprinkling to reduce dust and limiting construction equipment idling to reduce emissions, would be implemented to minimize impacts on air quality during construction. Emissions from idling visitor vehicles caused by construction-related traffic delays would be limited and temporary. Therefore, mobile emissions and fugitive dust generated from construction activities and vehicles and visitor vehicles would be short-term minor adverse and local.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as those described under the No-Action Alternative. Implementing the Preferred Alternative would result in short- and long-term minor adverse and beneficial effects on local air quality. The overall cumulative impacts on local air quality from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would result in short- and long-term minor beneficial effects on local air quality.

Conclusion. Implementing the Preferred Alternative would result in short-term minor adverse and beneficial impacts on local air quality. Cumulative effects would be short- and long-term minor beneficial and local.

Impacts of Alternative Alignment B

Impacts on local air quality resulting from implementing Alternative Alignment B would be mostly similar to those under the Preferred Alternative. Alternative Alignment B would not connect directly to destinations such as the General Store, the Lodge, and Sunrise and Sunset points. Instead, it would largely rely on low-speed, existing park roads to provide this access, which may make the path less of an attractive transportation alternative for some visitors. Implementation of Alternative Alignment B could therefore result in somewhat less of a reduction in the use of private vehicles and associated emissions. Visitors who park in Bryce Canyon City and use the path to access the forest, the park, or shuttle system in the park would generate lower levels of mobile source emissions and fugitive dust than visitors who use private vehicles. As a result, impacts on local air quality would be short-term minor beneficial. Temporary increases in local air pollution during construction and mitigation measures implemented to minimize impacts would be the same as for Alternative Alignment A. Therefore, mobile emissions and fugitive dust generated from construction activities and vehicles and visitor vehicles would be short-term minor adverse and local.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as those described under the No-Action Alternative. Implementing Alternative Alignment B would result in short- and long-term minor adverse and beneficial effects on local air quality. The overall cumulative impacts on local air quality from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would result in short- and long-term minor beneficial effects on local air quality.

Conclusion. Implementing Alternative Alignment B would result in short-term minor adverse and beneficial impacts on local air quality. Cumulative effects would be short- and long-term minor beneficial and local.

GEOLOGICAL AND SOIL RESOURCES

Affected Environment

The USFS Soil Management Handbook (2010) objectives are to maintain or restore soil quality on forest lands and manage resource uses and soil resources on National Forest System lands to sustain ecological processes and functions so that desired ecosystem services are provided in perpetuity. The USFS policy directive “establishes the management framework for sustaining soil quality and hydrologic function while providing goods and services outlined in forest and grassland management plans” (2010).

According to the 2006 NPS Management Policies, the NPS will preserve and protect geologic resources and features from adverse effects of human activity, while allowing natural processes to continue (NPS 2006a). These policies also state that the NPS will strive to understand and preserve the soil resources of park units and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources.

The project area lies within the Colorado Plateau geographic province on the eastern edge of the Paunsaugunt Plateau. This landscape consists of plateaus, a valley floor, slot canyons, and hoodoos. The Paria River created the Paria valley, which lies between the Paunsaguant and Kaiparowits plateaus. The hoodoos that rise from the valley floor have been created from weathering processes that erode the edge of the Paunsaugunt Plateau. The hoodoos are made of four rock types: limestone, siltstone, mudstone, and dolomite.

In general, the top of the Paunsaugunt Plateau is covered with gravelly loam-type soils derived from the weathering of limestone parent material. These shallow, well-drained soils are typically low in nutrients and moisture availability. A substantial portion of the project area is classified as badlands or rock outcrops rather than as developed soils. The geological formations in the area are the primary attraction to visitors. Soils along drainages (both above and below the rim) which are formed in limestone alluvium can be deeper and well developed.

Elevation ranges for each segment of the project area are as follows:

- Bryce Canyon City segment: ranges from 7,650 feet to 7,760 feet.
- Dixie National Forest segment: ranges from 7,670 feet to 8,090 feet.
- Bryce Canyon National Park segment: ranges from 7,140 feet to 8,380 feet.

There are no significant geologic features in the proposed path alignment areas. Geological features, primarily in Bryce Canyon National Park, are found near the project area.

Segment I: Bryce Canyon City. The dominant soil type in the Bryce Canyon City segment of the project area is Syrett gravelly loam (Northern Colorado Plateau Network 2011). This soil type occurs in relatively flat areas to areas with a 12 percent gentle slope. This soil type is abundant in the project area.

Segment II: USFS – Dixie National Forest. The two dominant soil types in the Dixie National Forest segment of the project area are Syrett gravelly loam and Brycan very fine sandy loam. These soil types occur in relatively flat areas to areas with a 15 percent gentle slope. These soil types are abundant in the project area. Soil types found in the Dixie National Forest segment of the project area are detailed in Table 5.

TABLE 5. SOIL TYPES IN THE DIXIE NATIONAL FOREST SEGMENT OF THE PROJECT AREA

Soil Type	Percent Slope
Ahlstrom–Osote complex	1-15
Brycan very fine sandy loam	6-15
Kade silt loam	0-2
Syrett gravelly loam	2-12

Segments IIIa-c: Bryce Canyon National Park. The dominant soil type in the Bryce Canyon National Park segments of the project area is Paunsaugunt gravelly loam. This soil type occurs in relatively flat areas to areas with a 15 percent gentle slope. Soil types found in the Bryce Canyon Park segments of the project area are detailed in Table 6.

TABLE 6. SOIL TYPES IN THE BRYCE CANYON NATIONAL PARK SEGMENTS OF THE PROJECT AREA

Soil Type	Percent Slope
Badland–Cannonville–Rock outcrop complex	30-50
Brycan very sandy loam	1-6
Brycan very fine sandy loam	6-15
Neto fine sandy loam	1-5
Pahreah–Sheege complex	1-20
Pahreah–Swapps complex	25-65
Paunsaugunt gravelly loam	2-15
Rock outcrop	
Venture very cobbly silt loam	4-25

Source: Northern Colorado Plateau Network 2011

Intensity Level Definitions

Impacts on soils were determined based on the following impact definitions and thresholds.

Negligible. Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soils would be slight and erosion would not be noticeable.

Minor. The effects to soils would be detectable. Effects to soil area, including soil disturbance and erosion, would be small and localized. Minimal soil loss would occur. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.

Moderate. The effect on soils would be readily apparent and result in a change to the soil character over a relatively wide area, soil disturbance over a wide area, or erosion that extends beyond the project site and / or results in some soil loss. Mitigation measures would be necessary to offset adverse effects and likely be successful.

Major. The effect on soils would be readily apparent and substantially change the character of soils over a large area and substantial erosion would occur resulting in a large soil loss. Mitigation measures to offset adverse effects would be needed, would be extensive, and their success could not be guaranteed.

Short-term Impacts. Soil impacts would be considered short-term if the soils recover in three years or less.

Long-term Impacts. Soil impacts would be considered long-term if the recovery takes longer than three years or the impacts would be permanent.

The potential impact area for soils would be the construction corridors for the two alternative path alignments from Bryce Canyon City to Bryce Point in Bryce Canyon National Park, as defined in Chapter 2. The construction corridor consists of the area within which vegetation clearing, topsoil removal, cut slopes, retaining walls, and path paving would occur (see Chapter 2 description of alternatives). Total permanent disturbance would be limited to the 12-foot path width, spurs, rest areas, and retaining walls.

Impacts of the No-action Alternative

Under the No-action Alternative, the proposed project would not be developed. Much of the soil in the project area would remain undisturbed, although social trailing would likely continue, particularly near high visitor use areas such as the visitor center and scenic viewpoints. Visitors to the project area would continue to use the road shoulder to walk and bike to various recreational areas (such as trails, scenic outlooks, shuttle stops, and visitor center) in Bryce Canyon City, Dixie National Forest, and Bryce Canyon National Park.

Under the No-action Alternative, there would be no ground disturbance and no impacts on soil resources related to the multi-use visitor path development. Impacts related to visitor use and disturbance would continue, such as social trailing. Due to the ongoing and likely continuing disturbance of soils from social trailing and visitors walking and biking along road shoulders, the No-action Alternative would result in long-term negligible adverse impacts on soils.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect geological and soil resources in the project area include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities, facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails), visitor use activities, vegetation management activities (such as prescribed burns, invasive species management, and revegetation of disturbed areas), utility development in and adjacent to the project area (including transmission and sewer lines), and urban development (primarily in Bryce Canyon City).

These activities would continue and may increase due to projected increased visitation to the park and surrounding area. Adverse impacts on geological and soil resources from these activities include permanent loss of soil, compaction, and erosion. Beneficial impacts would also occur from transportation system improvements that may reduce soil loss due to decreased roadside parking, alternative transportation options, and vegetation management activities that result in soil protection and stabilization. The overall cumulative impacts on geological and soil resources from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be long-term minor adverse and local.

Conclusion. Under the No-action Alternative, ongoing and planned activities would result in long-term negligible adverse effects at a local scale on geological and soil resources. Cumulative effects would be long-term minor adverse and local.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, no impacts would occur on geological features as there are no significant geological features found in the project area.

Under this alternative, the final paved path would be approximately 10 feet wide with 1-foot aggregate slopes along the majority of the alignment (7.3 miles). The total permanent disturbance to soils within the footprint of the path, including rest areas and spurs, would be approximately 11.3 acres. Construction activities would also temporarily compact and expose additional soils within the construction limits adjacent to the path and increase the potential for erosion. Mitigation measures to confine the extent of the construction zones, salvage soils, restore these disturbed areas, and employ standard erosion control measures would minimize construction-related impacts. Overall, construction is expected to result in short- and long-term minor adverse and local impacts on soils.

Segment I: Bryce Canyon City. For the Bryce Canyon City segment of Alternative Alignment A (see Figure 4), the final paved path (including rest area) would result in approximately 0.4 acres of permanent disturbance to soil resources (primarily Syrett gravelly loam).

Segment II: USFS – Dixie National Forest. For the Dixie National Forest segment of Alternative Alignment A (see Figure 5), the final paved path (including rest areas) would result in approximately 1.4 acres of permanent disturbance to soil resources (primarily Syrett gravelly loam and Brycan very fine sandy loam).

Segments IIIa-c: Bryce Canyon National Park. For Segment IIIa of Alternative Alignment A (see Figure 6a), the final paved path (including rest areas, spurs, and retaining walls) would result in approximately 2.8 acres of permanent disturbance to soil resources (primarily Paunsaugunt gravelly loam and Venture very cobbly silt loam).

For Segment IIIb (see Figure 6b), the final paved path (including rest areas, spurs, and retaining walls) would result in approximately 2.4 acres of permanent disturbance to soil resources (primarily Paunsaugunt gravelly loam and Venture very cobbly silt loam). For this segment of Alternative Alignment A, a portion of the alignment would be within previously disturbed areas such as old roadbeds, existing unpaved roads and parking areas, and sewer line disturbance areas.

For Segment IIIc (see Figure 6c), the final paved path (including rest areas, spurs, and retaining walls) would result in approximately 4.3 acres of permanent disturbance to soil resources (primarily Paunsaugunt gravelly loam and Venture very cobbly silt loam).

Total permanent disturbance to soil resources for the park segments would be 9.5 acres under the Preferred Alternative.

Over the long term, soils may be disturbed due to visitors leaving the paved path (social trailing), resulting in compaction and erosion potential. The path design is intended to consolidate existing social trails into one designated trail alignment to reach destinations and to clarify circulation and wayfinding, which is expected to reduce the extent of existing social trails and the creation of new social trails. In addition, the park would monitor visitor use of the path. If new social trails develop, the park would take corrective actions, such as installing signage or physical barriers (e.g., fencing) and including interpretation to reduce social trailing and associated impacts.

In addition to potentially reducing social trails in some areas, the proposed project would also result in reduced numbers of motorized vehicles that may park inappropriately adjacent to roads and parking areas during peak seasons and reduced visitor use of roadway shoulders, which would reduce soil disturbance in these areas. Thus, Alternative Alignment A would result in some negligible beneficial impacts.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Adverse impacts on geological and soil resources from past, present, and reasonably foreseeable future actions include permanent loss of soil, compaction, and erosion. Beneficial impacts would also occur from transportation system improvements that result in reduced soil loss and vegetation management activities conducive to soil protection and stabilization. Implementing the Preferred Alternative would result in minor adverse impacts on soil resources. No impacts on geological resources would occur. The overall cumulative impacts on geological and soil resources from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be long-term minor adverse and local.

Conclusion. Implementing the Preferred Alternative would result in short- and long-term minor adverse impacts on soils from construction activities. Mitigation measures would be implemented to reduce the extent and duration of impacts. Approximately 11.3 acres would be permanently disturbed. Negligible beneficial impacts would result from reduced parking and visitor use along road shoulders and adjacent to parking areas. Cumulative effects would overall be long-term minor adverse and local.

Impacts of Alternative Alignment B

Under Alternative Alignment B, no impacts would occur on geological features in the project area as it contains no significant geological features.

Under this alternative, the final paved path would be approximately 10 feet wide with 1-foot aggregate shoulders along the majority of the alignment (7.2 miles). The total permanent disturbance to soils within the footprint of the path, including rest areas and spurs, would be approximately 11.1 acres. Construction activities would also temporarily compact and expose additional soils within the construction limits adjacent to the path and increase the potential for erosion. Mitigation measures to confine the extent of the construction zones, salvage soils, restore these disturbed areas, and employ standard erosion control measures would minimize construction-related impacts. Overall, construction is expected to result in short- and long-term minor adverse and local impacts on soils.

Segment I: Bryce Canyon City. For the Bryce Canyon City segment of Alternative Alignment B (see Figure 7), the final paved path (including rest area) would result in approximately 0.5 acre of permanent disturbance to soil resources (primarily Syrett gravelly loam).

Segment II: USFS – Dixie National Forest. For the Dixie National Forest segment of Alternative Alignment B (see Figure 8), the final paved path (including rest areas) would result in approximately 1.2 acres of permanent disturbance to soil resources (primarily Syrett gravelly loam and Brycan very fine sandy loam).

Segments IIIa-c: Bryce Canyon National Park. For Segment IIIa of Alternative Alignment B (see Figure 9a), the final paved path (including rest areas, spurs, and retaining walls) would result in approximately 2.5 acres of permanent disturbance to soil resources (primarily Paunsaugunt gravelly loam and Venture very cobbly silt loam).

For Segment IIIb (see Figure 9b), the final paved path (including rest areas, spurs, and retaining walls) would result in approximately 3.4 acres of permanent disturbance to soil resources (primarily Paunsaugunt gravelly loam and Venture very cobbly silt loam).

For Segment IIIc (see Figure 9c), the final paved path (including rest areas, spurs, and retaining walls) would result in approximately 3.5 acres of permanent disturbance to soil resources (primarily Paunsaugunt gravelly loam and Venture very cobbly silt loam).

Total permanent disturbance to soil resources for the park segments would be 9.4 acres under Alternative Alignment B.

Over the long term, soils may be disturbed due to visitors leaving the paved path (social trailing), resulting in compaction and erosion potential. The path design is intended to consolidate existing social trails into one designated trail alignment to reach destinations and to clarify circulation and wayfinding. Development of the proposed path is expected to reduce the extent of existing social trails and the creation of new social trails. The park would monitor visitor use of the path. If new social trails develop, the park would take corrective actions, such as installing signage or physical barriers (e.g., fencing) and including interpretation to reduce social trailing and associated impacts.

In addition to potentially reducing social trails in some areas, the proposed project would also result in reduced numbers of motorized vehicles that may park inappropriately adjacent to roads and parking areas during peak seasons and reduced visitor use of roadway shoulders, which would reduce soil disturbance in these areas. Thus, Alternative Alignment B would result in some negligible beneficial impacts.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Adverse impacts on geological and soil resources from past, present, and reasonably foreseeable future actions include permanent loss of soil, compaction, and erosion. Beneficial impacts would also occur from transportation system improvements that result in reduced soil loss and vegetation management activities conducive to soil protection and stabilization. Implementing Alternative Alignment B would result in minor adverse impacts on soil resources. No impacts on geological resources would occur. The overall cumulative impacts on soil resources from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would be long-term minor adverse and local.

Conclusion. Implementing Alternative Alignment B would result in short- and long-term minor adverse impacts on soils from construction activities. Mitigation measures would be implemented to reduce the extent and duration of impacts. Approximately 11.1 acres would be permanently disturbed. Negligible beneficial impacts would result from reduced parking and visitor use along road shoulders and adjacent to parking areas. Cumulative effects would overall be long-term minor adverse and local.

VEGETATION RESOURCES

Affected Environment

The Dixie National Forest Land and Resource Management Plan guides all natural resource management activities and establishes the management standards and guidelines for the forest. The forest plan describes the vegetation resource management practices, levels of production and management, and the availability and suitability of lands for resource management (USFS 1986).

According to the 2006 NPS Management Policies, the NPS will maintain as parts of the natural ecosystems of parks all plants and animals native to park ecosystems. These policies also state (in summary) that the NPS will successfully maintain native plants and animals by preserving and restoring native plant and animal populations, and minimizing human impacts (NPS 2006a).

Segment I: Bryce Canyon City. The segment of the project area in and near Bryce Canyon City, including the shuttle hub, is primarily developed and disturbed by human use. Ponderosa pine and mixed mountain shrub woodland complex is the dominant vegetation community in this segment. Vegetation communities found in the Bryce Canyon City segment of the project area include the perennial disturbed grassland complex and ponderosa pine / mixed mountain shrub woodland complex. The Bryce Canyon City segment of the project area also contains roadways and unclassified areas.

Segment II: USFS – Dixie National Forest. Ponderosa pine and mixed mountain shrub woodland complex is the dominant vegetation community in the Dixie National Forest segment of the project area.

Additional information about the vegetation communities in the forest—and the forest's management of those communities—can be found in the Dixie National Forest Management Plan. Vegetation communities found in the Dixie National Forest segment of the project area include the following:

- Black sagebrush shrubland complex
- Perennial disturbed grassland complex
- Ponderosa pine / mixed herbaceous woodland complex
- Ponderosa pine / mixed mountain shrub woodland complex
- Sedge and rush wet meadow herbaceous vegetation mosaic

The Dixie National Forest segment of the project area also contains roadways and unclassified areas.

Segments IIIa-c: Bryce Canyon National Park. According to the 2006 Management Policies, the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants.

The vegetation in the park reflects the change in elevation and topography, as well as the geology, soils, and water availability. The lower valley bottoms where the wetlands occur in the park are on alluvial geology dominated by Kade silt loam soil, which is a poorly drained soil. Valley bottoms are dominated primarily by perennial disturbed grassland complex vegetation with areas of sedge and rush wet meadow herbaceous vegetation mosaic. Ponderosa pine communities, particularly at higher elevations, can cover portions of the upper valleys. The two dominant vegetation communities in the park segments of the project area are ponderosa pine with a mixed herbaceous woodland complex and Ponderosa pine (Douglas fir) with a manzanita woodland complex.

Ponderosa pine (*Pinus ponderosa*) forest covers approximately 15,093 acres in the park. Common understory species include greenleaf manzanita (*Arctostaphylos patula*), serviceberry (*Amelanchier utahensis*), mountain mahogany (*Cercocarpus ledifolius* var. *intermontanus*), and snowberry (*Symphoricarpos oreophilus* var. *utahensis*).

Mountain grasslands comprise 2,309 acres in the park and are found primarily along drainages in the north end of the park. Common grassland species include black sagebrush (*Artemesia nova*), needle and thread (*Stipa comata* var. *comata*), cinquefoil (*Potentilla* sp.), buckwheat (*Eriogonum* sp.), and sedges (*Carex* sp.).

The fir-spruce-aspen forests are closed forests of white fir (*Abies concolor*), Douglas-fir (*Pseudotsuga menziesii*), blue spruce (*Picea pungens*), and quaking aspen (*Populus tremuloides*). These species are found at the higher elevations in the southern portion of the park and comprise approximately 6,231 acres of the park. Common understory plants include Oregon grape (*Mahomia repens*) and common juniper (*Juniperus communis*; NPS 2010b).

Additional information about the vegetation communities in the park—and the park's management of those communities—can be found in Bryce Canyon National Park's Vegetation Management Plan and Environmental Assessment (NPS 2010b). Vegetation communities found in the Bryce Canyon National Park segments of the project area include the following:

- Black sagebrush shrubland complex
- Bristlecone pine woodland
- Dry meadow mixed herbaceous vegetation mosaic
- Manzanita shrubland complex
- Mixed mountain shrubland complex
- Perennial disturbed grassland complex
- Ponderosa pine / mixed herbaceous woodland complex
- Ponderosa pine / mixed mountain shrub woodland complex
- Ponderosa pine (Douglas fir) / manzanita woodland complex
- Roadside restored herbaceous complex
- Sedge and rush wet meadow herbaceous vegetation mosaic
- Viscid rabbitbrush shrubland complex
- White fir forest complex

The park segments of the project area also contain roadways and mixed urban or built-up land.

Introduction of Nonnative Species. A survey of the project area and vicinity for exotic (nonnative) invasive plant species was conducted by park staff in 2013. Results are shown in

Figure 10 and listed in Appendix A. Exotic plant species exist throughout the project area, but are concentrated along the road corridor and areas heavily impacted by motorized use (including off-highway vehicles), park operations, visitor use, and horse / mule corrals and trails. Common invasive species include whitetop (*Cardaria draba*), yellow salsify (*Tragopogon dubius*), yellow sweet-clover (*Melilotus officinalis*), black medic (*Medicago lupulina*), smooth brome (*Bromus inermis*), cheatgrass (*Bromus tectorum*), and several species of knapweed and thistle.

Smooth brome is the most common invasive species in the project area. The park has successfully controlled the two known nonnative tree species in the region: Russian olive (*Elaeagnus angustifolia*) and tamarisk (*Tamarix chinensis*). The forest and park manage invasive species through reduction and eradication efforts. In the park, 10 infested acres or more are treated for invasive vegetation annually. Treatments have included mechanical control and chemical herbicide application.

Intensity Level Definitions

Impacts on vegetation resources were determined based on the following impact definitions and thresholds.

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 plant species' populations. The effects would be on a small scale.

Minor. The alternative would affect some individual plants and would also affect a relatively limited portion of that species' population. Mitigation to offset adverse effects 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 over a relatively large area in the park. Mitigation to offset adverse effects could be extensive, but would likely be successful.

Ownership Boundaries

Vegetation Communities and Land Cover Types

- Barren Washes
- Big Sagebrush Shrubland Complex
- Black Sagebrush Shrubland Complex
- Blue Spruce Forest Complex
- Bristlecone Pine Woodland
- Claron Formation
- Croplands and Pastures
- Curl-leaf Mountain- mahogany Woodland Complex
- Dry Meadow Mixed Herbaceous Vegetation Mosaic
- Gambel Oak Shrubland Complex
- Manzanita Shrubland Complex
- Mixed Desert Shrubland Complex
- Mixed Mountain Shrubland Complex
- Mixed Urban or Built-up Land
- Perennial Disturbed Grassland Complex
- Pinyon Pine – Juniper spp. / Saline Wildrye Woodland
- Pinyon Pine –Juniper spp. / Gambel Oak
- Pinyon Pine –Juniper spp. / Mixed Mountain Shrub Woodland Complex
- Ponderosa Pine / Gambel Oak Woodland
- Ponderosa Pine / Mixed Herbaceous Woodland Complex
- Ponderosa Pine / Mixed Mountain Shrub Woodland Complex
- Ponderosa Pine / Pinyon Pine – Juniper spp. / Gambel Oak
- Ponderosa Pine / Pinyon Pine – Juniper spp. / Mixed Mountain Shrub Woodland Complex
- Ponderosa Pine – (Douglas Fir) / Manzanita Woodland Complex
- Reservoirs
- Roadside Restored Herbaceous Complex
- Roadways
- Sedge and Rush Wet Meadow Herbaceous Vegetation Mosaic
- Strip Mines, Quarries, and Gravel Pits
- Unclassified
- Viscid Rabbitbrush Shrubland Complex
- Water Birch Shrubland
- White Fir / Gambel Oak – (Bigtooth Maple) Forest
- White Fir / Manzanita – Mixed Shrub Forest
- White Fir Forest Complex

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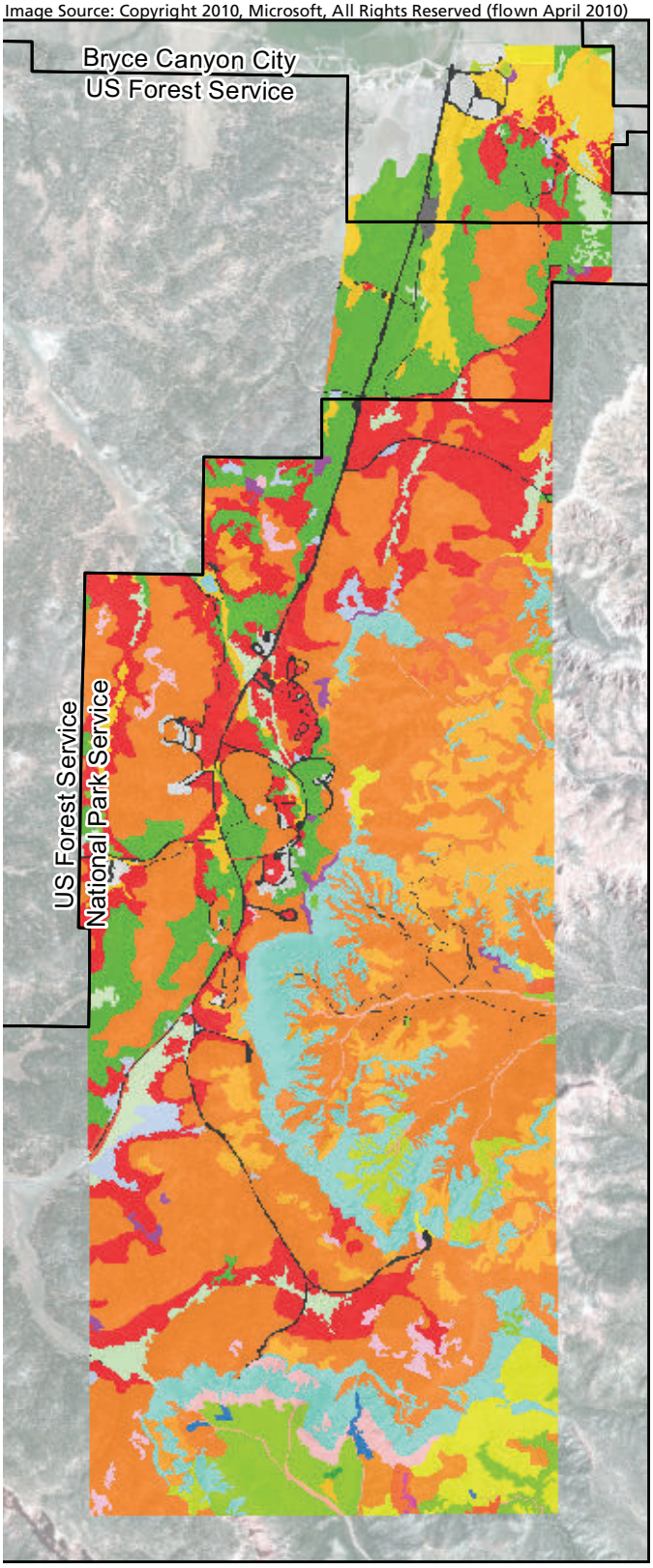

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FIGURE 10
Vegetation Communities within the Proposed Project Area and Project Vicinity

Multi-use Visitor Path

United States Department of the Interior / National Park Service / Bryce Canyon National Park
United States Department of Agriculture / Forest Service / Dixie National Forest

September 2014

Major. The alternative would have a considerable effect on individual native plants and affect a sizeable segment of the species' populations over 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.

Short-term Impacts. Vegetation recovers in less than three years.

Long-term Impacts. Vegetation requires more than three years to recover.

Impacts on vegetation resources would occur within the construction corridors for the two alternative path alignments, as defined in Chapter 2. The construction corridor consists of the area within which vegetation clearing, topsoil removal, cut slopes, retaining walls, and path paving would occur (see Chapter 2 description of alternatives).

Impacts of the No-action Alternative

Under the No-action Alternative, the proposed project would not be developed. Much of the vegetation in the project area would remain undisturbed, although social trailing would likely continue, particularly near high visitor use areas such as the visitor center and scenic viewpoints. Visitors to the project area would continue to use the road shoulder to walk and bike to various recreational areas (such as trails, scenic outlooks, shuttle stops, and visitor center) in Bryce Canyon City, Dixie National Forest, and Bryce Canyon National Park. The existing condition for vegetation communities, particularly adjacent to roadways and high visitor use areas, may continue to deteriorate due to increased visitation, which results in trampling and loss of vegetation. The majority of these impacts occur within heavily disturbed areas along roadsides and high use areas. Visitor disturbance of vegetation in these areas would result in short-term and long-term negligible to minor adverse effects on individual native plants in local areas, with limited, if any, effects on native plant species' populations and communities. Introduction and spread of invasive species would likely continue to occur in the project area, primarily from vehicles and visitors traveling through areas with invasive species.

Under the No-action Alternative, there would be no ground disturbance and no impacts on vegetation communities in the project area related to the multi-use visitor path development. Impacts related to visitor use and disturbance, and introduction and spread of invasive species, would continue, primarily in areas along roadsides and high use areas. These impacts would include trampling and loss of vegetation. Due to the ongoing and likely future continued disturbance of vegetation from social trailing and visitors walking and biking along road shoulders, the No-action Alternative would result in short-term and long-term negligible to minor adverse impacts on vegetation communities.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect vegetation communities in the project area include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities, facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails), visitor use activities, vegetation management activities (such as prescribed burns, invasive species management, and revegetation of disturbed areas), utility development in and adjacent to the project area (including transmission and sewer lines), and urban development (primarily in Bryce Canyon City).

These activities would continue and may increase due to projected increased visitation to the park and surrounding area. Adverse impacts on vegetation communities from these activities include permanent loss of vegetation, trampling, and disturbance. Beneficial impacts would also occur from vegetation management activities that reduce invasive species and improve habitats, and from transportation system improvements that result in reduced social trailing and trampling. The overall cumulative impacts on vegetation communities from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be long-term minor adverse and local.

Conclusion. Under the No-action Alternative, ongoing and planned activities would result in short- and long-term negligible to minor adverse effects at a local scale on vegetation communities. Cumulative effects would be long-term minor adverse and local.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, the paved path would be approximately 10 feet wide with 1-foot aggregate shoulders along the majority of the alignment (7.3 miles). There would be approximately 10.5 acres of permanent disturbance to vegetation communities within the proposed path footprint, rest areas, and spurs. The majority of the path impact area would occur in ponderosa pine communities (8.22 acres). No vegetation would be disturbed in roadways or mixed urban or built-up land areas (0.8 acre). The exact location of the proposed rest areas and spurs would be determined during the final design phase. Because the exact location of disturbance to vegetation communities from development of rest areas and spurs is not known, these areas are not included in the impact tables below. The acreage of disturbance to vegetation communities from rest areas and spurs, however, is calculated below (based on the estimated size of these areas).

Construction staging would occur in areas identified for disturbance that have been previously analyzed. Impacts on vegetation communities resulting from implementing the Preferred Alternative would be short- and long-term minor adverse and local.

Segment I: Bryce Canyon City. For the Bryce Canyon City segment of Alignment A (see Figure 4), the final paved path would result in approximately 0.21 acre of permanent disturbance to vegetation communities (primarily unclassified vegetation), as shown in Table 7. In addition, approximately 0.1 acre of permanent disturbance would occur from the development of a rest area, for a total of approximately 0.31 acre.

TABLE 7. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT A, SEGMENT I: BRYCE CANYON CITY

Vegetation Community	Acres
Perennial Disturbed Grassland Complex	0.01
Ponderosa Pine / Mixed Mountain Shrub Woodland Complex	0.01
Unclassified	0.19
Total Potential Disturbance to Vegetation Communities	**0.21**

Source: Northern Colorado Plateau Network 2011

Segment II: USFS – Dixie National Forest. For the Dixie National Forest segment of Alignment A (see Figure 5), the final paved path would result in approximately 1.07 acres of permanent disturbance to vegetation communities, primarily in the Ponderosa pine / mixed mountain shrub

woodland complex (Table 8). In addition, approximately 0.20 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 1.27 acres.

TABLE 8. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT A, SEGMENT II: DIXIE NATIONAL FOREST

Vegetation Community	Acres
Black Sagebrush Shrubland Complex	0.03
Ponderosa Pine / Mixed Herbaceous Woodland Complex	0.02
Ponderosa Pine / Mixed Mountain Shrub Woodland Complex	0.96
Unclassified	0.06
Total Potential Disturbance to Vegetation Communities	**1.07**

Source: Northern Colorado Plateau Network 2011

Segments IIIa-c: Bryce Canyon National Park. For Segment IIIa of Alternative Alignment A (see Figure 6a), the final paved path would result in approximately 2.34 acres of permanent disturbance to vegetation communities, primarily in the Ponderosa pine / mixed herbaceous woodland and Ponderosa pine / mixed mountain shrub woodland complexes (Table 9). In addition, approximately 0.15 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 2.49 acres.

TABLE 9. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT A, SEGMENT IIIa: BRYCE CANYON NATIONAL PARK

Vegetation Community	Acres
Black Sagebrush Shrubland Complex	0.35
Dry Meadow Mixed Herbaceous Vegetation Mosaic	0.05
Perennial Disturbed Grassland Complex	0.01
Ponderosa Pine / Mixed Herbaceous Woodland Complex	0.92
Ponderosa Pine / Mixed Mountain Shrub Woodland Complex	0.80
Ponderosa Pine (Douglas Fir) / Manzanita Woodland Complex	0.08
Roadside Restored Herbaceous Complex	0.07
Unclassified	0.06
Total Potential Disturbance to Vegetation Communities	**2.34**

Source: Northern Colorado Plateau Network 2011

For Segment IIIb of Alternative Alignment A (see Figure 6b), the final paved path would result in approximately 2.12 acres of permanent disturbance to vegetation communities, primarily in the Ponderosa pine / mixed herbaceous woodland and Ponderosa pine / mixed mountain shrub woodland complexes (Table 10). In addition, approximately 0.15 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 2.27 acres. For this segment of Alternative Alignment A, a portion of the alignment would occur within previously disturbed areas such as old roadbeds, existing unpaved roads and parking areas, and sewer line disturbance areas.

TABLE 10. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT A, SEGMENT IIIb: BRYCE CANYON NATIONAL PARK

Vegetation Community	Acres
Dry Meadow Mixed Herbaceous Vegetation Mosaic	0.06
Manzanita Shrubland Complex	0.03
Mixed Mountain Shrubland Complex	0.03
Ponderosa Pine / Mixed Herbaceous Woodland Complex	0.75
Ponderosa Pine / Mixed Mountain Shrub Woodland Complex	0.75
Ponderosa Pine (Douglas Fir) / Manzanita Woodland Complex	0.38
Roadside Restored Herbaceous Complex	0.03
Viscid Rabbitbrush Shrubland Complex	0.09
Total Potential Disturbance to Vegetation Communities	**2.12**

Source: Northern Colorado Plateau Network 2011

For Segment IIIc of Alternative Alignment A (see Figure 6c), the final paved path would result in approximately 3.95 acres of permanent disturbance to vegetation communities, primarily in the Ponderosa pine / mixed herbaceous woodland and Ponderosa pine (Douglas fir) / manzanita woodland complexes (Table 11). In addition, approximately 0.20 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 4.15 acres.

TABLE 11. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT A, SEGMENT IIIc: BRYCE CANYON NATIONAL PARK

Vegetation Community	Acres
Black Sagebrush Shrubland Complex	0.27
Dry Meadow Mixed Herbaceous Vegetation Mosaic	0.07
Ponderosa Pine / Mixed Herbaceous Woodland Complex	1.57
Ponderosa Pine (Douglas Fir) / Manzanita Woodland Complex	1.98
Unclassified	0.06
Total Potential Disturbance to Vegetation Communities	**3.95**

Source: Northern Colorado Plateau Network 2011

Ponderosa pine vegetation communities, as well as other community types, are common and widespread throughout the project area and vicinity. Consequently, only a small portion of any of these vegetation communities would be affected. Construction activities would also remove additional vegetation within the construction limits adjacent to the path. These areas of temporary disturbance would be revegetated with native species. Additional mitigation measures such as delineating the construction limits to confine the extent of the construction zones, minimizing mature tree removal, and salvaging some small trees would minimize construction-related impacts. Over the long term, vegetation may be trampled, disturbed, and killed due to visitors leaving the paved path area (i.e., social trailing). The path design is intended to consolidate existing social trails into one designated trail alignment to reach destinations and to clarify circulation and wayfinding. Development of the proposed path is expected to reduce the extent of existing social trails and the creation of new social trails. The park would monitor visitor use of the path. If new social trails develop, the park would take corrective actions, such as installing

signage or physical barriers (e.g., fencing) and including interpretation to reduce social trailing and associated impacts.

Invasive species are known to occur throughout the project area, primarily along roadways and areas with high visitor use. Construction and development activities under the Preferred Alternative would result in disturbance to vegetation communities that would increase the opportunity for spread of invasive species. Invasive species reduce habitat quality and compete with native vegetation. The potential increase in invasive species along the path would result in short- and long-term minor adverse impacts on vegetation communities. Revegetation following construction would be implemented along with other mitigation measures to reduce the spread of invasive species. Monitoring of visitor use along the path would help identify areas where invasive species have increased; those areas could then be targeted for invasive species reduction or eradication.

Overall, a limited portion of the ponderosa pine and other vegetation communities in the park and forest would be impacted. Surrounding vegetation populations in the project area would also be impacted by implementing the Preferred Alternative. Mitigation measures outlined in Table 2 to minimize and avoid impacts on vegetation communities and to reduce the spread of invasive species would be implemented. Impacts on vegetation communities resulting from implementing the Preferred Alternative would be short- and long-term minor adverse and local.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Adverse impacts on vegetation resources from past, present, and reasonably foreseeable future actions include permanent loss of vegetation, trampling, and disturbance. Beneficial impacts include monitoring, vegetation management, and revegetation. Implementing the Preferred Alternative would result in minor adverse impacts on vegetation communities. The overall cumulative impacts on vegetation communities from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be long-term minor adverse and local.

Conclusion. Approximately 10.5 acres of vegetation communities would be permanently disturbed and additional areas of vegetation within the construction limits adjacent to the path would be temporarily disturbed and revegetated. Mitigation measures would be implemented to reduce the extent and duration of impacts. Implementing the Preferred Alternative would result in in short- and long-term minor adverse impacts at a local scale on vegetation communities. Cumulative effects would be long-term minor adverse and local. Negligible beneficial impacts would result from reduced parking and visitor use along road shoulders and adjacent to parking areas.

Impacts of Alternative Alignment B

Under Alternative Alignment B, the paved path would be approximately 10 feet wide with 1-foot aggregate shoulders along the majority of the alignment (7.2 miles). Under Alternative Alignment B, the path would be constructed primarily adjacent to the existing roadway. Under Alternative Alignment B, approximately 8.2 acres of permanent disturbance on vegetation communities would occur within the proposed path footprint, rest areas, and spurs. The majority of the path impact area would occur in ponderosa pine communities (5.75 acres). No vegetation would be disturbed in roadways or mixed urban or built-up land areas (2.9 acres). The exact location of the proposed rest areas and spurs would be determined during the final design phase. Because the exact location of disturbance to vegetation communities from development of rest areas and spurs is not known, these areas are not included in the impact tables below. The acreage of

disturbance to vegetation communities from rest areas and spurs, however, is calculated below (based on the estimated size of these areas). Construction staging would occur in areas identified for disturbance that have been previously analyzed. Impacts on vegetation communities resulting from implementing Alternative Alignment B would be short- and long-term minor adverse and local.

Segment I: Bryce Canyon City. For the Bryce Canyon City segment of Alternative Alignment B (see Figure 7), the final paved path would result in approximately 0.41 acre of permanent disturbance to vegetation communities (primarily in the Ponderosa pine / mixed mountain shrub Woodland complex), as shown in Table 12. In addition, approximately 0.1 acre of permanent disturbance would occur from the development of a rest area, for a total of approximately 0.51 acres.

TABLE 12. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT B, SEGMENT I: BRYCE CANYON CITY

Vegetation Community	Acres
Perennial Disturbed Grassland Complex	0.02
Ponderosa Pine / Mixed Mountain Shrub Woodland Complex	0.23
Unclassified	0.16
Total Potential Disturbance to Vegetation Communities	**0.41**

Source: Northern Colorado Plateau Network 2011

Segment II: USFS – Dixie National Forest. For the Dixie National Forest segment of Alternative Alignment B (see Figure 8), the final paved path would be similar to Alignment A and result in approximately 1.11 acres of permanent disturbance to vegetation communities, primarily in the Ponderosa pine / mixed mountain shrub woodland complex (Table 13). In addition, approximately 0.20 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 1.31 acres.

TABLE 13. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT B, SEGMENT II: DIXIE NATIONAL FOREST

Vegetation Community	Acres
Ponderosa Pine / Mixed Herbaceous Woodland Complex	0.02
Ponderosa Pine / Mixed Mountain Shrub Woodland Complex	1.09
Total Potential Disturbance to Vegetation Communities	**1.11**

Source: Northern Colorado Plateau Network 2011

Segments IIIa-c: Bryce Canyon National Park. For Segment IIIa of Alternative Alignment B (see Figure 9a), the final paved path would result in approximately 1.23 acres of permanent disturbance to vegetation communities, primarily in the Ponderosa pine / mixed herbaceous woodland and Ponderosa pine / mixed mountain shrub woodland complexes (Table 14). In addition, approximately 0.15 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 1.38 acres.

TABLE 14. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT B, SEGMENT IIIa: BRYCE CANYON NATIONAL PARK

Vegetation Community	Acres
Black Sagebrush Shrubland Complex	0.07
Ponderosa Pine / Mixed Herbaceous Woodland Complex	0.60
Ponderosa Pine (Douglas Fir) / Manzanita Woodland Complex	0.13
Roadside Restored Herbaceous Complex	0.43
Total Potential Disturbance to Vegetation Communities	**1.23**

Source: Northern Colorado Plateau Network 2011

For Segment IIIb of Alternative Alignment B (see Figure 9b), the final paved path would result in approximately 2.62 acres of permanent disturbance to vegetation communities, primarily in the Ponderosa pine / mixed herbaceous woodland and Ponderosa pine / mixed mountain shrub woodland complexes (Table 15). In addition, approximately 0.15 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 2.77 acres.

TABLE 15. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT B, SEGMENT IIIb: BRYCE CANYON NATIONAL PARK

Vegetation Community	Acres
Black Sagebrush Shrubland Complex	0.14
Mixed Mountain Shrubland Complex	0.05
Perennial Disturbed Grassland Complex	0.22
Ponderosa Pine / Mixed Herbaceous Woodland Complex	1.18
Ponderosa Pine / Mixed Mountain Shrub Woodland Complex	0.69
Ponderosa Pine (Douglas Fir) / Manzanita Woodland Complex	0.06
Roadside Restored Herbaceous Complex	0.16
Viscid Rabbitbrush Shrubland Complex	0.12
Total Potential Disturbance to Vegetation Communities	**2.62**

Source: Northern Colorado Plateau Network 2011

For Segment IIIc of Alternative Alignment B (see Figure 9c), the final paved path would result in approximately 2.07 acres of permanent disturbance to vegetation communities, primarily in the Ponderosa pine / mixed herbaceous woodland and Ponderosa pine (Douglas fir) / manzanita woodland complexes (Table 16). Approximately 0.03 acre of the sensitive bristlecone pine woodland community would also be disturbed. In addition, approximately 0.20 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 2.27 acres.

TABLE 16. ACRES OF POTENTIAL DISTURBANCE TO VEGETATION COMMUNITIES ALTERNATIVE ALIGNMENT B, SEGMENT IIIC: BRYCE CANYON NATIONAL PARK

Vegetation Community	Acres
Black Sagebrush Shrubland Complex	0.26
Bristlecone Pine Woodland	0.03
Dry Meadow Mixed Herbaceous Vegetation Mosaic	0.03
Ponderosa Pine / Mixed Herbaceous Woodland Complex	0.88
Ponderosa Pine (Douglas Fir) / Manzanita Woodland Complex	0.87
Total Potential Disturbance to Vegetation Communities	**2.07**

Source: Northern Colorado Plateau Network 2011

Ponderosa pine vegetation communities, as well as other community types, are common and widespread throughout the project area and vicinity. Consequently, only a small portion of any of these vegetation communities would be affected. Alternative Alignment B would disturb approximately 0.03 acre within the bristlecone pine woodland community, which is a sensitive vegetation community that is limited in its distribution in the park.

Construction activities would also remove additional vegetation within the construction limits adjacent to the path. These areas of temporary disturbance would be revegetated with native species. Additional mitigation measures such as delineating the construction limits to confine the extent of the construction zones, minimizing mature tree removal, and salvaging some small trees, would minimize construction-related impacts. These areas of temporary disturbance would be revegetated with native species.

Potential loss and trampling of vegetation from social trailing and spread of invasive plant species would be similar to those discussed under Alternative Alignment A. Monitoring and mitigation measures to minimize these impacts would also be similar. Impacts of development of the proposed path on vegetation communities under Alternative Alignment B would be short- and long-term minor adverse and at a local scale.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Adverse impacts on vegetation resources from past, present, and reasonably foreseeable future actions include permanent loss of vegetation, trampling, and disturbance. Beneficial impacts from vegetation management and transportation improvements would also occur, including reduced invasive species, improved habitats, reduced trampling, and reduced vegetation loss. Implementing Alternative Alignment B would result in minor to moderate adverse impacts on vegetation communities. The overall cumulative impacts on vegetation communities from past, present, and reasonably foreseeable future projects in combination with the Alternative Alignment B would be long-term minor adverse and local.

Conclusion. Approximately 8.2 acres of vegetation communities would be permanently disturbed and additional areas of vegetation within the construction limits adjacent to the path would be temporarily disturbed and revegetated. Mitigation measures would be implemented to reduce the extent and duration of impacts. Implementing the Preferred Alternative would result in in short- and long-term minor adverse impacts at a local scale on vegetation communities. Cumulative effects would be long-term minor adverse and local. Negligible beneficial impacts would result from reduced parking and visitor use along road shoulders and adjacent to parking areas.

SPECIAL STATUS SPECIES

Affected Environment

The Endangered Species Act of 1973 requires examination of impacts on all federally listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the USFWS to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the 2006 NPS Management Policies and DO-77 Natural Resources Management Guidelines require the NPS to examine the impacts on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species (NPS 2006a).

USFS Manual 2600, Wildlife, Fish, and Sensitive Plant Habitat Management, provides policy and guidance regarding Endangered Species Act-listed species as well as sensitive plants and animals. Chapter 2670 of the manual provides specific objectives and policies for the management of threatened and endangered species and sensitive species on USFS-administered lands. Policies require the USFS to analyze impacts on these species and to avoid and minimize impacts (USFS 2005).

The Fish and Wildlife Conservation Act of 1958, as amended, encourages coordination between federal, state, local, and private agencies for the conservation of fish and wildlife. The Utah Division of Wildlife Resources of the Department of Natural Resources is the state agency charged with managing Utah's wildlife. The Division of Wildlife Resources maintains the state's sensitive wildlife list and oversees programs to prevent these species from becoming listed as threatened or endangered. The Utah Natural Heritage Program maintains a database of the recorded occurrence locations of federally listed and Utah sensitive species.

Federally Listed Species. For the purposes of this analysis, the USFWS was consulted with regard to federally listed species to determine those species that could potentially inhabit the project area (Appendix B). Federally listed, proposed, and candidate species that may inhabit the project area include the following: Utah prairie dog, Mexican spotted owl, California condor, southwestern willow flycatcher, humpback chub (*Gila cypha*), Jones cyclandenia (*Cycladenia humilis* var. *jonesii*), Ute ladies' tresses (*Spiranthes diluvialis*), greater sage grouse (*Centrocercus urophasianus*), and western yellow-billed cuckoo. The Utah prairie dog currently inhabits the project area and is evaluated in detail below. The remaining eight federally listed species have had limited observations or are not likely to inhabit the project area; these species are not discussed in detail. Habitat and distribution requirements for these federally listed species and reasons for the effect determinations are presented in Table 17.

Utah Prairie dog. The Utah prairie dog is the only federally listed species that is known to inhabit and breed in the project area; therefore, only this species will be further evaluated for environmental consequences in this EA.

TABLE 17. FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES WITH POTENTIAL TO INHABIT THE PROJECT AREA

Name	Status	Habitat	Potential to Inhabit Project Area	Critical Habitat	Effect Determination
Utah prairie dog (*Cynomys parvidens*)	Threatened	Semiarid shrub-steppe and grassland habitats where they prefer swale-type formations that contain moist herbaceous vegetation commonly available. Moist forage available throughout the summer is needed.	Colonies found in project area	No critical habitat in project area	Not likely to adversely affect
Mexican spotted owl (*Strix occidentalis lucida*)	Threatened	High-density mixed-conifer forests. Can occupy steep canyon terrain for roosting and nesting. During winter owls move out of canyons and onto mesa-tops, benches, and warmer slopes.	Mexican spotted owls have not been found in the park during surveys and are not likely in the Dixie National Forest or Bryce Canyon City segments of the project area.	None in project area	Surveys will be conducted by USFS and if owls were found, impacts would be avoided. Mitigation, such as temporal or spatial buffers, would be developed in consultation with USFWS.
California condor (*Gymnogyps californianus*)	Endangered; Experimental / Nonessential Experimental Population	Habitat generally consists of foothill grassland and oak savannah foothills for foraging deer and cattle. Large trees, dead snags, and cliffs are used for roosting sites. Mountainous areas with cliffs and pine forest or chaparral vegetation are used for breeding habitat.	California condors have been intermittent visitors to the park. Birds in the park are part of the experimental, nonessential population. This species is not known to inhabit the park consistently and it is not known to use the park as a breeding area.	None in project area	No jeopardy

TABLE 17. FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES WITH POTENTIAL TO INHABIT THE PROJECT AREA

Name	Status	Habitat	Potential to Inhabit Project Area	Critical Habitat	Effect Determination
Southwestern willow flycatcher *(Empidonax traillii extimus)*	Endangered	Breeds in the southwestern United States, including Utah. Nesting habitat consists of mid-to-low elevation multilayered, dense riparian habitat along rivers, streams, or other wetland areas.	There are no nesting habitats in the project area. The park has conducted surveys for this species since 1995. A few sightings have been recorded near Yellow Creek and Sheep Canyon / Swamp Canyon drainages. No suitable habitat in Dixie National Forest or Bryce Canyon City segments of analysis area. No nesting signs or behavior have been observed in the project area.	Not in project area	No effect
Humpback chub (*Gila cypha*)	Endangered	Occurs in large rivers and primarily canyon-bound reaches of the Colorado River drainage. Adults are found in deep water habitats.	No large rivers or other suitable habitat in the project area.	None in project area	No effect
Jones Cycladenia (*Cycladenia humilis* var. *jonesii*)	Threatened	This species is restricted to the canyonlands of the Colorado plateau and grows in gypsum soils derived from the Summerville, Cutler, and Chinle formations.	This species is not known to inhabit the project area or the park as a whole.	None in project area	No effect
Ute ladies'-tresses (*Spiranthes diluvialis*)	Threatened	This species is typically found in stable wetlands and wet, seepy areas within historical floodplains of major rivers or near freshwater lakes or springs.	This species is not known to inhabit the project area or the park as a whole.	None in project area	No effect

TABLE 17. FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES WITH POTENTIAL TO INHABIT THE PROJECT AREA

Name	Status	Habitat	Potential to Inhabit Project Area	Critical Habitat	Effect Determination
Greater sage-grouse (*Centrocercus urophasianus*)	Candidate	Sage-grouse are closely associated with sagebrush habitats. Suitable habitat is limited by elevation and topography.	This species is not known to inhabit project area or the park as a whole.	None designated	Surveys will be conducted by USFS and if sage-grouses were found, impacts would be avoided. Mitigation, such as temporal or spatial buffers, would be developed in consultation with USFWS.
Western yellow-billed cuckoo *(Coccyzus americanus occidentalis)*	Proposed Threatened	Breeding habitat consists of dense riparian woodlands of willow (*Salix* sp.) and cottonwood (*Populus* sp.). Non-breeding habitat consists of various types of woodlands and scrub in the United States and mangroves in Puerto Rico.	This species is rare in the project area. Only one sighting has occurred along Sheep Creek in 2002.	None in project area	No effect

Species and Critical Habitat Description. The Utah prairie dog is a member of the Sciuridae family of rodents and the white-tailed prairie dog group, subgenus *Leucocrossuromys*. Adult prairie dogs range in total body length from 12 to 15 inches and are cinnamon to dark cinnamon colored (USFWS 2012a; USFWS 2012b). Primary habitat features include the following:

- Semiarid shrub-steppe and grassland habitats where they prefer swale-type formations that contain moist herbaceous vegetation commonly available, even during drought periods (Collier 1975; Crocker-Bedford 1976; Crocker-Bedford and Spillett 1981 as cited in USFWS 2012a). Plentiful high-quality food found in swales enables prairie dogs to attain a large body mass, thus enhancing survival and increasing litter sizes and juvenile growth rates (Hoogland 2001 as cited in USFWS 2012a).

- Well-drained soils to allow for deep burrows (at least 3.3 feet) to protect the prairie dogs from predators and environmental and temperature extremes. Soil color may aid in disguising prairie dogs from surface predators.

- Short-stature vegetation to allow the prairie dogs to see approaching predators and to have visual contact with other members of the colony (Collier 1975; Crocker-Bedford and Spillett 1981; Player and Urness 1982 as cited in USFWS 2012a). Utah prairie dogs have been observed occupying Ponderosa pine forests in Bryce Canyon National Park, however.

Prairie dogs are a keystone species and considered an important component of the ecosystem (Kotliar et al. 1999; Hoogland et al. 2004 as cited in USFWS 2012a). Prairie dogs decrease vegetation height and increase landscape heterogeneity. Several wildlife species such as burrowing owls *(Athene cunicularia)*, rabbits *(Lepus* spp.*)*, ground squirrels *(Spermophilus* spp.*)*, weasels *(Mustela* spp.*)*, and badgers also rely on the habitat conditions created by Utah prairie dog colonies and frequently use their burrows (Collier and Spillett 1975; Hoogland 2001 as cited in USFWS 2012a).

Critical habitat has not been designated for this species (USFWS 2012b).

Status of Utah prairie dogs in the Project Area. The project area is in the Utah prairie dog Paunsaugunt Recovery Unit. The Paunsaugunt Recovery Unit is primarily in Garfield County, with small areas in Piute and Kane counties. There are 15,620 acres of mapped prairie dog habitat in this recovery unit. The Paunsaugunt Recovery Unit contains up to 20 percent of all adult Utah prairie dogs. Spring survey counts generally vary from 654 to 2,205 adult prairie dogs.

During the 1950s the Utah prairie dog was eradicated from the project area. Reintroduction of the prairie dog in the park and Dixie National Forest, mostly as juveniles, began in 1974 and continued through 1988. Since then, Utah prairie dogs have colonized multiple areas in open grassy meadows of the central and northern portions of the park as well as portions of the Dixie National Forest, and their numbers have fluctuated due to natural predators, fires, road fatalities, plague, as well as seasonal or episodic weather events. Park staff currently perform management activities, such as DeltaDust insecticide treatments to control fleas, which are vectors for the outbreak of sylvatic plague in colonies, and to help sustain healthy populations of Utah prairie dog. Dixie National Forest conducted plague abatement activities on 4,053 acres adjacent to the project area in 2013; however, dusting or annual counts for the Utah prairie dog do not occur on a routine basis. Bryce Canyon City is currently developing a Habitat Conservation Plan for the Utah prairie dog to mitigate for impacts from city actions.

Surveys are conducted each spring in the park to monitor active colonies and population trends (NPS 2009). Mapped and occupied burrows in the park have been updated periodically. The park estimates that there are approximately 600 acres of suitable Utah prairie dog habitat with 7 active colonies currently in the park. All of the occupied colonies have low numbers and densities of Utah prairie dogs (fewer than 100 prairie dogs counted during surveys in 2013).

According to unpublished park data documenting observations of prairie dog mortality since 1978 in the park, 78 prairie dog mortalities were observed during the 6-year period from 2008 to 2013, with the majority due to vehicle strikes (97 percent). The majority of observed mortalities occurred in the areas of the Mixing Circle, Dave's Hollow, and Historic Housing prairie dog colonies in the park. In the last two years (2012 and 2013), the park recorded a 26 percent and 32 percent, respectively, mortality of the park's counted population. The majority of vehicle strikes in 2013 occurred to the Historic Housing colony. Vehicle strikes are the main cause of prairie dog mortality in the park due to the proximity of most meadow habitat and colonies to roadways. Overall, disease outbreaks such as sylvatic plague (*Yersinia pestis*) cause the highest mortality of Utah prairie dog in the region, with vehicle strikes following.

Dixie National Forest monitors prairie dog populations and applies DeltaDust to colonies in portions of the forest. Bryce Canyon National Park conducts annual population counts of adult prairie dogs and applies DeltaDust to all active colonies every year. The park is also currently developing a Utah Prairie Dog Stewardship Plan. Among the purposes of the proposed stewardship plan would be to:

- Maintain a sustainable population of Utah prairie dogs to foster their role as a keystone species in the environment.
- Identify ways to enhance prairie dog habitat in the park based on habitat suitability and connectivity with existing populations, while maintaining the diversity of native plant communities and facilitating park operations.
- Minimize and mitigate the effects of human activities in the park on Utah prairie dogs.
- Contribute to range-wide recovery and sustainability of Utah prairie dog populations.

Factors Affecting Species Environment. In addition to natural population dynamics, site-specific prairie dog numbers may be influenced by various environmental and human factors, including disease outbreaks (e.g., sylvatic plague plague); changing climatic conditions and climate cycles; seasonal or episodic weather events; habitat loss, alteration, and fragmentation from environmental or human activities; disturbance from recreational and economic land uses; and unlawful lethal take. At Bryce Canyon National Park, the primary cause of mortality is vehicle strikes, which in recent years has exceeded 25 percent of the counted Utah prairie dog population in the park.

Utah prairie dogs are subject to natural predation by coyotes (*Canis latrans*), badgers (T*axidea taxus*), long-tailed weasels (*Mustela frenata*), various raptor species (*Buteo* spp., *Aquila chrysaetos*), and snakes (*Crotalus* spp., *Pituophus* spp; USFWS 1991; Hoogland 2001 as cited in USFWS 2012a). In established colonies, predators probably do not exert a controlling influence on numbers of prairie dogs. Predators can have a greater impact on translocation sites where an established social system or burrow system is not present (USFWS 2012b).

Utah prairie dog populations are susceptible to sylvatic plague, a bacterium introduced to the North American continent in 1899 (Cully et al. 1993 as cited in USFWS 2012b). There is a limited understanding of the variables that determine when sylvatic plague will impact prairie dog populations (USFWS 2012b). Plague results in local extirpations, reduced colony sizes, increased variation in local population sizes, and increased distances between colonies (Cully and Williams 2001as cited in USFWS 2012a).

USFS Sensitive Species. The Regional Forester identifies sensitive species as those species for which population viability is a concern, as evidenced by significant current and predicted downward trends in population numbers, density, and / or habitat capability that would reduce a species' existing distribution. Sensitive species must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that could result in the need for federal listing (USFS 2005). The species listed in Table 18 have been documented or are suspected of occurring in the project area seasonally or throughout the year.

TABLE 18. U.S. FOREST SERVICE SENSITIVE SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Name	Status	Occurrence
Bald eagle (*Haliaeetus leucocephalus*)	Dixie National Forest Sensitive	An occasional winter visitor
Northern goshawk (*Accipiter gentilis*)	Dixie National Forest Sensitive	Known to breed in project area
Peregrine falcon (*Falco peregrinus*)	Dixie National Forest Sensitive	Known to breed in project area
Flammulated owl (*Otus flammeolus*)	Dixie National Forest Sensitive	May occur in the project area
Three-toed woodpecker *(Picoides tridactylus)*	Dixie National Forest Sensitive	A rare winter visitor
Townsend's big-eared bat (*Corynorhinus townsendii*)	Dixie National Forest Sensitive	May occur in the project area
Spotted bat *(Euderma maculatum)*	Dixie National Forest Sensitive	Known to occur in project area

Bald Eagle. The bald eagle is on the USFS Regionally Sensitive Species list. The bald eagle is also listed as a wildlife species of concern in the state of Utah. Habitat for bald eagles consists generally of foothills and valleys in the late spring and summer where they can feed on small mammals and carrion. In the winter, habitat consists of areas near open water where fish and waterfowl can be caught.

Bald eagles are occasional winter visitors to the Bryce Canyon area. In Dixie National Forest, eagles generally occur during late fall, winter, and spring months. They have been observed foraging and roosting near open water bodies across the forest (Rodriguez 2008). No eagles or nests have been observed in or near the project area.

The primary threats to bald eagle populations are as follows: destruction, modification, or curtailment of habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; inadequacy of existing regulatory mechanisms; other natural and human-caused factors affecting their continued existence (USFWS 2007).

Northern goshawk. The northern goshawk is on the USFS Regionally Sensitive Species list. Habitat for northern goshawks consists primarily of mature mountain forest and riparian zones.

Northern goshawks construct nests in trees in mature forests (Utah Division of Wildlife Resources 2005a).

Although northern goshawks are permanent residents throughout the state of Utah, they are not common (Utah Division of Wildlife Resources 2005a). The Dixie National Forest has conducted surveys for northern goshawks since 1986. As of the 2008 nesting season, 152 territories had been identified in the forest. Nesting in Dixie National Forest generally averages about 20 occupied nest territories annually; however, nesting can vary depending on spring conditions such as wind, snow, and prey availability (Rodriguez 2008). The project area is in mapped potentially suitable habitat for northern goshawks in the forest. The primary limiting factors for northern goshawks are prey abundance and availability, and nesting habitat.

Bryce Canyon National Park and Dixie National Forest conduct management and monitoring activities for the northern goshawk. Northern goshawks are known to nest in the park, particularly in the Bryce Amphitheater area, and hunt over open grasslands. The park conducts protocol surveys prior to prescribed fires.

Peregrine falcon. The peregrine falcon is on the USFS Regionally Sensitive Species list. Peregrine falcons typically select high ledges of mountain cliff faces and river gorges with a southern exposure in areas with available forage for their eyries. Foraging usually occurs along marshes, streams, and lakes within a 10-mile radius of the nest. The primary threats to peregrine falcons include human-caused injury or mortality from shooting, taking of eggs and young, poisoning, and habitat destruction (USFWS 2014a).

There are no known peregrine nest sites in the Powell Ranger District of the Dixie National Forest. Formal forest-wide surveys are not currently conducted; however, site-specific surveys are conducted on all proposed projects in suitable habitat. Bryce Canyon National Park conducts protocol monitoring on this species semi-annually and maintains data on nesting sites. Several known eyries in the park are located along the breaks or cliffs. Peregrines have been observed hunting in surrounding open woodlands and grasslands.

Flammulated owl. The flammulated owl is on the USFS Regionally Sensitive Species list and the Utah list of Species of Concern. These owls appear to be associated with mature pine and mixed-conifer forest types, but have also been found in fir stands. This species may also require an undergrowth of oak / pine in some portions of its range. Flammulated owls are obligate secondary cavity nesters and must rely on previously excavated cavities in large snags for nesting. The primary limitations for this owl include the loss of suitable habitat by logging of mature forest stands and the loss of prey (they are almost exclusively insectivores) associated with logging (Rodriguez 2008).

Flammulated owl surveys have been conducted on the Dixie National Forest, along with surveys for Mexican spotted owls. Surveys conducted from 1996 to 2007 resulted in 17 detections in 12 different areas, primarily in the Cedar City Ranger District (Rodriguez 2008).

Three-toed woodpecker. The three-toed woodpecker is on the USFS Regionally Sensitive Species list and the Utah list of Species of Concern. This woodpecker species habitat consists of northern coniferous and mixed forest types at elevations of up to nearly 11,000 feet. This species typically requires snags for feeding, perching, nesting, and roosting (Rodriguez 2008). The

primary threats to three-toed woodpeckers are activities that remove or eliminate snags, such as logging and fire suppression.

Formal surveys have been conducted in Dixie National Forest, resulting in detection of 131 woodpeckers (2008 data). The number of individuals is likely increasing due to the increase of spruce bark beetle infestations in the forest. The three-toed woodpecker is a rare winter visitor in the project area and particularly the park segment.

Spotted bat and Townsend's big-eared bat. The spotted bat and Townsend's big-eared bat are on the USFS Regionally Sensitive Species list. Spotted and Townsend's big-eared bats are known to use a variety of habitats, including piñon-juniper woodlands, mixed conifer and ponderosa pine forests, grasslands, and pastures. Spotted bats typically roost in rock crevices on steep rock faces. Townsends bats are known to roost in caves, rocky outcrops, old buildings, and mine shafts. Both species forage in riparian areas, forested edges, piñon juniper woodlands, meadows, and abandoned agricultural fields (Rodriguez 2008). Primary threats to these bat species are roost availability and human disturbances.

The spotted bat and Townsend's big-eared bat are known or likely to inhabit the project area. Roosting habitat is near the project area and foraging habitat is found in the project area.

Dixie National Forest Management Indicator Species. The Dixie National Forest management plan identified several Management Indicator Species. These species populations are monitored to evaluate the effects of management activities on fish, plants, and wildlife. Management Indicator Species for Dixie National Forest include elk, mule deer, northern goshawk, northern flicker, wild turkey, Bonneville cutthroat trout (*Oncorhynchus clarki utah*), rainbow trout (*Oncorhynchus mykiss*), cutthroat trout (*Oncorhynchus clarkii*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*). Of these species, only elk, mule deer, northern goshawk, northern flicker, and wild turkey are likely to inhabit the project area.

Forest staff will conduct surveys for sensitive and management indicator species in the spring / summer of 2014. These species include the following: Utah prairie dog, Mexican spotted owl, California condor, greater-sage grouse, spotted bat, western big-eared bat, northern goshawk, flammulated owl, three-toed woodpecker, peregrine falcon, bald eagle, and boreal toad (*Bufo boreas boreas*). In addition, forest staff would survey for Dixie National Forest Management Indicator Species, including mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), wild turkey (*Meleagris gallopavo*), and northern flicker (*Colaptes auratus*). If any of these species are located, additional mitigation measures may be required.

State-listed Species. The Utah Sensitive Species List (Utah Division of Wildlife Resources 2007) and the Utah Comprehensive Wildlife Conservation Strategy (Utah Division of Wildlife Resources 2005b) list several species of special concern that are likely to inhabit the project area. The species listed in Table 19 have been documented or are suspected of occurring in the project area seasonally or throughout the year.

TABLE 19. STATE LISTED SPECIES OF SPECIAL CONCERN WITH POTENTIAL TO OCCUR IN THE PROJECT AREA

Name	Status	Occurrence
Ferruginous hawk *(Buteo regalis)*	Wildlife Species of Concern	An occasional winter visitor
Lewis's woodpecker *(Melanerpes lewis*)	Wildlife Species of Concern	A rare winter visitor
Long-billed curlew *(Numenius americanus)*	Wildlife Species of Concern	A migrant visitor
American white pelican *(Pelecanus erythrorhynchos)*	Wildlife Species of Concern	A migrant visitor
Fringed myotis *(Myotis thysanodes)*	Wildlife Species of Concern	Known to occur in project area

Rare and Sensitive Plants. Plant species that have a limited distribution or are disjunct from more abundant population centers are considered rare and sensitive. The Dixie National Forest, Bryce Canyon National Park, and the State of Utah maintain lists of rare and sensitive plants (Utah Division of Wildlife Resources 1998). The majority of the known populations of rare and sensitive plants in the project area inhabit barren areas along breaks and in open pine woodland habitats on bare, gravelly soils. The rare and sensitive plant species found during surveys in and adjacent to the project area are listed in Table 20. There is also a sensitive plant community adjacent to the project area.

TABLE 20. RARE AND SENSITIVE PLANTS IN THE PROJECT AREA

Common Name	Scientific Name
Reveal paintbrush	*Castilleja parvula* var. *revealii*
Yellowish cryptanth	*Cryptantha ochroleuca*
Cedar Breaks draba	*Draba subalpina*
Reveal Panguitch buckwheat	*Eriogonum panguicense*
Cedar Breaks bladderpod	*Lesquerella rubicundula*
Least desert-parsley	*Lomatium minimum*
Jones locoweed	*Oxytropisoreophila* var. *jonesii*
Bryce Canyon townsendia	*Townsendia montana* var. *minima*

In addition to the rare and sensitive plants in the project area, bristlecone pines (*Pinus longaeva*) are also found in the project area. Bristlecone pines are among the oldest living organisms on earth and only found in six states, including Utah. Due to their age, rarity, and uniqueness, the bristlecone pine communities are considered sensitive and are protected in the park.

Intensity Level Definitions

Impacts on special status species were determined based on the following impact definitions and thresholds.

Negligible. No federally listed species or sensitive species would be affected or the alternative would affect an individual of a listed species, its critical habitat or a sensitive species, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. This impact intensity would equate to a determination of "no effect" under Section 7 of the Endangered Species Act.

Minor. The alternative would affect an individual(s) of a listed species, its critical habitat or a sensitive species, but the change would be small. Mitigation measures would likely be required to reduce impacts. This impact intensity would equate to a determination of "may affect, not likely to adversely affect" under Section 7 of the Endangered Species Act.

Moderate. An individual or population of a listed species, its critical habitat, or a sensitive species would be noticeably affected. The effect would have some consequence to the individual, population, or habitat. Mitigation measures would likely be required to reduce impacts. This impact intensity would equate to a determination of "may affect, likely to adversely affect" under Section 7 of the Endangered Species Act.

Major. An individual or a population of a listed species, its critical habitat, or a sensitive species would be noticeably affected with a vital consequence to the individual, population, or habitat. Mitigation measures would likely be required to reduce impacts. This impact intensity would equate to a determination of "may affect, likely to adversely affect" under Section 7 of the Endangered Species Act.

Short-term Impacts. Species recovers in less than 1 year.

Long-term Impacts. Species requires more than 1 year to recover.

For effects to the Utah prairie dog, USFWS has established that for projects that temporarily impact habitat (do not extend into the following season and the habitat can feasibly be restored), or those projects with small permanent surface or buried structures that do not substantially alter habitat or behavior, the buffer is a 350-foot zone extending out from the proposed project transportation corridor or exterior boundary. The 350-foot buffer is the range within which normal behavior (e.g., foraging, vigilance activities) of individual Utah prairie dogs may be disrupted by noise or human presence.

For projects with large permanent surface or buried structures that may substantially alter Utah prairie dog habitat or behavior, or extend into the following season, the buffer zone extends outward one-half mile from the proposed project transportation corridor or exterior boundary. The one-half-mile buffer is the range within which normal dispersal of individual Utah prairie dogs may be disrupted by structures (including roadways and parking areas) and human presence.

Impacts of the No-action Alternative

Under the No-action Alternative, the proposed project would not be developed and no impacts on special status species would occur from path-related construction and recreational use. Vehicle congestion, user conflicts, and visitor and transportation safety issues would continue and possibly worsen as visitation increases in the future. Bicyclists and pedestrians would

continue to share State Route 63 and the main park road with automobiles. Much of the vegetation and soil in the project area would remain undisturbed, although social trailing would likely continue.

The existing condition for special status species may deteriorate due to increased visitation. Continued private vehicle parking issues may result in impacts on undisturbed areas adjacent to roadways and parking lots. Human activities in close proximity of special status species may result in adverse effects on species behavior by causing disturbance to foraging, breeding or nesting. Human activities near special status species may cause species to leave the area, interrupt feeding, disturb nesting or breeding activity due to noise or human presence, cause stress, or result in mortality from vehicle or bicycle strikes. In general, no appreciable change in development or visitor use patterns is expected. Increases in visitation are expected to occur in and near existing developed and human activity areas that have already altered habitat and that have resulted in some level of displacement or habituation. Potential effects from visitation increase would be lessened due to this existing disturbance. In addition, ongoing management actions, such as interpretive efforts to educate visitors on decreasing their impacts and implementation of the conservation measures in the Utah Prairie Dog Stewardship Plan (currently in process), would help minimize the effects of some of these ongoing impacts. Consequently, any additional impacts are expected to be incrementally small in extent and long-term minor adverse.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, and rare and sensitive plants in the project area include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities (inside and adjacent to park), facility and visitor service improvement construction projects (such as wildlife-viewing pullouts, walkways, fencing, and trails), visitor use activities (visitor travel in private vehicles primarily), vegetation management activities (such as vegetation removal activities, revegetation, invasive species management, and prescribed burns), utility development in and adjacent to the project area (including transmission and sewer lines), habitat conservation planning (Bryce Canyon City Habitat Conservation Plan), prairie dog translocations and flea dusting activities, and urban development (primarily in Bryce Canyon City).

Adverse impacts could occur on these species from wildland fires, construction activities, disease, disturbance from visitor activities, trampling, and vehicle strikes where species are found near developed areas or adjacent to roadways. Adverse impacts include disturbance to feeding, disturbance of nesting or breeding activity due to noise or human presence, stress, or mortality from vehicle or bicycle strikes. Most of these activities and projects would occur in or near existing developed and human activity areas. Adverse impacts on special status species would be unlikely in these areas or would be minimal because of lack of suitable habitat or because species have become habituated to human presence. Greater adverse impacts on Utah prairie dogs would likely occur from projects and activities that substantially alter prairie dog habitat or behavior, such as the Multimodal Transportation Plan. Future implementation of the park's Utah Prairie Dog Stewardship Plan would result in the implementation of conservation measures that would help mitigate ongoing and potential additional adverse impacts such as human disturbance to habitat, habitat fragmentation, and vehicle strikes. Overall, the cumulative impacts from past, present, and reasonably foreseeable future projects in combination with the impacts of the No-action alternative would be short- and long-term, minor to moderate and adverse. Any additional

impacts from increased visitation are expected to be long-term negligible to minor. Cumulative effects would be short- and long-term moderate adverse and local.

Conclusion. Under the No-action Alternative, the proposed path would not be developed. No impacts due to path related construction and recreational use would occur on Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, or rare and sensitive plants. Ongoing and likely continuing disturbance of special status species from visitor use of the proposed path would result in long-term minor adverse impacts. Cumulative effects would be long-term moderate adverse and local.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, there would be approximately 10.5 acres of permanent disturbance to vegetation communities within the proposed path footprint, rest areas, and spurs. The majority of the path impact area would occur in ponderosa pine communities (8.22 acres), with 0.8 acre occurring within roadways or mixed urban or built-up land areas.

Segment I: Bryce Canyon City. For the Bryce Canyon City segment of Alternative Alignment A (see Figure 4), the final paved path would result in approximately 0.21 acre of permanent disturbance. In addition, approximately 0.1 acre of permanent disturbance would occur from the development of a rest area, for a total of approximately 0.31 acre.

Utah Prairie dog. Under Alternative Alignment A, there would be no direct impacts on occupied Utah prairie dog habitat for Segment I of the proposed path. The path would not be located within the boundaries of any mapped (not known to be occupied) habitat, but there are 32.8 acres of mapped habitat within one-half mile. There is 0.34 acre of mapped (not known to be occupied) habitat within 350 feet and 32.8 acres within one-half mile of the proposed path along this segment. Although the proposed path would be within the one-half mile buffer, major development (including roads and parking) currently exist between the path alignment and the mapped habitat, thus the path is not expected to affect potential future prairie dog use or dispersal to this habitat. Development of Segment I of the proposed path would not likely result in direct or indirect adverse impacts on Utah prairie dog.

USFS Sensitive Species. USFS sensitive species may occur near Segment I; however, these species are rare in the area, and the majority of the area surrounding Segment I is mixed urban use with minimal habitat suitable for USFS sensitive species. Under Alternative Alignment A, direct and indirect impacts to USFS sensitive species would not likely occur within Segment I; should any impacts occur, they would be negligible adverse and local scale.

Dixie National Forest Management Indicator Species. Dixie National Forest Management Indicator Species may occur in the vicinity of Segment I. Individual elk, mule deer, northern goshawk, northern flicker, and wild turkey may be disturbed by noise, construction activity, and recreation activity related to the construction and use of the proposed path. These disturbances would result in an incrementally small decrease in available habitat. Direct and indirect impacts on individual Dixie National Forest Management Indicator Species may occur during construction (short-term disturbance) and recreational use (short- and long-term) of Segment I of the proposed path. These species are common in the project area and the proposed path would not affect species populations. Under Alternative Alignment A, impacts on Dixie National Forest

Management Indicator Species within Segment I would be short- and long-term negligible adverse and local.

State-listed Species. State-listed species may occur in the vicinity of Segment I; however, these species are rarely found or only seasonal visitors to the project area. Minimal suitable habitat is found surrounding Segment I of the proposed path. Under Alternative Alignment A, direct and indirect impacts to state-listed species would not likely occur from development of Segment I of the proposed path; should any impacts occur, they would be short-term negligible adverse and local.

Rare and Sensitive Plants. There are no known populations of rare and sensitive plants along Segment I of the proposed Alignment A path. No impacts on rare and sensitive plants would likely occur for Segment I of the proposed Alignment A path.

Segment II: USFS – Dixie National Forest. For the Dixie National Forest segment of Alternative Alignment A (see Figure 5), the final paved path would result in approximately 1.07 acres of permanent disturbance. In addition, approximately 0.20 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 1.27 acres.

Utah Prairie dog. Under Alternative Alignment A, there would be no direct or indirect impacts on occupied Utah prairie dog habitat within 350 feet or one-half mile of Segment II of the proposed path. There is 0.06 acre of mapped (not known to be occupied) habitat within 350 feet and 19.17 acres within one-half mile of the proposed path along this segment. The majority of the path alignment within Segment II is through ponderosa pine-dominated forested land that currently experiences heavy visitor use. The path alignment within Segment II would avoid any meadow habitat.

Although Utah prairie dog habitat within Segment II is currently unoccupied, it is an important corridor for habitat connectivity between Utah prairie dog habitat in the park and on private lands outside the park to the north. To avoid habitat fragmentation, the path would be aligned closer to the road to the west, avoiding this mapped habitat and maintaining a buffer of trees between the path and that habitat. Consequently, development and use of the path is not expected to disrupt potential future prairie dog use or dispersal to this habitat. Under Alternative Alignment A, impacts on Utah prairie dog within Segment II would be short- and long-term minor adverse and local.

USFS Sensitive Species. USFS sensitive species may occur near Segment II. The USFS has planned surveys of Segment II for the presence of USFS sensitive species. Under Alternative Alignment A, direct and indirect impacts on USFS Sensitive Species may occur from development of Segment II of the proposed path. Indirect impacts may include disturbance of nesting and foraging behavior by noise, construction activity, human presence, and recreation activity related to the construction and use of the proposed path. Generally, construction and use of the proposed path may fragment wildlife habitat and can lead to an increase in invasive species, adversely affecting habitat quality. Paths may also result in edge effects (such as displacement of specialist species due to increased disturbance to habitat, increase in generalist species, decreased nesting near open areas like trails, and increased nest predation), affect dispersal or migration, and lead to increased predation (Jordan 2000). The presence of visitors and dogs may cause avoidance behavior in some species and attraction behavior (attraction to human-provided food

sources) in other species (Marion and Leung 2001). Noise and motion from visitors using the path may cause wildlife to leave the area, possibly affecting foraging, nesting, and roosting / resting activities (Jordan 2000).

In general, these potential impacts would be negligible or minor adverse and local. The majority of the path alignment within Segment II is through ponderosa pine-dominated forested land that currently experiences heavy visitor use. The proximity of most of the path to existing development and visitor use would lessen the potential effects from construction activities and use of the path, because species are either less likely to be using nearby habitat or they have become habituated to human presence. Any loss of foraging and roosting habitat along the path alignment would be an incrementally small decrease in the extent of available habitat and removal of large snags and roosting trees would be avoided to the extent possible. To minimize negative impacts on nesting birds, tree removal would not occur during nesting season, generally from April 1 through July 31. If construction activities or tree cutting is required during this time, pre-tree cutting bird surveys would be conducted for nests. If nests are found, no construction activities would be conducted in identified nesting areas (including buffer zones) until the young have fledged. Potential impacts on each USFS sensitive species are shown in Table 21. Under Alternative Alignment A, impacts on USFS sensitive species within Segment II would be short- and long-term negligible to minor adverse and local.

TABLE 21. U.S. FOREST SERVICE AND STATE-LISTED SENSITIVE SPECIES POTENTIAL IMPACTS

Name	Status	Potential Impacts
Bald eagle (*Haliaeetus leucocephalus*)	Dixie National Forest Sensitive	No nesting habitat would be impacted. Species presence is rare in winter and minimal. May forage in project area and foraging habitat disturbance may occur. Surveys would be conducted to determine presence. Adverse impacts would be short- to long-term term negligible and local.
Northern goshawk (*Accipiter gentilis*)	Dixie National Forest Sensitive	The park has completed 2014 surveys for this species. Minimal nesting habitat occurs in project area. Nest surveys would be conducted prior to construction. Construction would be prohibited within 0.5 mile of any nest site found until young fledged. Incremental small decrease in foraging habitat. Adverse impacts likely short- to long-term minor and local.
Peregrine falcon (*Falco peregrinus*)	Dixie National Forest Sensitive	No nesting habitat (i.e., cliff faces) would be impacted. Surveys would be conducted prior to construction. Construction would be prohibited within 0.5 mile of any nest site found until young fledged. Incremental small decrease in foraging habitat. Adverse impacts likely short- to long-term minor and local.

TABLE 21. U.S. FOREST SERVICE AND STATE-LISTED SENSITIVE SPECIES POTENTIAL IMPACTS

Name	Status	Potential Impacts
Flammulated owl (*Otus flammeolus*)	Dixie National Forest Sensitive	The park has completed 2014 surveys for this species. Species presence is rare at project area elevation and minimal foraging habitat disturbance would occur. Nest surveys would be conducted prior to construction. Construction would be prohibited within 0.5 mile of any nest site found until young fledged. Adverse impacts would be short- to long-term negligible and local.
Three-toed woodpecker *(Picoides tridactylus)*	Dixie National Forest Sensitive	No nesting habitat known to occur in project area. Species presence is rare in winter and minimal foraging habitat disturbance would occur. Surveys would be conducted to determine presence. Adverse impacts would be short- to long-term negligible and local.
Townsend's big-eared bat (*Corynorhinus townsendii*)	Dixie National Forest Sensitive	USFS would conduct surveys to determine presence. Known to breed in forested areas, but rare in project area (within 1 mile). Winter temperatures in project area are too cold for bat hibernation, and roosting, bats leave the area in the fall and return during warmer weather. Any tress (roosting habitat) that might be cut would only be removed between mid-October and the start of breeding bird season. Path would be designed to avoid trees 24 inches in diameter as much as possible. Adverse impacts likely short- to long-term negligible and local.
Spotted bat *(Euderma maculatum)*	Dixie National Forest Sensitive	USFS would conduct surveys to determine presence. Known to breed in forested areas, but rare in project area (within 1 mile). Winter temperatures in project area are too cold for bat hibernation, and roosting, bats leave the area in the fall and return during warmer weather. Any trees (roosting habitat) that might be cut would only be removed between mid-October and the start of breeding bird season. Path would be designed to avoid trees 24 inches in diameter as much as possible. Adverse impacts likely short- to long-term negligible and local.

TABLE 21. U.S. FOREST SERVICE AND STATE-LISTED SENSITIVE SPECIES POTENTIAL IMPACTS

Name	Status	Potential Impacts
Ferruginous hawk *(Buteo regalis)*	Wildlife Species of Concern	No nesting habitat would be impacted. Species presence is rare in winter and minimal. May forage in project area and foraging habitat disturbance may occur. Surveys would be conducted to determine presence. Adverse impacts would be short- to long-term term negligible and local.
Lewis's woodpecker *(Melanerpes lewis*)	Wildlife Species of Concern	No nesting habitat would be impacted. Species presence is rare in winter and minimal. May forage in project area and foraging habitat disturbance may occur. Surveys would be conducted to determine presence. Adverse impacts would be short- to long-term term negligible and local.
Long-billed curlew *(Numenius americanus)*	Wildlife Species of Concern	No nesting habitat known to occur in project area. Species presence is rare. Foraging habitat minimal. Minimal foraging habitat disturbance could occur. Adverse impacts would be short- to long-term negligible and local.
American white pelican *(Pelecanus erythrorhynchos)*	Wildlife Species of Concern	No nesting or foraging habitat known to occur in project area. Species presence is rare. No adverse impacts anticipated for this species.
Fringed myotis *(Myotis thysanodes)*	Wildlife Species of Concern	USFS would conduct surveys to determine presence. Known to breed in forested areas, but rare in project area (within 1 mile). Winter temperatures in project area are too cold for bat hibernation and roosting, bats leave the area in the fall and return during warmer weather. Any trees (roosting habitat) that might be cut would only be removed between mid-October and the start of breeding bird season. Path would be designed to avoid trees 24 inches in diameter as much as possible. Adverse impacts likely short- to long-term negligible and local.

Dixie National Forest Management Indicator Species. Dixie National Forest Management Indicator Species may occur in the vicinity of Segment II. The USFS has also planned surveys of Segment II of the proposed path for presence of Dixie National Forest Management Indicator Species. Individual elk, mule deer, northern goshawk, northern flicker, and wild turkey may be disturbed by noise, construction activity, and recreation activity related to the construction and use of the proposed path. Direct and indirect impacts on individual Dixie National Forest Management Indicator Species may occur during construction and use of Segment II of the

proposed path. These species are common in the project area and the proposed path would not affect species populations.

Overall, nests, foraging activity, and species movement (travel corridors) would likely be impacted due to construction and use of the proposed path. These potential impacts would be negligible or minor adverse and local. The majority of the path alignment within Segment II is through ponderosa pine-dominated forested land that currently experiences heavy visitor use. The proximity of most of the path within this segment to existing development and visitor use would lessen the potential effects from construction activities and use of the path because species are either less likely to currently use nearby habitat or they have become habituated to human presence. Any loss of foraging and roosting habitat along the path alignment would be an incrementally small decrease in the extent of available habitat, and removal of large snags and roosting trees would be avoided to the extent possible. If nests are found during planned surveys or path construction, they will be monitored until young have fledged. Under Alternative Alignment A, impacts on Dixie National Forest Management Indicator Species would be short- and long-term negligible to minor adverse and local.

State-listed Species. State-listed species may occur in the vicinity of Segment II; however, these species are rarely found or only seasonal (primarily winter) visitors to the project area. Potential impacts on state-listed species are shown by species in Table 21. Overall, nests, foraging activity, and species movement (travel corridors) would likely be impacted due to construction and use of the proposed path. The proximity of most of the path within this segment to existing development and visitor use would lessen potential effects from construction activities and use of the path because species are either less likely to currently use nearby habitat or they have become habituated to human presence. Any loss of foraging and roosting habitat along the path alignment would be an incrementally small decrease in the extent of available habitat, and removal of large snags and roosting trees would be avoided to the extent possible. If nests are found during planned surveys or path construction, they will be monitored until young have fledged. Under Alternative Alignment A, direct and indirect impacts on state-listed species would not likely occur from development of Segment II of the proposed path; should any impacts occur, they would be short- and long-term negligible adverse and local.

Rare and Sensitive Plants. There are no known populations of rare and sensitive plants along Segment II of Alternative Alignment A. If rare and sensitive species are found during surveys, additional mitigation measures would be incorporated. No impacts to rare and sensitive plants would likely occur for Segment II of Alternative Alignment A.

Segments IIIa-c: Bryce Canyon National Park. For Segment IIIa of Alternative Alignment A (see Figure 6a), the final paved path would result in approximately 2.34 acres of permanent disturbance. In addition, approximately 0.15 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 2.49 acres.

For Segment IIIb of Alternative Alignment A (see Figure 6b), the final paved path would result in approximately 2.12 acres of permanent disturbance. In addition, approximately 0.15 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 2.27 acres. For this segment of Alternative Alignment A, a portion of the alignment would occur within previously disturbed areas such as old roadbeds, existing unpaved roads and parking areas, and sewer line disturbance areas.

For Segment IIIc of Alternative Alignment A (see Figure 6c), the final paved path would result in approximately 3.95 acres of permanent disturbance. In addition, approximately 0.20 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 4.15 acres.

Utah Prairie dog. Under Alternative Alignment A, acres of occupied and mapped Utah prairie dog habitat for Segments IIIa-c of the proposed path would include the following:

- Segment IIIa: There would be 17.36 acres within one-half mile of occupied Utah prairie dog habitat and 78.17 acres within one-half mile of mapped (not currently occupied) Utah prairie dog habitat.

- Segment IIIb: There would be 8.76 acres within one-half mile of occupied Utah prairie dog habitat and 32.94 acres within one-half mile of mapped Utah prairie dog habitat.

- Segment IIIc: There would be no occupied Utah prairie dog habitat within one-half mile of this segment. There would be 51.74 acres within one-half mile of mapped Utah prairie dog habitat.

Development of Segments IIIa-c of the proposed path would not result in direct impacts on occupied or mapped Utah prairie dog habitat. Path construction and recreational use, including two rest areas, would occur within 350 feet of Utah prairie dog mapped (not known to be occupied) habitat ; however, the area is relatively small (4.4 acres). The majority of these 4.4 acres occurs within an area developed for the park sewer line and is no longer considered suitable habitat due to the construction disturbance. The habitat between the unvegetated sewer line construction scar and the meadow (mapped Utah prairie dog habitat) consists primarily of ponderosa pines, which is not suitable habitat.

The remainder of the proposed path that overlaps with the ½ mile buffer zone along Segments IIIa-c occurs primarily within high visitor use areas of the park. Near the Visitor Center, the proposed path traverses the Dave's Hollow West colony buffer zone. Within this area, the alignment occurs within ponderosa pine forest as well as adjacent to the main park road, which experiences high visitor use. This area is not considered suitable Utah prairie dog habitat.

Direct and indirect impacts on Utah prairie dogs may include noise and ground vibration associated with path construction, potential construction or recreational use of the path resulting in an increase in human activity along the proposed path, and disturbance due to maintenance and recreational activities. Recreational use of the path could also result in mortality of individual species from collisions with bicyclists (Knight and Cole 1991). Mortality from bike collision would likely be unlikely due to bike travel speeds and relative good visibility along the proposed path. Noise and increased human activity may result in reduced prairie dog foraging or possible temporary displacement and cause stress to prairie dogs in the area. Utah prairie dog occupied habitat near the proposed path is close to existing areas with high levels of existing human activity where prairie dogs have likely become habituated. The proximity to existing activity areas and prairie dog habituation would lessen the effects of disturbances (USFWS 2014b).

To avoid, minimize, and reduce potential impacts to Utah prairie dogs during construction, the following mitigation measures would be implemented during and after construction:

- Silt fences will be utilized during construction within mapped habitat areas to deter Utah prairie dogs from entering the construction zone.
- Path construction within mapped habitat would occur between June 15 and August 31 to reduce impacts to Utah prairie dog pre-hibernation.
- Construction personnel will be informed of appropriate activities around colonies, and the construction contract will require the cessation of construction activities that have a detectably detrimental effect on Utah prairie dogs in the area.
- Path construction near the Dave's Hollow East, Dave's Hollow West, Historic Housing, and Sunset Point colonies will be monitored by a park biologist.
- If during construction monitoring the park biologist determines that impacts to individual Utah prairie dogs or colonies is occurring beyond temporary, minimal disturbance, the park will stop work and reinitiate consultation with the USFWS.

The path is meant to consolidate social trailing and clarify circulation and wayfinding, which would help reduce new social trails, particularly in areas near occupied Utah prairie dog habitat. The park would also monitor visitor use of the path. If additional social trails or disturbance to occupied Utah prairie dog habitat were to be identified, the park would take corrective action such as placing signs and providing interpretation to discourage social trails and disturbance, as well as placing physical barriers (e.g., fencing) if necessary. In addition, ongoing management actions, such as interpretive efforts to educate visitors on decreasing their impacts and implementation of the conservation measures in the Utah Prairie Dog Stewardship Plan (currently in process), would help minimize the effects of impacts.

Overall, with implementation of mitigation measures as outlined above, adverse impacts on Utah prairie dog from Alternative Alignment A for Segments IIIa-c would be short- and long-term minor adverse and local. Based on consultation with the USFWS, the proposed path under Alternative Alignment A may affect, but not likely adversely affect Utah prairie dog populations in the area.

USFS Sensitive Species. USFS sensitive species may occur near Segments IIIa-c. Potential impacts would be similar to those detailed for Segment II. These impacts would affect few individuals of the overall populations of these species. Under Alternative Alignment A, impacts on USFS sensitive species would be short- and long-term negligible adverse and local.

Dixie National Forest Management Indicator Species. Dixie National Forest Management Indicator Species may occur near Segments IIIa-c. Potential impacts would be similar to those detailed for Segment II. These impacts would affect few individuals of the overall populations of these species. Under Alternative Alignment A, impacts on USFS sensitive species would be short- and long-term negligible adverse and local.

State-listed Species. State-listed species may occur near Segments IIIa-c; however, these species are rarely found or only seasonal visitors to the project area. Under Alternative Alignment A, direct and indirect impacts on state-listed species would not likely occur from development of Segment IIIa-c of the proposed path; should any impacts occur, they would be short-term negligible adverse and local.

Rare and Sensitive Plants. There are known populations of rare and sensitive plants along Segment IIIc of Alternative Alignment A. These rare and sensitive species include the bristlecone pine community. Segment IIIc of Alternative Alignment A has been adjusted to avoid disturbance of the sensitive bristlecone pine community, as well as other rare and sensitive species and habitats. Impacts could potentially occur during construction. Adverse impacts would include trampling, disturbance, and loss of rare and sensitive species from construction activities and social trailing. Pre-construction surveys for rare and sensitive plants would be conducted in any areas suspected of containing these populations, however, and salvage via transplant would be conducted when feasible to minimize any impacts. In addition, the path is meant to consolidate social trailing and clarify circulation and wayfinding, which would help reduce new social trails. The park would also monitor visitor use of the path. If additional social trails were to be identified, the park would take corrective action such as placing signs and providing interpretation to discourage social training, as well as placing physical barriers (e.g., fencing) if necessary. Overall, impacts on rare and sensitive plants along Segment IIIc would be long-term minor adverse and local. No impacts to rare and sensitive plant species are anticipated along Segments IIIa and IIIb.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, and rare and sensitive plants in the project area include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities (inside and adjacent to park), facility and visitor service improvement construction projects (such as wildlife-viewing pullouts, walkways, fencing, and trails), visitor use activities (visitor travel in private vehicles primarily), vegetation management activities (such as vegetation removal activities, revegetation, invasive species management, and prescribed burns), utility development in and adjacent to the project area (including transmission and sewer lines), habitat conservation planning (Bryce Canyon City Habitat Conservation Plan), prairie dog translocations and flea dusting activities, and urban development (primarily in Bryce Canyon City).

Adverse impacts could occur to these species from wildland fires, disease, disturbance from visitor activities, trampling, and vehicle strikes in locations where species are found near developed areas or adjacent to roadways. Adverse impacts include disturbance to feeding, disturbance of nesting or breeding activity due to noise or human presence, stress, or mortality from vehicle or bicycle strikes. Activities in and adjacent to the project area contribute to adverse cumulative effects to individual special status species, populations would not be affected overall. Alternative Alignment A would likely contribute to the cumulative impacts to these species within the project areas, impacts would be long-term minor and at a local scale.

Most of these activities and projects would occur in or near existing developed and human activity areas. Adverse impacts on special status species would be unlikely in these areas or would be minimal because of lack of suitable habitat or because species have become habituated to human presence. Greater adverse impacts on Utah prairie dogs would likely occur from projects and activities that substantially alter prairie dog habitat or behavior, such as the Multimodal Transportation Plan. Future implementation of the park's Utah Prairie Dog Stewardship Plan would result in the implementation of conservation measures that would help mitigate ongoing and potential additional adverse impacts such as human disturbance to habitat, habitat fragmentation, and vehicle strikes. Implementation of mitigation measures during construction as well as monitoring of visitor use and mitigation for social trailing would also reduce potential

impacts. Overall, the cumulative impacts from past, present, and reasonably foreseeable future projects in combination with the impacts of Alternative Alignment A would be short- and long-term minor adverse. Any additional impacts from increased visitation are expected to be long-term negligible to minor. Cumulative effects would be long-term minor adverse and local.

Conclusion. Under Alternative Alignment A, development of the proposed path would result in impacts from path-related construction and recreational use on Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, and rare and sensitive plants. Mitigation measures would be implemented to reduce the extent and duration of impacts. Impacts would be short- and long-term negligible to minor adverse and local. Alternative Alignment A would likely contribute to the cumulative impacts on these species in the project area; impacts would be long-term minor adverse and local.

Impacts of Alternative Alignment B

Under Alternative Alignment B, there would be approximately 8.2 acres of permanent disturbance on vegetation communities within the proposed path footprint, rest areas, and spurs. The majority of the path impact area would occur in ponderosa pine communities (5.75 acres), with 2.9 acres occurring within roadways or mixed urban or built-up land areas.

Segment I: Bryce Canyon City. For the Bryce Canyon City segment of Alternative Alignment B (see Figure 7), the final paved path would result in approximately 0.41 acre of permanent disturbance. In addition, approximately 0.1 acre of permanent disturbance would occur from the development of a rest area, for a total of approximately 0.51 acre. No vegetation would be disturbed along the existing paved or non-paved access roads.

Utah Prairie dog. Under Alternative Alignment B, there would be no direct impacts on occupied Utah prairie dog habitat for Segment I. There is 0.14 acre of mapped (not known to be occupied) habitat within 350 feet and 31.31 acres within one-half mile of the proposed path along this segment. Although the proposed path would be within the 350-foot and one-half-mile buffers, major development (including roads and parking) currently exists between the path alignment and the mapped habitat; thus the path is not expected to affect potential future prairie dog use or dispersal to this habitat. Development of Segment I would not likely result in direct or indirect adverse impacts on Utah prairie dog.

USFS Sensitive Species. Impacts on USFS sensitive species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Direct and indirect impacts on USFS sensitive species would not likely occur from development of Segment I of the proposed path; should any impacts occur, they would be negligible adverse and local.

Dixie National Forest Management Indicator Species. Impacts on Dixie National Forest Management Indicator Species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Impacts on Dixie National Forest Management Indicator Species would be short- and long-term negligible adverse and local.

State-listed Species. Impacts on state-listed species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Direct and indirect impacts on state-

listed species would not likely occur from development of Segment I of the proposed path; should any impacts occur, they would be short-term negligible adverse and local.

Rare and Sensitive Plants. There are no known populations of rare and sensitive plants along Segment I of Alternative Alignment B. No impacts on rare and sensitive plants would likely occur for Segment I of Alternative Alignment B.

Segment II: USFS – Dixie National Forest. For the Dixie National Forest segment of Alternative Alignment B (see Figure 8), the final paved path would be similar to Alignment A and result in approximately 1.11 acres of permanent disturbance. In addition, approximately 0.20 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 1.31 acres. No vegetation would be disturbed along the existing roadways.

Utah Prairie dog. Under Alternative Alignment B, there would be no direct or indirect impacts on occupied Utah prairie dog habitat within 350 feet or one-half mile of Segment II. There is 0.06 acre of mapped (not known to be occupied) habitat within 350 feet and 19.17 acres within one-half mile of this segment. The majority of the path alignment within Segment II is through ponderosa pine-dominated forested land that currently experiences heavy visitor use. The path alignment within Segment II would avoid any meadow habitat. Potential impacts on Utah prairie dogs under Alternative Alignment B for Segment II would be similar to those detailed under Alternative Alignment A. Under Alternative Alignment B, impacts on Utah prairie dog within Segment II would be short- and long-term minor adverse and local.

USFS Sensitive Species. Impacts on USFS sensitive species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. The majority of the path alignment within Segment II is through ponderosa pine-dominated forested land that currently experiences heavy visitor use. Impacts on USFS sensitive species would be short- and long-term negligible to minor adverse and local.

Dixie National Forest Management Indicator Species. Impacts on Dixie National Forest Management Indicator Species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. The proximity of most of the path within this segment to existing development and visitor use would lessen the potential effects from construction activities and use of the path, because species are either less likely to currently be using nearby habitat or they have become habituated to human presence. Impacts on Dixie National Forest Management Indicator Species would be short- and long-term negligible to minor adverse and local.

State-listed Species. Impacts on state-listed species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Any loss of foraging and roosting habitat along the path alignment would be an incrementally small decrease in the extent of available habitat, and removal of large snags and roosting trees would be avoided to the extent possible. Direct and indirect impacts on state-listed species would not likely occur from development of Segment II; should any impacts occur, they would be short- to long-term negligible adverse and local.

Rare and Sensitive Plants. There are no known populations of rare and sensitive plants along Segment II under Alternative Alignment B. If rare and sensitive plants are found during surveys,

additional mitigation measures would be incorporated. No impacts on rare and sensitive plants would likely occur along Segment II under Alternative Alignment B.

Segments IIIa-c: Bryce Canyon National Park. For Segment IIIa of Alternative Alignment B (see Figure 9a), the final paved path would result in approximately 1.23 acres of permanent disturbance. In addition, approximately 0.15 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 1.38 acres. No vegetation would be disturbed along the existing roadways or in the mixed urban or built-up land areas.

For Segment IIIb of Alternative Alignment B (see Figure 9b), the final paved path would result in approximately 2.62 acres of permanent disturbance. In addition, approximately 0.15 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 2.77 acres. For this segment of Alternative Alignment B, a portion of the alignment would occur within previously disturbed areas such as old roadbeds, existing unpaved roads and parking areas, and sewer line disturbance areas.

For Segment IIIc of Alternative Alignment B (see Figure 9c), the final paved path would result in approximately 2.07 acres of permanent disturbance. In addition, approximately 0.20 acre of permanent disturbance would occur from the development of rest areas and spurs, for a total of approximately 2.27 acres. No vegetation would be disturbed along the existing roadways.

Utah Prairie dog. Under Alternative Alignment B, acres of occupied and mapped Utah prairie dog habitat for Segments IIIa-c of the proposed path would include the following:

- Segment IIIa: There would be 17.35 acres within one-half mile of occupied Utah prairie dog habitat and 75.09 acres within one-half mile of mapped Utah prairie dog habitat.

- Segment IIIb: There would be 16.63 acres within one-half mile of occupied Utah prairie dog habitat and 43.67 acres within one-half mile of mapped Utah prairie dog habitat.

- Segment IIIc: There would be no occupied Utah prairie dog habitat within one-half mile of this segment. There would be 49.65 acres within one-half mile of mapped Utah prairie dog habitat.

Development of Segments IIIa-c under Alternative Alignment B would not result in direct impacts on occupied or mapped Utah prairie dog habitat. Path construction and recreational use, including two rest areas, would occur within 350 feet of Utah prairie dog mapped (not known to be occupied) habitat ; however, the area is relatively small (8,76 acres), but larger than under Alternative Alignment A. Direct and indirect impacts on Utah prairie dogs, as well as mitigation measures, would be similar as detailed for Alternative Alignment A. Adverse impacts on Utah prairie dogs under Alternative Alignment B would be short- and long-term minor adverse and local. Based on ongoing consultation with the USFWS, Alternative Alignment B would may affect, but not likely adversely affect Utah prairie dog populations in the area.

USFS Sensitive Species. Impacts on USFS sensitive species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Impacts on USFS sensitive species would be short- and long-term negligible adverse and local.

Dixie National Forest Management Indicator Species. Impacts on Dixie National Forest Management Indicator Species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Impacts on Dixie National Forest Management Indicator Species would be short- and long-term negligible adverse and local.

State-listed Species. Impacts on state-listed species under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Direct and indirect impacts on state-listed species would not likely occur from development of Segment IIIa-c; should any impacts occur, they would be short-term negligible adverse and local.

Rare and Sensitive Plants. Impacts on rare and sensitive plants under Alternative Alignment B would be similar to those detailed under Alternative Alignment A, except in Segment IIIc. Within this segment of Alternative Alignment B, there are known populations of rare and sensitive plants. These rare and sensitive species include the bristlecone pine community and sensitive plant species. Under Alternative Alignment B, cut and fill may be required within approximately 0.5 acre of Segment IIIc within and adjacent to the sensitive bristlecone pine community and sensitive plant community habitat. Overall, impacts on rare and sensitive plants along Segment IIIc would be long-term moderate adverse and local. No impacts to rare and sensitive plant species are anticipated along Segments IIIa and IIIb.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, and rare and sensitive plants would be similar to those outlined for Alternative Alignment A. Activities in and adjacent to the project area contribute to adverse cumulative effects to individual special status species, populations would not be affected overall. Alternative Alignment B would likely contribute to the cumulative impacts on these species in the project area; impacts would be long-term minor adverse and local.

Conclusion. Under Alternative Alignment B, development of the proposed path would result in impacts from path-related construction and recreational use on Utah prairie dogs, USFS sensitive species, Dixie National Forest Management Indicator Species, state-listed species, and rare and sensitive plants. Mitigation measures would be implemented to reduce the extent and duration of impacts. Impacts would be short- and long-term negligible to moderate adverse and local. Alternative Alignment B would likely contribute to the cumulative impacts on these species in the project area; impacts would be long-term moderate adverse and local.

WILDLIFE OR WILDLIFE HABITAT AND INTRODUCTION OF NATIVE AND NONNATIVE WILDLIFE SPECIES

Affected Environment

Migratory birds. Protection under the Migratory Bird Treaty Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products. In addition, this act serves to protect environmental conditions for migratory birds from pollution or other ecosystem degradations. Federal agencies are directed to ensure that federal actions are not likely to have a measureable, negative effect on migratory birds.

The Bald and Golden Eagle Protection Act of 1940, as amended, specifically provides protection for bald and golden eagles and their parts, including eggs, nests, and feathers. The Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances establishes guidance for raptor protection locally.

A variety of migratory birds use the project area. Raptor species have been observed using meadow habitat as foraging grounds and possibly nest in trees along the edge of meadows.

Segment I: Bryce Canyon City. The land in and adjacent to Bryce Canyon City, including the starting point for the path at the shuttle staging area, is primarily developed and disturbed by human use. Ponderosa pine and mixed mountain shrub woodland complex is the dominant vegetation community in the project area. A variety of terrestrial wildlife occurs in both disturbed and undisturbed areas surrounding the Bryce Canyon City segment of the project area, many of which also occur in the park (listed for the park segment below).

Segment II: USFS – Dixie National Forest. Ponderosa pine and mixed mountain shrub woodland complex is the dominant vegetation community in the alignment corridor in the Dixie National Forest segment of the proposed project. A variety of wildlife is supported by this vegetation community in the forest. There are several species of birds and some mammals, many of which also occur in the park (listed for the park segment below). Several species are migratory and not year-round residents in the project area.

Segments IIIa-c: Bryce Canyon National Park. According to the 2006 Management Policies, the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of animals (NPS 2006a).

Ponderosa pine woodlands are the dominant vegetation communities in the park segment of the project area; however, a variety of habitats exist in the project area. A variety of birds and mammals are supported by these vegetation communities. Common mammals found in the park include: least chipmunk (*Neotamias minimus*), Uinta chipmunk (*Neotamias umbrinus*), golden-mantled ground squirrel (*Ammospermophilus leucurus*), deer mouse (*Peromyscus maniculatus*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antiocapra americana*; NPS 2014b).

Common birds include: Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), white-throated swift (*Aeronautes saxatalis*), several species of hummingbirds, Say's phoebe (*Sayornis saya*), Stellar's jay (*Cyanocitta stelleri*), Clark's nuthatch (*Nucifraga columbiana*), common raven (*Corvus corax*), several species of swallows, and a variety of other migratory and resident species (NPS 2014c).

Intensity Level Definitions

Impacts on wildlife and wildlife habitat were determined based on the following impact definitions and thresholds.

Negligible. Wildlife would not be affected or the effects would be at or below the level of detection, would be short-term, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the wildlife species' population.

Minor. Effects to wildlife would be detectable, although the effects would be localized, and would be small and of little consequence to the species' population. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate. Effects to wildlife would be readily detectable, long-term and localized, with consequences at the population level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.

Major. Effects to wildlife would be obvious, long-term, and would have substantial consequences to wildlife populations in the region. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Short-term Impacts. Species recovers in less than 1 year.

Long-term Impacts. Species requires more than 1 year to recover.

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed and no impacts on wildlife species would occur from path-related construction and recreational use. Vehicle congestion, user conflicts, and visitor and transportation safety issues would continue and possibly worsen as visitation increases in the future. Bicyclists and pedestrians would continue to share State Route 63 and the main park road with automobiles. Much of the vegetation and soil in the project area would remain undisturbed, although social trailing would likely continue.

The existing condition for wildlife and habitat may deteriorate due to increased visitation. Continued private vehicle parking issues may result in impacts on undisturbed areas adjacent to roadways and parking lots. Human activities near undisturbed areas may result in adverse effects on wildlife behavior by causing disturbance to foraging, breeding, or nesting. An increase in human-related impacts could result in short- and long-term minor adverse impacts on wildlife and habitat.

The expected trend of increasing visitation would continue to result in short- and long-term minor adverse effects on wildlife from potential disturbance of habitat from visitors as well as increased potential for vehicle / wildlife strikes.

In general, no appreciable change in development or visitor use patterns is expected under the No-action Alternative. Increases in visitation are expected to occur in and near existing developed and human activity areas that have already altered habitat, and that have resulted in some level of wildlife displacement or habituation. Potential effects from visitation increase would be lessened due to this existing disturbance. In addition, ongoing management actions, such as interpretive efforts to educate visitors on decreasing their impacts, would help minimize the effects of some of these ongoing impacts. Consequently any additional impacts to wildlife are expected to be incrementally small in extent and long-term minor adverse.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect wildlife and habitat in the project area include: transportation system improvement projects

under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities (inside and adjacent to park), facility and visitor service improvement construction projects (such as wildlife-viewing pullouts, walkways, fencing, and trails), visitor use activities (visitor travel in private vehicles primarily), vegetation management activities (such as vegetation removal activities and prescribed burns), utility development in and adjacent to the project area (including transmission and sewer lines), habitat conservation planning (Bryce Canyon City Habitat Conservation Plan), prairie dog translocations and flea dusting activities, and urban development (primarily in Bryce Canyon City).

Adverse impacts could occur to wildlife and habitat from wildland fires, the presence of plague, and vehicle strikes in locations where wildlife species are found near roadways. Impacts on wildlife in the project area are also occurring on adjacent lands. Activities in and adjacent to the project area contribute to adverse cumulative effects on the wildlife and habitat. Most of these activities and projects would occur in or near existing developed and human activity areas. Adverse impacts on wildlife would be unlikely in these areas or would be minimal because of lack of suitable habitat or because species have become habituated to human presence. Overall, the cumulative impacts from past, present, and reasonably foreseeable future projects in combination with the impacts of the No-action alternative would be short- and long-term minor and adverse.

Conclusion. Under the No-action Alternative, the proposed path would not be developed, and no impacts on wildlife would occur from path-related construction and recreational use. Ongoing and planned activities would continue, and the expected trend of increasing visitation would likely result in adverse impacts. Ongoing and likely continuing disturbance of wildlife species from visitor use would result in long-term minor adverse impacts. Cumulative effects would be long-term minor adverse and local.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, there would be approximately 10.5 acres of permanent disturbance to vegetation communities within the proposed path footprint, rest areas, and spurs. The majority of the path impact area would occur in ponderosa pine communities (8.22 acres), with 0.8 acre occurring within roadways or mixed urban or built-up land areas.

Segment I: Bryce Canyon City. For the Bryce Canyon City segment of Alternative Alignment A (see Figure 4), the final paved path would result in approximately 0.31 acre of permanent disturbance. The majority of the area surrounding Segment I is mixed urban use. Minimal, if any, vegetation occurs in these areas, and impacts on wildlife are anticipated to be minimal. Wildlife near high visitor use areas (such as the shuttle hub, roadways, and off-highway vehicle trails) are likely acclimatized to vehicle traffic, human presence, and related noises due to their proximity to the existing roadways and parking lots. Adverse impacts would be small and of little consequence to the species' population, and mitigation measures outlined in Chapter 2 would further minimize impacts. Impacts on wildlife would be short-term (temporary) and minor adverse as compared to the existing condition.

Segment II: USFS – Dixie National Forest. For the Dixie National Forest segment of Alignment A (see Figure 5), the final paved path would result in a total of approximately 1.27 acres of permanent disturbance. Construction of the proposed project may result in disturbance to individual wildlife from noise, dust, ground vibration, and increased human presence while

construction is occurring. Noise and increased human activity may result in reduced foraging or possible temporary displacement and cause stress to wildlife in the area.

Once constructed, visitor use (pedestrians, dogs and bicyclists) and presence of the path would likely result in adverse impacts on wildlife species. Impacts would be similar to those discussed under special status species and include fragmentation of wildlife habitat, an increase in invasive species, diminished habitat quality, edge effects, affects to dispersal or migration, and alterations that could lead to increased predation for some species (Jordan 2000). The presence of visitors and their dogs may cause avoidance behavior in wildlife, attraction to human-provided food sources, and possibly affect foraging, nesting, and roosting / resting activities (Jordan 2000). Recreational use of the path could also result in mortality of individual species from collisions with cyclists (Knight and Cole 1991). Vegetation disturbance and visitor use of the path may also result in an increase of invasive wildlife species in the vicinity (related to edge effects).

The proximity of most of the path within this segment to existing development and visitor use would lessen the potential effects from construction activities and use of the path because wildlife species are either less likely to currently use nearby habitat or they have become habituated to human presence. Any loss of foraging and roosting habitat along the path alignment would be an incrementally small decrease in the extent of available habitat, and removal of large snags and roosting trees would be avoided to the extent possible. To minimize negative impacts on nesting birds, tree removal would not occur during nesting season, generally from April 1 through July 31. If construction activities or tree cutting is required during this time, pre-tree cutting bird surveys would be conducted for nests. If nests are found, no construction activities would be conducted in identified nesting areas (including buffer zones) until the young have fledged. Adverse impacts would be small and of little consequence to the species' population. Disturbances would result in an incrementally small decrease in available habitat. Mitigation measures outlined in Chapter 2 would further minimize impacts. Under Alternative Alignment B within Segment II, path construction-related effects on wildlife would be short- and long-term minor adverse and local.

Segments IIIa-c: Bryce Canyon National Park. For Segments IIIa-c of Alternative Alignment A (see Figures 6a-c), the final paved path would result in approximately 8.9 acres of permanent disturbance. For Segment IIIb of Alternative Alignment A, a portion of the alignment would occur within previously disturbed areas such as old roadbeds, existing unpaved roads and parking areas, and sewer line disturbance areas. Adverse impacts on wildlife in the park segments would be similar to those discussed above under Segment I and Segment II.

Portions of the path within the park on the south end of the alignment (Segment IIIc) are near meadow habitat and wildlife movement corridors, including an important fawning area for pronghorn. Vegetation surrounding areas used for fawning, such as ponderosa pine-forested areas, would provide screening and reduce potential impacts. The proposed path may be closed during fawning season if monitoring indicates impacts from the path are occurring.

A portion of Segment IIIc departs approximately 800 feet from Bryce Point Road to avoid sensitive plant habitat. As a result, some wildlife habitat would be isolated between the road and the multi-use path alignment.

Any loss of foraging and roosting habitat along the path alignment would be an incrementally small decrease in the extent of available habitat. Removal of large snags and roosting trees would be avoided to the extent possible. Ongoing management actions, such as interpretive efforts to

educate visitors on decreasing their impacts, would help minimize the effects of impacts. Mitigation measures outlined in Table 2 would be implemented to reduce and avoid adverse impacts on wildlife, particularly on sensitive habitats such as nesting and fawning areas. Adverse impacts would be small and of little consequence to the species' population. Disturbances would result in an incrementally small decrease in available habitat. Overall, development of the proposed path under Alternative Alignment A would likely result in short- and long-term minor adverse impacts at a local scale on wildlife and habitat due to construction and visitor use.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment A would be the same as described under the No-action Alternative. Implementing the Alternative Alignment A would likely result in short- and long-term minor adverse impacts on wildlife and habitat. Impacts on wildlife and habitat are also occurring on adjacent lands. Activities in and adjacent to the alignment corridor contribute to adverse cumulative effects on wildlife and habitat. The overall cumulative impacts to wildlife and wildlife habitat from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment A would be short- and long-term minor adverse and local.

Most of these activities and projects would occur in or near existing developed and human activity areas. Adverse impacts on wildlife species would be unlikely in these areas or would be minimal because of lack of suitable habitat or because species have become habituated to human presence. Implementation of mitigation measures during construction as well as monitoring of visitor use and mitigation for social trailing would also reduce potential impacts. Overall, the cumulative impacts from past, present, and reasonably foreseeable future projects in combination with the impacts of Alternative Alignment A would be short- and long-term, minor and adverse.

Conclusion. Under Alternative Alignment A, development of the proposed path would result in impacts from path-related construction and recreational use on wildlife. Mitigation measures would be implemented to reduce impacts. Impacts would be short- and long-term minor adverse and local. Alternative Alignment A would likely contribute to the cumulative impacts on wildlife species in the project area; cumulative impacts would be long-term minor adverse and local.

Impacts of Alternative Alignment B

Segment I: Bryce Canyon City. For the Bryce Canyon City segment of Alternative Alignment B (see Figure 7), the final paved path would result in approximately 0.51 acre of permanent disturbance. The majority of the area surrounding Segment I is mixed urban use. Impacts under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Impacts on wildlife would be short-term (temporary) minor adverse and local

Segment II: USFS – Dixie National Forest. For the Dixie National Forest segment of Alignment B (see Figure 8), the final paved path would result in a total of approximately 1.31 acres of permanent disturbance. The majority of the path alignment within Segment II is through ponderosa pine-dominated forested land that currently experiences heavy visitor use. Impacts of Alternative Alignment B would be similar to those detailed under Alternative Alignment A, impacts on wildlife would be short- and long term minor adverse and at a local scale.

Segments IIIa-c: Bryce Canyon National Park. For Segments IIIa-c of Alternative Alignment B (see Figures 9a-c), the final paved path would result in a total of approximately 6.42 acres of

permanent disturbance. Adverse impacts on wildlife for the park segments would be similar to those discussed above under Segment I and Segment II. For Segment IIIb of Alternative Alignment B, a portion of the alignment would occur within previously disturbed areas such as old roadbeds, existing unpaved roads and parking areas, and sewer line disturbance areas.

Portions of the path in the park on the south end of the alignment (Segment IIIc) are near meadow habitat and wildlife movement corridors, including an important fawning area for pronghorn. Vegetation surrounding areas used for fawning, such as ponderosa pine-forested areas, would provide screening and reduce potential impacts. The proposed path may be closed during fawning season if monitoring indicates impacts from the path are occurring.

Any loss of foraging and roosting habitat along the path alignment would be an incrementally small decrease in the extent of available habitat. Removal of large snags and roosting trees would be avoided to the extent possible.

Ongoing management actions, such as interpretive efforts to educate visitors on decreasing their impacts, would help minimize the effects of impacts. Mitigation measures outlined in Table 2 would be implemented to reduce and avoid adverse impacts on wildlife, particularly to sensitive habitats such as nesting and fawning areas. Impacts under Alternative Alignment B would be similar to those detailed under Alternative Alignment A. Adverse impacts would be small and of little consequence to the species' population. Disturbances would result in an incrementally small decrease in available habitat. Development of Alternative Alignment B would likely result in short- and long-term minor adverse impacts at a local scale on wildlife and habitat due to construction and visitor use.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Implementing the Alternative Alignment B would likely result in short- and long-term minor adverse impacts on wildlife and habitat. Impacts on wildlife and habitat are also occurring on adjacent lands. Activities in and adjacent to the alignment corridor contribute to adverse cumulative effects on wildlife and habitat. The overall cumulative impacts to wildlife and wildlife habitat from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would be short- and long-term minor adverse and local.

Conclusion. Under Alternative Alignment B, development of the proposed path would result in impacts from path-related construction and recreational use on wildlife. Mitigation measures would be implemented to reduce impacts. Impacts would be short- and long-term minor adverse and local. Alternative Alignment B would likely contribute to the cumulative impacts on wildlife species in the project area; cumulative impacts would be long-term minor adverse and local.

CULTURAL LANDSCAPES

Affected Environment

According to the NPS DO-28 Cultural Resource Management Guideline, 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.

Five cultural landscapes have been identified in the park (Segment III), including Bryce Canyon Lodge and Deluxe Cabins area, Bryce Inn (Sunrise Camper Store / General Store), Rim Road, Old NPS Housing Historic District, and Bryce Canyon National Park Scenic Trails Historic District. The latter one falls outside the proposed visitor path alignments for both the Preferred Alternative and Alternative Alignment B and will not be discussed further. Cultural landscape inventories have been completed is for Bryce Inn and Rim Road. A cultural landscape report has been completed for the Bryce Canyon Lodge and Deluxe Cabins Historic District and the Old NPS Housing Historic District.

No cultural landscapes exist within the Bryce Canyon City segment (Segment I) or the USFS – Dixie National Forest segment (Segment II) of the project area.

The NEPA Area of Potential Effect (APE) for Alternative Alignment A (Preferred Alternative) consists of 6.85 miles with a 100-foot alignment corridor and includes rest areas, construction staging and access areas, and spurs. The total acreage of potential disturbance is 132 acres.

The NEPA APE for Alternative Alignment B consists of 7.13 miles with a 100-foot alignment corridor and includes rest areas, construction staging and access areas, and spurs. The total acreage of potential disturbance is 102 acres.

NRHP Status. The proposed action is an undertaking as defined in Section 106 of the NHPA. Section 106 of the NHPA, as implemented (36 CFR Part 800), requires federal agencies to take into account the effects of their undertakings on historic properties. Separate documentation has been prepared to comply with Section 106 and 36 CFR Part 800.

Under the Section 106 process, the NPS is obliged to identify cultural resources within the proposed project's APE, to assess impacts on resources listed in, or eligible for listing in, the NRHP, and to mitigate adverse effects on such resources. A resource must qualify under one or more criteria (discussed below) to be considered eligible for NRHP listing. The APE is defined as the area where a project will have direct and indirect effects. As noted above, three of the cultural landscapes fall within the APE of the alternatives discussed below.

A property that qualifies for the NRHP is considered significant in terms of the planning process under the NHPA, NEPA, and other federal mandates. The National Register Criteria for Evaluation (36 CFR 60.4) provides guidance in determining a property's eligibility for listing on the NRHP. This states that the quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

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

B. is associated with the lives of persons significant in our past; or

C. embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that

represents a significant and distinguishable entity whose components may lack individual distinction; or

D. has yielded, or may be likely to yield, information important in prehistory or history [36 CFR 60.4].

To be eligible, sites must also have integrity. For criteria A, B, and C, integrity means that the property must evoke the resource's period of significance to a non-historian or non-archeologist. If site materials have been removed or vandalized to the extent that an ordinary citizen can no longer envision or grasp the historic activities that took place there, the site is said to lack integrity. Typically, archeological sites qualify for eligibility under criterion D, research potential, so integrity in this case means that the deposits are intact and undisturbed enough to make a meaningful data contribution to regional research issues.

Bryce Canyon Lodge Historic District is in Segment III of both alignment corridors (see Figures 6b and 9b). The district was listed on the NRHP in 1995 under criterion A for its association with the development of the park's recreational facilities and under criterion C for an example of rustic building design. The district includes the lodge, 6 remaining standard cabins (originally 88 cabins); 10 deluxe duplex guest cabins, 5 deluxe quadruplex cabins, men's dormitory, and employee recreation hall. The linen house and pump house are associated buildings. Of these 26 buildings, 16 were designated as a National Historic Landmark in 1987 (Caywood 1994a). The cultural landscape report expanded the district boundary to include significant contextual landscape features such as the paved and unpaved pedestrian trails, a low knoll, meadow in front of the Lodge with a tree-lined edge, parking lots, equestrian trail, Lodge Loop Road, Lodge access road(portions are non-contributing), Sunrise Motel (non-contributing), horse corral shed (non-contributing), wooden light posts (non-contributing), wood directional signs, trash receptacle (non-contributing), utility boxes (non-contributing), and rugged stone edging along roadways and parking areas (NPS 2006b).

Bryce Inn (also called Sunrise Camper Store and currently called General Store) is in Segment III of both alignment corridors (see Figures 6b and 9b). Bryce Inn was listed on the NRHP in 1995 under criterion C for its value as example of Gilbert Stanley Underwood's rustic architectural design. It was built in 1932 and was part of the housing complex with over 70 housekeeping cabins (Caywood 1994b). Bryce Inn and the Old NPS Administrative Building (currently being used as an educational center and designated the High Plateau Institute building) are the only buildings from this complex that remain (NPS 2011b). The Bryce Inn / General Store area was evaluated in 2011 and determined not to be eligible for NRHP listing as a district. Thus, Bryce Inn will not be discussed below. Impact analysis is required only for listed or eligible resources.

Rim Road is a linear circulation system originally designed to provide access to the main developed area in the park (the Lodge and cabin area) and to the lookout points into the canyon from the rim. This is the road that the visitor multi-use path project either meanders away from under the Preferred Alternative or parallels under Alternative Alignment B. Rim Road was also part of the historic "Tour Loop Road." The original 19-mile road was constructed prior to 1930. By the time of its assessment in 1998, the road was 20 miles long and had 9 pullouts and spur roads which are part of its cultural landscape along with associated buildings. Rim Road was determined to lack integrity due to changes that have significantly altered the appearance and design of the road and its cultural landscape. These changes have resulted in the road no longer reflecting the historic road design. Changes in the road alignment and width and design of the viewing areas have also affected the

integrity of design and feeling. The road was recommended not eligible for the NRHP as a cultural landscape in 1998. This changes the 1987 determination that Rim Road was eligible for the NRHP (NPS 1998). Thus, Rim Road will not be discussed below. Impact analysis is required only for listed or eligible resources.

Old NPS Housing Historic District is in Segment III of the Alternative Alignment B (see Figure 9b). It is north of Bryce Canyon Lodge Historic District along the Lodge Loop Road. The Old NPS Housing Historic District was listed on the NRHP in 1995. The district includes eight contributing buildings. It is eligible under criterion A for its association with the development of NPS administrative infrastructure in the park and under criterion C as a representative of simplified rustic design. Two new modern buildings (Concessionaire Dormitories) are visible from HS-10 (one-story residence cabin), but they do not adversely affect the remainder of the district (Caywood 1994c). The cultural landscape report differs in this aspect and indicates that these modern buildings adversely impact the district and recommended their eventual removal with visual and spatial barrier of vegetation in the meantime (NPS 2006). The cultural landscape report expanded the district boundary to include significant contextual landscape features such as the pedestrian trails, two low knolls, the surrounding ponderosa pine forest and high plateau sagebrush meadow, the Lodge Loop Road (non-contributing), two access roads, a horse trail, historic trace road, Manzanita Lodge (non-contributing), Concessionaire Dormitories (non-contributing), wood directional signs, picnic tables (non-contributing), fire pit (non-contributing), clothes line (non-contributing), low walls, and steps made of roughly hewn stone pieces (NPS 2006).

Intensity Level Definitions

Impacts on cultural landscapes were determined based on the following impact definitions and thresholds.

Negligible. Impact is at the lowest levels of detection – barely measurable with no perceptible consequences, either adverse or beneficial.

Minor. Disturbance of a cultural landscape results in little, if any, loss of integrity and impacts would not affect the character defining pattern(s) or feature(s) of a National Register of Historic Places eligible or listed property.

Moderate. Disturbance of a cultural landscape results in a loss of integrity but does not impact character defining pattern(s) or feature(s) of a property to the extent that its National Register eligibility is jeopardized.

Major. Disturbance of a cultural landscape results in loss of integrity and impacts would alter a character defining pattern(s) or feature(s) of a property to the extent that it is no longer eligible to be listed in the National Register.

Long-term Impacts. Most resources related to cultural landscapes are non-renewable, therefore, any effects would be long term.

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed. Vehicle congestion, user conflicts, and visitor and transportation safety issues would continue and

possibly worsen as visitation increases in the future. Construction and maintenance associated with ongoing and planned management and maintenance activities would likely result in a temporary disruption of the historic scene and feeling in the cultural landscape during construction. These types of activities would result in long-term negligible adverse effects. However, there would be no new construction or disturbance associated with a path and the existing cultural landscapes would not be adversely impacted.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect cultural landscapes in the park include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities; facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails), visitor use activities (hiking, biking, vehicle use), vegetation management activities (such as vegetation removal activities or restoration), and utility development in the park (including transmission and sewer lines). The overall cumulative impacts on cultural landscapes from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be long-term negligible adverse.

Conclusion. Under the No-action Alternative, ongoing and planned transportation management activities would result in short-term negligible to minor adverse impacts on cultural landscapes. Cumulative effects would be long-term negligible adverse.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, the proposed multi-use visitor path project would lead to fewer private vehicles, less vehicle congestion, and fewer traffic and parking delays in cultural landscapes in the park.

The Segment III alignment would result in long-term minor adverse effects on the Bryce Canyon Lodge Historic District. This portion of the visitor path crosses through the center of the district boundary. Some trees between the Lodge and Sunrise Motel may need to be removed for the construction of the alignment. Per the mitigation measures outlined in Table 2, impacts to native vegetation near cultural landscapes would be minimized. In particular, Treatment Guidelines provided in the Lodge Cultural Landscape Report would be used to minimize impacts. The reduction of vehicle traffic and increased pedestrians and bicyclists would likely result in beneficial effects on cultural landscapes by reducing inappropriate parking and social trails that causes damage to resources.

The visitor path does not represent a change in land use. There are existing paths within the historic district boundary. The addition of another path with appropriate design features and the removal of some trees would not affect the overall integrity and eligibility of the cultural landscape for listing in the NRHP. The appearance of the path, including any ramps, curbs, gutters, and sidewalks should match existing design and materials within the Bryce Canyon Lodge Historic District as called out in the mitigation measures in Table 2.

Construction of the visitor path would have short-term negligible adverse effect on the Bryce Canyon Lodge Historic District cultural landscape. Construction and maintenance associated with these activities would likely result in a temporary disruption of the historic scene and feeling in the cultural landscape during construction. Following construction, visual impacts on the

landscape within the historic district would be restored with the removal of construction equipment.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Implementing the Preferred Alternative would result in cutting / filling, grading, removal of some trees and vegetation for the visitor path, and focusing foot-traffic to the path. The overall cumulative impacts on cultural landscapes from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be long-term minor adverse and beneficial due to the reduction of inappropriate parking and social trails that cause damage to resources.

Conclusion. Implementing the Preferred Alternative would result in short- and long-term negligible to minor adverse impacts on cultural landscapes. Cumulative effects would be long-term minor adverse and negligible beneficial.

Impacts of Alternative Alignment B

Impacts on cultural landscapes resulting from implementing Alternative Alignment B would be similar to those under the Preferred Alternative. Alternative Alignment B would provide bicyclists and pedestrians an accessible (matching the slope of the road) route for accessing cultural landscapes on park land, but the path alignment would be in the existing transportation corridor. The incorporation of rest areas along the path would provide opportunities for interpretation (e.g., the history and cultural landscapes / historic districts).Visitor use of the path would lead to fewer private vehicles, less vehicle congestion, and fewer traffic and parking delays in these areas.

A portion of Segment III would travel along one edge of the Bryce Canyon Lodge Historic District. Some trees between the Lodge and the Loop Road may need to be removed for the construction of the alignment. Per mitigation measures outlined in Table 2, impacts to native vegetation near cultural landscapes would be minimized. In particular, Treatment Guidelines provided in the Lodge Cultural Landscape Report would be used to minimize impacts. Because the visitor path does not represent a change in land use, the addition of another path would not affect the overall integrity and eligibility of the cultural landscape for listing on the NRHP. Thus, the Segment III alignment would result in long-term minor adverse effects to the Bryce Canyon Lodge Historic District. Additionally, the reduction of vehicle traffic and increased pedestrians and bicyclists would likely result in beneficial effects on cultural landscapes by reducing inappropriate parking and social trails that cause damage to resources.

Construction of the visitor path would have short-term negligible adverse effects on the Bryce Canyon Lodge Historic District cultural landscape. Construction and maintenance associated with these activities would likely result in a temporary disruption of the historic scene and feeling in the cultural landscape during construction. Following construction, visual impacts on the landscape within the historic district would be restored with the removal of construction equipment.

A portion of Segment III would be adjacent to a couple of the access roads to the Loop Road and a horse trail within the Old NPS Housing Historic District. Segment III is not visible from the contributing buildings of the district. The Segment III alignment would result in negligible effects to the Old NPS Housing Historic District. The reduction of vehicle traffic and increased pedestrians

and bicyclists would likely result in beneficial effects on cultural landscapes by reducing inappropriate parking and social trails that causes damage to resources.

Construction of the visitor path would have short-term negligible adverse effect on the Old NPS Housing Historic District cultural landscape. Construction and maintenance associated with these activities would likely result in a temporary disruption of the historic scene and feeling in the cultural landscape during construction. Following construction, visual impacts on the landscape within the historic district would be removed with the removal of construction equipment.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Implementing Alternative Alignment B would result in cutting / filling, grading for the visitor path, removal of some trees and vegetation, and focusing foot-traffic to the path. The overall cumulative impacts on cultural landscapes from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would be long-term minor adverse and beneficial due to the reduction of inappropriate parking and social trails that cause damage to resources.

Conclusion. Implementing Alternative Alignment B would result in short-and long-term negligible to minor adverse impacts on cultural landscapes. Cumulative effects would be long-term minor adverse and negligible beneficial.

ETHNOGRAPHIC RESOURCES

Affected Environment

Ethnographic resources are the cultural and natural features of a park that are of traditional significance to traditionally associated peoples. Ethnographic resources are defined by NPS DO 28 as a "site, substance, 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." Executive Order 13007 directs federal land managing agencies to accommodate access to, and ceremonial use of, American Indian sacred sites. Specifically, federal agencies are directed to (1) accommodate access to and ceremonial use of American Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites. In accordance with Executive Order 13007 on sacred sites, NPS and USFS should try to preserve and protect ethnographic resources.

Ethnographic information is lacking and therefore poorly represented in the Bryce Canyon National Park area. NPS and USFS understand that Native Americans traditionally used the area for hunting and gathering activities and acknowledge the current importance of the area as part of the traditional homeland for several tribes. Beyond this, there is very little ethnographic information documenting the extent of the area's traditional importance and use. The archeological record indicates that during the late Prehistoric period, Numic-speaking peoples including the Southern Paiute occupied the area of the park and its vicinity. Ethnohistorical accounts and the oral history of contemporary Southern Paiute people include the Bryce Canyon National Park area. Contemporary descendants of the Southern Paiutes have traditional association with the park. Ongoing consultations with the Ute, Hopi, Navajo, Zuni, and other

tribes indicate traditional association with the Bryce Canyon area. Continuing consultation with American Indian tribes will yield better information and help the park and forest protect ethnographic resources important to native people.

The park and forest will consider all input from these tribes regarding traditional resources and uses.

Intensity Level Definitions

Impacts on ethnographic resources were determined based on the following impact definitions and thresholds.

Negligible. Impact(s) would be barely perceptible and would alter neither resource conditions—such as traditional access or site preservation—nor the relationship between the resource and the traditionally associated tribe's body of practices and beliefs.

Minor. Impact(s) would be slight but noticeable, but would neither appreciably alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the traditionally associated tribe's body of practices and beliefs.

Moderate. Impact(s) would be apparent and would alter resource conditions. Management actions or the result of actions would interfere with traditional access, site preservation, or the relationship between the resource and the traditionally associated tribe's practices and beliefs, even though the group's practices and beliefs would endure.

Major. Impact(s) would alter resource conditions. Management actions or the result of actions would block or greatly affect traditional access, site preservation, or the relationship between the resource and the traditionally associated tribe's body of practices and beliefs, to the extent that the persistence of a group's practices and / or beliefs would be jeopardized.

Short-term Impacts. Short-term impacts on a contributing feature(s) or pattern would be temporary, transitional, or construction-related. Within 5 years, effects would no longer be detectable, and the resource would be returned to its predisturbance condition or appearance.

Long-term Impacts. Impacts would last longer than 5 years or would be permanent.

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed. Vehicle congestion, user conflicts, and visitor and transportation safety issues would continue and possibly worsen as visitation increases in the future. These activities would not lead to effects on traditional access or site preservation nor the relationship between the resource and the affiliated group's body of practices and beliefs. Any existing ethnographic resource conditions, such as traditional access or site preservation, would not be expected to change.

Ongoing and planned construction and maintenance activities may lead to temporary negligible adverse effects on traditional access. Following construction, traditional access would be

restored. These activities would not lead to effects on traditional access or site preservation nor the relationship between the resource and the affiliated group's body of practices and beliefs.

Overall, impacts on ethnographic resources under the No-Action Alternative would be short-term negligible adverse.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect ethnographic resources in the park include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities; facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails), visitor use activities (hiking, biking, vehicle use), cultural resource management activities, vegetation management activities (such as vegetation removal activities, restoration, and controlled burns), and utility development in the park (including transmission and sewer lines). The overall cumulative impacts on ethnographic resources from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short-term negligible adverse.

Conclusion. Implementing the No-action Alternative would result in short-term negligible adverse effects on ethnographic resources. Cumulative effects would be short-term negligible adverse.

Impacts of Alternative Alignment A (Preferred Alternative)

The Preferred Alternative would provide bicyclists and pedestrians an accessible (5% slope or less) and safer route for traditional access by separating these users from State Route 63 and the main park road and other areas (e.g., Sunset Point) with high levels of motorized vehicle activity and potential user conflicts. Construction and maintenance activities may lead to temporary negligible adverse effects on traditional access. Following construction, traditional access would be restored. There would likely be no effects on site preservation or the relationship between the resource and the affiliated group's body of practices and beliefs. Increased non-vehicular access to the park would likely result in long-term negligible beneficial effects on ethnographic resources by reducing inappropriate parking that causes damage to resources.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Implementing the Preferred Alternative would result in cutting / filling, grading, and removal of some trees and vegetation for the visitor path. The overall cumulative impacts on ethnographic resources from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long-term negligible adverse.

Conclusion. Implementing the Preferred Alternative would result in short- and long-term, negligible adverse and beneficial effects on ethnographic resources. Cumulative effects would be short- and long-term negligible adverse.

Impacts of Alternative Alignment B

Impacts on ethnographic resources resulting from implementing Alternative Alignment B would be similar to those under the Preferred Alternative. Alternative Alignment B would provide

bicyclists and pedestrians an accessible (matching the slope of the road) route for traditional access on forest and park land, but the path alignment would be in the existing transportation corridor.

Construction and maintenance activities may lead to temporary negligible adverse effects on traditional access. Following construction, traditional access would be restored. There would likely be no effects on site preservation or the relationship between the resource and the affiliated group's body of practices and beliefs. Increased non-vehicular access to the park would likely result in long-term negligible beneficial effects on ethnographic resources by reducing inappropriate parking that causes damage to resources.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Implementing Alternative Alignment B would result in cutting / filling, grading, and removal of some trees and vegetation for the visitor path. The overall cumulative impacts on ethnographic resources from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would be short- and long-term negligible adverse.

Conclusion. Implementing Alternative Alignment B would result in short- and long-term negligible adverse and beneficial effects on ethnographic resources. Cumulative effects would be short- and long-term negligible adverse.

RECREATION OPPORTUNITIES

Affected Environment

In accordance with 2006 NPS Management Policies, the park manages recreation resources to "provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources in the park."

The unique attributes of Bryce Canyon National Park attract visitors who enjoy the wide range of recreation opportunities available in the park, including sightseeing, vehicle touring, hiking, bird watching, wildlife viewing, photography, stargazing, camping, horseback riding, snowshoeing, cross-country skiing, running, bicycling, and backpacking. Ranger interpretive programs—such as geology talks, children's programs, and rim walks—are offered year-round.

The difficulty of trails in the park ranges from short, easy walks along parts of the Rim Trail to long, strenuous hikes such as Fairyland Loop. The park's day-hiking trails provide visitors the opportunity to experience the hoodoos more closely. The Under the Rim Trail is 23 miles from Bryce Point to Rainbow Point and has 8 backcountry campsites. Backcountry visitors tend to be those seeking varying degrees of solitude, and visitors enjoy natural sounds during most of their experiences (NPS 2010a).

In addition to the backcountry campsites, the park offers two developed campgrounds for visitors. North Campground, near the visitor center, has 13 RV sites available by reservation, and 86 RV and tent sites available on a first-come, first-served basis. Sunset Campground, near Sunset Point, has 20 tent sites and 1 group site available by reservation, and 80 RV and tent sites available on a first-come, first-served basis.

Recreation is a primary use of the Dixie National Forest. Visitors come to the forest for a wide variety of recreation opportunities such as dispersed camping, hiking, skiing, off-highway vehicle and mountain bike touring. The forest also provides habitat and nonmotorized and motorized access for small and big game hunting, a highly-valued activity in southern Utah. In addition to hunting, nonmotorized and motorized trails are available for hiking, mountain biking, off-highway vehicle use, and horse riding.

The USFS uses the Recreation Opportunity Spectrum to match visitor's desires, abilities, and expectations to a particular activity and setting. The Recreation Opportunity Spectrum provides a framework for stratifying and defining classes of outdoor recreation environments, and considers social factors such as remoteness, size of the space, evidence of human activity, social encounters, and managerial presence. The following six major classes comprise the spectrum: urban, rural, roaded natural, semi-primitive nonmotorized, semi-primitive motorized, and primitive.

Intensity Level Definitions

Impacts on recreation opportunities were determined based on the following impact definitions and thresholds.

Negligible. Visitors would likely be unaware of any effects associated with implementing the alternative. There would be no noticeable changes in recreation opportunities.

Minor. Changes in recreation opportunities would be slight but detectable, but would not be appreciably diminished or enhanced. Visitor satisfaction with recreation opportunities would remain stable.

Moderate. The visitor would be aware of the effects associated with implementing the alternative and would likely be able to identify the change and its effect on their visit. Visitor satisfaction with recreation opportunities would begin to either decline or increase as a direct result of the effect.

Major. The visitor would be aware of the effects associated with implementing the alternative and would likely be able to accurately identify the change and provide a detailed expression of its effect on their visit. Visitor satisfaction with recreation opportunities would markedly decline or increase.

Short-term Impacts. The impact would occur during one high-use season.

Long-term Impacts. The impact would occur during more than one high-use season.

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed and there would be no opportunity for a direct motorized connection to the Red Canyon National Recreation Trail system and additional recreation opportunities for bicyclists and pedestrians near Bryce Canyon City that would link with the forest and the park. Recreational visits to the project area are expected to exceed 1.5 million in the immediate future. Bicyclists and pedestrians would continue to share State Route 63 and the main park road with automobiles. Key locations in the

park, such as viewpoints in the Bryce Amphitheater area, would become more congested, particularly during peak season. Over time, the ability of visitors to access and use recreation opportunities would continue to decrease, particularly in the park. Vehicle congestion and user conflicts in the project area would continue and possibly worsen as visitation increases in the future. Visitor access to and use of recreation opportunities in the forest and park would likely deteriorate in the project area due to an expected trend of increasing visitation and associated visitor and vehicle congestion. Ongoing and planned construction and maintenance activities under the No-action Alternative would likely be minimal and would include best management practices and mitigation measures, if required. Any traffic delays or visitor use disruptions during these activities would be temporary and short-term. As a result, impacts on recreation opportunities from the No-action Alternative would be short- and long-term minor to moderate adverse.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect recreation opportunities include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities, facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails), visitor use activities (hiking, biking, vehicle use), vegetation management activities (such as vegetation removal activities, restoration, and controlled burns), and utility development in the park (including transmission and sewer lines). The overall cumulative impacts on recreation opportunities from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term minor adverse and moderate beneficial.

Conclusion. Implementing the No-action Alternative would result in short- and long-term minor to moderate adverse impacts on recreation opportunities. Cumulative effects of the No-action Alternative would be short-and long-term minor adverse and moderate beneficial.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, the proposed multi-use visitor path project would be developed and would provide a connection to the Red Canyon National Recreation Trail system and access to other recreation opportunities in nearby portions of Garfield County. The Preferred Alternative would provide visitors an accessible (5% slope or less), family-friendly, and safer route for accessing recreation opportunities on forest and park lands by separating these users from State Route 63 and the main park road and other areas (e.g., Sunset Point) with high levels of motorized vehicle activity and potential user conflicts. The incorporation of rest areas along the path would provide opportunities for interpretation (e.g., the history and significance of the Great Western Trail) and other signs describing recreation opportunities available to visitors. In addition to expanding visitor appreciation of the recreation resources in the project area, signs at these locations could also communicate information about path distances to key locations (e.g., from Bryce Canyon City to the visitor center) in the forest and park. Connections to existing shuttle stops would help link visitors to recreation opportunities at key locations such as the viewpoints in the Bryce Amphitheater area. Visitor use of the path would lead to fewer private vehicles, less vehicle congestion, and fewer traffic and parking delays in these areas, which could enhance recreation opportunities while increasing the ability of visitors to participate in recreational activities. In addition, Alternative Alignment A could provide what the forest refers to as a roaded natural (within one-half mile of improved roads in a natural setting) experience of the forest and the park where the multi-use path would be separated short distances from State

Route 63 and the main park road. As a result, impacts on recreation opportunities would be short- and long-term minor to moderate beneficial.

Construction and maintenance activities under the Preferred Alternative would include best management practices and mitigation measures. These activities would likely cause some disruptions to recreation opportunities, but these impacts would be temporary and short-term negligible adverse.

Overall, impacts on recreation opportunities from implementing the Preferred Alternative would be short- and long-term negligible to minor adverse and minor to moderate beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Implementing the Preferred Alternative may result in beneficial effects on recreational opportunities. Construction activities would result in adverse impacts from disturbance due to noise, dust, ground vibration, and disruptions to recreational opportunities. Impacts on recreational opportunities in and around the park are also occurring on adjacent lands. Activities in and adjacent to the park contribute to both beneficial and adverse effects on recreational opportunities.

The overall cumulative impacts on recreation opportunities from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long- term minor adverse and moderate beneficial.

Conclusion. Implementing the Preferred Alternative would result in short- and long-term negligible to minor adverse and minor to moderate beneficial impacts on recreation opportunities. Cumulative effects of the Preferred Alternative would be short- and long- term minor adverse and moderate beneficial.

Impacts of Alternative Alignment B

Impacts on recreation opportunities resulting from implementing Alternative Alignment B would be mostly similar to those under the Preferred Alternative.

Alternative Alignment B would provide bicyclists and pedestrians an accessible (matching the slope of the road) and family-friendly route for accessing recreation opportunities on forest and park land, but the path alignment would be in the existing transportation corridor. As a result, direct access to recreation opportunities would differ little from access available to motorized vehicles. Fewer or diminished recreation opportunities (e.g., wildlife watching, photography) would exist under Alternative Alignment B than under the Preferred Alternative. In addition, Alternative Alignment B would provide a more urban and less roaded natural experience of the forest and the park than the Preferred Alternative. As a result, impacts on recreation opportunities would be short- and long-term minor adverse and minor beneficial.

Construction and maintenance activities under Alternative Alignment B would include best management practices and mitigation measures. Traffic delays and visitor use disruptions during these activities would be temporary and would result in short-term minor adverse impacts on recreation opportunities.

Overall, impacts on recreation opportunities from implementing Alternative Alignment B would be short- and long-term minor adverse and short- and long-term minor beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Implementing Alternative Alignment B would result in adverse impacts from disturbance due to noise, dust, ground vibration, and disruptions to recreational opportunities. Impacts on recreational opportunities in and around the park are also occurring on adjacent lands. Activities in and adjacent to the park contribute to both beneficial and adverse effects on recreational opportunities.

The overall cumulative impacts on recreation opportunities from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would be short- and long-term minor adverse and moderate beneficial.

Conclusion. Implementing Alternative Alignment B would result in short- and long-term minor adverse and minor beneficial impacts on recreation opportunities. Cumulative effects would be short- and long-term minor adverse and moderate beneficial.

VISITOR USE AND EXPERIENCE

Affected Environment

According to the 2006 NPS Management Policies, the enjoyment of park resources and values by people is part of the fundamental purpose of all park units. The NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks, and will maintain in the parks an atmosphere that is open, inviting, and accessible to every segment of society. Further, the NPS will provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in the parks. The 2006 NPS Management Policies also state that scenic views, soundscapes, and visual resources are considered highly valued associated characteristics that the NPS should strive to protect.

Bryce Canyon National Park is a high-profile national park with visitors from all over the world. Visitation at the park has steadily increased from 890, 676 in 2006 to 1,285,492 in 2010 (NPS 2010a). The peak visitation period for the park is April through October, and the locations visited by the majority of visitors include Sunset Point and Sunrise Point in the Bryce Amphitheater, as well as the visitor center (NPS 2010a). Visitors primarily come to the park for the scenic vistas, but many also watch wildlife, take photos, hike, camp, and stargaze while in the park.

Visitors access the park from State Route 63, which begins at the junction with State Route 12 and runs south into the park where it becomes the main park road. There are three entrance lanes with fee booths and one shuttle bus / administrative lane south of the park entrance gate near the visitor center. According to the park's unpublished 2010 traffic counts, the entrance station averaged 55,832 vehicles a month from April to October, with a peak of 75,700 in July. Visitors may access the northeastern portion of the park via State Route 12; there are no fee booths in this section of the park. The 2010 traffic counts on State Route 12 averaged 26,363 vehicles a month from April to October. Bicyclists also can use State Route 63 and State Route 12 to access the park, but neither route has bicycle lanes or wide shoulders.

Nearly half (48%) of visitors surveyed in the 2009 visitor study used the shuttle system to access and travel in the park (NPS 2010d). The free shuttle system operates during peak visitation and offers two routes—Bryce Canyon Shuttle and Rainbow Point Shuttle Tour. Service for both shuttles begins at the staging area in Bryce Canyon City; Bryce Canyon Shuttle ends at Bryce Point and Rainbow Point Shuttle Tour runs the length of the park to Rainbow Point at the southern terminus of the main park road. More information about the park's shuttle service is available in the Bryce Canyon National Park Multimodal Transportation Plan Existing Conditions Report (URS 2012).

Most visitors travel to and in the park by private vehicle, by which they experience the most common activities of visitors surveyed in 2009: sightseeing / scenic drive, photography, and day hiking. Three percent of visitors listed bicycling as an expected activity during their visit. Nearly all visitors surveyed (98%) rated the park's scenic vistas as extremely or very important (NPS 2010d). As visitors travel through the park, they can access several parking areas and waysides to stop and enjoy the scenery or for trail access. The park has approximately 1,000 parking spaces, and parking areas are striped to accommodate handicap parking, standard vehicles, recreational vehicles, and tour buses. When these parking areas are full and when visitors park illegally or in such a way that there is not enough room for passenger unloading and the safe passage of other vehicles, visitor use and experience of the park can be compromised along with visitor safety. In addition, pavement striping or inadequate signs in some parking areas can lead to visitor confusion or hesitation in making decisions.

The wayfinding and information signs and materials in the park are available in English, which a majority of visitors surveyed in 2009 stated they preferred. Forty-three percent of visitors, however, felt that informational services such as signs, brochures / maps, the park newspaper, and park exhibits should be provided in a language other than English, with French and German being the most commonly preferred languages for speaking and reading while in the park (NPS 2010d).

Nearly all visitors surveyed had obtained information about the park prior to their visit. Travel guides / tour books, word of mouth, and the Bryce Canyon National Park website were the most used sources of information about the park. The most used visitor services or facilities were the informational park brochure / map, restrooms, and parking areas. Of those visitors staying overnight in the park, 62% stayed in one of the park's two developed campgrounds (NPS 2010d).

Increased park visitation and inadequate visitor management has had a number of consequences for visitor use and experience of the park. According to the visitor survey, crowding was the primary detraction from the visitor experience (NPS 2010d). The park's shuttle service runs at or exceeds capacity during peak visitation. The availability of parking is diminished in the heavily used areas and capacity is often exceeded during peak visitation.

Since the publication of the Forest Plan in 1986, recreation and tourism levels on the forest have shown a dramatic increase, paralleling or exceeding statewide trends during this same period (USFS 2009). According to the National Visitor Use Monitoring results for the Dixie National Forest, the Forest received 773,789 visits in 2003 (USDA 2004c as cited in USFS 2009). Visits to the Dixie National Forest are often associated with visits to surrounding national and state parks and other recreation and travel opportunities. The Dixie National Forest's proximity to several parks, its location near Interstates 15 and 70 between major western population centers, and a growing resident and transient population are contributing to swelling trends in Forest visitation.

According to the National Visitor Use Monitoring results, approximately 20.7 percent of visits to the Dixie National Forest in 2003 were by people from Washington County, Utah. Approximately 7.4 percent were from Iron County, Utah, and approximately 8.6 percent were by people from Clark County, Nevada. Two percent were from Garfield County and approximately 1.4 percent were from Kane County. Approximately 0.8 percent were from Salt Lake City (USDA 2004c as cited in USFS 2009).

Intensity Level Definitions

Impacts on visitor use and experience were determined based on the following impact definitions and thresholds.

Negligible. Visitors would not be affected or changes in visitor use and / or experience would be below or at the level of detection. Any effects would be short-term. The visitor would not likely be aware of the effects associated with the alternative.

Minor. Changes in how visitors travel to and through the park and forest; ease of access to desired visitor experiences, park resources, and destinations; the availability of educational and interpretive opportunities; and visitor safety would be slight and detectable. Effects would be short-term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.

Moderate. Changes in how visitors travel to and through the park and forest; ease of access to desired visitor experiences, park resources, and destinations; the availability of educational and interpretive opportunities; and visitor safety would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative, and would likely be able to identify the change and its effect on their visit.

Major. Changes in how visitors travel to and through the park and forest; ease of access to desired visitor experiences, park resources, and destinations; the availability of educational and interpretive opportunities; and visitor safety would be readily apparent and have substantial long-term consequences. The visitor would be aware of the effects associated with the alternative, and would likely be able to accurately identify the change and provide a detailed expression of its effect on their visit.

Short-term Impacts. Changes to visitor use and enjoyment of the park and forest would occur during one high-use season.

Long-term Impacts. Changes to visitor use and enjoyment of the park and forest would occur during more than one high-use season.

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed and there would be no connection to the Red Canyon National Recreation Trail system. The park would continue to operate and maintain the existing transportation network as it is currently managed. Minor improvements to parking and circulation in the park would be made, which could result in a

minimal improvement in the visitor experience. Bicyclists and pedestrians would continue to share State Route 63 and the main park road with automobiles. Key locations in the park, such as the visitor center and viewpoints in the Bryce Amphitheater area, would become more congested and visitors would increasingly experience delays, particularly during peak season. Vehicle congestion, user conflicts, and visitor and transportation safety issues would continue and possibly worsen as visitation increases in the future, resulting in a deterioration in visitor use and experience in the park and on the adjacent national forest. Ongoing and planned construction and maintenance activities under the No-action Alternative would likely be minimal and would include best management practices and mitigation measures, if required. Any traffic delays or visitor use disruptions during these activities would be temporary and short-term. As a result, impacts on visitor use and experience from the No-action Alternative would be short- and long-term moderate adverse and short-term negligible beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions in the park and on the adjacent national forest with the potential to affect visitor use and experience include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities, facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails), visitor use activities (hiking, biking, vehicle use), vegetation management activities (such as vegetation removal activities, restoration, and controlled burns), and utility development in the park (including transmission and sewer lines). Impacts on visitor use and experience in and around the park are also occurring on adjacent lands. Activities in and adjacent to the park contribute to both beneficial and adverse effects on visitor use and experience. The overall cumulative impacts on visitor use and experience from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term minor adverse and moderate beneficial.

Conclusion. Implementing the No-action Alternative would result in short- and long-term moderate adverse and short-term negligible beneficial impacts on visitor use and experience. Cumulative effects of the No-action Alternative would be short-and long-term minor adverse and moderate beneficial.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, the proposed multi-use visitor path project would be developed and would provide a connection to the Red Canyon National Recreation Trail system and access to other recreational uses in nearby portions of Garfield County. The Preferred Alternative would provide bicyclists and pedestrians an accessible (5% slope or less) and safer route for visiting forest and park land by separating these users from State Route 63 and the main park road and other areas (e.g., Sunset Point) with high levels of motorized vehicle activity, potential user conflicts, and motorized vehicle- and human-caused sounds. Signs and striping along the path in these high activity and user conflict areas would help create a safer visitor experience. Connections to existing shuttle stops would help link visitors to key locations such as the visitor center and viewpoints in the Bryce Amphitheater area. Visitor use of the path would lead to fewer private vehicles, less vehicle congestion, and fewer traffic and parking delays in these areas, which could increase visitor safety. In addition, Alternative Alignment A would provide a more rural and less urban visitor experience of the forest and the park where the multi-use path would be separated short distances from State Route 63 and the main park road. As a result, impacts on visitor use and experience would be short- and long-term moderate beneficial.

Providing improved access to the forest and the park could increase visitation and lead to crowding in parking lots and at popular viewpoints. In addition, potential user conflicts and safety issues could arise between bicyclists and pedestrians using the path, as well as between path users, motorized vehicles, and pedestrians in parking lots, at popular locations such as the General Store, or where the path intersects with park road. Such impacts would be avoided through the project design or mitigated during project implementation. As a result, impacts on visitor use and experience would be short- and long-term negligible to minor adverse.

Construction and maintenance activities under the Preferred Alternative would include best management practices and mitigation measures. Traffic delays and visitor use disruptions during these activities would be temporary and would result in short-term minor adverse impacts on visitor use and experience.

Overall, impacts on visitor use and experience from implementing the Preferred Alternative would be short- and long-term minor adverse and moderate beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Implementing the Preferred Alternative may result in beneficial effects on visitor use and experience by providing improved access to the forest and park. Adverse impacts on visitor use and experience may occur as a result of higher visitor concentrations in highly-visited areas such as the Bryce Amphitheater. Construction activities would result in adverse impacts on visitor use and experience from disturbance due to noise, dust, ground vibration, and visitor use pattern disruptions. Impacts on visitor use and experience in and around the park are also occurring on adjacent lands. Activities in and adjacent to the park contribute to both beneficial and adverse effects on visitor use and experience. The overall cumulative impacts on visitor use and experience from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative, would be short- and long- term minor adverse and moderate beneficial.

Conclusion. Implementing the Preferred Alternative would result in short- and long-term minor adverse and moderate beneficial impacts on visitor use and experience. Cumulative effects of the Preferred Alternative would be short- and long-term minor adverse and moderate beneficial.

Impacts of Alternative Alignment B

Impacts on visitor use and experience resulting from implementing Alternative Alignment B would be mostly similar to those under the Preferred Alternative. Alternative Alignment B would provide bicyclists and pedestrians an accessible (matching the slope of the road) and safer route for visiting forest and park land, but the separation from State Route 63 and the main park road would be less because the alignment would be in the existing transportation corridor. In addition, Alternative Alignment B would provide a more urban and less rural visitor experience of the forest and the park. As a result, impacts on visitor use and experience would be short- and long-term minor beneficial.

Construction and maintenance activities under Alternative Alignment B would include best management practices and mitigation measures. Traffic delays and visitor use disruptions during these activities would be temporary and would result in short-term minor to moderate adverse impacts on visitor use and experience.

Overall, impacts on visitor use and experience from implementing the Preferred Alternative would be short- and long-term minor to moderate adverse and minor beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Implementing Alternative Alignment B would result in beneficial effects on visitor use and experience by providing improved access to the forest and park. Adverse impacts on visitor use and experience may occur as a result of higher visitor concentrations in highly-visited areas such as the Bryce Amphitheater. Construction activities would result in adverse impacts on visitor use and experience from disturbance due to noise, dust, ground vibration, and visitor use pattern disruptions. The overall cumulative impacts on visitor use and experience from past, present, and reasonably foreseeable future projects in combination with the Alternative Alignment B would be short- and long-term minor adverse and moderate beneficial.

Conclusion. Implementing Alternative Alignment B would result in short- and long-term minor to moderate adverse and minor beneficial impacts on visitor use and experience. Cumulative effects would be short- and long-term minor adverse and moderate beneficial.

GATEWAY COMMUNITIES

Affected Environment

The NPS Management Policies recognize that cooperation and consultation in concert with surrounding jurisdictions, communities, and landowners are necessary as the NPS strives to fulfill its mandate. Consultation may involve other federal agencies; tribal, state, and local governments; neighboring landowners; nongovernmental and private sector organizations; and other concerned parties. Cooperative conservation activities are not only to the benefit of the park, but assist in sustaining the natural and cultural resources of the surrounding area. NPS consultations aim to ensure park planning is compatible with plans of federal, state, and local agencies to the extent possible.

The community of Bryce Canyon City is the proximal gateway community to the park and has a robust mutually beneficial relationship with the park due to its location nearest to the park entrance. Panguitch—the Garfield County seat and largest nearby community—and Tropic host many visitor services and are particularly engaged in tourism development. Other nearby communities that have a mutually beneficial relationship with the park include Cannonville, Hatch, and Henrieville. Similarly, other nearby businesses outside of cities and towns rely on park visitors to sustain their businesses.

Recreation visits and visitor spending in the park have steadily increased since 2006. Park visits have increased from 890,676 in 2006 to 1,285,492 in 2010. Visitor spending increased from $50,929,322 in 2006 to $111,310,529 in 2010. Local jobs supported by the park have also steadily increased, from 1,089 in 2006 to 1,667 in 2010 (U.S. Department of the Interior 2010). The trend of increasing visitation is expected to continue.

Incorporated in 2007, Bryce Canyon City offers lodging, restaurants, and shopping. Bryce Canyon City also hosts a transit hub for the park shuttle system, providing convenient access for visitors. The city is home to approximately 200 year-round residents. Lodging includes Ruby's Inn, Bryce

Canyon Grand Hotel, and Bryce View Lodge, collectively providing nearly 700 guest rooms, and two developed commercial campgrounds. Park visitors can park their vehicles at the shuttle staging area and board the free park shuttle from May through October.

Intensity Level Definitions

Impacts on gateway communities were determined based on the following impact definitions and thresholds.

Negligible. There would not be a perceptible change in the overall relationship with local communities or businesses. Effects would be barely detectable for visitor traveling convenience or for travel time for local residents traveling to, from, and in the park area.

Minor. Effects would be easily detectable, but local in geographic extent or number of people affected and would not be expected to alter the overall relationship with local communities or businesses or alter the visitor access or travel times for gateway communities and local residents.

Moderate. Effects would be readily detectable across a broad geographic area or segment of the community and could have an appreciable effect on the overall relationship with local communities or businesses, as well as the convenience of visitor access or travel times for gateway communities and local residents.

Major. Effects would be readily apparent, affect a substantial segment of the population, extend across the entire community, and would likely have a noticeable influence on relationships with local communities or businesses, as well as the convenience of visitor access or travel times for gateway communities and local residents.

Short-term Impacts. Impacts would occur only during construction.

Long-term Impacts. Impacts would continue after plan implementation.

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed and there would be no connection to the Red Canyon National Recreation Trail system. The park would continue to operate and maintain the existing transportation network as it is currently managed. Minor improvements to parking and circulation in the park would be made, which could result in a minimal improvement in the visitor experience. Bicyclists and pedestrians would continue to share State Route 63 and the main park road with automobiles. Key locations in the park, such as the visitor center and viewpoints in the Bryce Amphitheater area, would become more congested and visitors would increasingly experience delays, particularly during peak season. Vehicle congestion, user conflicts, and visitor and transportation safety issues would continue and possibly worsen as visitation increases in the future, resulting in a deterioration in visitor use and experience in the park and on the adjacent national forest. Peak season congestion would continue to increase as the number of private vehicles increases in the park, resulting in a diminished visitor experience in the park. As a result of the congestion and diminished visitor experience, visitors may decide to spend less time in the park and adjacent communities. There

may also be a minor adverse change in visitor stays and expenditures in local communities. There would not be a perceptible change in the overall relationship with local communities or businesses. As a result, impacts on gateway communities would be short-term negligible beneficial and short- and long-term minor adverse.

Ongoing and planned construction and maintenance activities under the No-action Alternative would result in temporary disruptions in the ability of visitors to circulate and access portions of the park. These activities would likely affect visitors' traveling convenience and travel time for local residents traveling to, from, and in the park area would likely occur during peak periods with high vehicle congestion. There may also be a minor adverse change in visitor stays and expenditures in local communities. There would not be a perceptible change in the overall relationship with local communities or businesses. Any traffic delays or visitor use disruptions during these activities would be temporary and short-term. Following construction and maintenance, circulation and access would be restored. There may also be a minor adverse change in visitor stays and expenditures in local communities, resulting in short-term minor impacts on local communities and businesses.

Overall, impacts on gateway communities under the No-Action Alternative would be short- and long-term minor adverse and short-term negligible beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions in the park and on the adjacent national forest with the potential to affect gateway communities include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities, facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails, visitor use path, shuttle staging area expansion), visitor use activities and improvements (hiking, biking, touring, vehicle use), vegetation management activities (such as vegetation removal activities, restoration, and controlled burns), and utility development in the park (including transmission and sewer lines). Activities in and adjacent to the park contribute to both beneficial and adverse effects on gateway communities. The overall cumulative impacts on gateway communities from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term minor adverse and moderate beneficial.

Conclusion. Implementing the No-action Alternative would result in short- and long-term minor to moderate adverse and short-term negligible beneficial impacts on gateway communities. Cumulative effects would be short- and long-term minor adverse and moderate beneficial.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, the proposed multi-use visitor path project would be developed and would provide a connection to the Red Canyon National Recreation Trail system and access to other recreational uses in Garfield County. The Preferred Alternative would provide bicyclists and pedestrians an accessible (5% slope or less) and safer route for visiting forest and park land by separating these users from State Route 63 and the main park road and other areas (e.g., Sunset Point) with high levels of motorized vehicle activity and potential user conflicts. Connections to existing shuttle stops would help link visitors to key locations such as the visitor center and viewpoints in the Bryce Amphitheater area. Visitor use of the path would lead to fewer private vehicles (because vehicles would be parked at the shuttle staging area or local hotels), less vehicle

congestion, and fewer traffic and parking delays in these areas, which could enhance visitor experience. Improvement in visitor access and experience as well as a reduction in private vehicles traveling in the park may lead to increased visitor traveling convenience and decreased travel time for local residents traveling to, from, and in the park area. There may also be an increase in visitor stays and expenditures in local communities, particularly if new businesses were developed to cater to path users. There would not be a perceptible change in the overall relationship with local communities or businesses. As a result, impacts on gateway communities would be short- and long-term minor beneficial.

Construction and maintenance activities under the Preferred Alternative would include best management practices and mitigation measures. Traffic delays and visitor use disruptions during these activities would be temporary. These activities may lead to short-term negligible adverse effects on visitors traveling convenience or to travel time for local residents traveling to, from, and in the park area during path development.

Overall, impacts on gateway communities from implementing the Preferred Alternative would be short-term negligible adverse and short- and long-term minor beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Implementing the Preferred Alternative may result in minor beneficial effects on gateway communities due to improved visitor access and experience. Negligible adverse impacts on gateway communities may occur during construction and development activity periods. Gateway communities are also impacted by activities occurring in surrounding areas. Activities in and adjacent to the park contribute to both beneficial and adverse effects on gateway communities. The overall cumulative impacts on gateway communities from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long-term minor beneficial.

Conclusion. Implementing the Preferred Alternative would result in short-term negligible adverse and short- and long-term minor beneficial effects on gateway communities. Cumulative effects would be short- and long-term minor beneficial.

Impacts of Alternative Alignment B

Impacts on gateway communities resulting from implementing Alternative Alignment B would be the same as those under the Preferred Alternative. The differences in the alignments and the construction of the path would not affect gateway communities differently.

Overall, impacts on gateway communities from implementing Alternative Alignment B would be short-term negligible adverse and short- and long-term minor beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Implementing Alternative Alignment B would result in minor beneficial effects on gateway communities due to improved visitor access and experience. Negligible adverse impacts on gateway communities may occur during construction and development activity periods. The overall cumulative impacts on gateway communities from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would be short- and long-term minor beneficial.

Conclusion. Implementing Alternative Alignment B would result in s short-term negligible adverse and short- and long-term minor beneficial effects on gateway communities. Cumulative effects would be short- and long-term minor beneficial.

PARK AND FOREST OPERATIONS

Affected Environment

Facility operations refers to the quality and effectiveness of the infrastructure, and the ability to maintain the infrastructure used in the operation of the park to adequately protect and preserve vital resources and provide for a positive visitor experience. Buildings, roads, trails, utilities, and campgrounds require a range of operational activities from basic sanitation to snow plowing to water testing.

Bryce Canyon is a relatively small national park and employs approximately 55 permanent and term employees year-round with an additional 30 to 40 seasonal employees during the high season months (May to September). The park is organized into three divisions—Maintenance, Visitor Protection and Resource Management, and Interpretation and Visitor Services.

The current park asset management plan identifies $620,000 per year for operation and maintenance on existing roadway and parking assets. This number includes the operation and maintenance costs for the entire transportation network, not including the cost of operating the park shuttle buses.

Facility operations for the forest are essentially the same as for the park, with the exception that the forest would not have maintenance costs associated with the park transportation network.

Intensity Level Definitions

Impacts on park and forest operations were determined based on the following impact definitions and thresholds.

Negligible. A change in operations would be local and barely perceptible or measurable. There would be no measurable difference in operating costs from existing levels, and no change in financial balance between revenue sources and operating costs.

Minor. A change in operations would be slight and local, with few measurable consequences within existing park facilities. Additions or reductions in operating costs would be less than 15% of existing levels. Slight changes in current staffing arrangements or operations would be required to reach a balance with the funding stream.

Moderate. A change would be readily apparent, with measurable consequences and would occur inside and outside park boundaries. Additions or reductions in operating costs would be between 16% and 30% of existing levels. Changes would be required in park operations or would result in a financial imbalance between available funding streams and annual operating costs.

Major. A change would be readily apparent, with measurable consequences over a regional area. Additions or reductions in operating costs would be more that 30% of existing levels. Changes would require new administrative structures and / or would result in a significant financial imbalance between available funding streams and annual operating costs.

Short-term Impacts. The impact would occur only during the construction period.

Long-term Impacts. The impact would occur or continue after construction was completed.

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed. The park would continue to operate and maintain the existing transportation network as it is currently managed. Minor improvements to parking and circulation in the park would be made. Key locations in the park, such as the visitor center and viewpoints in the Bryce Amphitheater area, would become more congested and visitors would increasingly experience delays, particularly during peak season. Vehicle congestion, user conflicts, and visitor and transportation safety issues would continue and possibly worsen as visitation increases in the future, requiring additional staff for monitoring, patrol, and enforcement. A change in financial balance between revenue sources and operating costs would also occur. Ongoing and planned construction and maintenance activities under the No-action Alternative would likely be minimal. The forest would not anticipate operational changes under the No-action Alternative. As a result, impacts on park and forest operations, including operating costs and staffing levels, would be short- and long-term minor to moderate adverse.

Cumulative Effects. Past, present, and reasonably foreseeable future actions with the potential to affect park and forest operations include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities (inside and adjacent to park), facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails, multi-use trail), visitor use activities (visitor travel in private vehicles primarily), vegetation management activities (such as vegetation removal activities and prescribed burns), cultural resource management activities, utility development in and adjacent to park (including transmission and sewer lines), habitat conservation planning, and prairie dog translocations and flea dusting activities, and urban development adjacent to park (primarily in Bryce Canyon City). Impacts on park and forest operations may occur from activities occurring on adjacent lands. Activities in and adjacent to the park and forest contribute to both beneficial and adverse effects on park operations. The overall cumulative impacts on park operations from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term moderate adverse.

Conclusion. Under the No-action Alternative, ongoing and planned management activities would result in short- and long-term minor to moderate adverse impacts on park and forest operations. Cumulative effects would be short- and long-term moderate adverse. A change in financial balance between revenue sources and operating costs would also occur.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, the proposed multi-use visitor path project would be developed and would provide a connection to the Red Canyon National Recreation Trail system and access to other recreational uses in nearby portions of Garfield County. The Preferred Alternative would provide bicyclists and pedestrians an accessible (5% slope or less) and safer route for visiting forest and park land by separating these users from State Route63 and the main park road and other areas (e.g., Sunset Point) with high levels of motorized vehicle activity, potential user conflicts, and motorized vehicle- and human-caused sounds. Connections to existing shuttle stops would help link visitors to key locations such as the visitor center and viewpoints in the Bryce Amphitheater area. Visitor use of the path would lead to fewer private vehicles, less vehicle congestion, and fewer traffic and parking delays in these areas and reduced staffing needs. Providing improved access to the forest and the park could increase visitation, however. Operating costs and staffing needs may increase slightly to manage increased visitation over the long term. A change in financial balance between revenue sources and operating costs would also occur. Implementing the Preferred Alternative could result in long-term negligible to minor adverse and negligible beneficial impacts on park and forest operations.

Construction and maintenance activities would also increase operating costs and staffing needs, resulting in short-term minor adverse impacts on park and forest operations.

Overall, impacts on park and forest operations from implementing the Preferred Alternative would be short- and long-term minor adverse and long-term negligible beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Implementing the Preferred Alternative would increase operating costs for development and maintenance of the path. Activities in and adjacent to the park and forest contribute to both beneficial and adverse effects on park and forest operations. The overall cumulative impacts on park and forest operations from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long-term minor adverse.

Conclusion. Under the Preferred Alternative, ongoing and planned management activities would result in short- and long-term minor adverse and long-term negligible beneficial impacts on park and forest operations. Cumulative effects would be short- and long-term moderate adverse. A change in financial balance between revenue sources and operating costs would also occur.

Impacts of Alternative Alignment B

Impacts on park and forest operations resulting from implementing Alternative Alignment B would be the same as those under the Preferred Alternative. The differences in the alignments and the construction of the path would not affect park or forest operations differently.

Overall, impacts on park and forest operations from implementing Alternative Alignment B would be short- and long-term minor adverse and long-term negligible beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Implementing

Alternative Alignment B would increase operating costs for development and maintenance of the path. The overall cumulative impacts on park and forest operations from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would be short- and long-term moderate adverse.

Conclusion. Implementing Alternative Alignment B, ongoing and planned management activities would result in short- and long-term minor adverse and long-term negligible beneficial impacts on park and forest operations. Cumulative effects would be short- and long-term minor adverse. A change in financial balance between revenue sources and operating costs would also occur.

SOCIOECONOMICS

Affected Environment

Bryce Canyon National Park is in Garfield and Kane counties, Utah (see Figure 1). Approximately 75% of the park land area and its visitor entrance are in Garfield County. The majority of visitor access to the park is from State Route 12 and 63 in Garfield County. The southern portion of the park, consisting of the remaining 25%, is in Kane County.

Bryce Canyon City is the closest community to the park that provides visitor services. Panguitch—the Garfield County seat and largest nearby community—and Tropic host many visitor services and are particularly engaged in tourism development. Other nearby communities that have a socioeconomic relationship with the park include Cannonville, Hatch, and Henrieville. Similarly, other nearby businesses outside of cities and towns rely on park visitors to sustain their businesses.

Social Setting. Garfield and Kane counties consist of extensive rangelands and forest, where cattle ranching and the lumber industry have been traditionally important economic activities since the pioneer period. The national forest lands, Bureau of Land Management lands and national monument, and state and national park lands also provide multiple recreational activities and economic opportunities. Nearly 95% of Garfield County and nearly 95% of Kane County consist of public lands (USFS, NPS, and Bureau of Land Management; Utah Governor's Office of Planning and Budget 2003a–b).

The first Euro-American settlers, which consisted of Mormon pioneers, arrived in the Panguitch area of Garfield County in 1864. Settlements were established in Hatch in 1872, Cannonville in 1876, Henrieville in 1878, and Tropic in 1892 (Murphy 2012). Kane County shares many of the same industries and settlement history as Garfield County. Mormon pioneers also settled Kane County in the 1860s, but then abandoned their settlements. Towns in the county were resettled by Mormon pioneers in the 1870s (Utah State Historical Society 1988). Garfield and Kane counties both remain predominantly Mormon, with 99.5 percent and 88.9 percent, respectively, of the populations consisting of adherents to the Church of Jesus Christ of Latter-day Saints (Mormon Church; Jones 2002a–b).

An area near Bryce Canyon was settled by Mormon families in 1874, including Ebenezer Bryce and his family. Bryce Canyon was named after Ebenezer Bryce after he helped complete a road to the cliffs to make timber more accessible. Families began visiting the later named park in the late 1800s. Bryce Canyon became a national park in 1928. Bryce Canyon City, the closest community

to Bryce Canyon National Park, was incorporated in 2007. The primary local profile is rural with economies based on agriculture / livestock production and tourism. Currently, visitors to the park generate a significant contribution to the local area economy. For 2013, visitors to Bryce Canyon National Park spent $105,745,800 in local communities (Cullinane et al. 2014).

Population. Garfield County is the fifth largest county in Utah geographically, but has the fifth smallest population in the state, with just over 5,000 residents. Most of the county population is clustered near the west side of the county, where the majority of water and private land is found. The growth rate for the county was projected to continue to increase (Utah Governor's Office of Planning and Budget 2003a); however, between 2010 and 2012 the population experienced a 1.5% decline (U.S. Census Bureau 2013a).

Kane County has shown an increase in retirement communities, and older segments of the population are expected to continue growing. Water and economic infrastructure limitations have been noted as potential constraints to future growth. The county anticipated a growth rate of approximately 2% (Utah Governor's Office of Planning and Budget 2003b). The growth rate between 2010 and 2012 was 1.3% (U.S. Census Bureau 2013b).

Population information for Garfield and Kane counties, and area cities and towns are shown in Table 22.

TABLE 22. POPULATION FOR GARFIELD AND KANE COUNTIES AND AREA CITIES AND TOWNS, UTAH

County or City	Population[1]	Population Change Since 2000
Garfield County (2012 estimate)	5,095	15%
Kane County (2012 estimate)	7,221	8%
Bryce Canyon City (2010 data)	198	66%
Cannonville (2012 data)	167	10.1%
Hatch (2012 data)	129	1.6%
Henrieville (2012 data)	224	40.9%
Panguitch	1,520	-7.1%
Tropic	530	2.6%

[1] U.S. Census Bureau 2013a–b

In Garfield County, over 95% of the population is Caucasian, slightly higher than the state average of approximately 92%. The remaining population consists of 0.4% Black or African American, 1.7% American Indian, 0.5% Asian, 0.1% Native Hawaiian or Other Pacific Islander, and 4.1% Hispanic or Latino (U.S. Census Bureau 2013a).

In Kane County, over 96% of the population is Caucasian, slightly higher than the state average of approximately 92%. The remaining population consists of 0.6% Black or African American, 2.0% American Indian, 0.9% Asian, 0.2% Native Hawaiian or Other Pacific Islander, and 5.0% Hispanic or Latino (U.S. Census Bureau 2013b).

Employment and Income. Labor force characteristics for Garfield and Kane counties are shown in Table 23. Garfield County has a higher unemployment rate (10.5%) than Kane County (7.2%).

TABLE 23. LABOR CHARACTERISTICS FOR GARFIELD AND KANE COUNTIES, UTAH

County	Labor Force[1]	Employed	Unemployed	Percentage Unemployment Rate
Garfield County (2012)	2,741	2,454	287	10.5%
Kane County (2012)	3,339	3,098	241	7.2%

[1] U.S. Census Bureau 2013a–b

The distribution of employment by sector for Garfield and Kane counties is shown in Table 24. For both Garfield and Kane counties, the predominant industry employer is the leisure and hospitality sector. Garfield County has the highest percentage (42%) of its labor force employed by the leisure and hospitality section. As previously mentioned in the Gateway Communities section, Bryce Canyon City, which is in Garfield County, provides lodging, restaurants, shops, shuttle bus facilities, and guided tours for visitors to the area. One of the largest employers in Garfield County is Ruby's Inn, with other tourism-based employers in the county consisting of lodging, restaurant, and similar facilities in nearby communities or unincorporated areas near the park.

TABLE 24. EMPLOYMENT AND PERCENTAGE SHARE BY NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM SECTORS FOR GARFIELD AND KANE COUNTIES AND AREA CITIES AND TOWNS, UTAH

Industry Sector	Garfield County	Kane County
Natural Resources and Mining	9 (0.4%)	5 (0.2%)
Construction	41 (1.8%)	88 (2.9%)
Manufacturing	40 (1.7%)	99 (3.3%)
Trade / Transportation Utilities	259 (11.2%)	413 (13.8%)
Information	91 (3.9%)	17 (0.6%)
Financial Activities	27 (1.2%)	109 (3.6%)
Professional / Business Services	18 (0.8%)	52 (1.7%)
Education / Health / Social Services	231 (10.0%)	113 (3.8%)
Leisure / Hospitality (Tourism)	964 (41.6%)	906 (30.2%)
Other Services	17 (0.7%)	462 (15.4%)
Government	620 (26.8%)	740 (24.6%)

Source: Utah Department of Workforce Services 2013

In Kane County, the leisure and hospitality sector consists of 30% of the workforce, also the highest percentage employment sector, followed by government (24.6%). Lake Powell Resorts is one of the largest employers in the county.

Median income, employment rate, and tourism related spending for Garfield and Kane counties are shown in Table 25.

TABLE 25. POPULATION, MEDIAN INCOME, AND TOURISM SPENDING FOR GARFIELD AND KANE COUNTIES, UTAH

County or City	Population[1]	Median Income[1]	Employment Rate[2]	Tourism Related Spending (2009)[2]
Garfield County (2012 estimate)	5,095	$46,029	82.8%	$65.8 million
Kane County (2012 estimate)	7,221	$45,439	91.1%	$100.7 million
Bryce Canyon City (2010 data)	198	$36,875	100%	Data not available, assumed high percentage.

[1] U.S. Census Bureau 2013a–b
[2] State of Utah 2009a–b

The National Park Service has conducted research on the economic impacts of national parks on adjacent communities (Cullinane et al. 2014). Data for Bryce Canyon National Park show the following (2013):

- 1,311,875 recreation visits to the park
- $105,745,800 in visitor spending (for all visitors), $104,054,900 for non-local visitors
- 1,422 jobs from visitor spending
- $38,499,100 in labor income from non-local visitors
- $69,258,500 in value added from non-local visitors

Socioeconomic effects from park payroll include: $3,327,000 in salaries; $886,000 in payroll benefits; and 87 NPS jobs.

Intensity Level Definitions

Impacts on socioeconomics were determined based on the following impact definitions and thresholds.

Negligible. No effects would occur, or the effects on socioeconomic conditions would be below or at the level of detection and with no discernible effect on the character of the social and economic environment.

Minor. The effects on socioeconomic conditions would be detectable. Any effects would be small and, if mitigation is needed to offset potential adverse effects, would be simple and successful and not expected to alter the character of the established social and economic environment.

Moderate. The effects on socioeconomic conditions would be readily apparent. Any effects would result in changes to socioeconomic conditions on a local scale. If mitigation is needed to offset potential adverse effects, it could be extensive but would likely be successful and could have an appreciable effect on the social and economic environment.

Major. The effects on socioeconomic conditions would be readily apparent and would cause substantial changes to socioeconomic conditions in the region. Mitigation measures to offset potential adverse effects would be extensive and their success could not be guaranteed and are likely to have a noticeable influence on the social and economic environment.

Short-term Impacts. Occurs only during the short-term project phase (0 to 5 years).

Long-term Impacts. Occurs beyond the short-term project phase.

Impacts of the No-action Alternative

Under the No-action Alternative the proposed project would not be developed and there would be no connection to the Red Canyon National Recreation Trail system. The park would continue to operate and maintain the existing transportation network as it is currently managed. Minor improvements to parking and circulation in the park would be made, which could result in a minimal improvement in the visitor experience. Key locations in the park, such as the visitor center and viewpoints in the Bryce Amphitheater area, would become more congested and visitors would increasingly experience delays, particularly during peak season. Vehicle congestion, particularly during peak season would continue and possibly worsen as visitation increases in the future. Visitors may decide to spend less time in the park and nearby communities, resulting in decreased tourist-related spending. As a result, impacts on the social and economic condition would be short-term minor and long-term moderate adverse and short-term negligible beneficial.

Ongoing and planned construction and maintenance activities under the No-action Alternative would result in temporary disruptions in the ability of visitors to circulate and access portions of the park. These activities would likely affect visitor attendance and the social and economic condition. Any traffic delays or visitor use disruptions during these activities would be temporary and short-term. Following construction and maintenance, circulation and access would be restored. Visitors may decide to spend less time in the park and nearby communities, resulting in decreased tourist-related spending during these construction periods, resulting in short-term minor impacts on the social and economic condition.

Overall, socioeconomic impacts under the No-Action Alternative would be short-term minor and long-term moderate adverse and short- and long-term negligible beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions in the park and on the adjacent national forest with the potential to affect socioeconomics include: transportation system improvement projects under the Multimodal Transportation Plan, roadway improvement projects and ongoing road maintenance activities, facility and visitor service improvement construction projects (such as wildlife viewing pullouts, walkways, fencing, trails), visitor use activities (hiking, biking, vehicle use), vegetation management activities (such as vegetation removal activities, restoration, and controlled burns), cultural resource management activities, habitat conservation planning, and utility replacement and rehabilitation in the park (including water and sewer lines). Activities under the No-action Alternative may result in negligible beneficial effects on socioeconomics due to minor improvements to parking and circulation in the park and a minimal improvement in the visitor experience. Adverse impacts on socioeconomics may occur due to diminished visitor experience from continued congestion- and

parking-related issues. Socioeconomic conditions are also impacted by activities occurring in surrounding area lands. Activities in and adjacent to the park contribute to both beneficial and adverse effects on socioeconomics. The overall cumulative impacts on socioeconomics from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term minor adverse and local.

Conclusion. Under the No-action Alternative, ongoing and planned management activities would result in short-term minor and long-term moderate adverse and short- and long-term negligible beneficial effects on the social and economic condition. Local communities would also be adversely affected by a deterioration of visitor experience and adverse effects on visitor attendance. Cumulative effects would be short- and long-term minor adverse and local.

Impacts of Alternative Alignment A (Preferred Alternative)

Under the Preferred Alternative, the proposed multi-use visitor path project would be developed and would provide a connection to the Red Canyon National Recreation Trail system and access to other recreational uses in nearby portions of Garfield County. The Preferred Alternative would provide bicyclists and pedestrians an accessible (5% slope or less) and safer route for visiting forest and park land by separating these users from State Route 63 and the main park road and other areas (e.g., Sunset Point) with high levels of motorized vehicle activity and potential user conflicts. Connections to existing shuttle stops would help link visitors to key locations such as the visitor center and viewpoints in the Bryce Amphitheater area. Visitor use of the path would lead to fewer private vehicles, less vehicle congestion, and fewer traffic and parking delays in these areas, which could enhance visitor experience. Visitors may decide to spend more time in the park and nearby communities, resulting in increased tourist-related spending, and there may be a demand for new enterprises such as a business offering bike rentals. As a result, impacts on the social and economic condition would be short- and long-term minor beneficial.

Construction and maintenance activities under the Preferred Alternative would include best management practices and mitigation measures. These activities would likely affect visitor attendance and the social and economic condition. Any traffic delays or visitor use disruptions during these activities would be temporary and short-term. Visitors may decide to spend less time in the park and nearby communities, resulting in decreased tourist-related spending during these construction periods. Impacts on the social and economic condition would be short-term negligible to minor adverse.

Overall, impacts on the social and economic condition from implementing the Preferred Alternative would be short-term negligible to minor adverse and short- and long-term minor beneficial.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under the Preferred Alternative would be the same as described under the No-action Alternative. Implementing the Preferred Alternative may result in minor beneficial effects on socioeconomics. Short-term adverse impacts on socioeconomics may occur due to construction and development activities in the park until projects are completed, and may be offset by short-term beneficial effects to the regional community from construction spending by the park. Socioeconomic conditions are also impacted by activities occurring in surrounding area lands. Activities in and adjacent to the park contribute to both beneficial and adverse effects on socioeconomics. The overall cumulative impacts on social and economic conditions from past, present, and reasonably foreseeable future

projects in combination with the Preferred Alternative would be short- and long-term minor beneficial and local.

Conclusion. Implementing the Preferred Alternative would result in short-term negligible to minor adverse and short- and long-term minor beneficial effects on social and economic conditions. Cumulative effects would be short- and long-term minor beneficial and local.

Impacts of Alternative Alignment B

Impacts on the social and economic condition resulting from implementing Alternative Alignment B would be the same as those under the Preferred Alternative. The differences in the alignments and the construction of the path would not affect the social and economic condition differently.

Cumulative Effects. Past, present, and reasonably foreseeable future actions under Alternative Alignment B would be the same as described under the No-action Alternative. Implementing Alternative Alignment B may result in minor beneficial effects on socioeconomics. Short-term adverse impacts on socioeconomics may occur due to construction and development activities in the park until projects are completed, and may be offset by short-term beneficial effects to the regional community from construction spending by the park. Socioeconomic conditions are also impacted by activities occurring in surrounding area lands. Activities in and adjacent to the park contribute to both beneficial and adverse effects on socioeconomics. The overall cumulative impacts on the social and economic condition from past, present, and reasonably foreseeable future projects in combination with Alternative Alignment B would be short- and long-term minor beneficial and local.

Conclusion. Implementing Alternative Alignment B would result in short-term negligible to minor adverse and short- and long-term minor beneficial effects on social and economic conditions. Cumulative effects would be short- and long-term minor beneficial and local.

CONSULTATION AND COORDINATION

INTERNAL SCOPING

Internal scoping was conducted by an interdisciplinary team of professionals including park staff and the following project stakeholders: USFS, Utah Department of Transportation, Garfield County, and Bryce Canyon City. The park sent scoping letters to these cooperating agencies on March 20, 2013, inviting their participation in the environmental assessment process as well as a design charette and public meetings.

EXTERNAL SCOPING

External scoping was conducted to inform the public about the proposal to develop a multiuse visitor path at the park, ask for comments on the proposed undertaking, and request input on the proposed undertaking for preparation of this environmental assessment. The public scoping notice was released on April 11, 2013. A public scoping announcement was also posted on the park's PEPC website on April 16, 2013, which opened the 30-day public comment period. The park invited the public to submit comments about the proposed multiuse visitor path by May 16, 2013, which was the close of the comment period. The Salt Lake Tribune reported on the project and provided project contact information in an article titled "Public invited to comment on Bryce Canyon trail proposal."

Additional opportunity for public comment was provided after the preliminary alternatives were developed. The park issued a press release on November 20, 2013, inviting the public input on the alternative alignments developed for the proposed multiuse visitor path. The press release was also posted on the park's PEPC website and published in local papers. In addition to inviting comments on the preliminary alternative alignments for the path, the park invited the public to comment at any stage of the NEPA process. Letters were also mailed to representatives of 23 American Indian tribes traditionally associated with the area of the park and adjacent national forest.

Input received during this period was categorized and used to inform the discussion and analysis of existing conditions and the development of alternatives.

AGENCY CONSULTATION

In accordance with the Endangered Species Act, the park consulted with the USFWS with regards to federally listed species. Bryce Canyon National Park wrote the USFWS Utah Field Office on March 20, 2013, requesting that the USFWS be a cooperating agency for the multiuse visitor path project. The USFWS declined to be a cooperating agency. The park discussed the project and its potential impacts on Utah prairie dog with USFWS on April 9, 2013, and conducted a site visit with USFWS on June 3, 2014.

Based on an internal NPS assessment as well as conversations with USFWS personnel, it was the determination of the NPS that the proposed action (preferred alternative) is not likely to adversely affect the Utah prairie dog. This determination was submitted in a letter dated July 11, 2014 to the USFWS. The USFWS concurred with this determination on August 6, 2014 (Appendix C).

In accordance with Section 106 of the NHPA, the park has initiated consultation with the Utah SHPO. Compliance with Section 106 of the NHPA will be completed as a separate submittal, which will provide an analysis of impacts, if any, to cultural landscapes. NPS is seeking Utah SHPO concurrence of no adverse effect on cultural landscapes.

NATIVE AMERICAN CONSULTATION

The park initiated consultation with 23 American Indian tribes and organizations (see list below), on April 11, 2013, informing them of the proposed project and soliciting comments. Information from the tribes was also requested to determine if any ethnographic resources are identified in the project area and if the tribes wished to be involved in the environmental compliance process.

The following 23 Native American tribes were contacted:

- Aneth Chapter, Navajo Tribe
- Chemehuevi Indian Tribe
- Confederated Tribes of Goshute
- Dennehotso Chapter, Navajo Tribe
- Kaibab Paiute Tribe
- Las Vegas Paiute Tribe
- Moapa Paiute Tribe
- Navajo Nation
- Navajo Nation, Utah Commission
- Northwestern Band of Shoshone Indians
- Oljato Chapter, Navajo Tribe
- Paiute Indian Tribe of Utah
- Pueblo of Zuni
- Red Mesa Chapter, Navajo Tribe
- San Juan Southern Paiute Tribe
- Shivwits Paiute Band
- Skull Valley Band of Goshute Indians
- Teec Nos Pos Chapter, Navajo Tribe
- Hopi Tribe

- Utah Navajo Trust Fund
- Ute Indian Tribe
- Ute Mountain Ute Tribe
- White Mesa Ute Council

The NPS requested the tribes' preliminary comments by May 16, 2013. The park received comments from the Hopi Tribe on November 5, 2013 in which the tribe reiterated their cultural affiliation to prehistoric cultural groups in Utah, supported the identification and avoidance of prehistoric archeological sites, and requested information for their review and comment regarding any prehistoric sites that would be adversely affected by project activities.

The park did not receive comments from other American Indian tribes traditionally associated with the lands of the park and adjacent national forest. Beyond the consultation requests from the Hopi Tribe, to date no concerns have been expressed and no additional information regarding ethnographic resources or traditional uses has been provided by any of the American Indian tribes contacted. American Indian tribes traditionally associated with the lands of the park will have an opportunity to review and comment on this EA.

Tribes will be consulted prior to conducting any archeological testing, as well as in the development of site treatment plans, as appropriate. The NPS will continue to consult with the tribes throughout the planning and implementation of this plan and, if any additional information regarding ethnographic resources or traditional uses is provided, the park will work with the concerned parties to mitigate any potential impacts to archeological sites, ethnographic resources, and traditional uses associated with any element of the plan.

ENVIRONMENTAL ASSESSMENT REVIEW AND RECIPIENTS

This EA will be released for public review. To inform the public of the availability of the EA, the NPS and Dixie National Forest will publish and distribute a letter or press release to various agencies, tribes, and members of the public on the park and forest mailing lists, as well as place a notice in the local newspaper. Copies of the EA will be provided to interested individuals, upon request. Copies of the document will also be available for review at the park visitor center and on the internet at http://parkplanning.nps.gov/brca.

The EA is available for a 30-day public comment period. During this time, the park, national forest, and other cooperating agencies will hold an open house to inform the public of the proposed plan and alternatives and present the benefits and consequences of proposed improvements under the plan. The public is encouraged to submit their written comments to the NPS as lead agency for this EA, as described in the instructions at the beginning of this document. Following the close of the comment period, all public comments will be reviewed and analyzed, prior to the release of a decision document. As lead agency and in consultation with the USFS and other cooperating agencies, the NPS will issue responses to substantive comments received during the public comment period, and will make appropriate changes to the EA, as needed.

LIST OF PREPARERS

The following persons assisted with the preparation of the EA.

National Park Service – Denver Service Center

Richard Boston, Cultural Resource Specialist, reviewed EA

Margo Brooks, Cultural Resource Specialist, reviewed EA

Cam Hugie, Landscape Architect, reviewed EA

Elaine Rideout, Natural Resource Specialist, reviewed EA

Jennifer Staroska, Landscape Architect, reviewed EA

Deryn Wagner, Community Planner / Landscape Architect, reviewed EA

Bryce Canyon National Park

Jeff Bradybaugh, Superintendent, reviewed EA

Daniel Cloud, Facility Manager, reviewed EA

Sarah Haas, Biologist, reviewed EA

Kim Hyatt, Historic Architect, reviewed EA

Katie Johnson, Natural Resources Specialist, reviewed EA

United States Forest Service

Drew Parkin, NEPA Coordinator, reviewed EA

Dixie National Forest

Nick Glidden, Wilderness, Trails, Dispersed Recreation Program Manager, reviewed EA

Jake Schoppe, Wildlife Biologist, reviewed EA

RECON Environmental, Inc.

Helen Cordier, Environmental Coordinator, conducted research for Affected Environment

Susy Morales, Senior Environmental Planner / Wildlife Biologist, prepared or revised sections of Affected Environment / Environmental Consequences

Sharon Wright, NEPA / Environmental Planner, prepared or revised all sections of EA

Carmen Zepeda-Herman, Archeologist, prepared sections on Cultural Landscapes and Ethnographic Resources

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URS Corporation

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ACRONYMS

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CLI	Cultural Landscape Inventory
dBA	A-weighted decibel
DO	Director's Order
EA	environmental assessment
FHWA	Federal Highway Administration
GHG	greenhouse gas
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
PEPC	Planning, Environment, and Public Comment
PROWAG	Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way
SHPO	State Historic Preservation Office
USC	United States Code
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service

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APPENDIXES

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APPENDIX A

Exotic Invasive Plant Species Detected in the Project Area

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APPENDIX A

Exotic invasive plant species located during surveys of the path analysis area.

Scientific Name
Aegilops cylindrica
Brassica nigra
Bromus inermis
Bromus japonicus
Bromus tectorum
Carduus nutans
Centaurea maculosa
Centaurea repens
Chenopodium album
Chorispora tenella
Cirisum arvense
Cirisum vulgare
Convolvulus arvensis
Erodium cicutarium
Kochia scoparia
Lactuca serriola
Linum perenne lewisi
Malcomia africana
Marrubium vulgare
Medicago lupulina
Melilotus officinali
Polygonum aviculare
Salsola iberica
Sisymbrium altissimu
Taraxacum officinale
Tragopogan dubius
Verbascum thapsus
Verbena bracteata
Other

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APPENDIX B

USFWS Consultation about Federally Listed Species that May Occur in the Project Area

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
UTAH ECOLOGICAL SERVICES FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UT 84119
PHONE: (801)975-3330 FAX: (801)975-3331
URL: www.fws.gov; www.fws.gov/utahfieldoffice/

Consultation Tracking Number: 06E23000-2014-SLI-0043 January 10, 2014
Project Name: Bryce Canyon Multi-Use Visitor Path

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Bryce Canyon Multi-Use Visitor Path

Official Species List

Provided by:

UTAH ECOLOGICAL SERVICES FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UT 84119
(801) 975-3330
http://www.fws.gov
http://www.fws.gov/utahfieldoffice/

Consultation Tracking Number: 06E23000-2014-SLI-0043
Project Type: ** Other **
Project Description: 4 mile visitor use path from Bryce Canyon City to Bryce Canyon NP

Project Location Map:

Project Coordinates: MULTIPOLYGON (((-112.1580067 37.6658734, -112.1573633 37.6597301, -112.1573647 37.6597205, -112.1675263 37.6345654, -112.1630404 37.63307, -112.1630342 37.6330666, -112.1630296 37.6330614, -112.1630271 37.6330549, -112.1630269 37.6330479, -112.1637135 37.6287044, -112.1637169 37.6286961, -112.1637234 37.6286901, -112.1678268 37.6263542, -112.1661175 37.6229639, -112.1661154 37.6229561, -112.1661166 37.6229481, -112.1661209 37.6229412, -112.1736117 37.615008, -112.1637579 37.6014265, -112.1571206 37.6041066, -112.1571129 37.6041081, -112.1571053 37.6041065, -112.1570988 37.6041021, -112.1570946 37.6040956, -112.1570931 37.6040879, -112.1570947 37.6040803, -112.1570991 37.6040738, -112.1571056 37.6040696, -112.1637574 37.6013836, -112.1637661 37.6013821, -112.1637745 37.6013846, -112.1637811 37.6013904, -112.1736538 37.614998, -112.1736568 37.6150041, -112.1736576 37.615011, -112.1736559 37.6150177, -112.1736521 37.6150234, -112.1661596 37.6229584, -112.1678711 37.6263532, -112.1678731 37.6263605, -112.1678723 37.626368, -112.1678688 37.6263747, -112.1678631 37.6263796, -112.1637516 37.6287201, -112.1630691 37.6330374, -112.1675591 37.6345342, -112.1675661 37.6345383, -112.167571 37.6345448, -112.1675728 37.6345527, -112.1675713 37.6345607, -112.1574036

37.6597309, -112.1580468 37.6658725, -112.1580464 37.665879, -112.1568448 37.6711784, -112.1568416 37.6711856, -112.156836 37.6711909, -112.1568287 37.6711937, -112.1568209 37.6711935, -112.1568137 37.6711903, -112.1568084 37.6711847, -112.1568056 37.6711774, -112.1568058 37.6711696, -112.1580067 37.6658734)))

Project Counties: Garfield, UT

Endangered Species Act Species List

There are a total of 9 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions. Critical habitats listed on the **Has Critical Habitat** lines may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

California condor *(Gymnogyps californianus)*

Population: U.S.A. (specific portions of Arizona, Nevada, and Utah)

Listing Status: Experimental Population, Non-Essential

Condition(s):

- Species is considered Experimental non-essential population

Greater sage-grouse *(Centrocercus urophasianus)*

Population: entire

Listing Status: Candidate

Humpback chub *(Gila cypha)*

Population: Entire

Listing Status: Endangered

Has Critical Habitat: Final designated

Condition(s):

- Watershed discharge that would affect the Grand Canyon

Jones Cycladenia *(Cycladenia humilis var. jonesii)*

Listing Status: Threatened

Mexican Spotted owl *(Strix occidentalis lucida)*

Population: Entire

Listing Status: Threatened

Has Critical Habitat: Final designated

Southwestern Willow flycatcher *(Empidonax traillii extimus)*

Population: Entire

Listing Status: Endangered

Has Critical Habitat: Final designated

Utah prairie dog *(Cynomys parvidens)*

Population: U.S.A.(UT)

Listing Status: Threatened

Condition(s):

- High intensity surveys, as defined by the Utah Prairie Dog Survey Protocol (http://www.fws.gov/utahfieldoffice/), are required for all projects with temporary or permanent impacts.
- Low intensity surveys, as defined by the Utah Prairie Dog Survey Protocol (http://www.fws.gov/utahfieldoffice/), are required for all projects with temporary or permanent impacts.

Ute ladies'-tresses *(Spiranthes diluvialis)*

Listing Status: Threatened

Yellow-Billed Cuckoo *(Coccyzus americanus)*

Population: Western U.S. DPS

Listing Status: Proposed Threatened

Critical habitats that lie within your project area

There are no critical habitats within your project area.

APPENDIX C
USFWS Informal Consultation

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United States Department of the Interior
NATIONAL PARK SERVICE BRYCE
CANYON NATIONAL PARK P.O. Box
640201
Bryce, UT 84764

N1621

July 28, 2014

Concur No Effect

Concur Not Likely to Adversely Affect

No Comment

U.S.F.W.S – Utah Field Supervisor

Date 8/6/14

Received

AUG ,.,,2014

Bryce Canyon National Park

Mr. Larry Crist, Field Supervisor
U.S. Fish and Wildlife Service
2369 West Orton Circle, Suite 50
West Valley City, UT 84119

Dear Mr. Crist,

Bryce Canyon National Park proposes to construct a Multi-use Path connecting Bryce Canyon City, through a segment of the Dixie National Forest, the Bryce Canyon National Park Visitor Center and many of the popular view-points within the park. The primary purpose of the proposed project is to relieve safety issues for visitors of all ages who choose to use non-motorized transportation to experience the park and adjacent U.S. Forest Service areas near Bryce Canyon City (Figure 1). Increases in visitation at the park are leading to transportation system capacity issues and traffic congestion. Visitor safety would be improved by separating motor vehicles from bicyclists, pedestrians, and other nonmotorized user groups where possible. The path is also intended to help manage congestion, improve visitor experience, and provide alternative means of accessing U.S. Forest Service and National Park Service lands.

The proposed action (path alignment) would not directly impact any suitable or occupied Utah prairie dog habitat within the action area. However, active colonies are located within several areas along the proposed path corridor and overlap with the one-half mile buffer zone for mapped habitat. A majority of the affected area is through ponderosa pine dominated forested land that already experiences heavy impacts from visitor use. The alignment through the Forest Service segment will avoid any meadow habitat and be within the ponderosa pine forested landscape. A segment of the path will bisect mapped habitat through the Dave's Hollow East colony. This segment will utilize a scar from construction for the rehabilitation ofthe sewer line (BO issued 5.11.2010; work completed in summer 2013). The habitat between the unvegetated construction scar and the meadow consists of ponderosa pines. One June 3, 2014, Nathan Brown, USFWS biologist visited the site and determined the area of the proposed path, as well as the forested area in between the meadow and the path, to be unsuitable habitat.

The remainder of the proposed path that overlaps with the one-half mile buffer zone occurs in high visitor use areas. As the path nears the Visitor Center, the Dave's Hollow West colony buffer zone will be traversed. The path alignment is through ponderosa pine forest, as well as adjacent to the main park.road, and therefore deemed unsuitable habitat. The Historic Housing, Sunset, Rainbow Gate, and Paria colonies also occur within the half mile buffer zone. These sections of the path alignment will also travel through unsuitable habitat consisting of ponderosa pine forest and through areas that are currently heavily impacted by visitors.

Construction of the proposed path may result in disturbance to individual Utah prairie dogs from noise, dust, ground vibration, and increased human presence while activities are occurring. Noise and increased human activity may result in reduced prairie dog foraging or possible temporary displacement and cause stress to animals in the area. Prairie dogs near high visitor use areas (such as the Shuttle Hub, viewing pullouts, existing trails, arid visitor center) are likely acclimatized to vehicle traffic, human presence, and related noises due to their proximity to existing roadways and parking lots. Path construction- related effects on prairie dogs would be short- term (temporary) and minor as compared to the existing conditions.

In order to reduce project impacts on UPD, the park proposes the following mitigation measureduring and post construction:

1. Silt fences will be utilized during construction within mapped habitat to deter UPD from entering the construction zone.
2. Path construction within mapped habitat would occur between June 15 and August 31"[1] to reduce impacts to UPD pre-hibernation.
3. Construction personnel will be informed of appropriate activities around colonies and the construction contract will require the cessation of construction activities that have a detectably detrimental effect on UPD in the action area.
4. Path construction within the Dave's Hollow East, Dave's Hollow West, Historic Housing, and Sunset Point colonies will be monitored by a park Biologist.
5. If during construction monitoring the park Biologist determines that impacts to individual UPD or colonies is occurring beyond temporary, minimal disturbance, the park will stop work and reinitiate consultation with your office.

Impacts to UPD may occur in the form of decreased foraging time and increased vigilant behavior during path construction due to disturbance from equipment and personnel. The presence of the path may alter movement patterns for the colony, as well as behavior of other species in the area, which may include predators on UPD.

With this letter, we are requesting your concurrence with the following determination for the Utah prairie dog as a result of this multi-use path project. We have determined from our internal assessments as well as conversations with U.S. Fish and Wildlife Service personnel, that a may affect, not likely to adversely affect determination is appropriate for our actions. To facilitate our compliance with NEPA for this proposed Federal action, we request your input for concurrence with our determination of effect. For your records, the title of this project is "Multi-Use Visitor Path."

Your reply will be most appreciated and helpful if received by August 14,2014. If you have any questions, please contact Katie Johnson, Natural Resource Specialist,435-834-4751 (Katie_A_Johnson@nps.gov).

Sincerely,

Jeff Bradybaugh
Superintendent

TAKE PRIDE IN AMERICA

As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; 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 by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. Administration.

National Park Service 129/123175

September 2014

United States Department of the Interior / National Park Service