
ENVIRONMENTAL CONSEQUENCES

SUMMARY OF LAWS AND POLICIES

Three key environmental protection laws and policies guide the National Park Service. They include the:

- National Park Service Organic Act (United States Code 1916), which established the National Park Service and defined its mission;
- National Environmental Policy Act of 1969 and its implementing regulations; and
- National Parks Omnibus Management Act of 1998.

The Organic Act creating the National Park Service states that the agency will “conserve the scenery and the natural and historic objects and the wild life therein and . . . provide for the enjoyment of the same *in such manner and by such means as will leave them unimpaired for the enjoyment of future generations*” (emphasis added; 16 USC §1). The italicized text is the basis for all resource management decisions made by the National Park Service.

The National Environmental Policy Act is implemented through regulations developed by the Council on Environmental Quality, which are published as 40 *Code of Federal Regulations* 1500–1508 (Council on Environmental Quality 1978). The National Park Service has adopted procedures to comply with the National Environmental Policy Act and the Council on Environmental Quality regulations. These are contained in *Directors Order #12: Conservation Planning, Environmental Impact Analysis, and Decision Making* and its accompanying handbook (NPS 2001b).

The National Parks Omnibus Management Act of 1998 underscores the National Environmental Policy Act. Both acts provide direction for articulating and connecting the ultimate resource management decision to the analysis of impacts, using appropriate technical and scientific information. Both also recognize that such data may not be readily available and provide options for resource impact analysis should this be the case.

This Environmental Impact Statement is designed to fulfill these laws and policies, recognizing that the proposed action is the county proposal and the Burr Trail, in addition to serving functions within Capitol Reef National Park, also serves additional functions throughout the region.

IMPAIRMENT ANALYSIS

The purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service management discretion to allow adverse impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impacts do not constitute impairment of the affected resources and values.

ENVIRONMENTAL CONSEQUENCES

Congress has given the National Park Service management discretion to allow certain impacts within parks, limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. Valid existing rights, such as RS 2477 rights of way, are unaffected by these laws.

The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute impairment. An impact would be more likely to constitute impairment to the extent it affects a resource or value whose conservation is:

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

A determination on impairment is included in the impact analysis section for all impact topics relating to Capitol Reef National Park resources and values. It is based on the impact- topic- specific definition of impairment provided in the methodology section for each impact topic that addresses park resources or values.

The following process was used to determine whether the various Burr Trail modification alternatives had the potential to impair park resources and values:

- The park's enabling legislation, general management plan, and other relevant planning and management documents were reviewed to ascertain the park's purpose and significance, resource values, and resource management goals or desired future conditions.
- Burr Trail modification objectives that could affect resource protection goals in the park were identified.
- Thresholds were established for each resource of concern to determine the context, intensity, and duration of impacts, as defined below under the heading "General Methodology for Establishing Impact Thresholds and Measuring Effects."
- An analysis was conducted to determine if the magnitude of impact reached the level of "impairment" as defined by *Management Policies 2001* (NPS 2000b).

The impact analyses include any findings of impairment to park resources and values for each of the Burr Trail modification alternatives.

CUMULATIVE ANALYSIS

The Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act require assessment of cumulative effects in the decision-making process for federal actions. Cumulative effects 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 *Code of Federal Regulations* 1508.7). Cumulative effects are considered for the no action alternative and for all action alternatives.

Cumulative effects were determined by combining the effects of each alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future actions within Capitol Reef National Park and in the surrounding vicinity. Actions that have the potential to have cumulative effect in conjunction with the road modifications to the Burr Trail include:

- Livestock Trailing Special Use Permits issued to allow seasonal access and use of the Burr Trail by livestock. Transport or trailing of cattle on the Burr Trail could contribute to trampling of soil and short-term loss of vegetation in the immediate vicinity of the road corridor.
- The Burr Trail has been upgraded on Bureau of Land Management Lands, and the Notom Road in Wayne County has recently been paved to the Garfield County line. Garfield County has paved the Burr Trail east and west of the park, and Wayne County has paved the Notom Road up to the Garfield County line. Garfield County is considering conceptual designs for grading and drainage for 15 miles of the Notom Road from the county line to the park boundary, and 8 miles of the Burr Trail to the eastern park boundary. This could increase vehicle speed on the Burr Trail, both on the paved areas and at the park entrance where the road surface changes to native material.
- The Bureau of Land Management is preparing a resource management plan for public lands and resources located in Garfield, Piute, Sanpete, Sevier, and Wayne Counties. The Bureau of Land Management also issues cattle grazing permits for Bureau of Land Management lands in these counties. The resource management plan under development will include future use of the Burr Trail. This could lead to incremental changes in activities such as transport of oil, gas, or mineral-exploration equipment and vehicles, or trailing and transport of cattle.
- Plans for improvements to the Bullfrog Marina at Glen Canyon National Recreation Area could cause an increase in the use of regional roads other than the Burr Trail. Increases in the number of vehicles hauling trailers and watercraft to access the Bullfrog Marina could increase maintenance needs for the road surfaces and increased dust.

GENERAL METHODOLOGY FOR ESTABLISHING IMPACT THRESHOLDS AND ASSESSING EFFECTS

National park system units are directed to assess the extent of impacts to park resources as defined by the context, duration, intensity, and timing of the effect.

Issues and concerns, as presented in the “Purpose and Need for Action” section, were further defined and focused to assess the various Burr Trail modification alternatives given the context, duration, and intensity of effects on park resources. Thresholds were established for each impact topic to help understand the severity and magnitude of changes in resource conditions, both adverse and beneficial, of the various road modification alternatives.

When baseline inventory data were available, the change from the baseline was used as an indicator. When criteria were not applicable, standard definitions for the degree of change were used. In the absence of quantitative information, best professional judgment was applied. The thresholds came from existing literature, federal and state standards, and consultation with subject matter experts and appropriate agencies.

In addition to helping to establishing impact thresholds, the park’s resource management objectives and goals were integrated into the impact analysis. To further define resource protection goals relative to management of the Burr Trail, the park’s general management plan was used to ascertain the “desired future condition” of resources over the long term. The impact analysis then considered whether each alternative contributed to the park’s achievement of its resource goals, or would be an impediment to achieving resource goals. The interdisciplinary team then considered potential ways to mitigate adverse effects of road modification activities, and modified the alternatives accordingly.

All alternatives were evaluated for their effects on the resources and values identified during the scoping process, and are grouped into impact topics for further discussion. The effects associated with a particular alternative were compared to the No Action Alternative to determine the intensity, scope, and duration of the impacts. Cumulative effects were evaluated for each impact topic. Definitions of intensity levels and duration varied by impact topic, but the following definitions were applied for all impact topics.

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

Adverse: A negative change in the appearance or condition of the resource or a change that moves the resource away from a desired condition.

Cumulative: The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non- federal) or person undertakes such other actions (40 Code of Federal Regulations 1508.7).

AIR QUALITY

METHODOLOGY

The Environmental Protection Agency has promulgated national ambient air quality standards (NAAQS) and regulations for the protection of public health and welfare or of the environment in compliance with the Clean Air Act and its amendments. To assess the level of air quality impacts resulting from a given management alternative, the following methods and assumptions were used:

- The national ambient air quality standards were examined for six criteria air pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), lead (Pb), particulate matter smaller than 10 microns in diameter (PM₁₀), and sulfur dioxide (SO₂) (US EPA 2001). The directly emitted criteria pollutants are CO, NO₂, SO₂, and PM₁₀. Ozone is a secondary air pollutant resulting from photochemical reactions involving nitrogen oxides (NO_x) and reactive organic gases.
- Air quality designations for the surrounding area were determined. If the park, or a portion of a park, was within the boundaries of a non-attainment or the maintenance area for a given pollutant, ambient air quality concentrations were assumed to violate the national ambient air quality standards for that pollutant. Capitol Reef National Park and the nearby areas are in attainment for all criteria pollutants.
- Air quality is achieved through reduction of pollutants and maintenance or improvement of visibility. Visibility can be degraded when fine particles in the air cover a large area, creating what is known as “regional haze.” Vehicle operations contribute to environmental problems such as smog, toxics, and global warming. Future air problems occur due to pollution generated by fine particulates and fugitive dust contributes to pollution. Visibility impacts were determined by assessing particulate matter levels from local monitoring data or from qualitative evidence such as personal observations and photographs.

The Environmental Protection Agency model AP-42 was used to estimate the amount of particulate emissions that could be locally generated by vehicles traveling the Burr Trail (EPA 2000). The model compiles standard air pollutant emission factors and then quantifies the amount of fugitive dust that would be generated by a 4,000 pound vehicle traveling approximately one mile at 15 miles per hour on a dirt road surface (although the maximum design speed on the Burr Trail is 25 miles per hour, 15 miles per hour was used to account for slowing and stopping by visitors who would likely be viewing sights and scenery). Table 10 shows that the amount of fugitive dust (PM₁₀) generated per vehicle-mile traveled on a dirt surface was 0.73 pounds more than would be generated by the same vehicle traveling on a gravel surface. The total number of all particulate size classes is expressed as the total ratio of dirt to gravel (or 1:1.54).

The air quality impacts of the various alternatives were assessed by comparing existing air quality levels and related values with expected pollutants generated by each alternative. Impact thresholds may be qualitative (e.g., photos of degraded visibility) or quantitative (e.g.,

based on impacts to air quality related values or federal air quality standards, or emissions based on emission factor models), depending on what type of information is appropriate or available. Cumulative impacts were analyzed qualitatively.

**TABLE 10: FUGITIVE DUST GENERATED BY TRAVEL ON DIRT ROADS
COMPARED TO GRAVEL ROADS**

Gravel Surface		Dirt Surface		Output Variance
Particle Size	Pounds per Vehicle Mile	Particle Size	Pounds per Vehicle Mile	Pounds per Vehicle Mile
PM _{2.5}	0.195	PM _{2.5}	0.301	0.106
PM ₁₀	1.337	PM ₁₀	2.062	0.725
PM ₃₀	4.940	PM ₃₀	7.616	2.678
Ratio Dirt : Gravel		1:1.54		

Impact thresholds for air quality depend on the type of pollutants produced, the background air quality, and the resources in the environment that may be affected by airborne pollutants (air quality related values). Air quality related values include “visibility and those scenic, cultural, biological, and recreation resources of an area that are affected by air quality” (43 *Federal Register* 15016) (U.S. Environmental Protection Agency 1999).

The cumulative impacts for air quality related values were based on the effects of air emissions from traffic and other motorized vehicles on the Burr Trail. A state implementation plan (SIP) for visibility issues affecting federal Class I areas such as Capitol Reef National Park is being prepared, but the Utah Division of Air Quality has not completed the SIP (U.S. Environmental Protection Agency 1999b). Therefore, a qualitative analysis was conducted. The assessment of airborne pollutants emitted from motorized sources and their contribution to ground-level ozone or regional transport of ozone was limited to the location of the Burr Trail and the immediate surrounding area within the park. Emissions from regional point sources such as energy, mining, or construction were also considered.

Primary steps used for assessing impacts included 1) identifying state of Utah and local air quality standards for ozone and fugitive dust, 2) identifying air quality designation for the region, 3) identifying local ambient air quality data from monitoring sites in or within 100 miles of the park to determine the level of pollutants, and 4) determining visibility impairment from local monitoring data or qualitative evidence from park staff observation. To understand the effects of road modifications on air quality in the areas of concern, park staff, experts, monitoring data, and literature reviews were used to identify the information contained in this analysis.

Impacts were evaluated using these thresholds:

- *Negligible*: No changes in air quality and visibility would occur, or changes would be below or at the level of detection and if detected would have slight to imperceptible effects.
- *Minor*: Changes in air quality and visibility would be measurable, though they would be small, temporary, or short- term and local. No air quality mitigation measure would be necessary.
- *Moderate*: Changes in air quality and visibility would be measurable, involving some consequences that would be relatively local. Air quality mitigation measures would be necessary, and the measures would likely be successful.
- *Major*: Changes in air quality and visibility would be measurable, would have substantial consequences, and would be noticed at the regional level, thereby influencing attainment of national standards. Air quality or visibility mitigation measures would be necessary, and the success of the measures could not be guaranteed.
- *Duration*: Short- term – Effects on air quality parameters and visibility last 7 days or less following initiation (e.g., vehicle passage or road maintenance work). Long- term – Effects last more than 7 days following initiation. A 7- day evaluation period was selected because it best depicts the typical work week for construction and road maintenance projects.

Geographic Area Evaluated for Impacts. The analysis area included the immediate location of the Burr Trail and the area surrounding the near- road environment where locally generated air pollutants may accumulate. Influence on the regional ambient air quality included the nearby power generation plants in Utah and Arizona. Cumulative effects that would occur both within and outside these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICIES

Clean Air Act. The Clean Air Act establishes national ambient air quality standards (NAAQS) to protect the public health and welfare from air pollution. The act also establishes the prevention of significant deterioration (PSD) of air quality program to protect the air in relatively clean areas. One purpose of this program is to preserve, protect, and enhance air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value (42 U.S.C. 7401 et seq. 1970). The program also includes a classification approach for controlling air pollution.

Class I areas, which are typically national parks and wilderness areas, are afforded the greatest degree of air quality protection. Very little deterioration of air quality is allowed in these areas, and the unit manager has an affirmative responsibility to protect visibility and all other Class I area air quality related values from the adverse effects of air pollution. Capitol Reef National Park is designated a Class I area (EPA 1999b).

Conformity Requirements. National park system areas that do not meet the national ambient air quality standards or in which current ambient levels already adversely affect resources require a greater degree of consideration and scrutiny by National Park Service managers. Areas that do not meet national air quality standards for any pollutant are designated as nonattainment areas. Section 176 of the Clean Air Act states:

No department, agency, or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to an [State] implementation plan. . . . [T]he assurance of conformity to such a plan shall be an affirmative responsibility of the head of such department, agency or instrumentality.

Essentially, federal agencies must ensure that any action taken does not interfere with a state's plan to attain and maintain the national ambient air quality standards in designated nonattainment and maintenance areas. In making decisions regarding modifications within a designated nonattainment or maintenance area, park managers should discuss their plans with the appropriate state air pollution control agency to determine the applicability of conformity requirements.

Because the counties that Capitol Reef National Park occupies are designated by the Environment Protection Agency as in attainment for all criteria pollutants (CO, O₃, NO_x, SO₂, PM₁₀, and lead) (EPA 2002), no state implementation plans apply to the project area. Therefore, the proposed action(s) are not subject to particular federal conformity determination or requirement.

National Park Service Organic Act and Management Policies. The National Park Service Organic Act (16 USC 1, et seq.) (USC 1916) and the National Park Service *Management Policies 2001* (NPS 2000b) guide the protection of park and wilderness areas. The general mandates of the Organic Act (1916) state that the National Park Service will

...promote and regulate the use of . . . national parks . . . by such means and measures as conform to the fundamental purpose of the said parks, . . . which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 USC 1) (USC 1916).

Under its *Management Policies 2001*, the National Park Service will

...seek to perpetuate the best possible air quality in parks to 1) preserve natural resources and systems; 2) preserve cultural resources; and 3) sustain visitor enjoyment, human health, and scenic vistas (NPS 2000b).

Management Policies 2001 further states that the National Park Service will assume an aggressive role in promoting and pursuing measures to protect air quality related values from the adverse impacts of air pollution. In cases of doubt as to the impacts of existing or potential air pollution on park resources, the National Park Service "will err on the side of protecting air quality and related values for future generations."

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. The arid environment and the exposed road surfaces composed of gravel and native material make fugitive dust the primary concern with regard to air quality or visibility. Under the No Action Alternative, visitor traffic is expected to continue to average 29 vehicles per day with design speeds not exceeding 25 miles per hour. In general, the types of vehicles traveling the road include passenger vehicles, sport utility vehicles and light trucks, and occasional cattle trucks, recreational vehicles, and road maintenance vehicles.

Each time vehicles drive along the Burr Trail and through drainages, fugitive dust (which is included in the larger category of particulate matter) is emitted into the air. The amount and duration of fugitive dust and emissions suspended into the air is based on the size and speed of the vehicle. Impacts from fugitive dust include low visibility and, in severe cases, interference with plant growth and reproduction by clogging pores and reducing light interception.

Although generally not toxic, fugitive dust can cause human health problems over the long term, alone or in combination with other air pollutants. However, under current conditions, these risks are generally low; therefore, there would be no change in Class I airshed status from this alternative, as current levels of vehicle travel on the Burr Trail have not resulted in a violation of any national air quality standard (University of Missouri 1999).

Under the No Action Alternative, the impacts to air quality would continue to be short-term, minor, and adverse in the local vicinity due to generation of fugitive dust. Because fugitive dust quickly dissipates at the relatively low volume of traffic and slow speeds found on the Burr Trail, the impacts from fugitive dust and vehicle emissions on the regional scale would be negligible. Impacts to vegetation and human health are also negligible due to the small amounts of air pollutants produced.

Cumulative Effects. Past and current management of the Burr Trail within Capitol Reef National Park has retained the native surface of the road, whereas portions of the Burr Trail outside the park have been paved, as has the Notom Road up to the Garfield County line. Paving surrounding roads has reduced the production of particulates generated in the region, but increased vehicle speeds would increase the generation of fugitive dust within the local vicinity of the Burr Trail. Mobile emissions attributed to air quality in the region come from cars, light and heavy-duty trucks, recreational vehicles, and motorcycles using gasoline and diesel fuels.

Under certain conditions, volatile organic compounds, nitrogen oxide, and fugitive dust generated from vehicle use and cattle trailing can reduce visibility in the park and contribute to regional haze. However, pollutants from road traffic or road maintenance vehicles on county roads are negligible, and no reasonably foreseeable changes in vehicle miles traveled are expected.

Construction-related emissions from development of adjacent public lands would create some particulate emissions, but they would not degrade regional air quality or visibility and would be local and of short duration. Emissions from regional power generating stations would continue to have adverse effects. Fugitive dust and emissions from future oil- and gas- exploration, other vehicle traffic, or livestock trailing on the Burr Trail would be low

and have slight or imperceptible effects. Impacts to air quality or visibility from the No Action Alternative in conjunction with past, present, and foreseeable future projects would be negligible, short- term, and adverse.

Conclusion. The No Action Alternative would have local, short- term, negligible to minor, adverse impacts on air quality and visibility. Impacts to regional air quality would be negligible. Cumulative impacts would be negligible, short- term, and adverse.

There would be no major adverse impacts to an air quality resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. Under Alternative A, there would be no long- term change in the average daily traffic volume along the road caused by proposed road modifications and, therefore, no increase in fugitive dust created by normal traffic.

The installation of a gravel base over a geotextile fabric would improve air quality because less dust would be produced by vehicles traveling over gravel than over dirt. As shown in Table 10, for each vehicle- mile traveled over a gravel rather than a dirt surface, there would be about 2.7 fewer pounds of dust with a particle size of 30 microns or less, and 0.7 fewer pounds of dust with a particle size of 10 microns or less. Alternative A would replace portions of the road's dirt surface with gravel over a geotextile base in areas where needed to stabilize the road surface. With an average use of the Burr Trail of 29 vehicles per day, Alternative A would reduce (based on an estimated replacement of 0.5 mile of dirt with gravel):

- Production of dust with a particle size between 10 microns and 30 microns by about 20 pounds per day or about 5.3 tons per year. Dust with particle sizes between 10 microns and 30 microns is important because most of it settles out of the air within 50 feet of the road and potentially can smother vegetation and biological soil crusts.
- Production of dust with a particle size of 10 microns or less by 10.1 pounds per day or about 1.8 tons per year. Dust in this size class is important because it can become suspended in the air column and produce adverse health effects to humans when it is inhaled. Suspended particles also can adversely affect visibility.

Changing portions of the road surface from the current native dirt to gravel also would reduce the need for road maintenance, which can produce large volumes of fugitive dust. The vented paved fords and the Halls Creek crossing would allow 2- year storm floodwaters to pass through culverts, which would lessen the need for maintenance equipment to remove sediment that would otherwise be deposited on the roadway as a result of flooding. Re-

duced maintenance would have negligible beneficial effects on air quality that would accrue regularly over the long- term.

The effects on air quality in the immediate vicinity of the Burr Trail would be long- term and beneficial. However, the intensity would be negligible because of the small area involved. Effects on vegetation and biological soil crusts from reduced dust generation are considered within the discussions of those impact topics.

There would be short- term, negligible, adverse impacts on air quality for the duration of project- related construction. Fugitive dust emissions would occur as a result of construction vehicles transporting material along the road and soil disturbances from other construction activities. Construction vehicle exhaust emissions would have a short- term, negligible, adverse effect on air quality.

Cumulative Effects. Although relatively similar to the No Action Alternative, cumulative impacts to air quality or visibility from Alternative A would be slightly less adverse because of reduced road maintenance. There would be a short- term, regional, negligible, adverse effect on air quality that would contribute to cumulative effects as a result of heavy- duty trucks hauling gravel and materials (e.g., concrete, culverts) over regional roads for the duration of construction activities. However, these impacts would be short- lived and would not make the cumulative effects of Alternative A substantially different than the No Action Alternative, namely negligible, short- term, and adverse.

Conclusion. Alternative A would have short- and long- term, negligible beneficial impacts on air quality and visibility because of a reduction in fugitive dust. Construction activities would create a short- term, negligible adverse impact on air quality and visibility from temporary emission of particulates. Cumulative impacts to air quality or visibility would be beneficial, but negligible.

There would be no major adverse impacts to an air quality resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE B

Impact Analysis. The impacts of Alternative B on air quality or visibility are similar to those identified for Alternative A, although the ability of the culverts at all the major crossings to pass 25- year storm events would further lessen the need for maintenance. This would be offset by the need for continued maintenance of the road surface because Alternative B lacks geotextile fabric underneath the gravel that minimizes loss and displacement of the gravel surface. Constant displacement of the gravel due to the lack of fabric would necessitate maintenance at a rate similar to the No Action Alternative. As a result of the offsetting effects, impacts to air quality would be negligible, short- and long- term, and beneficial. As in Alternative A, there would be short- term, negligible, adverse impacts on air quality or visibility for the duration of project- related construction.

Cumulative Effects. Cumulative impacts would be similar to Alternative A.

Conclusion. Alternative B would have local, short- term, negligible adverse impacts on air quality or visibility due to fugitive dust and particulate emissions during construction activities. In the long- term, impacts to air quality or visibility would be negligible but beneficial. Cumulative beneficial impacts to air quality or visibility would be negligible.

There would be no major adverse impacts to an air quality resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE C

Impact Analysis. The impacts of Alternative C would be similar to those identified for Alternative B, except less dust would be generated by maintenance activities because the culverts would be able to pass 50- year storm floodwaters, which would reduce the need for road maintenance and repair. The impacts to air quality or visibility would be negligible and beneficial in the short and long terms compared to the No Action Alternative.

Cumulative Effects. Cumulative impacts would be similar to Alternative A.

Conclusion. Similar to Alternative B, short- term impacts associated with Alternative C would be local, negligible, and adverse. Long- term effects would be beneficial, but negligible. Cumulative beneficial impacts to air quality or visibility would be negligible.

There would be no major adverse impacts to an air quality resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

GEOLOGIC FEATURES AND LANDFORMS

METHODOLOGY

Capitol Reef National Park is known for its sedimentary formations, cliffs, monoliths, and abundance of canyons. There are significant geological features, such as narrow canyons, colorful cliffs, cliff- top washes, and striking scenic views created by the Waterpocket Fold. The impact analysis for the Burr Trail modifications recognized the importance of the natural setting of the road in relationship to these geological features and natural landforms.

Identification of geological features was accomplished through discussions with park staff, evaluation of these features in relation to the park's general management plan (NPS 2001c), and consideration of the National Park Service Road Standards, (NPS 1984, NPS 1998a). Primary steps for assessing impacts included identifying 1) which geologic features are in areas likely to be affected by road modifications, 2) current and future use of the road, 3) loss or alteration of geologic features caused by road modifications, and 4) disturbance potential of the road project on the natural landform. The information contained in this analysis was obtained through best professional judgment of park staff and experts in the field and by conducting literature reviews.

Impacts were evaluated using these thresholds:

- *Negligible*: An action that could result in a change to a geologic feature or landform, but the change would be so small that it would not be of any measurable or perceptible consequence.
- *Minor*: An action that could result in a change to a geologic feature or landform, but the change would be small, local, and of little consequence.
- *Moderate*: An action that would result in a change to a geologic feature or landform; the change would be measurable and of consequence.
- *Major*: An action that would result in a noticeable change to a geologic feature or landform; the change would be measurable and result in a severely adverse or beneficial impact.
- *Duration*: Short- term – Recovers in less than 3 years. Long- term – Effects from noticeable change last more than 3 years or are considered non- renewable.

Geographic Area Evaluated for Impacts. The area analyzed for possible impacts on geologic features and landforms for this assessment consisted of the one- mile segment of the Burr Trail and natural landforms abutting the road corridor. Two additional areas of analysis included the natural topography of the road, contours, and surrounding landforms at Halls Creek and the Burr Canyon side drainage. Cumulative effects that would occur both within and outside these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICY

Under its *Management Policies 2001* (NPS 2000b), the National Park Service will protect geologic features from the adverse effects of human activity, while allowing natural processes to continue. The term “geologic features” describes the products and physical components of geologic processes. Examples of geologic features in parks include rocks, soils, and minerals; geysers and hot springs in geothermal systems; cave and karst systems; canyons and arches in erosional landscapes; sand dunes, moraines, and terraces in depositional landscapes; dramatic or unusual rock outcrops and formations; and paleontological resources such as fossilized plants or animals, or their traces.

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. The No Action Alternative would have no effect on geologic resources because no features would be altered. The Burr Trail offers the visitor a driving experience consistent with the park’s geology, topography, and management objectives for this part of the park, and this would remain the same under the No Action Alternative. A prominent geologic feature is the overhanging rock located at mile point 0.65. The No Action Alternative would not alter or change the size, character, and shape of this rock. No significant drainage modifications would be made under this alternative that would change the existing contours of the road; therefore, all existing geologic features and landscapes would be preserved.

Cumulative Effects. The No Action Alternative would continue to implement past and current management plans that preserve the geologic features and landforms of the landscape, and most vehicle travel and cattle trailing would not alter the geological features. Large vehicles traveling the Burr Trail occasionally scrape or chip the overhanging rock when traveling on narrow portions of the road.

Increased use of the Burr Trail by larger vehicles resulting from road upgrades and development conducted on adjacent public lands could contribute to negligible adverse impacts to the road stability and long-term incremental changes in the road contours.

Neither the future park development, visitor use, or expansion of Bullfrog Marina is expected to have noticeable impacts on geologic features within the park or in the immediate project vicinity. Future oil and gas operation, road maintenance, vehicle traffic, or livestock trailing on the Burr Trail would have imperceptible local effects on park geologic resources. Cumulative effects of the No Action Alternative would be negligible when considering the extent and scale of the park’s geologic resources and the lack of other actions that would affect them.

Conclusion. The No Action Alternative would have no effect on geologic features due to the preservation of the overhanging rock and the park’s natural topographic and geologic setting. Cumulative impacts to geological features and landforms would be negligible.

There would be no major adverse impacts to a geological feature or landscape resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural in-

tegrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. Under Alternative A, the overhanging rock at mile point 0.65 would be maintained with no alterations to its size, shape, and character. The road alignment would be modified to expand the road width at the overhanging rock by shifting the drainage ditch to the north (closer to the rock). This shift would not affect the overhanging rock.

Drainage modifications under Alternative A would cause long- term, negligible, adverse impacts to the existing topography as a result of minimal grading (about a one- foot change in contour) to accommodate the profile necessary to install the paved fords. The impact of these modifications would therefore be negligible, short- term, and adverse compared to the No Action Alternative.

The proposed shift in road alignment at the confluence of the Burr Canyon drainage and Halls Creek drainage would disturb about 6,000 square feet, 3,500 square feet of which would be outside the existing roadway footprint. The installation of a vented paved ford at the Halls Creek crossing, and the culverts and a rock embankment on the slope in Burr Canyon would involve minor recontouring of the drainages, grading the inlets and outlets, and placing slope protection. Geologic resources would be impacted in a minor, adverse manner because of the landscape alterations.

Cumulative Effects. The cumulative effects of Alternative A would be similar to those described under the No Action Alternative.

Conclusion. There would be no impacts to the overhanging rock as a result of the road re-configuration at that location. Negligible to minor adverse impacts would result from bank stabilization, construction of the rock embankment, and slight surface grade changes to the geologic landscape. Cumulative effects to geological features and landforms would be inconsequential and barely detectable from a regional perspective.

There would be no major adverse impacts to a geological feature or landscape resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE B

Impact Analysis. Alternative B would remove the overhanging rock at mile point 0.65 to widen the road to accommodate two- way traffic. Impacts would result in a local, long- term, minor, adverse impact because this prominent geologic feature would be removed. No other specific geologic features are expected to be impacted under Alternative B.

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Drainage modifications under Alternative B would involve installing culverts that would pass 25- year storm events at all minor and major road drainages. This would result in long-term, negligible to minor, adverse impacts because the natural topography at the drainage crossings would need to be graded to accommodate the profiles necessary to construct the culvert structures. The crossing at Halls Creek would change the existing topography within the geologic landscape. The impact of this modification would be long-term, negligible to minor, and adverse compared to the No Action Alternative.

The proposed channel realignment at the confluence of the Burr Canyon drainage and Halls Creek drainage inlet and the culverts and a rock embankment on the slope in Burr Canyon would involve recontouring the drainages, grading the inlet and outlets, and placing slope protection along the ditches. Geologic resources would be impacted in a long-term, minor, adverse manner because of the landscape alterations.

Cumulative Effects. Cumulative impacts would be the same as described for the No Action Alternative except for the following:

Past and current management activities have limited roadwork and avoided altering the road width and natural contours to preserve adjacent geological features and landforms within the road corridor. Alternative B would have a long-term, minor, adverse, cumulative impact because the overhanging rock, a prominent geologic feature in the project area, would be removed.

Conclusion. Alternative B would have a local, long-term, minor, adverse effect on geologic features because the overhanging rock would be removed. Long-term, negligible to minor adverse effects would result from construction of the bank stabilization, the rock embankment, and alterations to road embankments within the geologic landscape. Cumulative impacts to geological features and landforms would represent a minor adverse impact.

There would be no major adverse impacts to a geological feature or landscape resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE C

Impact Analysis. Alternative C would affect geologic features and landscape resources the same as Alternative B. Removal of the overhanging rock would result in a local, long-term, minor, adverse impact because this prominent geologic feature would be removed.

Drainage modifications under Alternative C would be similar to Alternative B, but the culverts would pass 50- year storm events. As a result, grading changes would be greater and would result in long-term, minor, adverse impacts because the natural topography at the drainage crossings would need to be graded to accommodate the profiles necessary to construct the culvert structures. The multiple 72- inch- diameter corrugated metal pipe culverts at Halls Creek would raise the surface of the road at this drainage, thereby changing existing

topography within the geologic landscape. The impact of this modification would therefore be minor and adverse compared to the 60- inch culvert (which has been removed) of the No Action Alternative.

The impacts of the proposed realignment of the Burr Canyon drainage channel to a point upstream of the Halls Creek crossing, installation of culverts, and construction of a rock embankment in upper Burr Canyon would be the same as Alternative B. Geologic resources would be impacted in a long- term, minor, adverse manner because of the landscape alterations.

Cumulative Effects. Alternative C would have the same cumulative effects as Alternative B.

Conclusion. Alternative C would have a local, long- term, minor, adverse effect on geologic features because the overhanging rock would be removed. Long- term, negligible to minor adverse effects would result from construction of the bank stabilization, the rock embankments, and alterations to road embankments within the geologic landscape. Cumulative impacts to geological features and landforms would represent a minor adverse impact.

There would be no major adverse impacts to a geological feature or landscape resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

BIOLOGICAL SOIL CRUSTS AND SOILS

METHODOLOGY

Biological soil crusts are composed of soil particles bound together by organic materials generated by living organisms. These communities are well adapted to areas subject to severe weather conditions such as severe temperatures and drought. These specialized groups of bacteria and lichens are typically present in open, low-lying, undisturbed areas of the Colorado Plateau where vascular plants tend not to grow. The symbiotic relationships that form soil crusts are slow to develop, and damage done may take 100 years or more to repair. These organisms are particularly sensitive to burial, and will die if deprived of air and light for any length of time (Belnap 1994).

Activities that may produce impacts to biological soil crusts and soils include any activities that remove vegetation or disturb the soil surface.

- *Soil Accumulation* caused by dust generated by vehicles or wind along the Burr Trail can suffocate the biological soil crust.
- *Soil Removal* would result in a long-term impact because soil properties, which have formed over thousands of years, would be removed.
- *Soil Profile Mixing* results from excavation and redistribution of the soil. Disrupting the soil structure interrupts physical and biological processes that naturally occur in the soil. It may be many years before the soil profile redevelops.
- *Soil Compaction* reduces infiltration rates, increasing surface runoff and the potential for erosion. Slow growth of vegetation on compacted soils is often due to low infiltration and poor root penetration.
- *Soil Erosion* is accelerated by removal of vegetation and by disturbance of the soil surface. Soils on steep slopes and along watercourses are especially susceptible to erosion.
- *Soil Contamination* occurs from the addition of chemical components to the soil. Machinery used in construction activities may deposit contaminants on soils during fueling.
- *Soil Restoration* may have both adverse and beneficial effects. Adverse effects may occur if soils are compacted or exposed to erosive processes, or if vegetation is removed. Beneficial effects may include restoration of natural physical and biological soil processes. However, restoration cannot be achieved for biological soil crusts.

Primary steps for assessing impacts would include identifying 1) if biological soil crusts or other soil resources are in areas likely to be affected by road modifications, 2) potential changes in biological soil crusts or soils from current and future use of the road, 3) potential changes in soil erosion or sedimentation caused by road modifications, and 4) disturbance potential of the road project. The information contained in this analysis was obtained through best professional judgment of park staff, experts in the field, and literature reviews.

Impacts were evaluated using these threshold definitions:

- *Negligible*: Soils or biological soil crusts would not be affected or the effects would be below or at the lower levels of detection. Any effects to physical soil properties, productivity, or fertility would be slight, and no long- term effects to soils would occur.
- *Minor*: The effects to soils or biological soil crusts would be detectable. Effects to physical soil properties, stability, productivity, fertility or to infiltration capacity, or species composition of the soil crust would be small, as would the area affected. If mitigation were needed to offset adverse effects, it would be relatively simple to implement and likely successful.
- *Moderate*: The effect on physical soil properties, productivity or fertility, or to biological soil crusts would be readily apparent, likely long- term, and result in change to the soil or soil crust character over a relatively wide area. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.
- *Major*: The effect on physical soil properties, productivity or fertility or to biological soil crusts would be readily apparent, long- term, and would substantially change the character of the soils or soil crust over a large area in and out of the park. Mitigation measures to offset adverse effects would be necessary and extensive, and their success could not be guaranteed.
- *Duration*: Short term – Recovers in less than three years. Long term – Takes more than three years to recover.

Geographic Area Evaluated for Impacts. The area analyzed for possible impacts on biological soil crusts and soils included the natural contours and topography within 50 feet of the one- mile segment of the Burr Trail from the eastern park entrance to The Post, and the road crossings at Halls Creek and the Burr Canyon side drainage. The area of analysis included the areas in the Burr Canyon and Halls Creek drainage channels proposed for re-contouring and realignment. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICY

Current laws and policies require that natural soil and biological soil crusts function as naturally as possible (NPS 2000b). The park’s general management plan supports preserving the natural character of resources within the road corridor. Soil resources should be monitored regularly and mitigation provided (NPS 2001c).

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. The Burr Trail through the project area was constructed along the Sandy Creek and Halls Creek drainages. Periodic flooding within these drainages during storms has historically carried sediments from eroding uplands. Except for portions of the road containing clay soil, much of the soil along the Burr Trail is well drained. This one- mile

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stretch of road produces approximately 3.5 acres of long- term soil disturbance and loss of productivity. During normal precipitation events, the presence of the road has minor adverse effects on project area soil resources.

The road can slow or block runoff flows, interfering with natural soil transport processes. Such interference with sediment transport would produce long- and short- term, adverse effects of minor intensity for soil resources in the project area.

The road embankment in the Burr Canyon drainage would erode periodically, resulting in negligible to minor loss of soils.

An existing cattle guard would prevent trailing cattle from accessing a portion of the Burr Trail. However, trespassing cattle between the cattle guard and the boundary would continue to cause local soil compaction and minor, long- term, adverse effects to soils.

Flood flows from unusual precipitation events are likely to generate a different set of effects on local soil resources. For example, the Halls Creek crossing has traditionally conveyed stormwater through culverts installed beneath the road surface. On multiple occasions, the capacity of the culverts was exceeded, and the road washed out. The culverts were carried a short distance downstream by the flood waters. During such events, the road failure causes local disturbance and produces local, short- term, adverse effects to soil processes of minor intensity.

Routine maintenance and repair of the road would have the potential to affect soils. Depending on the type of maintenance being conducted, use of heavy equipment off the main road would disturb the soil profile, remove soil, or compact the soil, reducing infiltration and increasing erosion. Detectable effects to soils are unlikely, because the majority of maintenance occurs directly on the road surface.

Dust is generated by passing vehicles and during maintenance operations, and biological soil crusts are suffocated as dust accumulates. Biological soil crusts are the primary nitrogen fixers in desert soils, and the death of these organisms will reduce the ability of native vegetation to compete with exotic plant species. Biological crusts are present within the project area, and continuation of current traffic levels and maintenance operations would result in local, minor, long- term, adverse effects.

Cumulative Effects. Past and current management activities include routine maintenance and oil and gas equipment transport along the Burr Trail and the Notom Road. Routine road maintenance performed by Garfield County includes road repairs after flood events, grading, and application of surface material to replace material lost to erosion and displacement by vehicles. During road scraping, soils can be disturbed and sediment may be released into nearby drainages.

Permitted cattle trailing and trespass grazing contributes to soil compaction, removal of vegetation, and soil disturbance within the park.

Changes in vehicle use in the park caused by upgrades on the Burr Trail and the Notom Road outside the park may increase dust and sediment transport as road surface material is displaced into drainages. Future development activities on public lands adjacent to the park

may increase general vehicular traffic, including trailered watercraft and oil and gas equipment. The effects of increased traffic and increased maintenance include soil removal, compaction, profile mixing, increased generation of dust, and possible contamination from equipment fuel and oil.

Erosion may have negligible to minor adverse effects on Lake Powell by increasing the rate of sedimentation. The effects on soils from the No Action Alternative would contribute incrementally to the effects of other activities and would likely produce negligible, adverse cumulative effects on soil resources.

Conclusion. The No Action Alternative would produce local, negligible to minor, short- and long- term, adverse effects on biological soil crusts and soils in the vicinity of the proposed actions. Cumulative impacts to soil resources would be negligible and adverse.

There would be no major adverse impacts to a biological soil crust or soil resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. As described for the No Action Alternative, disturbed soils on portions of road surfaces and embankments would continue to erode periodically, increasing sedimentation and deposition in drainages during rainstorms. This would produce local, long- term, adverse effects on soil resources of negligible to minor intensity.

Stabilization of the bentonite road surface using excavation and installation of gravel over a geotextile fabric (likely between miles 0.00 to 0.45 and 0.85 to 0.90 and other road sections as needed) would protect the road surface from erosion caused by traffic on the wet bentonite clay. Because excavation and gravel application would occur on the existing road, no new disturbance would be likely to result from this action. Protection of the roadway from sloughing would produce local, negligible to minor, long- term benefits for soil resources and sediment transport processes in the Sandy Creek drainage.

Installing a rock embankment slope on the existing north bank of Sandy Creek near the overhanging rock would result in negligible adverse effects as a result of the loss of small areas of soil. However, the embankment would decrease potential bank erosion, providing a local, minor, long- term, beneficial effect.

Under Alternative A, modifications to drainage crossings along the Burr Trail at mile points 0.10 and 0.20 would allow floodwaters from storms of 10- year or less magnitudes to pass over and within the paved, protected portion of the crossing. Modifications at mile points 0.50 and 0.60 would convey a 2- year storm event through culverts, with events up to the 10- year event passing over and within the ford's paved section. The increased erosion pro-

tection afforded under this alternative would provide local, short- and long- term, beneficial effects of minor intensity for soil resources in the project area.

At the Halls Creek crossing, construction of the vented paved ford and a minor shift in the roadway alignment would disturb approximately 6,000 square feet, with about 3,500 square feet of disturbance outside the existing roadway footprint. This would represent a local, long- term, minor, adverse impact on soils.

At the Burr Canyon side drainage crossing, modifications would be made to carry the 10-year storm volume of water through the channel. This would include installation of new culverts with slope protection above and below the road, as needed, and a rock embankment to stabilize the bank. This would result in reduction in erosion and sediment transport in this section of the drainage. Effects to soils would include about 8,000 square feet of new disturbance and approximately 1,900 square feet of temporary construction impacts. The short- term effects on soils would be local, negligible, and adverse because of the small area affected, while the long- term effects would be local, beneficial, and negligible to minor because the modifications would minimize future erosion and maintenance needs.

Alternative A would include installation of a new cattle guard in the road at the park's eastern boundary. This would produce approximately 200 square feet of long- term disturbance adjacent to the road. In addition, the existing cattle guard at the Sandy 3 allotment boundary would be removed when the permit expired. Disturbed soils at the existing cattle guard (also about 200 square feet) would be rehabilitated. Given the modest size of the disturbances involved, these actions would produce negligible adverse effects to park soil resources. Additionally, there would be a minor, long- term benefit to soils that are currently adversely affected by trespass cattle.

The modifications at the major Sandy Creek crossings, at Halls Creek, and in the Burr Canyon side drainage would have long- term, minor, beneficial impacts to soil resources as a result of less need for maintenance. The disturbances generated by construction activities and vegetation removal would compact soils, remove soils, and disturb soil profiles. These activities would represent adverse, short- and long- term, negligible to minor impacts to soils resources. All actions would include implementation of appropriate mitigation, as described for surface water, hydrology, and soil resources in the "Mitigating Measures" section. Ultimately, the modifications would represent a long- term, local, minor benefit to soil resources.

Dust generation and deposition on biological soil crusts would be reduced as a result of replacing some native dirt road surfaces with gravel and lower maintenance frequencies at drainage crossings. Although the area affected would be relatively small, there would be negligible, long- term, beneficial effects on biological soil crusts under Alternative A.

Cumulative Effects. Current and future vehicle use and cattle trailing under Alternative A would remain the same as described under the No Action Alternative except for the following:

Future development of the Bullfrog Marina may increase the number of large vehicles traveling the Burr Trail, but when combined with Alternative A would not contribute measurably to cumulative effects to soil resources throughout the region.

Conclusion. Alternative A would produce local, negligible to minor, short- and long- term adverse and beneficial effects on biological soil crusts and soils. Adverse impacts would include potential loss of soil resources associated with flooding in storms greater than 10- year events and the effects of construction, installing slope and bank protection, and shifting the roadway alignment at the Halls Creek crossing. For storm events up to 10- year magnitudes, the proposed modifications would represent beneficial effects as they would protect against erosion and restore aspects of natural sediment transport processes in the project area. Cumulative effects would result in negligible adverse effects to soil resources.

Because there would be no major adverse impacts to a biological soil crust or soil resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE B

Impact Analysis. Alternative B includes modifications to the Burr Trail to convey 25- year storm events through culverts at the major crossings and for 2- year storm event floodwaters to pass through culverts at the two minor crossings. This alternative would reduce the potential for washout at the drainage crossings, and erosion protection would be added at culvert inlets and outlets.

Stabilization of the bentonite road surface with the installation of a gravel surface, with no geotextile fabric liner (likely between mile points 0.00 to 0.45 and 0.85 to 0.90 and other areas as needed), would disturb less than one- tenth of an acre of soil, and would protect the road from erosion caused by traffic on the wet bentonite clay surface.

Removal of the overhanging rock would provide room for the roadbed to be moved away from Sandy Creek. This would reduce erosion on the road embankment and on the northern bank of Sandy Creek, resulting in negligible to minor benefits for soil resources and sediment transport processes in the Sandy Creek drainage.

Installation of culverts to handle the 25- year storm event at the four major Sandy Creek drainages would disturb about 9,000 square feet of ground in the long- term, and over 13,000 square feet of earth in the short- term, at major drainage crossings. Larger but less frequent stormflows in excess of the 25- year storm could occur. When flows exceed the 25- year storm event design threshold, floodwaters would overtop the roadway and potentially erode soils near the crossing. This erosion of soils adjacent to the road embankments and transport of sediment downstream would represent a minor adverse impact, with the intensity of the impact directly related to the magnitude of the storm event.

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Alternative B includes modifications for the Halls Creek and Burr Canyon side drainage crossings, and a new cattle guard configuration as described for Alternative A. These modifications would yield long- and short- term, local, minor, adverse and beneficial effects to soil resources. Recontouring the Burr Canyon drainage at the confluence with Halls Creek would have construction and channel realignment effects that would be local, long- term, adverse, and minor to moderate.

This alternative includes effects to soil resources caused by construction activities and vegetation removal and disturbance, as described for Alternative A. Disturbance, compaction, disruption of soil profile, and increased erosion would result in negligible to minor, short- term, adverse effects at all sites. All actions would include implementation of appropriate mitigation, as described in the Mitigating Measures section.

The effects on biological soil crusts would be the same as Alternative A.

Cumulative Effects. Cumulative impacts are the same as described for Alternative A with the following exceptions:

Implementation of Alternative B would continue to require routine road maintenance similar to the No Action Alternative such as grading and gravel replacement because this alternative uses gravel on the road surface but does not use a geotextile fabric liner to stabilize the gravel. Sediments that build up at road crossings and culverts after flood events would need to be removed.

Conclusion. Similar to Alternative A, Alternative B would produce local, negligible to minor, short- and long- term, adverse and beneficial effects on biological soil crusts and soils. Additionally, the realignment of the Burr Canyon drainage would represent a moderate, long- term adverse effect. Ultimately, the modifications would represent a long- term, local, minor benefit to soil resources. Cumulative effects would result in negligible adverse effects to soil resources.

Because there would be no major adverse impacts to a biological soil crust or soil resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE C

Impact Analysis. Under Alternative C, modifications to the Burr Trail major drainages would convey a 50- year storm event. There would be a 1 in 50 chance that a storm of the design magnitude would occur each year. Such precipitation events would be rare, and the capacity of the modifications would not likely be exceeded in any given year. However, storms in excess of the 50- year event would likely produce high volume, high velocity flows, and may cause channel changes and damage or destroy man- made structures or modifications placed in the flood area.

Stabilization of the bentonite road surface and removal of the overhanging rock would have effects similar to those described for Alternative B.

Slope protection (mile point 0.75 to 0.85) would fill portions of the natural stream channel. This would generate approximately 3,000 square feet of long- term surface disturbance. The hardened surface would reduce erosion and downstream sedimentation but constrict the channel at the installation site. Narrowing the channel could accelerate flow velocity through the narrow section and increase downstream scour. Overall adverse effects to soils at this site would be negligible.

Road modifications at the four major Sandy Creek crossings would include installation of multiple 60- inch culverts at each site, including slope protection upstream and downstream of the drainage crossings. At minor drainages, 36- inch culverts would be installed. These modifications would reduce erosion of the road during flood and decrease the sediment load delivered to the channel during all events of lesser or equal volume to the 50- year event. Use of these components would result in almost 4,000 square feet of long- term surface disturbance and over 15,000 square feet of short- term disturbance. These modifications would reduce erosion of the road during floods and decrease the sediment load delivered to the channel during the 50- year and more frequent storm events. This would result in long- term, minor, beneficial effects to the soil resources at the major Sandy Creek drainage crossings.

The 50- year corrugated metal pipe culverts to be installed at Halls Creek would have effects similar to those described for Alternative B, although the ground area disturbed would be larger to accommodate the larger culverts. Culvert installation would provide increased flow conveyance capacity. This option improves drainage and reduces required maintenance at this site. This would yield minor, long- term, beneficial effects to soil resources at this site.

Alternative C includes changes to the cattle guards and actions for the Burr Canyon side drainage crossings as described for Alternative A. The effects include minor benefits to soil resources as a result of reduced erosion and maintenance needs.

Realignment of 300 feet of the Burr Canyon drainage would have substantial adverse effects on soils of the site. This would require the transfer of approximately 2,100 cubic yards of soil and earth and installation of approximately 1,500 square feet of slope protection. Excavation of the new channel and placing bank protection would remove soil, disrupt soil structure, cause compaction, and increase erosion. In addition, small populations of soil crust would be removed or buried, which could lead to their death. Filling the natural drainage and redirecting the flow would also increase erosion, as natural processes are likely to continue to direct flow to the natural drainage. There is no guarantee of the stability or longevity of this action. Realignment of this drainage would generate long- term, moderate, adverse effects on soil resources.

All actions under Alternative C include long- term effects on soils generated by construction activities. Disturbance increases the likelihood of erosion and disrupts the soil profile, and heavy equipment can increase soil compaction. For all proposed actions, except the Burr Canyon drainage realignment, the effects to local soil resources would be adverse,

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long- term, and negligible to minor. Larger- scale excavation and filling needed to complete the channel realignment would likely generate long- term, moderate soil loss at the site. All actions would include implementation of appropriate mitigation, as described in the “Mitigation Measures” section.

The effects on biological soil crusts would be the same as Alternative A.

Cumulative Effects. Cumulative impacts are the same as described for Alternative A.

Conclusion. Alternative C would produce local, negligible to minor, long- term, adverse and beneficial effects on biological soil crusts and soils similar to Alternative B. Long- term, negligible to minor beneficial effects would be expected from a reduced need for maintenance. Cumulative effects would result in negligible adverse effects to soil resources.

Because there would be no major adverse impacts to a biological soil crust or soil resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park’s general management plan or other relevant National Park Service planning documents, there would be no impairment of the park’s resources or values.

VEGETATION

METHODOLOGY

There are sparsely populated desert shrub vegetative communities along the Burr Trail. Vegetation community types and species were identified through discussions and informal consultation with park staff and the state of Utah Natural Heritage Program. The primary steps for assessing impacts included identifying 1) which vegetative communities are found in areas likely to be affected by the Burr Trail modification alternatives, 2) disturbance or loss of vegetation caused by the road modification alternatives, and 3) the vegetative communities' potential to be affected by them. Impacts would be evaluated using these thresholds:

- *Negligible*: Impacts would have no measurable or perceptible changes in plant community size, integrity, or continuity.
- *Minor*: Impacts would be measurable or perceptible but would be limited to a relatively small area. The overall viability of the plant community would not be affected and, if left alone, would recover.
- *Moderate*: Impacts would cause a change in the plant community (e.g. abundance, distribution, quantity, or quality); however, the impact would remain local.
- *Major*: Impacts to the plant community would be substantial, highly noticeable, and permanent.
- *Duration*: Short - term – Effects persist less than three years. Long- term – Effects last more than three years.

Geographic Area Evaluated for Impacts. The area analyzed for possible impacts on vegetation consists of the Burr Trail from the eastern park entrance to The Post, and the road crossings at Halls Creek and the Burr Canyon side drainage. The area of analysis includes the vegetation zone encompassing the natural contours and topography within the shoulder of the road and the inflow and outflow adjacent to road crossings at minor and major drainages of Sandy Creek, the Burr Canyon side drainage, and the Halls Creek drainage channel. The drainage banks and adjacent uplands of the lower 100 feet of the Burr Canyon drainage at its confluence with Halls Creek are also included in the evaluation area. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the "Cumulative Analysis" section.

REGULATIONS AND POLICY

The National Park Service Organic Act of 1916 (as amended) states that the purpose of the parks are to "conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." This is the basis for protecting and conserving natural resources, including vegetation, within National Park

system. Executive Order 13112, Invasive Species, and the Federal Noxious Weed Act of 1974 have similar objectives to prevent the introduction of invasive species and to minimize the adverse economic, ecological, and human health impacts associated with invasive species. National Park Service *Management Policies 2001* (2000b) direct the Park Service to ensure that removal of plants does not cause unacceptable impacts to native resources, processes, or other park resources. The park must manage removal of vegetation to prevent interference with natural habitats, sensitive species, scientific study, or breeding of native species. The park's general management plan (NPS 2001c) states that natural resources within the road corridor should be preserved to the fullest extent and that where needed, monitoring and site mitigation should be implemented.

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. The Burr Trail passes through a sparsely vegetated, desert- shrub community comprised of shadscale and several arid washes with riparian plants. Non- vegetated naturally eroded and exposed rock, sandstone, and clay also exist along several sections of the road. Periodic road maintenance conducted to remove the washboards and surface irregularities caused by normal weathering and vehicle passage would not directly disturb vegetation adjacent to the road, but material brought in to resurface the road may cause a buildup of loose dirt in adjacent areas and along the drainages. This could smother biological soil crusts and encourage growth of exotic annual plant species and native increasers that thrive on disturbed soils. Once established, exotics can spread into the surrounding areas. In several areas, this impact is becoming noticeable and can result in a permanent vegetation type change from perennial native plants to annual exotic species.

Vehicle travel along the road and local winds generate dust that, in severe cases, interferes with plant growth and reproduction by clogging pores and reducing light interception. Severe rainstorms erode road banks and increase the undercutting of stream banks. Sloughing or eroding road banks exposes and dries out plant roots, and eventually dislodges or kills vegetation.

Vegetation within the major and minor drainages would continue to limit erosion upstream and downstream of the road during normal rainstorms. Severe rainstorms would scour the drainage bed, removing newly established plants, particularly near the overhanging rock where rocky substrate within Sandy Creek is present. As described above, the No Action Alternative would interfere with the natural growth and distribution of vegetation along the road; therefore, impacts to vegetation would be long- term, local, minor to moderate, and adverse.

The eroding road banks at the confluence of the Halls Creek and the Burr Canyon drainage channels would continue to require regular maintenance to replace the washed out culvert. During intense rainstorms, high stream flows would erode the banks, undercut the road-bed, and dislodge the culvert in Halls Creek, widening the drainage channels and disrupting shrubs and vegetation. Routine maintenance after floods typically involves dumping mud from the crossing onto adjacent upland areas. This disturbs the native soils and creates an area where exotic plants have invaded and replaced native vegetation. Negligible to minor amounts of vegetation along the Burr Canyon drainage and Halls Creek would be lost from naturally eroding drainages, but desert- shrub vegetation on adjacent uplands also would be

disturbed; therefore, impacts to vegetation would be short- and long- term, local, minor, and adverse.

The road culvert located at the upstream crossing of the Burr Canyon side drainage would remain. Natural weathering and drainage from severe rainstorms would erode the rock and soil at the culvert's outfall and on the adjacent road embankment. Because the area is small and little vegetation grows on the road embankment because of the rocky substrate, impacts to vegetation would be negligible at the Burr Canyon culvert outlet and road embankment.

Vegetation is absent where cattle congregate at the existing cattle guard. Continued grazing, trampling, and compacted soils limit vegetation growth in this area, resulting in long- term, local, minor, adverse impacts to vegetation.

Given the sparse natural vegetative cover typical of the arid environment, the No Action Alternative would produce minor adverse effects on vegetation. These effects would be long- and short- term, and local.

Cumulative Effects. Past and current management of cattle grazing and cattle trailing along the Burr Trail disrupt native plant communities by changing species composition (livestock decrease the supply of desirable forage species, therefore allowing undesirable plant species to increase). Periodic repairs and maintenance performed on the road surface has minimal effects on roadside vegetation as described above. Hauling road maintenance materials and equipment as well as traffic associated with future gas and oil exploration vehicles along the Burr Trail generate airborne dust that resettles on vegetation, potentially reducing photosynthetic processes and retarding plant growth.

Future development activities, including improvements to the Bullfrog Marina at Glen Canyon National Recreation Area, would increase use of the Burr Trail and could potentially affect vegetative resources. The effects of increased use include more dust that interferes with plant growth and reproduction. Use of non- native road material for future road maintenance and stabilization could result in the spread of exotic plants along road edges. These activities, in concert with the No Action Alternative, would likely produce negligible, long- term, adverse cumulative effects on the plant communities of the park.

Conclusion. The No Action Alternative would have local, short- and long- term, negligible to moderate adverse effects on vegetation. Cumulative effects would be negligible.

Because there would be no major adverse impacts to a vegetative resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE A (PREFERRED ALTERNATIVE)

Impact Analysis. Several sections of the Burr Trail are barren and lack vegetation because the road banks are eroded to expose rock, sandstone, and clay soils, or have been over-

grazed by cattle. Disturbed soil conditions often do not support native vegetation and, when continually disturbed, the areas either do not revegetate or native plants are replaced by non- native species. Use of non- native materials for road fill may also introduce non- native species along the road corridor. Under Alternative A, removal of bentonite clays on the roadway surface and the use of gravel over geotextile fabric would reduce the amount of gravel lost due to displacement or compression into the substrate. Material brought in to resurface the road would still have the potential to increase exotic plants into the area, although mitigation to ensure that imported material does not contain exotic plant material would be implemented. Soil displacement resulting from vehicle travel along the road and local winds would continue to generate dust that interferes with plant growth and reproduction. This would result in long- term, negligible, adverse effects to vegetation.

Eroded road banks along some sections of the Burr Trail provide little or no soil to support plant growth. Small numbers of shrubs and herbaceous plants would be removed when slope protection is installed, resulting in minor, long- term, adverse effects to vegetation. This would be offset by reduced erosion and sedimentation, which would slow the loss of soil, help to stabilize the drainage channel, and result in minor, long- term, beneficial effects.

Installation of paved fords, slope protection, and erosion protection at culvert inlets and outlets would remove small amounts of vegetation on road and stream banks and at drainage crossings. Effects would be short- term, local, minor, and adverse.

Installation of a rock embankment to support the roadway and stabilize the stream bank at the overhanging rock site would eliminate a small number of individual plants. Impacts to vegetation would be long term, local, minor, and adverse.

Shifting the roadway at the Halls Creek crossing, installing a paved ford, and grading the Burr Trail road banks would remove individual shadscale shrubs and herbaceous plants. Newly disturbed areas would typically revegetate to some degree, although the potential for non- native plants to become established on disturbed soils is greater, and some native and exotic vegetation may grow protected banks; therefore, impacts to vegetation would be short- and long- term, local, minor, and adverse.

Replacement of the road culvert at the upstream crossing of the Burr Canyon side drainage with three 36- inch culverts, adding slope protection, and a rock embankment below the culverts would involve removal of desert- shrub vegetation during construction. Little vegetation grows on the rocky slopes at the outfall or along 50 feet of the road embankment where sloughing has occurred along the upper slope. Road widening and bank stabilization at this site would remove individual shrubs growing along the drainage channel. Removing a few shrubs and plants would be a long- term, local, minor, adverse impact at the Burr Canyon side drainage crossing.

Installation of a new cattle guard at the park boundary would reduce trampling of vegetation and soil compaction by reducing the number of cattle that trespass on park lands along the Burr Trail. This would provide a long- term, local, minor benefit for vegetation.

Cumulative Effects. Alternative A would decrease the frequency of road repairs and maintenance, use less non- native fill material, stabilize the road banks, improve drainage, and reduce of the number trespassing cattle. This would be offset by vehicles hauling road maintenance materials and equipment and a potential increase in the number of gas and oil exploration vehicles. These collective activities would likely produce no detectable cumulative effects on the vegetative communities adjacent to the Burr Trail.

Conclusion. Alternative A would produce local, short- and long- term minor adverse effects on the desert- shrub and riparian vegetation along the Burr Trail in Capitol Reef National Park. Overall, cumulative effects on vegetation would not likely be detectable.

When compared with the No Action Alternative, total additional disturbance to vegetation caused by this alternative is less than one acre. This includes short- and long- term disturbances to the desert- shrub community adjacent to the existing roadway. Each road modification would only affect a few individual plants. Effects on vegetation would be local, short- term, negligible to minor, and adverse with minor long- term vegetative benefits associated with installation of a cattle guard at the park boundary. Cumulative effects on vegetation would be negligible.

Because there would be no major adverse impacts to a vegetative resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE B

Impact Analysis. Under Alternative B, the effects of road surface stabilization, drainage crossing modifications, and installation of a new cattle guard would be the same as Alternative A.

The road modifications along Sandy Creek, at Halls Creek, and in the upper Burr Canyon drainage would produce effects similar to Alternative A. Although the areas that would be disturbed differ, the low density of vegetation in the project area would result in similar impacts.

Limited site grading and roadwork as well as removal of the overhanging rock to widen a narrow section of the Burr Trail and provide stream bank stabilization would remove some individual shrubs on the north side of the road. This would represent a short- term, local, negligible impact to vegetation in the vicinity of the overhanging rock.

The modifications to the Burr Canyon drainage just upstream of the confluence with Halls Creek would require realignment and slope protection on the lower portion of the Burr Canyon drainage. These relatively substantial changes would affect more previously undisturbed vegetation, resulting in local, long- term, minor to moderate, adverse impacts to vegetation.

Cumulative Effects. The cumulative effects of Alternative B would be similar to those of Alternative A.

Conclusion. Alternative B would produce negligible to minor, local, short- and long- term adverse effects on the desert- shrub and riparian vegetation similar to Alternative A, with the exception of minor to moderate, long- term, local adverse impacts resulting from the realignment of the lower Burr Canyon drainage. Cumulative effects on vegetation would not likely be detectable.

Because there would be no major adverse impacts to a vegetative resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE C

Impact Analysis. Under Alternative C, the effects of road surface stabilization, removal of the overhanging rock, drainage crossing modifications, realignment of the lower Burr Canyon drainage, and installation of a new cattle guard on vegetation would be the same as Alternative B. There would be an incrementally greater benefit associated with additional reductions in maintenance because the culverts could pass 50- year storm events rather than just 25- year events. However, this incremental benefit would be offset by adverse effects associated with larger areas of disturbance and greater losses of vegetation because the larger culverts would need more surface grading and changes to the roadway profile.

Cumulative Effects. The cumulative effects of Alternative C would be similar to those of Alternative A.

Conclusion. Similar to Alternative B, Alternative C would primarily produce negligible, local, short- and long- term adverse effects on the desert- shrub and riparian vegetation, with minor to moderate adverse effects as a result of the realignment of the Burr Canyon drainage. Cumulative effects on vegetation would not likely be detectable.

Because there would be no major adverse impacts to a vegetative resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

WILDLIFE

METHODOLOGY

The focus of information gathering and impact analysis for wildlife and wildlife habitat was on wildlife guilds, species, and habitats that were considered most likely to be exposed to potential effects of the proposed action in the areas that would be affected by the road modifications. No aquatic species were considered in this evaluation because there are no permanent water bodies or perennial streams in the area that would be affected by the proposed action.

Wildlife species at Capitol Reef National Park that have the potential to be affected by proposed modifications to the Burr Trail were identified through discussions with park staff and experts in the field, and thorough literature review. Federal- and state- listed species were identified through discussions and informal consultation with park staff, U.S. Fish and Wildlife Service, and the state of Utah Natural Heritage Program (USFWS 2002, UDWR 1988) (Appendix D). Primary steps for assessing impacts included identifying 1) which species are found in areas likely to be affected by the Burr Trail modification alternatives, 2) habitat loss or alteration caused by the alternatives, and 3) degree of displacement and disturbance to wildlife and habitats caused by the alternatives and the mitigation measures that could be implemented to offset or minimize potential adverse effects, if any.

Impacts were evaluated using these thresholds:

- *Negligible*: There would be no observable or measurable impacts on native fish and wildlife species, their habitats, or the natural processes sustaining them. Impacts would likely be of short duration and well within the range of natural fluctuations.
- *Minor*: Impacts would be detectable, but they would not be expected to be outside the natural range of variability and would not be expected to have any long- term effects on native species, their habitats, or the natural processes sustaining them. Occasional responses to disturbance by some individuals could be expected. Sufficient habitat would remain functional to maintain viability of all species. Impacts would fall outside critical reproduction periods for certain species.
- *Moderate*: Impacts on native fish and wildlife species, their habitats, or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability for short periods of time. Frequent responses to disturbance by some individuals could be expected. Sufficient habitat would remain functional to maintain viability of all native fish and wildlife species. Some impacts might occur during critical periods of reproduction or in key habitat for certain native species.
- *Major*: Impacts on native fish and wildlife species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or permanent. Frequent responses to disturbance by some individuals would be expected. Breeding colonies of

native species might relocate to other portions of the park. Loss of habitat may affect the viability of at least some native species.

- *Duration:* Short- term – Effect lasting less than one year. Long- term – Effect lasting more than one year.

Geographic Area Evaluated for Impacts. The area analyzed for possible impacts on wildlife and wildlife habitats consists of the Burr Trail from the eastern park entrance to The Post, and the road crossings at Halls Creek and the Burr Canyon side drainage. The area includes the terrestrial zone encompassing the natural contours and topography within and adjacent to the minor and major drainages of Sandy Creek, and the current and proposed realignment of the Burr Canyon drainage and Halls Creek drainage channel. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICIES

The regulations and policies associated with the assessment of wildlife include the National Park Service Organic Act (16 USC 1 *et seq.*) (1916), the Fish and Wildlife Coordination Act (16 USC 661 *et seq.*) (1934), the Migratory Bird Treaty Act (16 USC 703 *et seq.*) (1918), Bald and Golden Eagles Protection Act (16 USC 668 *et seq.*) (1940), National Park Service *Management Policies 2001* (2000b), and the Capitol Reef National Park mission statement.

The National Park Service Organic Act (1916), which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the agency to mean that native animal life should be protected and perpetuated as part of the park’s natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible; otherwise, they are protected from harvest, harassment, or harm by human activities.

The Fish and Wildlife Coordination Act of 1934 requires that federal agencies consult with the U.S. Fish and Wildlife Service or National Marine Fisheries Service and with parallel state agencies whenever water resource development plans result in alteration of a body of water. The Secretary of the Interior is authorized to assist and cooperate with federal agencies to "provide that wildlife conservation shall receive equal consideration and be coordinated with other features of water- resource development programs."

The Migratory Bird Treaty Act of 1918 prohibits the taking, possession, and trade of migratory birds, except as permitted by regulations released by the Secretary of Agriculture. The act provides search, arrest, and seizure authority to authorized federal employees; provides for civil and criminal penalties for violation; allows states to impose more restrictive measures to protect migratory birds; and allows taking for scientific and propagation purposes.

The Bald Eagle Protection Act of 1940 prohibits the taking, possession, and trade in bald and golden eagles. Only bald eagles were originally given protection; an amendment in 1962 gave the same protection to golden eagles. A third amendment in 1973 provided increased criminal penalties and made second and subsequent offenses felonies. The act provides federal protection for bald and golden eagles; provides for civil or criminal penalties for violations and a reward for informers; authorizes cancellation of grazing, leases, licenses,

permits, or other agreements for violations; and provides for the possession and transport of golden eagles for falconry under certain conditions.

The National Park Service *Management Policies 2001* state that the National Park Service will maintain as parts of the natural ecosystems of parks all native plants and animals (section 4.4.1) (NPS 2000b):

- Preserving and restoring the natural abundance, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and communities and ecosystems in which they occur.
- Restoring native plant and animal populations in parks when they have been extirpated by past human- caused actions.
- Minimizing human impacts on native plants, animal populations, communities, and ecosystems, and the processes that sustain them.

The mission statement for Capitol Reef National Park states in Mission Goal 1A:

- Natural and cultural resources and associated values are protected, restored, and maintained in good condition and managed within their broader ecosystem and cultural context.

Collectively, these regulations, policies, and mission statements establish long- term goals to protect, manage, maintain, and restore wildlife populations and their supporting habitats.

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. The only effect that current management of the Burr Trail would have on wildlife is the continued negligible, short- term, local, adverse effect that vehicles using the Burr Trail have on wildlife. Vehicles passing along the road would cause short- term, local disturbance or displacement of wildlife directly in the road corridor, and this would represent a negligible adverse effect. The effects of roads on wildlife are diverse. These effects include mortality, restricted movement, introduction of exotic plants that could affect wildlife habitat, habitat fragmentation and edge effect, and increased human access to wildlife habitats (Findlay and Bourdages 2000, Forman 2000, Forman and Alexander 1998). The average number of vehicles passing along the Burr Trail daily is relatively low (average daily traffic on the Burr Trail for 2000 and 2001 was 29; see Table 6 in the “Natural Soundscapes” section). However, just the presence of the road may cause reluctance in some rodent species to cross the road, even though it is relatively narrow and unpaved (Trombulak and Frissell 2000). The disturbance and potential displacement of small areas of habitat that result from light excavation, grading and recontouring, or maintenance conducted adjacent to the road along road embankments, minor and major drainages of the Burr Trail, and the Halls Creek and Burr Canyon side drainage crossings would be short- lived and generally would not adversely affect wildlife species. There are sporadic interactions between wildlife and vehicles when collisions occur and mortality results. While this represents a severe adverse effect to the individual, the effect would be considered negligible on wildlife species' populations because of the infrequency of the fatal collisions.

Cumulative Effects. The No Action Alternative would continue current management that preserves the natural features and character of the Burr Trail and would not contribute to the potential cumulative effects of other projects and plans in or near Capitol Reef National Park that could have an effect on wildlife. The small amount of disturbance and potential displacement of habitat along road embankments, minor and major drainages would be short-lived and generally would not adversely affect wildlife species. Cumulative effects would be negligible.

Conclusion. The No Action Alternative would continue to have a temporary disturbance or displacement effect on wildlife, with rare instances of vehicle/wildlife collisions that would have negligible adverse effects on species' populations. Cumulative effects would be negligible.

Because there would be no major adverse impacts to a wildlife resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE A (PREFERRED ALTERNATIVE)

Impact Analysis. Alternative A would not change the volume of traffic on the Burr Trail in the long-term. As a result, potential effects to wildlife associated with Alternative A would be related to maintenance and construction of road modifications. Vehicles passing along the road would cause short-term, local disturbance or displacement of wildlife directly in the road corridor, and this would represent a negligible adverse effect. The effects of roads on wildlife are diverse (refer to the No Action Alternative for more detail). The disturbance and potential displacement of small areas of habitat that result from light excavation, grading and recontouring, or maintenance conducted adjacent to the road along road embankments, minor and major drainages would be short-lived and generally would not adversely affect wildlife species.

Compared to the No Action Alternative, effects to wildlife and their habitats would involve local, short-term, negligible to minor, and adverse habitat disturbance from construction of drainage crossings, bank stabilization, slope protection, and road modifications in Burr Canyon and adjacent to Sandy Creek.

The construction of paved fords and other road modifications would have a short-term effect, although the time scale for construction would be in terms of months rather than minutes as for passing vehicles, and the disturbance or displacement effect would take place throughout the typical construction working day. The distribution of wildlife resources throughout the relatively homogeneous habitats in and around the road corridor would allow wildlife to use other areas of the local habitats without having much of an adverse effect on them.

The light excavation, grading, and recontouring associated with road re-surfacing and bank stabilization at the overhanging rock, minor and major drainage crossing modifications on

the Burr Trail, and the Halls Creek and Burr Canyon side drainage crossings modifications would be such that only local areas would be affected at any one time. Generally, the area affected by construction of the road modifications would range from 100 feet or less for small wildlife species (e.g., lizards, snakes, rodents, small birds), to 1,000 feet or more for larger, more mobile species (e.g., coyote, deer). Installation of a cattle guard at the park boundary would have no detectable effect on any wildlife. Based on the relatively small areas that would be affected and the short-term nature of the effects, construction of the road modifications would have a negligible to minor, local, adverse effect on wildlife and their habitats because of habitat disturbance at the project sites.

In the long-term, Alternative A would represent a negligible, beneficial effect to wildlife and wildlife habitats compared to the No Action Alternative, because flood damage to the road at drainage crossings would be decreased. Repairs to the road and drainage crossings would be less frequent, thus reducing the potential adverse effects of heavy construction equipment.

Cumulative Impacts. Alternative A would not contribute to the potential cumulative effects of past or current management or other projects and plans in or near Capitol Reef National Park that could have an effect on wildlife or wildlife habitat. No other projects or plans were identified that have had or would have an effect on wildlife or wildlife habitat in the project area. The small reduction in amount of disturbance and potential displacement of habitat along road embankments, minor and major drainages of the Burr Trail, and the Halls Creek and Burr Canyon side drainage crossings that result from maintenance conducted on the road surface and shoulders adjacent to the road would be short-lived and generally would not adversely affect wildlife species, and consequently cumulative effects would be negligible.

Conclusion. There would be negligible to minor, short-term, local, adverse effects to wildlife and wildlife habitat associated with passing vehicles and construction of the road modifications as a result of the implementation of Alternative A. In the long-term, the effects would be beneficial, as the frequency of flood-damaged road repairs, surface maintenance, and the use of heavy construction equipment would be reduced, thus lessening the potential for disturbance or displacement of wildlife. Cumulative effects would be negligible.

Because there would be no major adverse impacts to a wildlife resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE B

Impact Analysis. The effects of Alternative B would be the similar to those identified for Alternatives A; however, the realignment of the Burr Canyon drainage channel at the confluence with Halls Creek and the use of culverts rather than paved fords would result in different intensities of effect.

The realignment of the Burr Canyon drainage at its confluence with Halls Creek channel would have a minor adverse effect not only in the short term during construction, but also as a result of changes in the habitat. The new channel would have substantial slope protection along the channel, thus changing the nature of the riparian corridor that typically parallels the creek. Over time, vegetation would likely be restored, but the wildlife habitat along the creek would experience a minor to moderate, local, adverse effect.

Although there is little or no research regarding wildlife use of or the effects of low- water crossings (represented by current conditions) on wildlife, there is evidence that wildlife would use culverts as passageways under roadways (Yanes et al. 1995). Amphibians, lizards, snakes, small mammals, rats, rabbits, and several species of carnivorous mammals have been found to use culverts. Yanes et al. (1995) found that the intensity of animal movement was influenced by various factors, such as the culvert dimensions, road width, height of boundary fence, the complexity of the vegetation along the route, and the presence of detritus pits at the entrance of culverts. They concluded that adequately designed culverts can aid the conservation of vertebrate populations. The 48- inch culverts proposed under this alternative would be sufficient to allow passage of all wildlife that would likely find a culvert crossing preferable over a surface route (i.e., small wildlife that may be reluctant to cross the roadway).

Cumulative Impacts. Cumulative impacts are the same as described for Alternative A; consequently, cumulative effects would be negligible.

Conclusion. Alternative B would have local, short- term, negligible to minor, adverse habitat disturbance effects on wildlife and their habitats. In the long- term, the effects would be beneficial, as the frequency of flood- damaged road repairs and the use of heavy construction equipment would be reduced, thus lessening the potential for disturbance or displacement of wildlife. Cumulative effects would be negligible.

Because there would be no major adverse impacts to a wildlife resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE C

Impact Analysis. The effects of Alternative C would be the similar to those identified for Alternative B; however, the habitat disturbance resulting from installation of the culverts at the major Sandy Creek crossings would be greater because of the increased diameter of the culverts compared to Alternative B. The adverse effect to wildlife habitat associated with this additional disturbance would be very small and would be offset by an increased benefit associated with less maintenance needed because the major crossings would be able to withstand 50- year storm events. Thus, Alternative C would result in local, short- term, negligible to minor, and adverse effects on wildlife and their habitats.

Cumulative Impacts. Cumulative impacts are the same as described for Alternatives A and B; consequently, cumulative effects would be negligible.

Conclusion. Alternative C would have local, short- term, negligible to minor, adverse habitat disturbance effects on wildlife and their habitats. In the long- term, the effects would be beneficial, as the frequency of flood- damaged road repairs and the use of heavy construction equipment would be reduced, thus lessening the potential for disturbance or displacement of wildlife. Cumulative effects would be negligible.

Because there would be no major adverse impacts to a wildlife resource or value whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

SURFACE WATER, HYDROLOGY, AND FLOODPLAINS

METHODOLOGY

Each alternative was assessed to determine the impacts of the actions relative to surface water, hydrology, and floodplains. The evaluation of surface water includes an assessment of effects on water quality. Water quality refers to meeting Clean Water Act requirements and to the suitability of surface water for downstream uses, such as for wildlife use or stock watering. Particular attention is paid to the potential for the enhancement or degradation of water quality. Hydrology refers to water-related processes, such as storm flow scouring, erosion, deposition, and geomorphologic changes (processes that change the landscape). Particular attention is given to alterations in natural patterns of water flow. Because flooding is an important hydrologic process, flooding and floodplain function also were evaluated.

Primary steps for assessing impacts included identifying 1) the location of surface water in areas likely to be affected by road modifications, 2) potential changes in surface water and hydrology from current and future use of the road, and 3) potential changes in surface water and hydrology caused by road modifications. To understand the effects of road modifications to the hydrology in specific areas of concern, park resource and survey maps, the Federal Highway Administration Hydrology Study, and experts were consulted to identify the information contained in this analysis.

Impacts would be evaluated using these thresholds:

- *Negligible:* Water quality, hydrology, and floodplains would not be affected. Changes would be either non-detectable or, if detected, would have effects that would be considered slight and local.
- *Minor:* Changes in water quality, hydrology, or floodplains would be measurable, although the changes would be small and local. No mitigation measures associated with water quality, hydrology, or floodplains would be necessary.
- *Moderate:* Changes in water quality, hydrology, or floodplains would be measurable but would be relatively local. Mitigation measures associated with water quality, hydrology, or floodplains would be necessary, and the measures would likely succeed.
- *Major:* Changes in water quality, hydrology, or floodplains would be readily measurable, would have substantial consequences, and would be noticed on a regional scale. Mitigation measures associated with water quality, hydrology, or floodplains would be necessary, and their success would not be guaranteed.
- *Duration:* Short-term – following treatment, recovery would take less than one year. Long-term – following treatment, recovery would take longer than one year.

Geographic Area Evaluated for Impacts. The area analyzed for possible impacts on surface water, hydrology, and floodplains includes the Burr Trail from the eastern park entrance to The Post, and the road crossings at Halls Creek and the Burr Canyon side drainage. The area of analysis includes the upstream and downstream drainage zone encompassing the natural contours and topography within and adjacent to the shoulder of the road. The area analyzed also includes the floodplain adjacent to road crossings extending 100 feet upstream and downstream at minor and major drainages within the project area. The drainage banks and adjacent uplands of the lower 100 feet of the Burr Canyon side drainage at its confluence with Halls Creek are also included in the evaluation area. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the "Cumulative Analysis" section.

REGULATIONS AND POLICY

The National Park Service *Freshwater Resource Management Guidelines* requires the National Park Service to "maintain, rehabilitate, and perpetuate the inherent integrity of water resources and aquatic ecosystems." The Clean Water Act requires the National Park Service to "comply with all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution." Particular consideration has been given to those actions with the potential to affect the natural hydrology and surface water quality of Halls Creek and Sandy Creek.

The National Park Service manages floodplains in accordance with Executive Order 11988, Floodplain Management, and the National Park Service Special Directive 93- 4, *Floodplain Management Guideline* (NPS 1993c). In brief, National Park Service policy is to protect natural floodplain values and functions and to minimize risk to life or property by avoiding the use of the regulatory floodplain whenever there is a feasible alternative location. Evaluation of impacts of the alternatives as related to floodplains is based on avoiding the loss of life and property during major floods. When there is no practicable alternative to placement of facilities in a floodplain location, National Park Service policy permits the use of the floodplain when there are compelling reasons for doing so, when the level of impact to natural floodplain processes is acceptable, and when mitigation is provided to protect human life and property. Although no floodplains have been mapped in the project area, occasional flooding has presented hazards to visitors and staff. Analyses of floodplain impacts are addressed relative to reducing such hazards and maintaining or enhancing the hydrologic function of the flood-prone sites within the project area.

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. Current conditions along the Burr Trail allow the road to function as a maintained, variable-width, rural roadway. Regular precipitation in the form of snow and rain does not affect the ability of the roadway to convey traffic except in areas where the road surface has a high bentonite clay content and during and immediately following flood events. The culvert once present beneath the road surface at Halls Creek was capable of conveying runoff from everyday storm events. The culvert was washed out several years ago by a heavy rainstorm and was not replaced, leaving the existing road to function as a low-water crossing. There are no buildings or other park structures in the floodplain or in any part of the proposed project area.

ENVIRONMENTAL CONSEQUENCES

The hydrological processes in the areas where actions are proposed are affected, to a limited degree, by the presence of the roadway in drainages. During a rainstorm, water infiltrates into the desert uplands, and once soils become saturated, surface water drains across the road and into the stream channels. Because there is no baseline water quality data or hydrology studies of the project area, the magnitude and intensity of this effect are difficult to judge. It is likely that the presence of the road has a negligible, short-term, adverse effect on natural water quality and hydrologic functions.

The unpaved road surface increases sediment delivery to the local drainages above the baseline or background rate. Estimates of the increase in sediment delivery from dirt and gravel roads range from 10 to 100 times the natural rate. Production of this quantity of sediment is similar to those found in urban areas under development (Novotny and Olem 1994). During routine road maintenance, the road is scraped and graded to remove washboards, and surface material is added to improve driving conditions. This provides material that can be transported by floodwaters as suspended sediment to the downstream channels. This can result in decreased water quality and can temporarily reduce the channel volume as sediment settles in the drainage. Overall, the adverse effect would be negligible.

Existing conditions on the Burr Trail present problems during high water conditions. High water can occur as a result of unusual precipitation events or during rapid spring snowmelt (see "Affected Environment"). Excessive runoff can overtop the road and drainage crossings, erode and damage the road surface, and deliver sediment to the channels.

Under the No Action Alternative, the one-mile project area would remain unchanged. Occasionally during flash floods, the sediment that collects on the roadway may act as a barrier to flow in the drainages. The buildup of floodwaters behind these barriers may increase erosion and sediment deposition and transport. The culvert installed at the Halls Creek crossing has repeatedly washed out into the downstream channel. This makes the road impassable and delivers large amounts of sediment and debris to the channel. Flooding exacerbates channel and surface erosion. The presence of unimproved road crossings in the stream channels and drainages would produce adverse effects on floodplains within the project area. These effects would be both short- and long-term and of minor intensity.

At the Burr Canyon side drainage crossing, the existing 24-inch culvert would continue to be used to convey stormwater flows. This piping may be undersized for storm events of great magnitude. Surface drainage would continue to erode the banks and top slopes of the Burr Canyon drainage, undercutting and narrowing the road at the s-curve, causing short-term, minor, adverse effects.

When the culvert was present at Halls Creek, it caused upstream ponding during storm events that exceeded the culverts' design capacity. This caused inundation of areas outside of the floodway, resulting in local, long-term, minor adverse effects on water quality as a result of increased sediment loads. (A floodway is where the water is likely to be deepest and fastest. This area of the floodplain should be kept free of obstructions to allow floodwaters to move downstream [FEMA 2004].)

Increased sediment that results from the road surface can cause increased deposition of sediment on vegetation within the floodplain. This would result in local, long- term, negligible, adverse effects on natural floodplain functions.

Storm events that inundate portions of the floodplain can present safety hazards to the public. These effects are analyzed under Public Health and Safety.

Cumulative Effects. Past and present management of the Burr Trail likely produces long- and short- term, moderate, adverse effects to water quality in the local drainages. Continued implementation of the No Action Alternative would contribute, at a minor level, to these adverse effects. The No Action Alternative would not change the intensity or duration of natural drainage processes within the project area, the park, or regionally. Visitors would expect to have some difficulty in driving through these natural drainages. When combined with other past, present, and foreseeable future activities and processes, no new adverse cumulative effects on hydrology, floodplains, or water resources would be expected to occur; therefore, cumulative effects would be negligible.

Conclusion. The No Action Alternative would have negligible to minor adverse effects on hydrology, water quality, and floodplain function during low flow storms. During flash flood events, the current road conditions impede flow, deliver added sediment, and hamper floodplain functions. These conditions would result in minor, short- and long- term, adverse effects. Cumulative impacts to surface water and hydrology are negligible.

Because there would be no major adverse impacts to water- related resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. Under Alternative A, drainage modifications to the Burr Trail would include paved fords (vented and unvented) at all major and minor crossings. The fords would be designed to contain flooding associated with the 10- year storm event within their paved limits. This alternative also would decrease bank erosion at specific sites, stabilize the Sandy Creek north bank in the vicinity of the overhanging rock, and recontour the banks of the Burr Canyon drainage to better protect the existing road.

Actions taken to excavate the bentonite road surface (mile points 0.00 to 0.45 and 0.85 to 0.90) and replace these sections with gravel underlain by geotextile fabric would minimize surface erosion on the road. Although Sandy Creek only contains water temporarily during runoff and most of the sediment load in the creek is derived from sources away from the road, this would reduce the sediment delivery to the drainage and produce local, short- term, negligible benefits for water quality in Sandy Creek.

Paved crossings at the four major Sandy Creek drainage crossings, at the Halls Creek crossing, and at the minor drainage crossings would better convey stormwater across the road surface. The concrete paved fords would protect the road from eroding during storm events, thus reducing sediment loads and downstream sediment deposition. Inlet and outlet protection would be installed to reduce and minimize erosion and scour at the crossings. These actions would decrease the sediment load delivered to the channel during the 10-year storm events. This would represent a short- and long- term, local, minor benefit for water quality. Periodic high intensity storms that exceed the 10- year storm event would increase the flow volume beyond the design capacity of the paved fords and would likely carry increased sediment loads downstream because sections of the road and its banks would be exposed to the erosive effects of floodwater. This would result in long- and short- term, adverse effects to the stream channel of minor to moderate intensity, depending on the magnitude of the storm.

At the Halls Creek crossing, the roadway would be shifted slightly to the south, a vented paved ford would be installed, and slope protection would be added as needed on adjacent embankments. The roadway shift would allow flows to pass through or over the vented paved ford, minimizing erosion and resulting in long- term, negligible, adverse effects on hydrology at the site.

At the Burr Canyon side drainage crossing, runoff would carry the larger 10- year storm volume of water through new culverts. This would result in some improvement to water quality and hydrology. Because this road has not previously washed- out, the effects to the floodplain would be negligible. The culverts at Burr Canyon and the rock embankment below would increase bank stability, reduce erosion at the outfall, and decrease sedimentation. The road and drainage modifications would result in local, long- term, negligible beneficial effects to water quality, hydrology, and floodplains.

Disturbance of road surfaces and embankments caused by excavation, minor grading, and recontouring during construction increases the likelihood of erosion and sediment delivery to channels and streams. The effects to local water quality and hydrology would be adverse, short- term, and negligible. Best management practices to control erosion, sediment release, and floodplain function would be utilized during all construction activities. Identifying and staking the limits of clearing and grading, installing silt fences, establishing a controlled area for construction material and equipment, and preparing a sediment and erosion control plan would minimize the potential for adverse impacts to water quality, hydrology, and floodplains.

Cumulative Effects. Cumulative effects are the same as described for the No Action Alternative except for the following:

Alternative A would reduce erosion, improve drainage, and enhance watershed functions, producing negligible, long- term, beneficial effects. When impacts of Alternative A are combined with other past, present, and foreseeable future activities and processes, no new adverse cumulative effects on hydrology, floodplains, or water resources would occur; therefore, cumulative effects would be negligible. Cattle grazing and trailing, road maintenance and equipment hauling, oil and gas exploration equipment hauling, and trailering of other

vehicles conducted on the road would result in negligible to minor, long- term, adverse impacts to water resources.

Conclusion. Under Alternative A, negligible, long- term, beneficial effects to surface water quality, hydrology, and floodplains would accrue. Modifications to the Burr Canyon drainage at Halls Creek would produce short- and long- term, negligible, adverse effects to water quality and hydrology. Short- term adverse effects resulting from construction activities would be negligible and local. Effects to natural floodplain functions would be negligible to minor and adverse. Overall, in the long- term, Alternative A would have negligible beneficial effects on water quality, hydrology and the floodplain. Cumulative effects would be negligible.

Because there would be no major adverse impacts to water- related resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE B

Impact Analysis. Under Alternative B, stabilization of the bentonite road surface without using geotextile fabric would displace more gravel over time compared to Alternative A, which would produce negligible adverse effects to hydrology in the Sandy Creek drainage similar to the No Action Alternative.

Slope protection of the roadway between mile points 0.75 to 0.85 would harden the embankment. This would decrease bank erosion at the site, providing a long- term minor beneficial effect.

Culverts at the four major Sandy Creek drainage crossings would include protection upstream and downstream to minimize scour and erosion. The culverts would allow the 25- year storm event to pass without overtopping the road. At the minor drainages, culverts would be installed and protection from flood damage would be increased, but only to meet the 2- year storm event. There would be improved drainage and overall reduction in erosion and sedimentation, but these would be of negligible intensity.

Alternative B includes installation of eight 72- inch culverts at the Halls Creek crossing. This change would affect the natural channel- forming processes and would result in local, short- term, minor to moderate, adverse effects to hydrology. However, in the long- term, the culvert crossing would reduce erosion and sedimentation in the vicinity of the Halls Creek/Burr Canyon confluence and result in long- term, minor beneficial effects to hydrology. Realignment of the Burr Canyon drainage channel would result in short- term, moderate, adverse effects to natural hydrological processes and configuration of the floodplain, but in the long- term, the realignment would represent a local, minor, beneficial effect as potential sedimentation and erosion would be reduced.

ENVIRONMENTAL CONSEQUENCES

Overall, in the long- term, Alternative B's effects on hydrology would result in local, long-term, minor, beneficial effects from construction of drainage crossings, road surface and bank stabilization, and road widening at Burr Canyon and along Sandy Creek.

The effects on natural floodplain functions would be the same as Alternative A.

All action alternatives include short- term effects on water resources generated by construction activities. Disturbance increases the likelihood of erosion and sediment delivery to channels and streams. For all proposed actions associated with Alternative B except the Burr Canyon channel realignment at Halls Creek, the effects to local hydrology would be adverse, short- term, and negligible to minor. Larger scale excavation and slope protection needed to complete the confluence realignment would likely generate long- term, moderate changes in sediment release at the site. All actions would include implementation of appropriate mitigation, as described for surface water, hydrology, and soil resources in the "Mitigating Measures" section.

Cumulative Effects. Cumulative effects would be similar to those for Alternative A.

Conclusion. Under Alternative B, negligible to minor, long- term beneficial effects to hydrology and floodplains would occur. Bank stabilization would result in minor beneficial effects of reduced erosion of the bank, accompanied by the minor adverse effects of potential erosion of the downstream channel caused by narrowing the channel. Realignment of the Burr Canyon drainage would produce short- and long- term, moderate adverse effects to hydrology resulting from manipulation of natural channel- forming processes and the potential for substantial quantities of sediment production. Short- term adverse effects resulting from construction activities would be negligible to minor and local. Overall, Alternative B would produce minor, beneficial effects on hydrology and the floodplain. Cumulative effects to surface water, hydrology and floodplain would be negligible.

Because there would be no major adverse impacts to water- related resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE C

Impact Analysis. The effects of Alternative C on hydrology and floodplains would be similar to those of Alternative B. Although there would be less potential for erosion because the culverts would allow the 50- year storm event to pass without overtopping the road, rather than the 25- year event as in Alternative B, the difference between the alternatives would not change the magnitude of the impacts.

Cumulative Effects. Cumulative effects would be similar to those for Alternative A.

Conclusion. The impacts to hydrology and floodplains would be the same as those for Alternative B.

Because there would be no major adverse impacts to water- related resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

NATURAL SOUNDSCAPES

METHODOLOGY

Natural soundscapes of parks include silence, solitude, and tranquility along with the sounds of the natural environment such as birds, water, and wind. Internal and external development pressures are making it increasingly difficult for National Park Service units to maintain natural soundscapes. Changes in recreational opportunities and visitor transportation create increased noise affecting visitor experience.

The evaluation of soundscape impacts associated with the proposed action considered noise context and time factors, including duration and frequency of occurrence. These factors, and the presence of a receptor, interact to determine the degree of impact to the soundscape for an activity. Potential receptors include people and wildlife. The effects of sound on wildlife (as an element that contributes to disturbance) are addressed in the wildlife section.

Context

The natural soundscape can be defined as the natural ambient sound level of a park: “It is comprised of the natural sound conditions in a park which exist in the absence of any human-produced noises. These conditions are actually composed of many natural sounds, near and far, which often are heard as a composite, not individually” (NPS 2000a). Noise, an element that can degrade the natural soundscape, is defined as “unwanted or undesired sound, often unpleasant in quality, intensity or repetition. . . . In a national park setting, noise is a subset of human-made noises” (NPS 2000a). Because the proposed action would occur within the dirt, all-weather, two-wheel-drive road corridor zone (NPS2001c), vehicle noise is inherently acceptable in this zone. Thus, the context that the assessment of effects to the soundscape considers is the ambient natural soundscape plus occasional vehicle noise.

Visitor experiences that are most likely to be adversely affected by noise are the opportunities to experience solitude and the park's natural soundscape. Visitor sensitivity to noise varies and is principally based on the experience being sought by visitors and their activity when exposed to noise.

The road corridor and semi-primitive zones are the areas considered in this noise impact analysis. While vehicle and motorized noise are regularly expected in the road corridor zone, the visitor to the semi-primitive zone can expect only occasional exposure to vehicle and equipment-generated noise (NPS 2001c).

Time Factors

The time of day or time of year influences the impact a given noise would have because these factors are related to the number of potential receptors. The greatest number of receptors that could be affected by noise would be present in the summer daytime hours, as

use of the Burr Trail peaks in early and late summer (refer to Table 6 in the Affected Environment section describing soundscape) (NPS 2002d).

Duration and frequency of occurrence of a noise affect the impact that the noise would produce. For example, vehicle noise in the road corridor zone is relatively infrequent, and the noise would last only as long as it takes for the vehicle to pass into and out of hearing range. In the lightly used semi-primitive zone adjoining the road corridor zone around the proposed action sites, the intermittent noise of passing vehicles would have a greater effect on the soundscape than the same noise in the road corridor zone. These factors were addressed qualitatively in the impact analysis. The vast majority of Capitol Reef National Park visitors experience the road modification sites from within their vehicles. This attenuates the noise effects on these receptors; the relatively rapid passage of a vehicle through the road modification areas would minimize the duration of exposure to construction noise.

IMPACT THRESHOLD DEFINITIONS

Primary steps for assessing impacts would include 1) identifying existing activities that may be affected by noise from the road, 2) determining the average daily traffic counts for the Burr Trail and the design speed, and 3) identifying the number of vehicles, existing traffic noise levels and predicted traffic noise levels, and impacts or potential areas where noise concentrations and effects on other visitors may be of concern.

Impacts would be evaluated using these thresholds:

- *Negligible:* Natural sounds predominate. Human-caused noise is rarely audible at 100 feet or more from the noise source. When noise is present, it is at very low levels and occurs only for short durations in most of the area. Visitors almost always have the opportunity to experience the natural soundscape free from human-caused noise.
- *Minor:* Natural sounds usually predominate. Human-caused noise is present only infrequently and occurs only at low levels and for short durations in most of the area. Visitors have the opportunity to experience the natural soundscape free from human-caused noise most of the time in most of the area. Human-caused noise is rarely audible between sunset and sunrise at 100 feet or more from the noise source.
- *Moderate:* Human-caused noise is present infrequently to occasionally, at low to medium levels and durations. Human-caused noise at low or medium levels and durations is often present and human-caused noise is occasionally audible between sunset and sunrise at 100 feet or more from the noise source.
- *Major:* Natural sounds commonly are masked by human-caused noise at low or greater levels for extended periods of time. Human-caused noise can be experienced within a half-mile of the source at medium levels and durations, and noise levels in these areas occasionally are high. More than a mile from the source, the natural soundscape free from human-caused noise can be experienced less than half the time during the day. Human-caused noise is frequently audible between sunset and sunrise at 100 feet from the noise source.

- *Duration:* Short - term – Effects would last no longer than one year. Long - term – Effects would last more than one year.

Geographic Area Evaluated for Impacts. The areas analyzed for possible impacts on the natural soundscape include the road corridor and semi- primitive zones. The lightly used semi- primitive zone areas adjoining the road corridor zone around the proposed action sites are included in the impact analysis area. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICIES

The fundamental mission of the national park system, established by law (16 *United States Code* *et seq.*), is to conserve park natural and historic resources and to provide for the enjoyment of park resources only to the extent that the resources will be left unimpaired for the enjoyment of future generations. As described in Section 1.4.6 of *Management Policies 2001* (NPS 2000b), natural soundscapes are recognized and valued as a park resource in keeping with the National Park Service mission. Other pertinent regulations and policies related to soundscape include:

- *Management Policies 2001* (NPS 2000b), which states, "The National Park Service will preserve, to the greatest extent possible, the natural soundscapes of parks. Natural soundscapes exist in the absence of human- caused sound. The natural soundscape is the aggregate of all the natural sounds that occur in parks, 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."
- *Director's Order - 47: Soundscape Preservation and Noise Management* (NPS 2000a), which states that the natural ambient sound level of a park is the basis for determining the affected environment in environmental impact statements and other documents prepared for compliance with the National Environmental Policy Act.
- Noise Control Act of 1972, which addresses the potential effects of aircraft overflights.

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. The No Action Alternative would continue to affect the natural soundscape as a result of the noise introduced by vehicles on the Burr Trail. This effect would represent a negligible, short- term, local, adverse impact to the soundscape because the Burr Trail is in the road corridor zone (NPS 2001c), where, by definition, vehicle noise of short duration would be considered acceptable. However, the No Action Alternative would not improve the Burr Trail drainage crossings. As a result, flash floods would likely continue to damage the road and repairs would be required on a recurring basis. These repairs would require the use of large motorized construction equipment that would introduce substantial noise. This noise would have a short- term (although recurrent, depending on the frequency of damaging flash floods), local, minor, adverse effect on the natural soundscape in the road corridor zone each time repairs were needed. Receptors in the adjacent semi-

primitive zone may experience moderate adverse soundscape effects because the natural soundscape would be a standard expectation in that zone.

Cumulative Effects. The No Action Alternative would continue to implement current management plans and directions and would contribute cumulative effects on the natural soundscape as a result of the likely need for road and drainage crossing repairs. Occasionally, large recreation vehicles, trailered boats, road-hauling maintenance or oil and gas equipment vehicles, or cattle trailing activities would generate local, negligible, adverse noise impacts. The visitor would expect to hear vehicle and motorized noise when traveling the road corridor. Few if any of the other plans and projects would affect the soundscape in the areas that would be affected by the road modifications; thus, the occasional vehicle traffic and the current road maintenance activities would create the primary impacts to the natural soundscape. Future increased traffic on the Burr Trail associated with development of Bullfrog Marina and other adjacent lands would affect the natural soundscape but would not contribute measurably to ongoing cumulative effects in the region. Cumulative adverse impacts to the natural soundscape would be negligible.

Conclusion. The No Action Alternative would have a short-term, local, negligible to minor, adverse effect on the natural soundscape, with the minor effects related to the frequency of road-damaging floods and the zone where the sound receptor would be located. Cumulative adverse impacts to the natural soundscape would be negligible.

Because there would be no major adverse impacts to natural soundscape resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE A (PREFERRED ALTERNATIVE)

Impact Analysis. Alternative A, like the No Action Alternative, would have short-term, negligible, local adverse effects on the natural soundscape as a result of noises introduced by vehicles that pass along the Burr Trail. There would be no permanent or long-term change in the average daily traffic volume along the road associated with Alternative A, although there may be a very small, short-term increase of traffic associated with construction workers accessing the road modification work sites. This potential short-term effect would also be negligible.

Alternative A would have a local, minor to moderate, adverse effect on the natural soundscape in the short-term while the road modifications were being constructed. The operation of large machinery would create noise during daytime working hours for a total of several months during construction of the road modifications. However, in the long-term, when the modifications are complete, these actions would represent a beneficial effect on the natural soundscape as compared to the No Action Alternative because the frequency of road-damaging floods that would require repair would decrease use of construction machinery. The minor to moderate range of adverse effects would depend on the location of the receptor (i.e., in the road corridor or semi-primitive zone), whether in a vehicle or using

a mode of transportation from which sounds are more easily perceived (e.g., walking or on horseback), and the duration of the receptor in the audible noise range of construction.

Cumulative Impacts. During construction, Alternative A, would contribute most, if not all, of the adverse effects to the natural soundscape in the vicinity of the road modification locations, because other plans and projects being considered would not affect the natural soundscape in the project area. A visitor would expect to hear vehicle and motorized noise when traveling the road corridor. Developments in other parts of the park or increased use of the Burr Trail associated with future development of Bullfrog Marina and other adjacent lands may have local adverse effects on the natural soundscape in those areas. There is potential that a person could experience construction noise at multiple locations in the park, but the adverse cumulative effects on the natural soundscape would be negligible, considering the overall long- term beneficial effects of Alternative A.

Conclusion. Effects associated with Alternative A would be short- term, negligible, minor to moderate, and adverse as a result of vehicles passing along the Burr Trail and the road modification construction noise, respectively. Ultimately, this alternative would result in a beneficial effect to the natural soundscape, as recurrent repairs and the introduction of noisy construction equipment would be reduced. Cumulative effects on the natural soundscape would be negligible.

Because there would be no major adverse impacts to natural soundscape resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE B

Impact Analysis. Alternative B would involve less vehicle slowing, stopping, and idling at drainages as vehicles easily cross culverts under most types of weather conditions. More cars would be able to pass over culverts more frequently at slightly higher speeds. Vehicle speed would be more uniform, resulting in negligible, local, short- term, beneficial effects to the natural soundscape. Other effects would be the same as Alternative A.

Cumulative Impacts. Cumulative effects would be the same as described for Alternative A.

Conclusion. Like Alternative A, adverse effects associated with Alternative B would be short- term, negligible and minor to moderate, as a result of vehicles passing along the Burr Trail and the road modification construction noise, respectively. Ultimately, this alternative (as compared to the No Action Alternative) would result in a beneficial effect to the natural soundscape, as recurrent repairs and the commensurate introduction of noisy construction equipment would be reduced. Cumulative effects on the natural soundscape would be negligible.

Because there would be no major adverse impacts to natural soundscape resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legis-

lation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

IMPACTS OF ALTERNATIVE C

Impact Analysis. The effects of Alternative C would be the same as those identified for Alternative B.

Cumulative Impacts. Cumulative effects would be the same as described for Alternatives A and B.

Conclusion. Like Alternatives A and B, adverse effects associated with Alternative C would be negligible and minor to moderate as a result of vehicles passing along the Burr Trail and the road modification construction noise, respectively. Ultimately, this alternative (as compared to the No Action Alternative) would result in a beneficial effect to the natural soundscape as recurrent repairs and the commensurate introduction of noisy construction equipment would be reduced. Cumulative effects on the natural soundscape would be negligible.

Because there would be no major adverse impacts to natural soundscape resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

CULTURAL RESOURCES

GENERAL METHODOLOGY

Cultural resources typically are understood to include archeological sites, buildings, structures, districts, landscapes, and objects, along with ethnographic sites and landscapes, as defined in the National Historic Preservation Act. The National Historic Preservation Act and its implementing regulations provide guidance for deciding whether cultural resources are of sufficient importance to be determined eligible for listing on the National Register of Historic Places. Historic properties (i.e., archeological, landscape, and ethnographic resources) determined to be eligible for listing in the National Register of Historic Places must be associated with an important historic context; that is, possess significance – the meaning or value ascribed to the item – and have integrity of those features necessary to convey its significance – namely its location, design, setting, workmanship, materials, feeling, and association.

Impacts to cultural resources are described in terms of type, context, duration, and intensity, consistent with the regulations of the Council on Environmental Quality (CEQ 1978) that implement the National Environmental Policy Act. These impact analyses also are intended to comply with the requirements of both the National Environmental Policy Act and Section 106 of the National Historic Preservation Act. In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 of the National Historic Preservation Act (36 CFR Part 800, Protection of Historic Properties), impacts to cultural resources were identified and evaluated by:

- Determining the area of potential effects;
- Identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places;
- Applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and
- Considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either *adverse effect* or *no adverse effect* must also be made for affected cultural resources. An *adverse effect* occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register. For example, this could include diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR Part 800.5, *Assessment of Adverse Effects*). A determination of *no adverse effect* means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

Council on Environmental Quality regulations (CEQ 1978) and *Director's Order #12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2001b) call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential effect, such as reducing the intensity of an impact from major to moderate or minor. Any resulting reduction in intensity of impact by mitigation, however, is an estimate of the effectiveness of mitigation under the National Environmental Policy Act only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. Although adverse effects under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary is included in the impact analysis for cultural resources. The summary is intended to meet the requirements of Section 106 and is an assessment of the effect of implementing the alternative on cultural resources, based on the criteria of effect and adverse effect found in the Advisory Council's regulations.

Geographic Area Evaluated for Impacts. The geographic area that was evaluated for impacts to cultural resources (the area of potential effect) extends 40 meters on either side of the road and the area(s) proposed for channel realignment. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the "Cumulative Analysis" section.

ETHNOGRAPHIC RESOURCES METHODOLOGY

For ease of discussion for this final environmental impact statement, the term "ethnographic resources" includes potential ethnographic landscapes and places, traditional cultural properties, and Native American concerns. Ethnographic resources are those cultural and natural resources to which park-associated American Indian communities ascribe cultural significance and which continue to play a role in a community's identity and way of life. Only members of the communities to whom the resources hold cultural value can determine ethnographic resources and potential impacts to them.

Ethnographic resources are a class of cultural resource specifically addressed in the 1992 amendments to the National Historic Preservation Act. Traditional cultural properties or places are places of special heritage value to contemporary communities (often, but not necessarily, Native American groups) because of their association with the cultural practices or beliefs rooted in the histories of those communities. Thus, they are important in maintaining the communities' cultural identities.

The National Park Service recognizes four categories of cultural landscapes: historic designated landscapes, historic vernacular landscapes, ethnographic landscapes, and historic sites. Ethnographic landscapes represent a complex subset of cultural landscapes within a discrete geographic area. Their natural and cultural elements reflect human adaptation and resource use, and may be expressed in a variety of ways, such as patterns of settlement or land use, locales of plants and minerals, or areas of religious significance. Ethnographic landscapes associated with contemporary groups typically are used or valued in traditional ways and illustrate the strong interrelationship between the dynamic natural resources of the region and cultural groups through many generations.

Within traditional societies, religious beliefs are closely tied to the land and its natural resources. Mountains, streams, geologic features, and plants and animals all may form important components of traditional belief systems. Thus changes in the character of valued natural features may impact traditional societies. Because the ethnographic resources identified by the tribes are important in each tribe's history, and because the resources are interconnected with places and resources located throughout customary tribal lands, any impacts to ethnographic resources would be regional in scope.

In addition, because ethnographic resources are tied to communities' cultural identities, effects to the resources also have an effect on the communities to which they are tied in perpetuity. Therefore, the duration of impacts to ethnographic resources is long-term. Any adverse impacts to ethnographic resources would be readily apparent to the tribes to whom the resources hold cultural significance, and in most cases, because impacts to these resources affect cultural identity and ways of life, most impacts, whether positive or adverse, would be moderate.

Although no cultural landscapes or traditional cultural properties (TCPs) have been formally defined for the Burr Trail, the spectacular viewsheds that lie between the Burr Trail and the Henry Mountains have religious significance to American Indian tribes and contain plant species and minerals important to these groups. For these reasons, when discussing possible project impacts, the road corridor and surrounding areas will be considered a potential ethnographic landscape, and discussions of the ethnographic resources and landscapes will be combined in the impact analysis sections of this document.

During the previous planning phases conducted in 1993, extensive discussions were held with potentially affiliated American Indian tribes to identify possible ethnographic resources. Three surveys of the Boulder- to- Bullfrog Road were conducted to acquaint the American Indian tribes with the project area, and two ethnographic resource inventory and assessment reports were completed (NPS 1996b, 1996c).

No discrete resources were identified as traditional cultural properties within the area of potential effect for this project. However, tribal consultants asserted cultural ties to the area, ascribed religious significance to the entire viewshed between the Burr Trail and the Henry Mountains and beyond, and identified plant species and minerals traditionally used by their peoples. They also considered all archeological resources to be ethnographic properties. Tribal consultants generally preferred that road modifications to the Burr Trail be kept to a minimum. See the "Consultation and Coordination" section of this final environmental impact statement for a list of tribes affiliated with the park.

For purposes of analyzing potential impacts to ethnographic resources and landscapes, the thresholds of change for the intensity of an impact are defined below. Impacts would be evaluated using these thresholds:

- *Negligible:* Impacts would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of beliefs and practices. There would be no change to a group's body of beliefs and practices. For purposes of Section 106, the de-

termination of effect on Traditional Cultural Properties (TCPs) would be *no adverse effect*.

- *Minor:* Adverse impact – impacts would be slight but noticeable and would neither appreciably alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group’s body of beliefs and practices. For purposes of Section 106, the determination of effect on TCPs would be *no adverse effect*. Beneficial impact – would allow traditional access and/or accommodate a group’s traditional practices or beliefs. For purposes of Section 106, the determination of effect on TCPs would be *no adverse effect*.
- *Moderate:* Adverse impact – impacts would be apparent and would alter resource conditions. Something would interfere with traditional access, site preservation, or the relationship between the resource and the affiliated group’s beliefs and practices, even though the group’s beliefs and practices would survive. For purposes of Section 106, the determination of effect on TCPs would be *adverse effect*. Beneficial impact – would facilitate a group’s beliefs and practices. For purposes of Section 106, the determination of effect on TCPs would be *no adverse effect*.
- *Major:* Adverse impact – impact(s) would alter resource conditions. Something would block or greatly affect traditional access, site preservation, or the relationship between the resource and the affiliated group’s body of beliefs and practices, to the extent that the survival of a group’s beliefs and/or practices would be jeopardized. For purposes of Section 106, the determination of effect on TCPs would be *adverse effect*. Beneficial impact – would *encourage* a group’s beliefs or practices. For purposes of Section 106, the determination of effect on TCPs would be *no adverse effect*.

REGULATIONS AND POLICY

The National Park Service’ primary interest in cultural sites stems from its responsibilities under the following legislation, regulations, guidelines, and agreements:

- The *National Park Service Act of August 25, 1916 (Public Law 64- 235)*: responsibility to conserve the natural and historic objects within parks unimpaired for the enjoyment of future generations.
- *Preservation Act (Public Law 89- 665, as amended)* and *36 CFR 800*: Federal agencies must take into account the effects of their undertakings on historic properties (including prehistoric resources); afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings; and consult with the public, the State Historic Preservation Officer (SHPO), and with Indian tribes, recognizing the government- to- government relationship between the Federal Government and tribes.
- *National Environmental Policy Act (NEPA) (Public Law 91- 190)*: this act and its implementing regulations direct the federal government to preserve important historic, cultural, and natural aspects of our national heritage. The public scoping process outlined in NEPA also helps meet the consultation goals of the National Historic Preservation Act.

- *1995 Programmatic Agreement*: Section 106 compliance for this project also would be in accord with the terms of the 1995 programmatic agreement among the National Park Service, the Advisory Council on Historic Preservation, and National Conference of State Historic Preservation Officers.
- *American Indian Religious Freedom Act (Public Law 95- 341)*: protects and preserves the right of American Indians to pursue traditional religious activities, including access to sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.
- *Archeological Resources Protection Act (Public Law 96- 95)*: responsibility to secure, for the present and future benefit of the American people, the protection of archeological resources and sites that are on public lands.
- *Executive Order 13007*: responsibility to 1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and 2) avoid adversely affecting the physical integrity of such sacred sites.
- *Presidential Memorandum of April 29, 1994, on Government- to- Government Relations with Tribal Governments*: responsibility to consult with tribal governments prior to taking actions that affect federally recognized tribal governments (e.g., regarding National Park Service planning, management, and operational decisions that may affect subsistence activities, sacred materials or places, or other ethnographic resources with which tribes are historically associated).
- *Cultural Resource Management Guideline (DO- 28)* and *National Park Service Management Policies*: require the National Park Service to carefully consider the effects that National Park Service actions may have on cultural resources.
- *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*: responsibility to protect the qualities of historic properties that contribute to their listing or eligibility for listing on the National Register of Historic Places.

IMPACT OF THE NO ACTION ALTERNATIVE

Impact Analysis. Under this alternative, no modifications in width, surfacing, drainage, or bank stabilization of the Burr Trail would occur, and the road would continue to be maintained as described in the park's general management plan (NPS 2001c) to provide for safe travel.

Increased tourism and use of recreational vehicles and four- wheel drive vehicles have necessitated a number of changes in regional transportation routes, including road widening, paving, road cuts, curve straightening, new bridges, etc. Over the past half century, character- defining elements of the Burr Trail have been so altered that the historic trail has been deemed ineligible for the National Register of Historic Places.

Implementation of the No Action Alternative would have no new impacts on ethnographic resources, including landscapes.

Cumulative Impacts. Regionally ethnographic resources continue to be destroyed by construction, development, and vandalism. These resources are non-renewable, so over time, loss of cultural sites within and outside the park would cumulatively diminish the regional resource base. These losses would, in turn, reduce the number and variety of ethnographic sites and landscapes valued by tribes. The No Action Alternative would not change the intensity or duration of damage occurring to ethnographic sites, either within the park or regionally. So when impacts of the No Action Alternative are combined with other past, present, and foreseeable future activities and processes affecting ethnographic resources, no new adverse cumulative effects on ethnographic resources (including landscapes) would be anticipated; therefore, cumulative effects would be negligible.

Conclusion. No new adverse impacts on ethnographic resources or ethnographic landscapes would be anticipated under the No Action Alternative. Cumulative effects to ethnographic resources (including landscapes) would be negligible.

Because there would be no major adverse impacts to cultural, archeological, ethnographic resources and ethnographic landscapes, historic resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

Section 106. After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of the No Action Alternative would have *no adverse effect* on the ethnographic resources within the project area of potential effect.

ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. Under Alternative A, road surfaces containing bentonite clay between mile point 0.00 and 0.45 and 0.85 and 0.90 would be excavated down to one-foot and a gravel base installed over geotextile fabric. This excavation would not affect known cultural resources. Stop-work provisions would be included in work plans in the unlikely event that buried cultural or paleontological resources are encountered during these excavations.

The overhanging rock would not be altered, and there are no known archeological or historic sites eligible for the National Register of Historic Places in this area. The historic Pectol inscription, adjacent to the road a short distance from the overhang, is not considered an archeological site, and is not eligible for the register. It would remain undisturbed under this alternative. These changes would have only negligible effects on ethnographic resources due to the limited extent of the work.

Slope protection would be added to the road banks between mile points 0.75 and 0.85. Installation of the slope protection would change the visual impression of the stream, and could increase stream channel scouring, possibly causing minor adverse effects on potential ethnographic resources, including landscapes.

ENVIRONMENTAL CONSEQUENCES

The paved fords to be installed at mile points 0.10, 0.20, 0.50, and 0.60 and the culverts to be installed at the minor drainage crossings would result in negligible adverse effects to ethnographic resources.

A vented paved ford would be installed at the Halls Creek crossing. Slope protection associated with this structure would extend up and downstream of the crossing. The roadway would be shifted slightly to the south (i.e., downstream) to accommodate combined flows below the confluence of Halls Creek and the Burr Canyon drainage. Ethnographic resources could be affected by these activities in a negligible, adverse manner. Installation of three metal pipe culverts with slope stabilization below the culvert outlet in the upper Burr Canyon side drainage would not affect any known cultural resources.

Most Native Americans value archeological sites and artifacts as important ethnographic resources. A prehistoric pictograph (42GA1444) is located near the roadway but outside of the area of potential effect. Physical barriers would be installed to protect the site, and construction crews would be briefed on its presence, importance, and the need for protection. An archeologist meeting the Secretary of the Interior's Standards would monitor construction in this area to ensure the site remains undisturbed. These mitigation measures would help protect the site's ethnographic values, resulting in negligible adverse impacts on an ethnographic resource.

Most of the changes proposed in this alternative are relatively modest, would disturb only minimal amounts of native vegetation or mineral resources, and would be confined to the existing road corridor and the channel inlet recontour area. Thus, most of the adverse impacts on ethnographic resources (including potential ethnographic landscapes) would be minor and local. Minor, adverse effects on the potential ethnographic landscape would be long term because of the changes in topography and because revegetation of native plants would be hampered by the extreme aridity of this region.

Installation of a cattle guard at the park boundary would have no effect on any cultural resources.

Cumulative Effects. Regionally, ethnographic sites continue to be destroyed by construction, development, and vandalism. Cultural resources are non-renewable, so over time, loss of resources within and outside the park would cumulatively diminish the regional resource base.

Increased tourism and use of recreational vehicles and four-wheel drive vehicles have necessitated a number of changes in regional transportation routes, including road widening, paving, road cuts, curve straightening, new bridges, etc. Over the past half century, character-defining elements of the Burr Trail have been so altered that the historic trail has been deemed ineligible for the National Register of Historic Places.

All of these changes also combine to diminish natural elements of the potential ethnographic landscape (landforms, plants, etc.). When impacts of Alternative A (including recontouring of the Burr Canyon drainage channel) are combined with these other past, present, and foreseeable future activities and processes affecting ethnographic resources, the resulting cumulative impacts would be moderate and adverse. However, the proposed pro-

ject work is local and generally located along a previously developed road corridor, so implementation of this alternative would not contribute measurably to ongoing cumulative effects in the broader region (i.e., only a negligible effect regionally).

Conclusion. Adverse impacts on ethnographic resources from road and bank stabilization and construction of channel crossings would be negligible, including potential ethnographic landscapes. Cumulative effects to ethnographic resources (including landscapes) would be negligible.

Because there would be no major adverse impacts to cultural, archeological, ethnographic and ethnographic landscapes, historic resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

Section 106. After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative A (the preferred alternative) would have *no adverse effect* on the ethnographic resources within the project area of potential effect.

IMPACT OF ALTERNATIVE B

Impact Analysis. Cultural resource impacts of gravel overlays between mile points 0.00 and 0.45 and 0.85 and 0.90, and slope protection between mile points 0.75 and 0.85 would be much the same as described for Alternative A.

Project work near mile point 0.65 would involve removing the overhanging rock and re-routing the road to the north to avoid affecting the Sandy Creek channel. Removal of the overhanging rock would change the natural landscape along the road. These actions have the potential for moderate adverse effects on ethnographic resources, changing a familiar landform that may be valued by tribes. Removal of the rock could possibly contribute to loss of a nearby historic inscription. While this inscription is not eligible for the National Register, it may be of interest to visitors.

Under Alternative B, installation of corrugated metal pipe and associated slope protection upstream and downstream of the crossings at major and minor road drainages could have long-term, minor, adverse effects on the potential ethnographic landscape by addition of intrusive visual elements and disturbance of adjacent landforms. Impacts would include placement of slope protection material (e.g., concrete or rock), and temporary construction areas.

Resource impacts from construction work conducted at Halls Crossing would be adverse, long-term, and minor to moderate as a result of the realignment of the Burr Canyon drainage at the Halls Creek crossing. Vehicle access (new two-track roads) also might be necessary between the old and new channels to allow transfer of rocks and soil from one to the other. Adverse impacts on the potential ethnographic landscape could range from minor to moderate, depending upon the amount of change in landforms and whether traditionally valued plants or mineral resources are lost.

ENVIRONMENTAL CONSEQUENCES

Resource impacts from work at the Burr Canyon side drainage crossing would be the same as described for Alternative A.

Installation of a cattle guard at the park boundary would have no effect on any cultural resources.

Cumulative Impacts. Cumulative impacts for Alternative B would be much the same as for Alternative A, with two exceptions. Removal of the overhanging rock would destroy a familiar geological feature, permanently changing the character of the landscape in this area, and the Burr Canyon drainage would be realigned upstream of its confluence with Halls Creek. These changes would contribute adversely to the cumulative impacts of other past, ongoing, and future construction work in the region. However a relatively small area would be affected; thus, implementation of Alternative B would contribute incrementally to ongoing cumulative effects, and these cumulative effects would be minor.

Conclusion. Adverse impacts of the road surface, road bank stabilization, channel realignment, and removal of the overhanging rock could have minor to moderate, local, long-term, adverse impacts on ethnographic resources, including potential ethnographic landscapes. Cumulative effects to ethnographic resources (including landscapes) would be minor.

Because there would be no major adverse impacts to cultural, archeological, ethnographic and ethnographic landscapes, historic resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

Section 106. After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative B would have an *adverse effect* on the ethnographic landscape from removal of the overhanging rock and realignment of the Burr Canyon drainage channel.

IMPACTS OF ALTERNATIVE C

Impact Analysis. Impacts of road resurfacing, road bank stabilization, removal of the overhanging rock, installation of culverts at the major, minor, and Halls Creek crossings and modifications at the upper Burr Canyon side drainage would be the same as described for Alternative B.

Cumulative Impacts. Cumulative impacts would be much the same as for Alternative B. A familiar landform (the overhanging rock) would be permanently altered. The impacts would contribute adversely to the cumulative impacts of other past, ongoing, and future construction work in the region. Cumulative effects would be minor because of the limited nature of the project along an established roadway.

Conclusion. Road bank stabilization, removal of the overhanging rock, installation of culverts at the major, minor, and Halls Creek crossings, realignment of the Burr canyon channel, and modifications to the Burr Canyon side drainage would have minor to moderate adverse impacts on the potential cultural landscape. Cumulative effects to ethnographic resources (including landscapes) would be minor.

Because there would be no major adverse impacts to cultural resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Capitol Reef National Park; 2) key to the natural or cultural integrity of the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

Section 106. After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative C would have an *adverse effect* on the ethnographic landscape from alteration of the overhanging rock and other landform changes.

SECTION 106 SUMMARY

This final environmental impact statement provides detailed descriptions of four alternatives (including a No Action Alternative) and analyzes the potential impacts associated with possible implementation of each alternative.

Mitigating measures would be employed to reduce potential impacts on cultural resources. Use of locally obtained native gravels and rock that are the same color and general texture as the road surroundings would help reduce visual impacts on the landscape. Work limits would be established to protect vulnerable resources listed on or potentially eligible for the National Register. The park would continue to actively work with tribes to protect ethnographic resources and privacy for traditional activities. An archeologist meeting the Secretary of the Interior's Standards would monitor construction in work areas near historic properties, and construction workers and highway crews would be informed regarding the protocol for notification procedures and protecting resources should presently unknown resources be uncovered.

If it is determined that there is potential for adverse impacts to cultural resources listed on or eligible for listing on the National Register of Historic Places, the National Park Service would coordinate with the Utah State Historic Preservation Officer to determine the level of effect to the property and to determine what mitigation measures would be needed.

The park staff would continue to educate visitors regarding archeological and ethnographic site etiquette to provide long-term protection for surface artifacts, features, and traditional activities.

Concerned Native American tribes will receive copies of the final environmental impact statement. This final environmental impact statement also will be sent to the Utah State Historic Preservation Officer and to the Advisory Council on Historic Preservation as part of the Section 106 compliance.

ENVIRONMENTAL CONSEQUENCES

Pursuant to 36 CFR Part 800.5, implementing regulations of the National Historic Preservation Act (revised regulations effective January 2001), addressing the criteria of effect and adverse effect, the National Park Service finds that the implementation of Alternative A in Capitol Reef National Park, with identified mitigation measures, would not result in any new adverse effects (*no adverse effect*) to archeological, historic, ethnographic, or cultural landscape resources currently identified as eligible for or listed on the National Register of Historic Places.

PUBLIC HEALTH AND SAFETY

METHODOLOGY

The National Park Service must ensure that visitor and employee safety and health are protected, and is committed to providing a safe environment for the public. This includes ensuring that there would be no conditions that would create an unsafe or unhealthful environment for the public, visitors, or employees, or interfere with the public health and safety. To evaluate public health and safety, traffic count and vehicle accident data for the Burr Trail were used and compared with previous vehicle use patterns and safety data on the Burr Trail. This data indicated whether vehicle safety and traffic along the Burr Trail has been stable over time. A proportion of traffic count data may be attributed to in- county travel, pass- through travel, or travel from one federally managed area to another; therefore, an assumption was used to determine the number of pass- through trips per day. Traffic count data was compared to other traffic count data and park visitor data to determine if there would be increasing, decreasing, or relatively consistent use of the Burr Trail. Based on the data, an evaluation was made about visitor use and safety of the Burr Trail in the future.

To determine impacts of the road modifications on public health and safety, other vehicles and public activities that are proposed in vicinity of the road were identified from park staff, state of Utah and Garfield County representatives, the park's general management plan (NPS 1998c), and the Garfield County General Plan (Five County Association of Governments 1995). Primary steps for assessing impacts included identifying 1) whether the safety-defining features of the road, including speed limits and curve radii, would be retained, 2) visual safety (i.e., safe lines of sight) along the road would be maintained, and 3) if the modifications would be sufficient to maintain adequate public transportation and passage on the road.

Impacts would be evaluated using these thresholds:

- *Negligible*: Public health and safety would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on the public health or safety.
- *Minor*: The effect would be detectable and would likely be short - term, but would not have an appreciable effect on public health and safety. If mitigation were needed, it would be relatively simple and would likely be successful.
- *Moderate*: The effects would be readily apparent and long- term, and would result in substantial, noticeable effects to public health and safety on a local scale. Mitigation measures would probably be necessary and would likely be successful.
- *Major*: The effects would be readily apparent and long- term, and would result in substantial, noticeable effects to public health and safety on a regional scale. Extensive mitigation measures would be needed, and their success would not be guaranteed.

- *Duration:* Short- term – Effects last one year or less. Long- term - Effects last longer than one year.

Geographic Area Evaluated for Impacts. The geographic area that was evaluated for public health and safety included the Burr Trail from the eastern park entrance to The Post, and the road crossings at Halls Creek and the Burr Canyon side drainage. The area of analysis includes the Burr Canyon drainage and Halls Creek drainage channel and the area(s) proposed for channel relocation. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICIES

Park staff are charged with providing a safe environment as well as opportunities for park enjoyment. National Park Service *Management Policies 2001* (Section 8.2.5.1) (2000b) states that the National Park Service “will seek to provide a safe and healthful environment for visitors and employees. The Service will work cooperatively with other federal, tribal, state, and local agencies, organizations, and individuals to carry out this responsibility. The Service will strive to identify recognizable threats to the safety and health of persons and to the protection of property by applying nationally accepted codes, standards, engineering principles, and the guidance contained in DO- 50, DO- 58, and DO- 83 and their associated reference manuals.” Further, the National Park Service will strive to protect human life and provide for injury- free visits (Section 8.2.5.1) (NPS 2000b).

State of Utah regulations related to public health and safety and transportation include the 2004 Standards and Specifications (UDOT 2004), which provides engineering and design data to specifically address public health and safety on roadways.

The Garfield County General Plan (Five County Association of Governments 1995) provides guidance regarding road maintenance and associated public health and safety.

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. Under the No Action Alternative, visitors unfamiliar with the rough and hilly terrain of the Burr Trail may occasionally experience difficulty driving. Road sections comprised of clay are hazardous when wet. These sections of the road can become impassable, and there are reports of visitors staying overnight in their vehicles awaiting drier conditions (NPS, Kehrer, 2002i). Vehicle travel at the overhanging rock is restricted to one-lane, and two approaching vehicles may cause traffic conflicts leading to possible accidents. Halls Creek is marked as a flood hazard area, and flash flooding at Halls Creek occasionally makes it unsafe for vehicle passage. Under the No Action Alternative, unsafe driving conditions would not be remedied. Persistence of these conditions would produce both short- and long- term, adverse effects to public health and safety of minor intensity.

Cumulative Effects. Outside the park boundaries, the Burr Trail and other county roads have been improved. Paved portions of the Burr Trail east and west of the park and on the Notom Road along the eastern park boundary have stabilized road surfaces, which may reduce driving hazards and may reduce emergency response times in case of accidents. How-

ever, this also encourages slightly higher vehicle speeds on these rural roads prior to entering unpaved portions located in the park. Traffic volumes are higher in these areas due to denser settlement patterns, such as farms and the town of Torrey, and the presence of state highways. Visitors would expect to drive through rough and hilly terrain and experience occasional delays at drainage crossings on the Burr Trail during rainstorms. Although the effect cannot be measured, increased use, transport of oil and gas, trailing of cattle, and vehicles towing trailers or watercraft to public lands surrounding the park may contribute to accidents on the Burr Trail. Continuing the current design of the Burr Trail would have a negligible contribution to the cumulative effects of road improvements and road safety within the park and surrounding counties.

Conclusion. The No Action Alternative would neither reduce nor enhance public health and safety, resulting in negligible to minor, long- term adverse impacts to visitor health and safety. Cumulative impacts would be negligible.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. Replacement of bentonite clay road surfaces with gravel, underlain by geotextile fabric, would improve wet road driving conditions. This would reduce the likelihood of travelers losing control of their vehicle on slippery road surfaces or being stranded waiting for drier conditions. Because of light travel volumes on the road, a reduction in accidents or delays may or may not be detectable and would produce negligible to minor benefits to public health and safety.

Widening the road while preserving the overhanging rock would create additional roadway surface, enabling two- way traffic to pass. The rock embankment would provide support for the roadway. These changes would likely produce negligible to minor beneficial improvements to public health and safety at this site.

Installation of paved fords at the major and minor drainages that cross the Burr Trail, including Halls Creek, would improve travel conditions when runoff is present in the drainages. Signs would alert visitors to potential hazards during periodic floods and provide a warning not to cross drainages when stormwater overtops the road. Modifying the major and minor drainage crossings would yield long- term, minor benefits to public health and safety.

Roadside delineators (reflectors) would be installed on the curve at the overhanging rock to mark the outside radius of the curve. This feature would have a minor beneficial effect on public health and safety as a result of safer driving conditions.

Negligible long- term benefits would result from installing a cattle guard and reducing the potential safety hazard of cattle on the road within the eastern boundary of the Park.

This alternative would provide minor beneficial improvements to public health and safety as compared to the No Action Alternative by widening the road and stabilizing the road and road drainage.

ENVIRONMENTAL CONSEQUENCES

Activities associated with construction of features of this alternative would result in short-term, adverse effects on public health and safety that would be local and negligible. Construction crews would use all appropriate traffic control measures, warning signs, and flagging to ensure that travelers experience safe passage through construction zones.

Cumulative Effects. Cumulative effects are the same as described for the No Action Alternative except for the following:

Alternative A would make a small beneficial contribution to travel safety within the park and surrounding counties, but these effects would likely be local and of negligible to minor intensity.

Conclusion. Alternative A would enhance public health and safety. The benefits would be negligible to minor. Short-term adverse effects on safety caused by construction activities would be negligible. When compared to the No Action Alternative, road widening and stabilization would provide minor benefits to public health and safety. Cumulative effects would be beneficial and of negligible to minor intensity.

IMPACTS OF ALTERNATIVE B

Impact Analysis. Application of gravel to bentonite areas would improve wet road driving conditions. This would reduce the likelihood of travelers losing control of their vehicle on slippery road surfaces or being stranded to wait for drier conditions. However, without geotextile fabric beneath the gravel, the rate of gravel loss would be higher and the benefits more short lived than with fabric. Because of the light travel on the road during the storm season, a reduction in accidents or delays may or may not be detectable and would produce negligible benefits to public health and safety.

Removal of the overhanging rock would create additional space to realign and widen the road to allow two-way traffic conditions and increase visibility and sight distance at this site. This would likely produce negligible to minor, beneficial improvements to public health and safety at this site.

Changes to the major and minor drainages that cross the Burr Trail, including Halls Creek and the Burr Canyon side drainage crossing, would improve travel conditions during most storm events. Although no warning signs at crossings would be mandated, signage warning of the hazards associated with flash floods may be considered. Except in the most extreme storm events, crossings would be passable and safe for all vehicles. Improving water crossings up to the 25-year storm event would yield long-term, moderate benefits to public health and safety.

Negligible, long-term benefits would result from installing a cattle guard and reducing the potential safety hazard of cattle on the road within the eastern boundary of the Park.

This alternative would provide minor beneficial improvements to public health and safety as compared to the No Action Alternative by widening the road, increasing visibility and sight distance at the curve adjacent to the overhanging rock, and stabilizing the road and road drainage.

Activities associated with construction of features of this alternative would result in short-term adverse effects on public health and safety that would be local and negligible. Construction crews would use all appropriate traffic control measures, warning signs, and flagging to ensure that travelers experience safe passage through construction zones.

Cumulative Effects. Cumulative impacts are the same as described for the No Action Alternative and for Alternative A.

Conclusion. Public health and safety would be enhanced by implementation of Alternative B. The benefits would be negligible to minor. Improving drainage crossings so that travel would still be possible during storms less than the 25- year storm event would yield long-term, moderate benefits to public health and safety. Short- term effects to safety caused by construction activities would be negligible. Cumulative effects would be beneficial and negligible.

IMPACTS OF ALTERNATIVE C

Impact Analysis. The effects of road surface stabilization, removal of the overhanging rock, drainage modifications at the Halls Creek and Burr Canyon side drainage crossings, and the installation of a cattle guard at the park boundary would be the same as for Alternative B.

Modification of major and minor Sandy Creek crossings on the Burr Trail would provide for the greatest increase in public health and safety. Except during storms that exceed the 50- year event, crossings would be passable and safe for all vehicles. This would result in only incremental safety enhancements over Alternative B and would yield local, long- term benefits of moderate intensity.

Activities associated with construction of features of this alternative would result in short-term adverse effects on public health and safety that would be local and negligible. Construction crews would use all appropriate traffic control measures, warning signs, and flagging to ensure that travelers experience safe passage through construction zones.

Cumulative Effects. Cumulative impacts are the same as described for the No Action Alternative except for the following:

The contribution of Alternative C to overall effects on public health and safety would likely produce detectable and minor cumulative benefits to public health and safety within the park by improving access over drainages and to surrounding counties through future road improvements.

Conclusion. Under Alternative C, public health and safety would be beneficially affected. The benefits would be negligible to moderate and would result from reduced flood hazard with culverts at drainage crossing, improved road surface stability with the installation of gravel on bentonite areas, and increased visibility and added room for 2- way traffic flow at the overhanging rock. Construction activities would result in negligible short- term effects to public health and safety. Cumulative effects would be beneficial and minor.

VISITOR USE AND EXPERIENCE

METHODOLOGY

The assessment of potential impacts to scenic resources was based on comparisons between the No Action Alternative and the three action alternatives. The effects of each alternative were evaluated by analyzing potential impacts on the physical component of the landscape and how the change may be experienced. Potential impacts to landscape views are determined by analyzing whether there would be improvement or degradation of the view. The underlying assumption is that natural appearing conditions are aesthetically pleasing, and that constructed facilities would decrease the amount of undeveloped area and the sense of naturalness.

Impacts on visitor experience may occur as a result of changes to park facilities and resources that contribute to the type and quality of the visit to Capitol Reef National Park. They may also occur from direct actions altering the availability of a specific experience or activity. Visitor use and experience are also directly affected by actions influencing natural resources, such as air quality, scenic resources, and cultural resources. Though impacts to these resources are not repeated in the analysis of visitor experience, enhancement or degradation of these resources also enhances or degrades the quality of the visitor experience.

Impacts on visitor experience have been assessed using professional judgment to develop a qualitative analysis of the effects of actions on the activities of different visitor populations. These conclusions have been considered in combination with data on the proportion, when known, of visitors who participate in different activities while in the park.

Visitation data for Capitol Reef National Park and traffic counts for the Burr Trail were used and compared with previous park visitation data. A proportion of traffic count data may be attributed to in- county travel, pass- through travel, or travel from one federally managed area to another. Based on the data, an assumption was made about visitor use and experience of the Burr Trail in the future.

To determine impacts of the road modifications to the visitor experience, other recreational activities and the type of visitor experience that is proposed in the vicinity of the road were identified from park staff and from the park's general management plan. Primary steps for assessing impacts would include identifying whether 1) the character- defining features of the road would be protected, 2) the visual quality of the natural landforms along the road would be maintained, and 3) the modifications would be sufficient to maintain the winding and adventuresome character of the road.

Impacts would be evaluated using these thresholds:

- *Negligible:* Visitors would not be affected or impacts to visitor use and experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.

- *Minor:* Impacts on visitor use and experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
- *Moderate:* Impacts on visitor use and experience would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.
- *Major:* Impacts on visitor use and experience would be readily apparent and have important consequences. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.
- *Duration:* Short- term – occurs only during the road construction activities. Long- term – effects continue to occur after the road construction activities are complete.

Geographic Area Evaluated for Impacts. The geographic area that was evaluated for visitor use and experience included the Burr Trail from the eastern park entrance to The Post, and the road crossings at Halls Creek and the Burr Canyon side drainage. The area of analysis includes the Burr Canyon drainage and Halls Creek drainage channel. Potential impacts to landscape views were determined by analyzing the immediate and surrounding landscapes as viewed from the Burr Trail corridor. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICIES

The National Park Service *Management Policies 2001* state that the enjoyment of park resources and values is part of the fundamental purpose of all park units, and the National Park service is committed to providing appropriate, high- quality opportunities for visitors to enjoy the parks (NPS 2000b). The desired condition is for visitors to understand and appreciate park values and resources and to have the information necessary to adapt to park environments (NPS 2000b).

Capitol Reef National Park promotes resource stewardship, education, and visitor use management activities to provide tranquil, sustainable use and enjoyment of the park while simultaneously protecting these resources from degradation. Part of the significance of the park is that it provides a unique opportunity for visitors to experience remote geologic features of the area, views of the Waterpocket Fold, and other scenic views in the area while traveling the Burr Trail.

The visitor experiences that can be expected on the Burr Trail as defined in the park’s general management plan (NPS 2001c) include:

- A sense of remote lands exploration.
- Encounters with other visitors range from rare to occasional.
- Washboarded and dusty roads that traverse wash bottoms.

- Directional and interpretive signs, cattle guards, well- defined turnouts, trailhead parking, and picnicking.

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. Under the No Action Alternative, visitors would continue to experience the Burr Trail in its current configuration. The route provides a remote and scenic experience of the landscape. The sparsely vegetated, rocky, hilly terrain; geologic features of the area; and views of the Waterpocket Fold and other dramatic formations are the focus of the visitor experience along the Burr Trail.

On average over a 12- hour visitor day, approximately two cars per hour travel the road (see “Soundscapes” for greater detail). This low use enhances the remote aspect of the experience afforded to visitors who make the trip along the Burr Trail.

Implementation of the No Action Alternative would preserve a valuable visitor experience that provides a sense of remote adventure. This represents a long- term, beneficial effect of moderate intensity for visitors who venture onto the trail.

The overhanging rock is a distinctive geologic feature of the park that frames the view of the Waterpocket Fold for visitors as they enter the park. The visual experience created by the rock in its context of the first view of the Waterpocket Fold results in minor benefits to visitor experience.

For many visitors, the primitive road conditions and crossing delays during floods add immeasurably to their experience. The slow nature of travel gives them time to contemplate natural processes and to appreciate the struggles of early pioneers in the area. A small portion of other visitors desire to experience the scenery and remoteness of this part of the park; however, rough roads and crossing delays during storm events present an inconvenience and detract from their experience. For these visitors, the current conditions would continue to present a long- term, minor to moderate, adverse effect.

Cumulative Effects. Within the region, several other national park units, national monuments, and resource conservation areas offer travelers the opportunity to experience remote reaches of canyon country on minimally improved roads. Regionally, retention of current conditions on the Burr Trail would have a negligible, beneficial cumulative effect on remote primitive driving opportunities.

Outside the park boundaries, the Burr Trail and other county roads have been paved or surfaces have been upgraded. Road surfaces have been paved on the Burr Trail west of the park and on the Notom Road along the eastern park boundary. These changes adversely affect the experience of some visitors by detracting from the rural nature of the setting and interfering with appreciation of the remote and scenic landscape. To others, road modifications provide an opportunity to venture into remote portions of the park that they might not otherwise visit. Continuing current visitor uses and experiences of the Burr Trail would have negligible, adverse and beneficial cumulative effects when combined with other road modifications and visitor experience opportunities in the park and within the county.

Conclusion. The No Action Alternative would produce long- term, minor to moderate beneficial and adverse effects on the visitor experience. The visitor's perspective with regard to experiencing remote areas or to maintain a predetermined travel schedule are examples of how the effects could range from beneficial to adverse. Cumulative effects on visitor experience would be negligible.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. Excavation of the bentonite clay road surface and installation of gravel underlain by geotextile fabric would be unlikely to affect the visual character of the Burr Trail. Local gravel sources would be utilized, which would blend with the native components of the road surface. This action would have negligible, long- term, adverse effects to visitor experience related to visual aspects of the road. The more stable gravel and fabric road surface would improve driving conditions in the project area under wet conditions during and after storm events. Because roads leading to the project area are often impassable during storm events, a visitor's inconvenience would be displaced to another location; therefore, the benefit would be short- term and negligible.

Stream and road bank stabilization using a rock embankment at the overhanging rock and at the Burr Canyon side drainage, and slope protection further west on the road could adversely affect the visitor experience. Concentrations of rock used to stabilize road and stream banks would not appear as natural features when observed closely. Although the rock would be treated to blend with the surroundings as much as possible, it would still remain a noticeable unnatural feature. The result would be a long- term, negligible, adverse effect on the visitor experience.

Changes to the drainages that cross the Burr Trail, including Halls Creek, would introduce concrete surfaces to the roadway. These structures would be low profile, and include slope protection measures upstream and downstream in the drainage as needed to minimize bank erosion. Runoff from the drainages would flow over these paved fords, mimicking natural flow patterns. Many visitors would be accustomed to seeing alternations of drainages near roads, but installation of these paved fords would result in long- term, adverse effects to visitor experience of negligible to minor intensity for visitors who are sensitive to alterations to the natural landscape.

The side drainage crossing at Burr Canyon would receive treatments including installation of culverts beneath the road surface, widening the road, and a downslope rock embankment. These elements would alter the natural landscape, but would not likely be readily apparent to visitors traveling on the road. The terrain is rugged and the road and switchbacks are already noticeable features within the landscape. The road modifications would result in negligible adverse effects on the experience of visitors.

Shifting the roadway near the confluence of Halls Creek and the Burr Canyon drainage would alter the appearance of the stream channel and banks. This would minimally contrast with the existing conditions and the natural and remote nature of the Burr Trail. New visitors as well as travelers familiar with the area could be likely to note this condition, thus producing a long- term, negligible adverse effect on visitor experience.

ENVIRONMENTAL CONSEQUENCES

The construction of a new cattle guard, in conjunction with the boundary fence, would have minor, long- term, adverse effects on visitor use, as overall, improved conditions within the park would offset the additional development that the cattle guard would represent.

Each action alternative includes potential, short- term disruptions in traffic flow through the one- mile section during the period of construction. Travelers could expect short delays, reduced speeds, restricted lane usage, and one- way travel over portions of the road, temporary construction noise, and the presence of construction equipment. These conditions would persist through the several month construction period. Effects to visitor experience would be adverse, local, short- term, and minor.

Cumulative Effects. Cumulative impacts would be similar to those described for the No Action Alternative.

Conclusion. Alternative A would produce long- term adverse effects to the visitor experience by altering the natural terrain and introduction of additional engineered elements to the Burr Trail. These effects would be local, and of negligible to minor intensity. Short- term adverse effects on visitor experience would occur from construction activities, and these would be minor and limited to construction sites. Cumulative effects on visitor experience would be negligible and range from adverse to beneficial, depending on the visitor's expectations and perspective.

IMPACTS OF ALTERNATIVE B

Impact Analysis. The overhanging rock would be removed and the road realigned. This would remove an element that frames the view of the Waterpocket Fold for visitors as they enter the park. The unobstructed and impressive view of the Waterpocket Fold would continue to be present, however. Travelers familiar with the route would be likely to notice this change. Such changes would produce long- term, minor adverse effects to visitor experience at this location.

Stabilization of the road surface using gravel on those portions where bentonite clay is present would be unlikely to affect the visual character of the Burr Trail. Local gravel sources would be utilized, and material would blend with the native components of the road. This action would have negligible, long- term, adverse effects to visitor experience related to visual quality of the road. The more stable gravel road surface would improve travel during wet conditions so long as the gravel remained on the road (gravel without geotextile fabric may be displaced or become embedded in the substrate). This would result in minor, short-term benefits to travelers on the road at these times.

Road and stream bank stabilization along the road could adversely affect the visitor experience. Concentrations of rock used to stabilize slopes do not appear as natural features when observed closely. Although the rock would be treated to blend with the surroundings as much as possible, it would still remain a noticeable unnatural feature. The result would be a long- term, negligible to minor, adverse effect on the visitor experience.

Changes to the minor and major drainages that cross the Burr Trail, including Halls Creek, would introduce culverts beneath the roadway along with bank protection. The presence of culverts would alter the nature of the road's association with the surrounding topography. Where the road currently flows with the land and drops and rises through drainages, the introduction of culverts would reduce the visitor's experience of an undulating road. Culverts would also reduce the visitor's awareness of the dramatic alterations to the landscape that have resulted from storms. The drainage modifications would reduce delays and stoppages during storm events resulting in minor, short-term benefits for travelers wanted to reach their destination without delay. However, the opportunity for visitors to fully understand the power of water in the desert landscape would be diminished; representing a long-term, negligible to minor, adverse effect.

Roadway and drainage modifications and effects at the Burr Canyon side drainage crossing, the impacts related to installation of a new cattle guard, and the effects of construction activities would be the same as Alternative A.

Cumulative Effects. Cumulative impacts would be similar to those described for the No Action Alternative except that the visual impact of driving over relatively large culvert crossings could adversely affect the visitor's perspective of the remoteness of the region. The cumulative effect would be negligible.

Conclusion. Alternative B would result in long-term adverse effects to the visitor experience by altering the natural terrain and introduction of additional engineered elements to the Burr Trail. These effects would be local and of negligible to minor intensity. Short-term adverse effects associated with construction would be as discussed for Alternative A. Cumulative effects on visitor experience would be negligible and range from adverse to beneficial, depending on the visitor's expectations and perspective.

IMPACTS OF ALTERNATIVE C

Impact Analysis. The impacts of Alternative C would be similar to those associated with Alternative B, but Alternative C would allow travelers to cross major drainages during floods up to the magnitude of 50-year storm events. However, such events would likely make travel on other portions of the Burr Trail or other secondary roads impossible, thus offsetting any benefit the traveler might gain by being able to traverse the major drainages. Additionally the adverse visual impacts of the larger culverts used in this alternative would be greater, with an incremental increase in the adverse impact on the visitor experience, but still within the minor intensity range.

Impacts associated with the other elements of Alternative C would be the same as those resulting from implementation of Alternative B.

Cumulative Effects. Cumulative impacts would be similar to those described for the No Action Alternative except that the visual impact of driving over relatively large culvert crossings could adversely affect the visitor's perspective of the remoteness of the region. The cumulative effect would be negligible.

ENVIRONMENTAL CONSEQUENCES

Conclusion. Alternative C would result in long- term adverse effects to the visitor experience by altering the natural terrain and introduction of additional engineered elements to the Burr Trail. These effects would be local and of negligible to minor intensity. Short- term adverse effects associated with construction would be as discussed for Alternative A. When compared to the No Action Alternative, there would be minor adverse effects to the visitor experience due to the alteration of the natural landscape. Cumulative effects on visitor experience would be negligible and range from adverse to beneficial, depending on the visitor's expectations and perspective.

SOCIOECONOMICS

METHODOLOGY

This section summarizes the socioeconomic impacts associated with the proposed alternatives for modifications to a one- mile stretch of the Burr Trail inside Capitol Reef National Park. Garfield County provides the economic setting for actions taken along the Burr Trail in Capitol Reef National Park. Potential effects to economic activities are described using the following terms for context, duration, and thresholds to define intensity. Impairment is not considered for economic effects, because parks are not established or defined by economic activities or indicators.

- *Negligible:* Socioeconomic conditions would not be affected, or effects would not be measurable.
- *Minor:* The effect on socioeconomic conditions would be small but measurable, and would affect a small portion of the population. Few effects could be discerned outside the Garfield County area.
- *Moderate:* The effects on socioeconomic conditions would be readily apparent and widespread in Garfield County with effects starting to broaden into surrounding counties.
- *Major:* The effects to socioeconomic conditions would be readily apparent, and would substantially change the economic or social services within the five- county government area.
- *Duration:* Short- term – occurs only during the road modifications. Long- term – occurs after road modifications are complete.

Geographic Area Evaluated for Impacts. The socioeconomic impact analysis concentrated on the geographic area that encompasses Garfield County, Utah, and acknowledges minor influence from the surrounding five- county association. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICIES

The National Environmental Policy Act requires analysis of social and economic impacts resulting from proposed federal actions in an environmental impact statement. Based on this requirement, the National Park Service has identified conditions that it wants to achieve in association with its management of national parks. These conditions are described in §1.5 of *Management Policies 2001* (2000b) and for Capitol Reef National Park in the park’s general management plan (NPS 2001c).

Public participation in planning and decision- making ensures that the National Park Service fully understands and considers the public’s interests in Capitol Reef National Park.

The National Park Service works cooperatively with others to improve the condition of Capitol Reef National Park to enhance public service, and to integrate the park into sustainable ecological, cultural, and socioeconomic systems. Possible conflicts between alternatives and land use plans, policies, or controls for the area concerned, and the extent to which the park will reconcile the conflict are identified in environmental documents.

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. Implementation of the No Action Alternative would allow the Burr Trail to continue to be used as a mostly all-weather, two-wheel drive, rural road. The road would remain passable under the majority of weather conditions. In the event that the road experienced flood or other damage, the county would maintain the road.

As discussed in the “Visitor Use and Experience” section of “Affected Environment,” a small portion of visitors to Capitol Reef National Park use the Burr Trail. Total park visitation exceeds approximately 600,000 yearly, yet average daily traffic counts on the Burr Trail typically do not exceed 29 vehicles per day. This traffic count includes travel by county maintenance vehicles and park staff. The Burr Trail does not serve as a notable route for economic activity. Under the No Action Alternative, visitation to Capitol Reef National Park and Garfield County would be neither enhanced nor diminished.

Garfield County receives funding from state and federal sources to maintain roads within county boundaries. Under the No Action Alternative, existing funding for modifications and maintenance would not be affected. The county would also continue to use the Burr Trail to transport fill and borrow material from sites outside the park boundaries.

The No Action Alternative would continue to allow access to the park’s grazing allotment. The Sandy 3 allottee would be permitted to use the road to move cattle to and from the allotment each year. No adverse or beneficial effects to agricultural use of the Sandy-3 Allotment would occur.

Continuing current management of the Burr Trail would not have detectable effects on the economy of Garfield County. The small number of visitors using the road, county maintenance traffic, and park staff use of the road would continue.

Cumulative Effects. Increased use of the Burr Trail from future development of surrounding public lands and the Bullfrog Marina at Glen Canyon National Recreation Area, combined with future park development, could result in modest increases in visitation. These visitors could use the Notom Road and the Burr Trail, but these actions, in concert with the No Action Alternative, would have no discernable effect on the local economy.

The population of Garfield County grew by 19 percent from 1990 to 2000. At the same time, park visitation declined slightly. The growth of the service sector and decline of agricultural income would not be affected under this alternative. Current management of the Burr Trail within the project area would also be unlikely to affect any current or planned strategies for economic development in the county.

Conclusion. Continued current management of the Burr Trail would not produce detectable effects on the local economy. The county and local grazing permit holder would continue to use the road, and would not experience changes in economic benefits under this alternative. Cumulative effects to socioeconomics would be negligible.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. None of the actions associated with Alternative A would include substantial alterations to the roadway that would convey greater amounts of traffic, increase traffic speeds, or encourage use by larger vehicles (e.g., trucks hauling large or oversize loads). Specifically, no straightening or changes in the general grade of the road are proposed. Therefore, it is unlikely that any of the alternatives would change overall road usage or have long-term effects on the local economy.

The cost of constructing the various alternatives ranges from approximately \$800,000 to \$2,000,000 (FHWA 2002). Road modifications implemented by a contractor would generate short-term economic benefits within the local economy. The construction period is likely to last for several months, and income would be paid to workers over that period. Although project implementation would provide an economic benefit, its relative contribution to the local economy would be small. Total revenue to Garfield County businesses is in excess of \$60,000,000 annually. The addition of this project would contribute between 1.7 and 3.3 percent to local economic activity. This represents beneficial effects that are short-term, local, and of minor intensity.

Cumulative Effects. Cumulative impacts would be similar to those described for the No Action Alternative.

Conclusion. Alternative A would produce negligible to minor, short-term beneficial effects on the local economy. The county and local grazing permit holder would continue to use the road, and would not experience changes in economic benefits under this alternative. Cumulative effects would be negligible.

IMPACTS OF ALTERNATIVE B

Impact Analysis. Alternative B would have socioeconomic effects similar to those of Alternative A.

Cumulative Effects. Cumulative impacts would be similar to those described for the No Action Alternative.

Conclusion. Alternative B would produce negligible to minor short-term beneficial effects on the local economy. The county and local grazing permit holder would continue to use the road, and would not experience changes in economic benefits under this alternative. Cumulative effects would be negligible.

IMPACTS OF ALTERNATIVE C

Impact Analysis. Alternative C would have socioeconomic effects similar to those of Alternative A.

Cumulative Effects. Cumulative impacts would be similar to those described for the No Action Alternative.

Conclusion. Alternative C would produce negligible to minor short-term beneficial effects on the local economy. The county and local grazing permit holder would continue to use the road, and would not experience changes in economic benefits under this alternative. Cumulative effects would be negligible.

PARK OPERATIONS

METHODOLOGY

To understand the effects of road modifications in the areas of concern on park operations, park staff were consulted and literature was reviewed. The primary steps for assessing impacts included identifying 1) the potential level of ranger monitoring needed on the Burr Trail, and 2) the level of road inspection and follow-up coordination needed for maintenance activities to be conducted on the Burr Trail.

Impacts would be evaluated using these thresholds:

- *Negligible*: Park operations would not be affected, or the effect would be at or below the lower levels of detection and would not have an appreciable effect on park operations.
- *Minor*: The effect on park operations would be detectable, but would be of a magnitude that would not have an appreciable effect on park operations. If mitigation were needed to offset adverse effects, it would be relatively simple and would likely be successful.
- *Moderate*: The effect on park operations would be readily apparent, and would result in a substantial change in park operations in a manner noticeable to staff and the public. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.
- *Major*: Effects on park operations would be readily apparent, would result in a substantial change in park operations in a manner noticeable to staff and the public, and would be markedly different from existing operations. Mitigation measures to offset adverse effects would be necessary and extensive, and their success could not be guaranteed.
- *Duration*: Short-term – Occurs only during road modification activities. Long-term – Effects persist after road modifications are complete.

Geographic Area Evaluated for Impacts. The geographic area that was evaluated for park operations included the Burr Trail from the eastern park entrance to The Post, and the road crossings at Halls Creek and the Burr Canyon side drainage. With park headquarters located more than 30 miles north of the eastern park entrance, travel time and distance plays a major influence on park operations. Limited ranger patrol staff means that committing resources to the Burr Trail requires a reduction in services in another area of the park; therefore, the entire park was included in the geographic area evaluated for impacts on park operations. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICIES

Management Policies 2001 guide maintenance activities in park units (Section 9.1.4.1) (NPS 2000b). The policies state that the “Service will conduct a program of preventive and rehabilitative maintenance and preservation to 1) provide a safe, sanitary, environmentally pro-

protective, and esthetically pleasing environment for park visitors and employees; 2) protect the physical integrity of facilities; and 3) preserve or maintain facilities in their optimum sustainable condition to the greatest extent possible. Preventive and rehabilitative maintenance programs will incorporate sustainable design elements and practices to ensure that water and energy efficiency, pollution prevention, and waste prevention and reduction are standard practice.”

Guidelines for interpretation and educational programs are also provided in National Park Service *Management Policies 2001* (Chapter 7) (NPS 2000b). These guidelines direct the National Park Service to disseminate to the public the history and significance, the resources, and the mission goals of the park. In instances when park managers are called upon to make difficult resource decisions that may be highly controversial, the interpretive and educational programs can build public understanding of, and support for, such decisions and initiatives, and for the National Park Service mission in general. National Park Service *Management Policies 2001* (Section 7.5.3) directs that “parks should, in balanced and appropriate ways, thoroughly integrate resource issues and initiatives of local and Service- wide importance into their interpretive and educational programs” (NPS 2000b). *Management Policies 2001* also states that “resource issue interpretation should be integrated into both on- and off- site programs, as well as into printed and electronic media whenever appropriate” (Section 7.5.3) (NPS 2000b).

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. Under the No Action Alternative, large rainstorms would continue to make access to and within the project area along the Burr Trail difficult. Portions of roads in the area may become impassable for days due to deep mud and sediment at drainage crossings, slippery road surfaces in areas with high clay content, rock falls in canyons, and road washouts in erosion- prone locations. However, the frequency of these events is relatively low, such that the adverse impacts to park operations would be short- term and minor.

No improvements to the existing cattle guard would be made. Cattle would continue to trespass on park lands during the winter grazing period. This would result in a long- term, minor, adverse impact.

Cumulative Effects. Increased use of the regional roads from future development of surrounding public lands and the Bullfrog Marina at Glen Canyon National Recreation Area combined with future park development could result in modest increases in visitation. The minor, adverse impacts of this project’s No Action Alternative would not have a noticeable cumulative effect on any of the park’s other improvement projects.

Conclusion. The No Action Alternative would have short- and long- term, minor, adverse impacts on park operations. Cumulative effects would be negligible if detectable at all.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. Alternative A would reduce slippery road surfaces and improve driving conditions by resurfacing portions of the road with gravel underlain with geotextile fabric.

The paved fords would be impassible during storm events. As a result, there would be a no detectable change in the ability of the park to perform operations activities compared to the No Action Alternative. Implementation of this alternative would result in minor, long- term, beneficial impacts by improving the ability of staff to travel the road following storms because the road would not likely washout or need repairs as often.

The ability to cross Halls Creek during storms up to the design capacity (i.e., the 10- year storm event) of the vents (i.e., culverts) in the paved ford would result in a negligible to minor, long- term, beneficial effect on park operations because the potential for staff to be stranded would be reduced.

Under all action alternatives, a short- term, minor, beneficial impact would be associated with a cattle guard at the park boundary to prevent cattle trespass on park lands during the winter grazing period.

Short- term, minor, adverse impacts to park operations would be associated with construction, because park staff would be needed to monitor construction activities. This impact would continue for the duration of construction.

Cumulative. Effects. Cumulative impacts would be the same as described for the No Action Alternative.

Conclusion. Alternative A would have long- term, negligible to minor beneficial impacts on park operations. Construction of modifications would have short- term, minor, adverse impacts. Cumulative impacts to park operations would be negligible.

IMPACTS OF ALTERNATIVE B

Impact Analysis. The impacts of Alternative B on park operations would be similar to those described for Alternative A. The improved ability to cross major drainages during floods associated with storms up to 25- year events would not greatly affect park operations because other drainage crossings and hazards associated with flash floods may cause delays in travel on the Burr Trail at other locations.

The ability to cross Halls Creek during storms up to the design capacity of the culverts (i.e., the 25- year storm event) would result in a minor, long- term, beneficial effect on park operations because the potential for staff to be stranded as a result of road washouts would be reduced.

Cumulative Effects. Cumulative impacts would be similar to those described for Alternatives A.

Conclusion. The impacts and cumulative effects of Alternative B would be similar to those of Alternative A.

IMPACTS OF ALTERNATIVE C

Impact Analysis. The impacts of Alternative C on park operations would be similar to those described for Alternative A. The improved ability to cross major drainages during floods associated with storms less severe than the 50- year events would not greatly affect park operations because other drainage crossings and hazards associated with flash floods would likely cause delays in travel on the Burr Trail at other locations.

The ability to cross Halls Creek during storms up to the design capacity of the culverts (i.e., the 50- year storm event) would result in a minor, long- term, beneficial effect on park operations because the potential for staff to be stranded as a result of road washouts would be reduced.

Cumulative Effects. Cumulative impacts would be similar to those described for Alternatives A and B.

Conclusion. The impacts and cumulative effects of Alternative C would be similar to those of Alternatives A and B.

GARFIELD COUNTY ROAD MAINTENANCE OPERATIONS

METHODOLOGY

To understand the effects of road modifications in the areas of concern on road operations and maintenance, Garfield County road operations staff and literature review were consulted. The primary steps for assessing impacts included identifying 1) the potential level of road operations and maintenance needed on the Burr Trail and 2) the level of road inspection and follow-up coordination needed with the park for road operations, maintenance, or modification activities to be conducted on the Burr Trail.

Impacts were evaluated using these thresholds:

- *Negligible:* Road maintenance operations would not be affected by the modifications, or the effect would be at or below the lower levels of detection and would not have an appreciable effect on road operations.
- *Minor:* The effects of road modifications would be detectable, but would be of a magnitude that would not have an appreciable effect on road operations and maintenance. If mitigation were needed to offset adverse effects, it would be relatively simple and would likely be successful.
- *Moderate:* The effect on road maintenance operations would be readily apparent, and would result in a substantial change in road operations in a manner noticeable to staff and the public. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.
- *Major:* Effects on road maintenance operations would be readily apparent, would result in a substantial change in road operations and maintenance in a manner noticeable to staff and the public, and would be markedly different from existing operations. Mitigation measures to offset adverse effects would be necessary and extensive, and their success could not be guaranteed.
- *Duration:* Short-term – Occurs only during road operations and maintenance or road modification activities. Long-term – Effects persists after road operations, maintenance, or modifications are complete.

Geographic Area Evaluated for Impacts. The geographic area that was evaluated for road maintenance operations includes the Burr Trail from the eastern park entrance to The Post, and the road crossings at Halls Creek and the Burr Canyon side drainage. Road maintenance equipment is stationed in Boulder, Utah, more than 30 miles west of the park boundary. An established borrow pit is 12 to 15 miles east of the park, near Bullfrog Creek, on Bureau of Land Management lands (where the Notom and Starsprings Road cross Bullfrog Creek near Egg Nog, Utah). The Wagonbox Pit, another occasionally used source of fill material, is 12 to 15 miles west of the park on Grand Staircase- Escalante National Monument

lands. The distance and travel time to these sites plays a major influence on road maintenance operations. Cumulative effects that would occur both within and outside of these areas were evaluated using the methods described in the “Cumulative Analysis” section.

REGULATIONS AND POLICIES

Garfield County road maintenance operations are guided by a combination of the Garfield County, Utah, General Plan; regulations and statutes; and the court decision. Road maintenance, operations, and construction conducted by the county are guided, in part, by standard engineering practices and standards. At the state level, the Utah Department of Transportation 2004 Standards and Specifications (UDOT 2004) provides regulation and guidance regarding engineering standards for construction and maintenance of roadways.

The American Association of State Highway and Transportation (AASHTO) provides uniform engineering practices and guidance for all public roads. AASHTO’s primary goal is to foster the development, operation, and maintenance of an integrated national transportation system (AASHTO 2001). These policies include following standard designs to maintain road function, design and operating speed, traffic volumes, hydrology and hydraulics, road and shoulder width, criteria for intersection sight distance, stopping sight distance, and access management techniques.

In accordance with the Memorandum Opinion and Order District Court (U.S. District Court, 2000), the county must adhere to the following when conducting road work within the Revised Statute 2477 right- of- way located on Capitol Reef National Park lands:

“[T]he National Park Service has the power to regulate construction work performed by or at the direction of Garfield County or the State of Utah in connection with Garfield County’s established R.S. § 2477 right- of- way to the extent that right- of- way falls within the existing boundaries of Capitol Reef National Park.”

“Garfield County, its officers, agents, employees, or contractors, may not perform work constituting “construction” within the meaning of 36 C.F.R. § 5.7 without first obtaining a permit, approval or agreement from the National Park Service, including but not limited to widening, realigning, surfacing, or otherwise significantly altering the road; installing of culverts, or other new structures; or excavating, removing or displacing of rock, soil or other earth materials outside of the existing road and shoulders;”

“[T]he county has a valid existing right to an R.S. § 2477 right- of- way along the Capitol Reef segment of the Boulder- to- Bullfrog Road; and . . . Garfield County, its officers, agents, employees, or contractors, may engage in work maintaining the existing roadway so as to preserve the status quo through repair of the wear or damage to existing road surfaces, shoulders, cut and fill slopes; repair, clearing, or replacement in kind of culverts and other structures; maintaining the existing shape and width of the road, grading it as needed to preserve a passable surface in both lanes or similar routine maintenance work, without prior authorization from the National Park Service.”

IMPACTS OF THE NO ACTION ALTERNATIVE

Impact Analysis. Under the No Action Alternative, the Burr Trail and drainage crossings would require the same county road maintenance practices that exist today. The county would continue to repair the road surface on a routine basis and clear drainage crossings after storm events. Road conditions, such as slippery clay road surfaces, sediment deposits in drainage crossings, and erosion of road embankments, would continue.

The need for road maintenance increases during and after large rainstorms. County road crews consequently put in additional efforts at these times to ensure the road surface is graded and drainage crossings are cleared of sediment or debris. This may divert maintenance resources from other parts of the county resulting in a minor, short- term, adverse effect on county road maintenance operations.

Cumulative Effects. All roads (the Notom Road and portions of the Burr Trail outside the park boundary) that provide access to the Burr Trail within Capitol Reef National Park are partially paved, and road traffic, including cattle operations, other agricultural, and oil and gas equipment transport, continue to contribute incremental amounts of wear and tear on county roads, including the Burr Trail. Past, current, and future road maintenance operations require acquisition of surface materials and transport on the Burr Trail between stockpile and maintenance activities east and west of the park boundary, adding time and cost to road maintenance operations. Development of the Bullfrog Marina at Glen Canyon National Recreation Area could increase traffic and road maintenance outside of the park.

The No Action Alternative would contribute incrementally to total county road maintenance and result in long- term, minor, adverse cumulative impacts on road maintenance operations.

These activities, in concert with the No Action Alternative, would likely produce minor, adverse cumulative impacts on road maintenance operations because of the long- term continued use and routine maintenance of the Burr Trail.

Conclusion. The No Action Alternative would have minor adverse effects on county road maintenance operations because existing conditions would continue and current road maintenance operations would be needed to ensure that road surfaces are stabilized and drainages are cleared following storm events. Cumulative effects to road maintenance operations would be minor and adverse.

IMPACTS OF ALTERNATIVE A (THE PREFERRED ALTERNATIVE)

Impact Analysis. Routine surface grading would still be needed to maintain the gravel surface under Alternative A, but reduced road surface and road bank erosion would result in fewer ruts and washboards and a slight decrease in road maintenance operations.

Although signs would advise travelers against crossing drainages when water was present on the roadway and travelers would be inconvenienced at crossings in the short- term, there would be increased road stability and a corresponding improvement of the road sur-

face at the crossings as a result of the paved surfaces. This would have a minor, beneficial effect because of the decreased road maintenance requirements and expected reductions in response time for emergency maintenance on the Burr Trail for road crews (Garfield County, Bremner, 2003).

Under all alternatives, a short- term, minor, beneficial impact would be associated with placing a cattle guard at the park boundary to prevent cattle from trespassing across the park boundary. This would reduce potential erosion on the road banks and subsequent degradation of the road surface and the need for local surface grading would be decreased.

Cumulative Effects. Cumulative impacts of Alternative A would be similar to the No Action Alternative. Improvements to drainage crossings, stabilization of eroding banks, and improvements to areas where the road surface has high bentonite clay content, in conjunction with other road and development plans, would result in negligible to minor, beneficial cumulative impacts to road maintenance operations.

The materials used to construct the paved fords and to resurface the road would need to be hauled from locations outside the park. The potential sources for these materials include Eggnog Junction and a private site along the Notom Road in Wayne County (Garfield County 2004). In addition, a disposal site for excavated bentonite would be needed. Although the no site has been identified definitively, potential disposal sites include the gravel pit at Eggnog Junction, portions of the Garfield County roadside right- of- way on state land sections east of the park, at several ponds outside the park (with landowner permission), or at other locations to be determined later (Garfield County 2004). The impacts of increased heavy truck traffic on roads in and outside the park and the resultant effect on Garfield County road maintenance operations would represent a negligible to minor, adverse cumulative effect because of increased wear and tear on road surfaces.

Gravel underlain with geotextile fabric used to stabilize the road surface in Alternative A would require slightly less road grading and gravel replacement and reduce maintenance operation efforts and costs. Continuation of cattle trailing and grazing and transportation of agricultural, oil and gas industry equipment and supplies, and road maintenance equipment would result in a minor, adverse cumulative effect on road maintenance operations because these activities would require continued road maintenance efforts. Cattle trailing through the park would stop when the grazing allotments expire in the future, mitigating the adverse effects on road maintenance associated with this practice. Overall, the cumulative effects would be negligible and beneficial.

Conclusion. Alternative A would have negligible to minor, beneficial impacts on road maintenance operations for the long- term because of decreased maintenance needs and operating costs. Cumulative effects on road maintenance operations would be negligible to minor and beneficial overall and in the long- term.

IMPACTS OF ALTERNATIVE B

Impact Analysis. The effects of the road surface stabilization of Alternative B are similar to those described for Alternative A, although there may be an incrementally greater need for maintenance of the gravel surface because the gravel would not have a geotextile fabric

liner. Culverts at the major and minor crossings that would pass the 25- year storm event would reduce maintenance needs for road repair. There is the possibility that moderate-size storm events could increase the need for maintenance because culverts could become clogged and debris removal would be required. On balance, the benefits of a reduction in road repair frequency, combined with the adverse effects of the potential need to clear culverts following storms, would result in negligible to minor beneficial impacts on long- term road maintenance operations.

Cumulative Effects. Cumulative effects to road maintenance operations would be similar to those described for Alternative A.

Conclusion. Alternative B would have negligible to minor, beneficial impacts on road maintenance operations in the long- term because frequency of maintenance activities would be reduced. Cumulative effects to road maintenance operations would be negligible and beneficial.

IMPACTS OF ALTERNATIVE C

Impact Analysis. The effects of Alternative C would be similar to Alternative B, with a small incremental benefit of less necessary maintenance because the culverts could pass the 50- year storm event. However, this added benefit would not change the intensity of the effect beyond the negligible to minor threshold.

Cumulative Effects. Cumulative effects to road maintenance operations would be similar to those described for Alternatives A and B.

Conclusion. Similar to Alternative B, Alternative C would have negligible to minor beneficial impacts on road maintenance operations in the long term as a result of a reduction in road maintenance needs. Cumulative effects on county road maintenance operations would be negligible to minor and beneficial.

SUSTAINABILITY AND LONG- TERM MANAGEMENT

UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts are the environmental consequences of an action that cannot be avoided either by changing the nature of the action or through mitigation if the action is taken. Therefore, these environmental consequences would remain throughout the duration of the action.

The No Action Alternative would continue to have adverse effects associated with public health and safety because of the potential dangers associated with travel through flooded drainage crossings. There would be unavoidable adverse impacts to some visitors' use and experience under Alternative A as a result of travel delays, but this would be offset by an increase in public health and safety because signs would be posted warning against unsafe passage through flooded crossings.

All action alternatives would result in unavoidable adverse impacts on the vegetation, soils, natural soundscape, and short- term degradation of air quality caused by fugitive dust. However, these adverse impacts would be primarily negligible to minor, often short- term, and not have adverse effects beyond the local area.

RELATIONSHIP BETWEEN LOCAL SHORT- TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG- TERM PRODUCTIVITY

The intent of this determination is to identify whether the proposed action would trade off the immediate use of the land or resources for any long- term management possibilities, adversely affecting the productivity of the resources in the park. This determination also discloses whether the proposed action or alternatives would be a sustainable action that could continue over the long term without causing environmental problems (NPS 2000b).

None of the alternatives would result in substantial loss or impairment of natural resources or ecosystems in the park as a consequence of their implementation. There would be some trade- offs from a local or short- term perspective, as described below.

The No Action Alternative would maintain and provide safe travel on a mostly all- weather, maintained, variable- width, unpaved, native- material road, acknowledging that the road would occasionally be impassable, depending on weather conditions. This alternative does not propose any additional management actions to minimize adverse impacts. Trade- offs would include continued short- term release of fugitive dust into the air and noise associated with road repair and maintenance activities that may affect the natural soundscape and visitors experiencing the Burr Trail. Impacts on these resources would range from negligible to minor.

Alternative A would stabilize the road surface, retain the overhanging rock, install paved fords, shift the roadway a small distance to the south at the Halls Creek/Burr Canyon drainage confluence, and stabilize the road bank. This alternative would reduce long- term air and noise impacts, improve public health and safety, enhance visitor use and experience, and lessen long- term adverse effects to soils, vegetation, and water quality.

Alternative B would include removal of the overhanging rock, continued short- term release of fugitive dust into the air, improvements to road surface stability, beneficial impacts to water quality, and public health and safety. Loss of the overhanging rock would adversely affect views of the natural landscape and visitor's experience while driving along the Burr Trail, as would the installation of numerous relatively large culverts at the drainage crossings. Realignment of the Burr Canyon drainage would adversely impact potential ethnographic landscapes, is likely to require long- term maintenance and replacement of slope protection, and the stability and longevity of the man- made changes would not be guaranteed. The ethnographic landscape and resource experiences would be adversely affected by this visual intrusion on the landscape. Impacts on these resources would range from negligible to moderate adverse impacts. Trade- offs would include negligible beneficial effects on air quality, soil resources, public health and safety, and park operations.

Alternative C would have overall effects similar to Alternative B, although there would be a potential increase in sustainability with the ability of the road to withstand storm events up to the 50- year magnitude. This would be offset by the additional impacts associated with a need for more surface disturbance to accommodate larger culverts and the adverse impact on visual elements associated with multiple large culverts at the drainage crossings.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

This determination identifies whether the proposed action or alternative would result in effects or impacts that could not be changed over the long- term or would be permanent. An effect on a resource would be irreversible if the resource could not be reclaimed, restored, or otherwise returned to conditions that existed before the disturbance. An irretrievable commitment of resources involves the effects on resources that once gone, cannot be replaced or recovered (NPS 2000b).

All action alternatives would involve the irretrievable commitment of energy resources such as gasoline and fuel oil for vehicles, including road maintenance, park equipment, and visitor's vehicles that operate or travel on the Burr Trail. Alternatives B and C would remove the overhanging rock to alleviate the narrow road at mile point 0.65. These alternatives would result in the permanent alteration of the landform and long- term loss of a geological feature that adds to the geological and visual character of the road.

CONSULTATION AND COORDINATION

Capitol Reef National Park conducted informal consultation and coordination with the following agencies and organizations in April 2002 (Appendix D).

AGENCIES/ORGANIZATIONS

Agencies and organizations contacted for information; or that assisted in identifying important issues, developing alternatives, or analyzing impacts; or that will receive the final environmental impact assessment include:

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Bureau of Land Management, Henry Mountain Field Office
Grand Staircase- Escalante National Monument
U.S. Fish and Wildlife Service, Utah Field Office

STATE AGENCIES

Utah State Historic Preservation Officer
Utah Department of Environmental Quality
Utah Division of Water Rights

INDIAN TRIBES

Paiute Indian Tribe of Utah	Goshute Business Council
White Mesa Ute Tribe	Tesuque Pueblo
Navajo Nation	San Ildefonso Pueblo
Cochiti Pueblo	Pueblo of Zuni
Pueblo of Acoma	Hopi Tribe
Southern Ute Tribal Council	Santa Clara Pueblo
Taos Pueblo	Pueblo of Pojoaque
Pueblo of Isleta	Kaibab Paiute Tribal Council
Pueblo of Jemez	Santa Ana Pueblo
Ute Mountain Ute Tribe	Pueblo of Zia
Paiute Indian Tribe of Utah	Sandi Pueblo
Picuris Pueblo	Zuni Pueblo
San Juan Pueblo	Hopi Cultural Preservation Office
Uintah and Ouray Tribal	White Mesa Ute Tribe
Santo Domingo Tribe	Paiute Tribe of Utah Tribal Council
Las Vegas Colony Council	

HISTORY OF PUBLIC INVOLVEMENT

The scoping process for the Burr Trail modifications began in February 2002 with a meeting of the National Park Service planning team. The team discussed the park's objectives for

road modifications and identified issues related to the road modifications. In March 2002 the National Park Service planning team met with Garfield County and the state of Utah to refine the issues and objectives.

In April 2002, the park notified the public of the intent to prepare an environmental impact statement for Burr Trail modifications in an announcement in the *Federal Register* (NPS 2002h). The notice requested that the public comment on the scope of the environmental impact statement, issues and alternatives related to road modifications, and other concerns. The notice also announced the park's intent to issue a public scoping brochure to further facilitate public participation in the process.

The National Park Service conducted public scoping in May and June 2002. A public scoping brochure was sent to the public and other interested groups (Appendix C). The planning team used public scoping/agency comment and cooperating agency input to revise the preliminary alternative concepts into the four alternatives for Burr Trail modifications that were evaluated in this final environmental impact statement (for more detail see Formation of Alternatives" under the Proposal and Alternatives section).

In March 2004, a mail- back postcard was sent to the public mailing list announcing the upcoming release of the draft EIS. The postcard gave respondents various choices for reviewing the document.

REGULATORY COMPLIANCE

For all action alternatives, Capitol Reef National Park, and Garfield County would be responsible for obtaining all applicable state and federal permits for planned actions. The U.S. Army Corps of Engineers (USACE) and/or the state of Utah would determine jurisdiction of affected watercourses, as well as the stability or feasibility of planned modifications to these drainage channels. Modifications to drainages may be eligible for either a USACE Nationwide Permit and/or a Regional General Permit # 40 – Fill Discharge in Streams Where Utah has Issued Stream Alteration Permits. This permit authorizes discharges of dredged or fill material into certain streams in the state of Utah, provided a State Stream Alteration Permit has been issued. All applicable permit application requirements would be met, and the recommendations of governing agencies followed.

LIST OF PREPARERS

CAPITOL REEF NATIONAL PARK PLANNING TEAM MEMBERS

Albert J. Hendricks, Superintendent Capitol Reef National Park, National Park Service. B.A. Geography and Geology, 32 years National Park Service. Responsible for all facets of park planning, operations, fiscal management, visitor and resource protection, interpretation, and facilities management.

Tom Clark, Chief of Resource Management and Science, Capitol Reef National Park, National Park Service. B.S. Wildlife Management, M.S. Zoology. 8 years National Park Service,

13 years prior professional experience with the Bureau of Land Management, the U.S. Forest Service, Department of the Army and Department of Navy. Responsible for alternatives development and document review.

Robert J. Cox, Roads, Trails, and Cultural Landscapes Supervisor, Capitol Reef National Park, National Park Service. B.A. Graphic Design 11 years National Park Service, 10 years U.S. Forest Service, 10 years private road and dam construction companies. Responsible for road, cultural landscapes, and park operations review.

Ken Kehrer, Chief Ranger, Capitol Reef National Park, National Park Service. Twenty- nine years National Park Service. Responsible for public health and safety, visitor use, and park operations review.

Lee Kreutzer, (PhD) former Cultural Resources Program Manager, Division of Resources Management and Science, Capitol Reef National Park, National Park Service. PhD Archeology, 10 years National Park Service, 10 years prior professional experience with various firms, agencies and universities. Responsible for cultural resource identification and verification, and tribal consultations.

Dave Worthington, Biologist, Division of Resource Management and Science, Capitol Reef National Park. BA, MA, in Zoology, University of Montana, 4 years National Park Service, 5 years U.S. Fish and Wildlife Service, and 3 years Fish and Wildlife Division Northern Mariana Islands. Responsible for natural resource information and NEPA review.

COOPERATING AGENCY PLANNING TEAM MEMBERS

Ed Hammontree, P.E., Project Manager, Central Federal Lands Highway Division – Denver, Federal Highway Administration. B.S. Civil Engineering, 16 years Federal Highway Administration and professional experience.

Barbara Hjelle, Counsel- Environmental Coordinator, Washington County Water Conservancy District, Utah. B.S. Biology, M.S. Biology, J.D., 18 years private law practice. Representing cooperating agency, state of Utah.

Chris Longley, Design Team Leader, Central Federal Lands Highway Division – Denver, Federal Highway Administration. B.S. Civil and Environmental Engineering, 2 years Federal Highway Administration, 11 years professional experience. Responsible for the roadway design and coordination with other design disciplines .

Tom Puto, Project Manager, Central Federal Lands Highway Division - Denver, Federal Highway Administration. B.S. Civil Engineering, 18 years Federal Highway Administration, 22 years professional experience. Responsible for road design and material estimates.

Clare Ramsay, Garfield County Commissioner, Garfield County Commission, Representing cooperating agency, Garfield County, Utah.

CONSULTANT PLANNING TEAM MEMBERS

John Freeman, Landscape Architect, Denver Service Center, National Park Service. B.A. Landscape Architecture, 13 years National Park Service, 12 years U.S. Forest Service. Responsible for review of document presentation.

NATIONAL PARK SERVICE, REGIONAL OFFICE

Christine L. Turk, Regional Environmental Quality Coordinator, Intermountain Support Office- Denver, National Park Service. B.A.A.S. Biological Sciences, 25 years National Park Service, 5 years University of Delaware College of Marine Studies. Responsible for project management and policy review.

PARSONS

Jacklyn Bryant, Senior Scientist, Planning and Environment, Parsons – Denver. M.S. Watershed Sciences, B.A. Natural Resources Management, two years Parsons, four years professional scientist. Responsible for impact topic analysis and preparation, natural and socioeconomic resources.

Connie Chitwood, Environmental Scientist, Planning and Environment, Parsons – Denver. M. Sc. Environmental Forestry, one year Parsons, two years U.S. Army Corps of Engineers, four years environmental project management, 15 years professional planning and natural resource management. Certified Planner, Certified Environmental Professional, and Certified Professional Wetland Scientist. Responsible for project management.

John Hoesterey, Technical Manager, Planning and Environment, Parsons – Denver. M.A. Geography, Regional Planning, and Economics, three years Parsons, 23 years National Park Service Project Manager and Senior Planner. Responsible for impact topic analysis and preparation, technical review of document.

Don Kellett, Principal Scientist, Planning and Environment, Parsons – Denver. B.S. Wildlife Biology, five years Parsons, eight years ICF Kaiser Engineers/IT Corporation, Colorado State University. Document author and responsible for initial scoping and natural resource impact topic analysis.

Scott Lowry, Senior Editor, Parsons – Denver. Ph.D. in English, two years at Parsons. Provided technical editing.

Diane Rhodes, Cultural Resources Specialist/Archeologist, Planning and Environment, Parsons – Denver. M.A. Anthropology (Archeology), two years Parsons, six years Cultural Resource Planner, National Park Service, 21 years Archeologist, National Park Service. Responsible for cultural resource section analysis and preparation.

Janet Snyder, Environmental Scientist and Technical Editor, Parsons – Denver. B.S. in Zoology, 25 years Parsons. Provided technical editing and technical review.

Nicole White- Scott, Environmental Scientist, Planning and Environment, Parsons – Denver. B.S. Environmental Sciences, two years Parsons, one year IT Corporation. Responsible for impact topic section analysis and preparation, natural resources.

LIST OF RECIPIENTS

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Bureau of Land Management, Henry Mountain Field Office
Grand Staircase- Escalante National Monument
National Park Service
Environmental Protection Agency
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service, Utah Field Office
Natural Resources Conservation Service

STATE AND LOCAL AGENCIES

Utah State Historic Preservation Officer
Utah Division of Water Rights
Utah Division of Wildlife Resources

INDIAN TRIBES

Paiute Indian Tribe of Utah	Goshute Business Council
White Mesa Ute Tribe	Tesuque Pueblo
Navajo Nation	San Ildefonso Pueblo
Cochiti Pueblo	Pueblo of Zuni
Pueblo of Acoma	Hopi Tribe
Southern Ute Tribal Council	Santa Clara Pueblo
Taos Pueblo	Pueblo of Pojoaque
Pueblo of Isleta	Kaibab Paiute Tribal Council
Pueblo of Jemez	Santa Ana Pueblo
Ute Mountain Ute Tribe	Pueblo of Zia
Paiute Indian Tribe of Utah	Sandia Pueblo
Picuris Pueblo	Zuni Pueblo
San Juan Pueblo	Hopi Cultural Preservation Office
Uintah and Ouray Tribal	White Mesa Ute Tribe
Santo Domingo Tribe	Paiute Tribe of Utah Tribal Council
Las Vegas Colony Council	

ORGANIZATIONS

National Parks and Conservation Association

RESPONSES TO COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The National Park Service received 12 comment documents, containing a total of 23 substantive comments, on the *Draft Environmental Impact Statement and Assessment of Effect*.

The Council on Environmental Quality (1978) guidelines for implementing the National Environmental Policy Act require the National Park Service to respond to "substantive comments." A comment is substantive if it meets any of the following criteria from Director's Order 12, "Conservation Planning, Environmental Impact Analysis, and Decision- Making" (NPS 2001b).

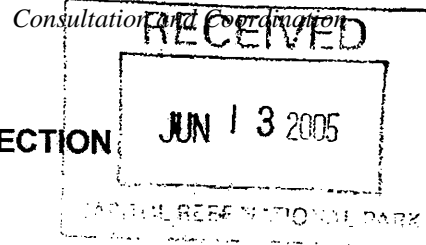
- It questions, with reasonable basis, the accuracy of information.
- It questions, with reasonable basis, the adequacy of environmental analysis.
- It presented reasonable alternatives other than those proposed in the plan.
- It would cause changes or revisions in the preferred alternative.

Several commentors provided opinions in general agreement or disagreement with a particular alternative, but did not meet the substantive comment criteria, and thus, are not included in this *Final Environmental Impact Statement*. The documents containing substantive comments, and the NPS responses, are included on the following pages. All letters from federal, state, and local agencies, and organizations are also reprinted in full.



UNITED STATES ENVIRONMENTAL PROTECTION
AGENCY

REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466



JUN - 8 2005

Ref: 8EPR-N

Albert J. Hendricks, Superintendent
Capitol Reef National Park
HC 70, Box 15
Torrey, UT 84775

Re: Burr Trail Modifications, Draft
Environmental Impact Statement,
CEQ# 20050196

Dear Mr. Hendricks:

The U.S. Environmental Protection Agency, Region 8 (EPA) thanks the National Park Service (NPS) for the Draft Environmental Impact Statement (DEIS) and offers our comments to the FEIS pursuant to our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Our enclosed comments acknowledge the efforts and resources that the NPS committed to prepare the EIS for this project. We thank you for clear and informative documentation of the proposed actions.

Overall, the project will result in long-term benefits for soils, reduced erosion and sediment loss potential, wildlife and habitat protections, and recreation visitors' experiences. EPA trusts that applicable best management practices will be used to reduce the potential for adverse construction practices to soils, erosion and sediment, and other potential short-term construction impacts.

Based on the procedures EPA uses to evaluate the potential effects of proposed actions and the adequacy of the information in the DEIS, the Preferred Alternative will be listed in the Federal Register in the category 'LO' or 'lack of objections' (see enclosure for EPA ratings criteria and definitions). The rating means that EPA's review did not identify potential environmental impacts that require substantive changes to the proposal.

Brad Crowder of my staff coordinated EPA's comments. He can be reached at the address above, by telephone at 303-312-6396, or by e-mail at crowder.brad@epa.gov.

Sincerely,

Larry Svoboda
Director, NEPA Program
Office of Ecosystems Protection and Remediation



Printed on Recycled Paper

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

Definitions and Follow-Up Action*

Environmental Impact of the Action

LO -- Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC -- Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO -- Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU -- Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 -- Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 -- Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new, reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 -- Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. Feb., 1987.

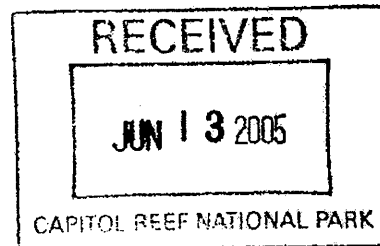


United States Department of the Interior
FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

In Reply Refer To
FWS/R6
ES/UT
05-0862

June 10, 2005



To: Superintendent, Capitol Reef National Park, HC 70, Box 15, Torrey, Utah 84775

From: Utah Field Supervisor, Ecological Services, U.S. Fish and Wildlife Service, West Valley City, Utah

Subject: Burr Trail Modifications Draft Environmental Impact Statement

The U.S. Fish and Wildlife Service (Service) has reviewed the draft environmental impact statement (received May 26, 2005) for the proposed modification to the Burr Trail. The project proposes to modify a one-mile segment of the Burr Trail for the purpose of increasing safety and stability, and improving drainage. We have no comment on the project as proposed.

We note, however, that the document refers on page 23 to a letter from the Service, dated July 16, 2002 (printed on page 260 in the document), which you believe concurred with your "not likely to adversely affect" determination for listed species, relative to this project. Our letter of July 16, 2002, was simply a "no comment" letter in response to your National Environmental Policy Act (NEPA) scoping notice. We have no record of consultation under section 7 of the

[1] Endangered Species Act relative to this project.

We appreciate the opportunity to review your project. Should you have any questions or need any further information please contact Betsy Herrmann, Ecologist at 801-975-3330, extension 139.

RESPONSE TO COMMENTS

1) The park and U.S. Fish and Wildlife Service had been exchanging letters and reviews of the document and potential impacts during the development of the draft EIS. One letter had been misinterpreted as concurrence by FWS that no adverse affects would occur to listed species. The park initiated informal consultation on October 11, 2005. In response to the October 11, 2005 NPS letter, the FWS concurred that the project would not likely adversely affect listed species.

Wayne County
18 South Main
Loa, Utah 84747

COMMISSIONERS
Scott L. Durfey, Chairman
Thomas A. Jeffery
Allen R. Jones

Recorder/Treasurer
Assessor
Attorney
Clerk/Auditor
Sheriff


Colleen Brinkerhoff
Carolyn Moosman
Marvin Bagley
Ryan Torgerson
Kurt R. Taylor

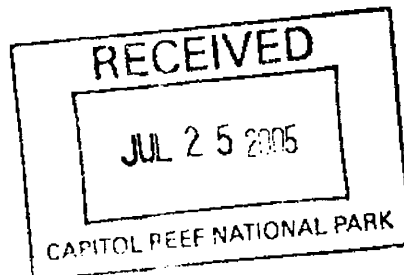
July 19, 2005

To whom it may concern,

We the Wayne County Commissioners would like it to be known that Wayne County supports the paving of the Burr Trail road. The road gets enough traffic to warrant a need to pave the road. The Burr Trail area is getting more and more popular and people should be able to access the area on a good road.

Sincerely,


Allen Jones
Wayne County Commission



RESPONSE TO COMMENTS

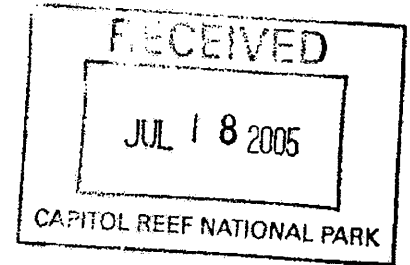
2) The disposition of the entire Burr Trail was beyond the scope of this document. The project objective as identified in the *Purpose and Need* section was to “provide for safe travel on an all- weather, maintained, variable- width, unpaved, gravel and native material road” within Capitol Reef National Park. For the one- mile section of road covered by the draft EIS, the road would accommodate two- way traffic of cars in every alternative except the no- action. The project scope also included drainage concerns at the Burr Trail/Halls Creek crossing and at the base of the switchbacks. The scope of this document involves only certain portions of the Burr Trail within Capitol Reef National Park. The May 30, 2001, Settlement Agreement formalized “a cooperative process for addressing currently proposed improvements the County and the State would like to make to the One Mile Segment....”

BICKNELL TOWN

P.O. BOX 96
BICKNELL, UT 84715

13 July 2005

Superintendent
Capitol Reef National Park
HC 15 Box 70
Torrey, UT 84775




To Whom It May Concern:

We are writing in regards to the draft environmental impact statement dealing with modifications to a stretch of the Burr Trail Road.

This road had needed some improvements for many years, but has been shot down by special interest groups. We would really like to see some improvements in the future. We read the evaluations for the four alternatives and discussed them in our board meeting. We would like to add our support for Alternative C. We look forward with interest to the final decision on this issue.

Sincerely,

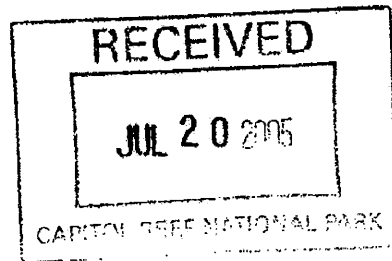

Sherwood Albrecht, Mayor



Bicknell Town Board



Capitol Reef Natural History Association



June 27, 2005

Albert J. Hendricks
Superintendent
Capitol Reef National Park
HC 70, Box 15
Torrey, UT 84775

Capitol Reef Natural History Association Board has reviewed the Burr Trail Modifications Draft Environmental Impact Statement/Assessment of Effect dated March 2005.

We strongly support alternative C as the preferred alternative.

The popularity of southern Utah continues to escalate and is a major destination for both Americans and international visitors alike. The advent of the Grand Staircase Escalante National Monument has brought additional focus on the beauties surrounding the Burr Trail. We believe the federal land management agencies, along with Garfield County, have a duty and responsibility to provide reasonable, all-weather access along this spectacular travel corridor. We also believe that most of the impacts associated with alternative C are acceptable and that the proposed realignments and improvements will create a more positive, rather than negative, visitor experience.

Thank you for the opportunity to provide our perspective on this important issue.

Sincerely,

Sammy Newton
Sammy Newton

Newell Harward
Newell Harward

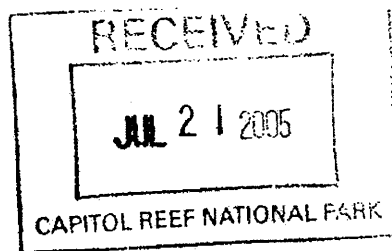
Burke Torgerson
Burke Torgerson

Lois Hoddenbach
Lois Hoddenbach

Mary O. Ellett
Mary Ellett

Gary Hallows
Gary Hallows

July 18, 2005



Sierra Club
Utah Chapter Office
2120 South 1300 East Suite 204
Salt Lake City, UT 84106-3785

Albert Hendricks, Superintendent
Capitol Reef National Park
HC 70, Box 15
Torrey, UT 84775

RE: Draft Environmental Impact Statement (DEIS) Burr Trail Modifications

Dear Superintendent Hendricks,

The Sierra club appreciates the opportunity to participate in the decision making process for Garfield County's proposed modifications of the Burr Trail that is within Capitol Reef National Park. The Sierra Club has a long-standing interest in the status and character of this route. We are keenly interested in the modifications proposed by Garfield County that are the subject of the DEIS. The Sierra Club has a long history of involvement on the Burr Trail including following the legal issues surrounding the nature and extent of rights of way acknowledged under R. S. 2477.

The Sierra Club has about 4,000 members in Utah and almost 800,000 members nationally. Sierra Club members enjoy and use Capitol Reef National Park and in particular enjoy using the more primitive portions of the southern portion of the Park in the Waterpocket Fold area. During the decades the Sierra Club has been involved in and concerned about the Burr Trail we have seen it increasingly change in character, often times as the result of local politicians acting against the best interests and will of the United States.

We have over the years seen segments of the Burr Trail appear to be paved under the guise of maintenance with chip and seal construction. We have seen the Trail widened and straightened. And we have seen the Trail disintegrate when Garfield County devoted financial resources into quixotic pursuits of R. S. 2477 right of way on other federal lands rather than regular maintenance of roads.

The Burr Trail and the lengthy history of litigation form the largest body of case law about the nature and extent of rights of way granted across federal real estate. The Sierra Club has always been a prime interest during this history. Our name appears in the citation of cases related to the Burr Trail.

Purpose and Need

The DEIS states the purpose and need relate improved safety, stabilization and drainage of watercourse crossings. However, the DEIS concludes that the preferred alternative would realize only “minor benefits to public health and safety.” We have found no information in the DEIS to support benefits to public health and safety which necessitate changing the rugged and primitive character of the portion of the Burr Trail in Capitol Reef National Park.

- 3 The DEIS acknowledges that the current road is designed to accommodate far more traffic than currently uses the Burr Trail. Only two accidents have occurred on the Burr Trail and neither of those accidents is related to almost all perceived problems, which are to be “corrected” by the project. The project appears to be a solution in need of a problem.

Any perceived problems with travel on the Burr Trail have an already existing solution. Highways 24 and 95 provide an all weather, all season, paved route between Boulder and Bullfrog. Any increase in distance is compensated by the rapid and easy travel along those roads. In fact those roads are designed to carry the kind of travel and type of vehicles that the Burr Trail will never be able to carry without tremendous financial expense and dramatic alterations to the primitive and wild nature of the southern end of Capitol Reef NP.

Legal Requirements

- 4 The Sierra Club does not believe that the case law determining the extent scope and nature of the Burr Trail right of way includes the necessity of a two-lane highway. It requires that the road be “reasonable” for the purposes of travel but does not limit the authority of the National Park to protect resources which the Park has long valued.

Cumulative and other impacts

The DEIS states that the proposed improvements will not change the type or level of use, however there is nothing in the DEIS to support this assertion. In fact, the Sierra Club knows this is not supportable.

“...recent changes in Forest Service and Bureau of Land Management administrative priorities towards developing oil and gas resources and lessening protection of roadless areas” may have the potential to impact Capitol Reef National Park. (Watson, John F., State of the Parks Report on the Natural Resources of Bryce Canyon National Park, National Parks Conservation Association. 2005)

It is also the case that increasing improvements along an acknowledged primitive and wild road will diminish those qualities. In light of the failure of the current administrative priorities to value roadless areas or the need for lower levels of

motorized access for the future benefit of Americans there must be a rigorous analysis of the potential of diminishing primitive and wild land and experiences in the region.

Currently most of the traffic on the Burr Trail consists of National Park Service employees and staff from other federal agencies. Capitol Reef NP must analyze the likelihood that further changes and “improvements” to the Burr Trail could markedly alter the demographics of traffic including both the number of vehicles traveling the route and the kind of people traveling the route.

5 *If the results of analysis show that the numbers and types of travelers on the Burr Trail is not expected to change then the purpose and need would fail the test of actual need. If the development leads to changes in the numbers and types of travelers then the primitive and wild character of the route as described in the DEIS would change. But the DEIS makes the claim that the changes would not make a significant change in the experience of visitors. This conclusion is insupportable and rigorous analysis must be included in the EIS before a decision can be made.*

The Capitol Reef National Park web site includes a “chat room” with the following messages posted about the Burr Trail.

“We had the 4x4 but we didn't need it. We saw cars on the road.”

“The backcountry road into Capital Reef is easy. I drove through in a two-wheel drive truck.”

“...the paving has probably led to more traffic in what should have remained quiet and a bit challenging.”

Already the primitive quality of the Burr Trail is diminishing.

Capitol Reef NP needs to take a hard look at the current proposed and potential future changes to the Burr Trail. The current level of use does not demand changes. Safety issues do not demand changes. The DEIS notes only two accidents in a particular location which would not be “improved” or reduce possible risk by the proposed changes.

If Capitol Reef concludes that the current proposed changes are essential and necessary and concludes that no future changes to the Burr Trail will be necessary or ever occur then such a conclusion should be included in the FEIS and decision. The Management Plan should also be amended to note such a conclusion.

6 Our arguments here are not hypothetical. We have observed the continued changes and alterations to the Burr Trail for decades. Not to recognize that each small change alters the character and use of the Burr Trail could only occur with willful blindness.

In this situation, cumulative effects that are necessary to analyze include the potential for nearby oil and gas exploration and drilling.

7 The Department of Interior is currently considering exploration and possible field development near the Burr Trail and near Capitol Reef NP. The combination of new oil and gas developments and the changing character of the Burr Trail require the hard look required by the National Environmental Policy Act.

Thank you,



Wayne Y. Hoskisson

Public Lands Chair

Sierra Club Utah Chapter

263 S. 100 E.

Moab, UT 84532

RESPONSE TO COMMENTS

3) Benefits to public health and safety were identified in the draft EIS on pages 161- 162. It is incorrect to state that "only two accidents have occurred on the Burr Trail," as the text on page 87 makes clear. The text on page 87 will be revised and further clarified in the final EIS to read: "During the summer of 2001, two separate incidents of vehicles being carried downstream by flood washout were reported on the Burr Trail." The road modifications proposed will reduce the safety risk at several locations in the project area, including at the overhanging rock and at the Halls Creek crossing.

4) This draft EIS is proposing site- specific fixes to problem areas and does not propose wholesale changes to the entire road. The draft EIS determined that providing for two- way traffic is a reasonable alternative and within the guidelines established in the park's general management plan. We have fulfilled our responsibilities by evaluating the Garfield County proposal and suggesting other alternatives and mitigating measures to reduce adverse effects to park resources.

This option was described and analyzed in the no- action alternative. The project objective as identified in the *Purpose and Need* section was to "provide for safe travel on an all- weather, maintained, variable- width, unpaved, gravel and native material road." The location of the overhanging rock has been the site of two separate accidents because of the narrow road and blind corner. Widening the road around the corner would create much safer conditions for vehicles passing this location. Because the no action alternative would not change the unsafe conditions at this location and not meet the project objectives, it was not chosen as the preferred alternative.

5) There is no evidence to validate the statement "Currently most of the traffic on the Burr Trail consists of National Park Service employees and staff from other federal agencies." With yearly average traffic of about 25 vehicles per day and a peak daily volume of 71, it is highly unlikely that this is primarily federal agency personnel. As described on page 173 of the draft EIS, "None of the actions associated with Alternative A would include substantial alterations to the roadway that would convey greater amounts of traffic, increase traffic speeds, or encourage use by larger vehicles (e.g., trucks hauling large or oversize loads). Specifically, no straightening or changes in the general grade of the road are proposed. Therefore, it is unlikely that any of the alternatives would change overall road usage or have long- term effects on the local economy." There is no evidence to support the claim "further changes and improvements to the Burr Trail could markedly alter the demographics of traffic." The project objective was to "provide for safe travel on an all- weather, maintained, variable- width, unpaved, gravel and native material road" and not change the number or types of traveler using the road, so it still satisfies the test of need. The changes proposed, especially in the Halls Creek area, will make for a safer visitor experience. The draft EIS stated that Alternative A would produce long- term adverse effects on the visitor experience by altering the natural terrain and introducing additional engineered elements to the road. These effects would be local, and of negligible to minor intensity. Short- term adverse effects to visitor experience would occur from construction activities, and these would be minor and limited to construction sites. There are no facts presented by the commenter to dispute the accuracy of this analysis.

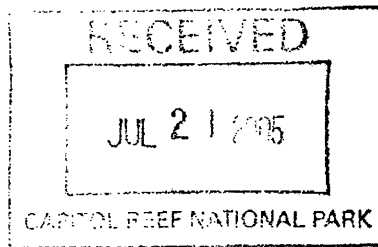
6) Changes provided for in the project proposal are within the scope of what is appropriate for Capitol Reef National Park, as described in the park's general management plan. Therefore, this is an incremental change that was considered appropriate.

7) This analysis was included in the draft EIS on pages 97 and 103 as part of the cumulative effects discussions. The following statements are extracted from those discussions. “The resource management plan under development will include future use of the Burr Trail. This could lead to incremental changes in activities such as transport of oil, gas, or mineral- exploration equipment and vehicles, or trailing and transport of cattle.” “Construction- related emissions from development of adjacent public lands would create some particulate emissions, but they would not degrade regional air quality or visibility and would be local and of short duration...Fugitive dust and emissions from future oil- and gas- exploration, other vehicle traffic, or livestock trailing on the Burr Trail would be low and have slight or imperceptible effects.”

Full development of an oil field is not a reasonably foreseeable impact because all exploratory wells in the Circle Cliffs area to date have been dry holes. Predicting future exploration is also very speculative because of the lack of successful finds in this area. All future projects of this type would require their own NEPA analysis and public involvement.



southern
utah
wilderness
alliance



July 18, 2005

Albert Hendricks, Superintendent
Capitol Reef National Park
HC 70, Box 15
Torrey, UT 84775

RE: Draft Environmental Impact Statement (DEIS)
Burr Trail Modifications

Dear Al,

The Southern Utah Wilderness Alliance (SUWA) appreciates the opportunity to participate in the decision making process for Garfield County's proposed modifications of the Burr Trail that is within Capitol Reef National Park. SUWA has a long-standing interest in the status and character of this route, and we are keenly interested in the modifications proposed by Garfield County that are the subject of this DEIS.

SUWA's staff and members routinely enjoy the Waterpocket Fold area of Capitol Reef National Park, including the remote and rugged character of the Burr Trail as it traverses this section of the park. One of the most attractive features of this segment of the Burr Trail is that it is an adventure in itself. As other segments of the Burr Trail have been paved, straightened, realigned, smoothed and essentially divested of all historic and traditional character, the segment of the Burr Trail within Capitol Reef National Park continues to retain some of its celebrated historic character. Unfortunately, it appears that this final segment of the Burr Trail, which has withstood threats of "improvements" and significant changes over time, is destined to become "just another road through a scenic national park."

Purpose and Need

Safety. The DEIS asserts that Garfield County's stated purpose and need for the proposed project is for improved *safety, stabilization and drainage*. DEIS at iii However, the DEIS concludes that even if the Preferred Alternative is approved, the

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“road widening and stabilization would provide minor benefits to public health and safety. Cumulative effects would be beneficial and of negligible to minor intensity.” DEIS at 73. “Because of light travel volumes on the road, a reduction in accidents or delays may or may not be detectable and would produce negligible to minor benefits to public health and safety.” DEIS at 161. The DEIS failed to address the reasonably foreseeable effect that graveling portions of the road will have – it is conceivable that vehicles will likely drive at higher speeds. Thus any “negligible beneficial impacts” would easily be negated by vehicles traveling at faster speeds.

The DEIS reports that less than 30 cars per day travel this segment of the Burr Trail, with fewer than 10 vehicles per day traveling this road during winter months. DEIS at 4, 88-89. “On average over a 12-hour visitor day, approximately two cars per hour travel the road. DEIS at 166. This level of use is extremely low, especially in light of the fact that the road’s “current design capacity of 400 vehicles per day is well in excess of the past and current usage.” DEIS at 88.

SUWA found no reference in the DEIS to the alternative route from Boulder to Bullfrog via Hanksville. This entire route is a paved and passable in all types of weather – except in big snow storms when the Burr Trail would also be impassable. Although this Hanksville route might be a few miles longer it clearly provides a safe, passable route for travelers to use and enjoy, on the few days each year that the Burr Trail segment through Capitol Reef is “impassable” due to flood waters and residual muddy conditions.

Given (1) the extremely low volume of use that this segment of the Burr Trail receives; (2) the findings in the DEIS that the preferred alternative would have only “*minor benefits to public health and safety*,” and; (3) the existence of an alternative route from Boulder to Bullfrog, it is far from certain that this proposed project should be approved. Indeed, there are likely *other alternatives* that would cause less impact to the visitor experience in the park, would cause less adverse impact to the natural resources of the park (including vegetation, wildlife, geologic features), and would maintain the existing and historical nature of this segment of the Burr Trail. Such alternatives would include better signage warning travelers of washed out road segments, narrow sections of road and overhangs with limited clearance, and signage directing travelers to the alternative paved route between Boulder and Bullfrog. SUWA urges NPS to consider these alternatives in the Final DEIS, if, indeed, the purpose of this proposal is to increase safety when traveling from Boulder to Bullfrog.

General Comments

SUWA submits the following comments on the DEIS.

Alternatives. As noted above, the DEIS failed to include a reasonable range of alternatives – alternatives that are better suited to the particular circumstances of this segment of the Burr Trail. Such alternatives must

11 (con't)

include options for better signage – narrow road, impassable when wet -- on the few days each year that the Burr Trail is impassable within Capitol Reef NP, and the signs providing information on the Hanksville route as an optional travel route for those who seek a less adventuresome vehicle route.

12

Alternatives. The DEIS failed to consider an alternative that would use cement fords for all creek crossings, rather than vented fords at most of the crossings. The *vented* fords are clearly more noticeable and result in a higher degree of distraction from the visitor experience. There is little evidence that the vented fords will contribute more significantly to the public safety than the unvented fords.

-

13

Alternatives. The DEIS failed to include an alternative that would allow cement fords at the creek crossings, but that would *maintain* the narrow stretch of the road by the overhanging rock. This alternative would include posting additional signs in the vicinity warning of the overhanging rock and narrow passageway. Although the Burr Trail case (122 F. Supp. 2d 1201, Utah Dist.Ct. 2001) may be interpreted as granting a 2-lane right-of-way to Garfield County, there is nothing in the case that states that this 2-lane right-of-way must exist for the every foot of the road. Indeed, the case notes that “the scope of Garfield County’s R.S. §2477 right-of-way is defined by what is “reasonable and necessary” to permit safe passage on a two-lane road, not by what may be “desirable,” preferable, or even optimal for two-lane highway construction.” 122 F. Supp. 2d at 1254. Thus, it is reasonable that a very short section of this route be slightly less than two lanes when natural geologic features are present, such as the overhanging rock, a local landmark as described in the DEIS. DEIS at iv and 80.

14

Impassable - Frequency. The DEIS failed to inform the decision maker and interested publics as to the number of days each year (on average) that this segment of the Burr Trail is impassable due to flooding. This is critical information that is needed by the decision maker and the public to make an informed decision as to the validity of the purpose and need of this proposed project. Please include this information in the Final EIS.

15

Cost. The DEIS disclosed that the cost of this proposed project is estimated to range between \$800,000 to \$2,000,000. DEIS at 173. How will this cost be balanced against the negligible beneficial impacts to safety?

-

16

Change in use. The DEIS contains statements that the proposed improvements will not change the type or level of use, however there is nothing in the DEIS to support this assertion. DEIS at 167. There can be little doubt that as roadways are “improved,” use levels tend to increase, and the types of vehicles that use these roads change, i.e. from 4-wheel drive vehicles to standard passenger cars to large motor home vehicles.

17

Indirect Impacts. NEPA requires federal agencies to analyze the direct, indirect and cumulative impacts that could arise from the proposed project. Indirect effects are defined as those “which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.” 40 CFR 1508.8. The DEIS failed to analyze the indirect effects,

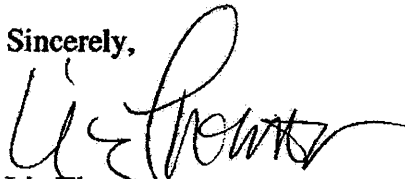
17 (cont.) such as increase vehicle traffic, for this proposed action. The Final EIS must correct for this omission.

- **Cumulative Impacts: Death by a Thousand Cuts.** SUWA is very concerned that this project will be the first of several such "improvement" proposals that the county will present to NPS in the coming years. Where will it stop? Is there a line in the sand at which NPS will deny the county's proposals? Will NPS continue to allow these "improvement" proposals (under the guise of public safety) until eventually the Burr Trail no longer "retains the winding nature and adventuresome character [t]hrough Capitol Reef National Park?" It is reasonably foreseeable that Garfield County will continue to propose improvement projects to the Burr Trail, and NEPA requires that NPS analyze the effects of such proposals. 40 CFR 1508.7. The DEIS must conclude that if these current proposed changes are approved, that no further "improvements" will be considered.

- **Minimize Impact to Scenic Resources.** The DEIS failed to state that if this project is approved, that the cement used for the fords will be colored to match the surrounding soils. The Final EIS must include this stipulation.

I look forward to NPS's response to our concerns noted above. If you have any questions, please contact me at 435.259.5440.

Sincerely,



Liz Thomas
SUWA

RESPONSE TO COMMENTS

8) The nature of the road is such that there would be no appreciable difference between a gravel and dirt surface. The road would continue to be winding and relatively narrow, and the speed limit would remain unchanged. Please also refer to the response to comment 5.

9) As the commenter points out, the project has benefits to public health and safety. Appropriately, the draft EIS does not attempt to “balance” safety with costs. The project is designed to address the purpose and needs identified in the draft EIS and to improve the safety for motorists at identified locations.

10) Although providing informational signs would be of value to the visiting public, it would not meet the objectives of the project to “provide for safe travel on an all- weather, maintained, variable- width, unpaved, gravel and native material road.” Signing the road would not solve the problem of informing visitors that the road may be unsafe due to changing conditions, because the weather could be clear in Boulder at the start of the Burr Trail, but it could be raining on the road 40 miles away in the park. Alternate roads are already marked on highway maps as dirt and other routes are shown as paved. Visitors, therefore, can already choose their experience depending on their road surface preference.

11) Please refer to the response to comment 10.

12) Most of the fords proposed in the draft EIS are unvented. There are four unvented fords (at major crossings mile 0.10 and 0.20 and at minor crossings 0.25 and 0.40) and three vented fords (at major crossings 0.50, 0.60, and Halls Creek). The three vented fords are being proposed because they will handle the higher stream flows expected at those locations during flood events and provide increased safety to motorists. The map on page 41 shows that several drainages feed into the wash between crossings 0.20 and 0.50 and this would result in higher average flows at the downstream crossings.

13) Maintaining road width at the overhanging rock was described and analyzed in the no- action alternative. Please refer to the response to comment 4 about the overhanging rock, comment 10 about increased signage, and comment 12 about fords.

14) We have no definitive statistics on the number of times the road is closed. As the draft EIS described on page 35, “Depending on weather conditions, the road is occasionally impassable at drainage crossings, and the road surface is slippery when wet along sections of the road with high bentonite clay content. In particular, two segments of the road, between mile points 0.00 to 0.45 and 0.85 to 0.90 are on grades with high bentonite content. These segments become extremely slippery and are often impassable during and following rainstorms.” Sometimes the road is impassable to passenger cars only but, at other times, it is impassable to all vehicles, including four- wheel drive vehicles. Park staff estimate that during the summer, the road is impassable, on an average, at least weekly for an hour or more.

15) Appropriately, the draft EIS does not attempt to “balance” safety with costs. The project is designed to address the purpose and needs identified in the draft EIS and to improve the safety for motorists at identified locations. Please refer to the response to comment 3.

16) We disagree because these are site- specific improvements to identified problem areas along the road and are not changes to the entire road. As disclosed in the draft EIS on page 173, “None of the actions associated with Alternative A would include substantial alterations to the roadway that would convey

greater amounts of traffic, increase traffic speeds, or encourage use by larger vehicles (e.g., trucks hauling large or oversize loads). Specifically, no straightening or changes in the general grade of the road are proposed. Therefore, it is unlikely that any of the alternatives would change overall road usage...” Although some modifications are proposed, the majority of the road will remain unchanged. Please also refer to the response to comment 8.

17) Please refer to the response to comment 16.

18) Garfield County has not proposed further improvement to the Burr Trail to the National Park Service, so such improvements are not reasonably foreseeable. The objectives for the road, as identified in the park's general management plan, were integral in defining the scope of this project and will be just as critical a consideration should other road projects be proposed. As described in the *Purpose and Need* section on page 7 of the draft EIS, these objectives are to 1) “provide for safe travel on all- weather, maintained, variable- width, unpaved, gravel and native material road” and 2) “retain the winding nature and adventuresome character of the Burr Trail through Capitol Reef National Park.”

The October 24, 2000 District Court decision involving the Burr Trail requires the park to consider any future county proposals for construction work within the park. It is not within the prerogative of the National Park Service to refuse to consider all further proposals.

19) Garfield County has not proposed further improvement to the Burr Trail to the National Park Service, so such improvements are not reasonably foreseeable. Although we have no indication from Garfield County that further changes may be proposed, should such changes be forthcoming, they will be considered in the same manner these changes were. Then, an analysis of impacts would occur and NPS would propose mitigating measures to reduce any identified adverse effects and would analyze alternatives that would assure consistency with the park’s general management plan.

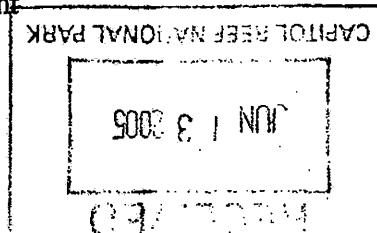
20) Mitigation measures, as discussed on page 66 of the draft EIS, would be done for this project and would include the use of rock facing at culvert inlets or outlets and the use of coloring on constructed elements to blend their appearance with the surrounding landscape.

George & Frances Alderson

112 Hilton Avenue
Baltimore, Maryland 21228

June 4, 2005

Albert J. Hendricks, Superintendent
Capitol Reef National Park
HC 70, Box 15
Torrey, UT 84775



Dear Mr. Hendricks:

Please include this letter as our comment on the Draft EIS for Burr Trail road modifications. We visited Capitol Reef in May 2004 and were very pleased with the sense of remoteness we experienced in visiting several parts of the park. I (George) visited the park twice before, in 1966 and 1973 and saw the Burr Trail road. It was an obvious scar on a great landscape. We hope that in time it will become less of an eyesore.

We favor Alternative A with a modification. We like the way Alternative A protects the park visitor's experience, keeping the road as "an unpaved road with a winding nature and adventuresome character." We favor the use of paved fords instead of culverts at stream crossings. However, *we emphatically disagree* with changing the roadway at mile 0.65 to expand the surface to two full lanes where it passes the overhanging rock. Let's stick with the more primitive experience of alternating traffic. This is done in many European scenic landscapes, and it is common in the western United States.

We like the description in the General Management Plan (2001) as "an all-weather, maintained, variable-width, unpaved road of gravel and native surfacing" that "may be occasionally and briefly impassable because of local weather conditions." Please follow that concept.

We oppose other modifications discussed in Alternatives B and C. They are not consistent with the park visitor's experience as we have enjoyed it. Large culverts may be fine for public highways, but not in a national park. Gravel surfacing, again, is appropriate in some places, but this is not one of them. Dynamiting the overhanging rock would be an abomination. The county officials seem to want a road that is passable 24 hours a day, 365 days a year. That would be fine in downtown Salt Lake City, but it is neither necessary nor desirable in Capitol Reef National Park. We go to Capitol Reef and Glen Canyon NRA to seek wild places and grand natural landscapes, not great highways.

We ask you to protect park values as the top priority in the final decision. Please keep us informed of further public reviews on this project. Thank you for considering our views.

Sincerely,

George & Frances Alderson
George & Frances Alderson

RESPONSE TO COMMENTS

21) Please refer to the response to comment 4.

WEB FORMS RECEIVED
PLANNING, ENVIRONMENT, AND PUBLIC COMMENT (PEPC)
WEBSITE

22

I believe that the Burr Trail should be improved, surfaced, and widened to allow two way traffic of cars. The area is beautiful and should be seen by many Americans. It is also not an area that will be harmed by road traffic. There are many areas that should be kept natural with not good road connections, but this is not one of them.

Web form posted to PEPC by Rendell B. Newton, Sulphur, LA 07/16/05

23

I would recommend to you the 'no action' alternative. I like the fact that the burr trail is still relatively untamed and travel is determined by the whims of weather and current maintenance. I think by making it 'safer' and 'easier', you will detract from the qualities that people are attracted to- even if they don't realize it at the time. The proposed 'improvements' will also lead to increased use which will also detract from the sense of remoteness, create safety hazards for bicyclists and other motorists and cause additional headaches to the local ranchers that move cattle on the Burr Trail. It seems that these proposed improvements would be just one step closer to the complete paving of the Burr Trail. I have seen visitation continue to increase and feel that the future is going to bring ALOT more people- it would be nice if this part of Utah wasn't completely 'improved' so we will still have a sense of the past for the future.

Web form posted to PEPC by individual requesting anonymity on 6/4/05

To Whom It May Concern:

Upon reviewing information regarding the upgrade to the Burr Trail Road, I would like to express my opinion in favor of Plan A.

The Burr Trail Road provides access to some of the most scenic areas of Utah. That access should not be hampered by lack of improvements to the road. It should also not be restricted to just those able to hike in or ride a horse – or to just those with ATV's.

Web form posted to PEPC by individual requesting anonymity on 05/31/05.

RESPONSE TO COMMENTS

22) Please refer to the response to comment 2.

23) Please refer to the response to comment 17. Because we do not believe there will be increased use, there would therefore be no increase in safety hazard to road users or additional problems for local ranchers driving cattle.

REFERENCES

American Association of State Highway and Transportation Officials (AASHTO)

- 2001 "Policy on Geometric Design of Highways and Streets." Available at <http://www.transportation.org/aashto/home.nsf/FrontPage>. Accessed August 6, 2002.

Belnap, J.

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GLOSSARY

Advisory Council on Historic Preservation (ACHP). An independent federal agency with statutory authority to review and comment on federal actions affecting properties listed in or eligible for listing in the National Register of Historic Places.

Airshed. A body of air bounded by topographical and/or meteorological features, in which a contaminant once emitted is contained.

Air quality. A measure of the health- related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

Alternative. One of at least two proposed means of accomplishing planning objectives.

Archeological resource. Any material remains or physical evidence of past human life or activities that are of archeological interest, including the record of the effects of human activities on the environment. They are capable of revealing scientific or humanistic information through archeological research.

Backcountry. All non- developed areas within the park. Generally considered to be all areas beyond developed facilities and visitor use areas, (operational areas, campgrounds, picnic areas, visitor centers, visitor contact stations), developed interpretive areas (view points, wayside orientation exhibits, developed archeological resources with designated trails), and designated rails, trailheads, and roads.

Bentonite. An absorbent clay that under variable weather conditions will shrink or swell. Because of its plasticity, it will become slippery when wet.

Biological soil crusts. Material formed by living organisms and their by- products that create a surface crust of soil particles bound together by organic materials.

Class I Federal Areas. This air- quality classification consists of federally mandated areas that include National Parks that exceed 6,000 acres, wilderness areas, national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. Visibility has been designated as an important value in 156 of these areas, one of which is Capitol Reef National Park, Utah (U.S. Environmental Protection Agency, 1999b).

CMP. Corrugated metal pipe, which often is used for culverts.

Construction. Construction is defined by the Memorandum Opinion and Order, District of Utah (U.S. District Court, 2000) as follows:

“the National Park Service has the power to regulate construction work performed by or at the direction of Garfield County or the State of Utah in connection with Garfield County’s established R.S. § 2477 right- of- way to the extent that right- of- way falls within the existing boundaries of Capitol Reef National Park . . .

“that Garfield County, its officers, agents, employees, or contractors, may not perform work constituting “construction” within the meaning of 36 C.F.R. § 5.7 without first obtaining a permit, approval or agreement from the National Park Service, including but not limited to widening, realigning, surfacing, or otherwise significantly altering the road; installing of culverts, or other new structures; or excavating, removing or displacing of rock, soil or other earth materials outside of the existing road and shoulders;”

Cultural resources. An aspect of a cultural system that is valued by or significantly representative of a culture or that contains significant information about a culture. A cultural resource can be a tangible entity or a cultural practice.

Cumulative. The Council on Environmental Quality regulations for implementing the National Environmental Policy Act (1978) define impacts on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non- federal) or person undertakes such action (40 *Code of Federal Regulations* § 1508.7).

Cyanobacteria. A photosynthetic bacteria formerly called blue- green algae.

Cultural landscape. A geographic area, including cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

Ecosystem. A system made up of a community of animals, plants, and bacteria and its interrelated physical and chemical environment.

Endangered species. Any species that is in danger of extinction throughout all or a significant portion of its range [16 USC §1532(6)].

Environmental impact statement (EIS). Required by the National Environmental Policy Act to examine a range of federal actions and their potential effects on the human environment.

Ethnographic landscape. Areas containing a variety of natural and cultural resources that associated people define as heritage resources.

Ethnographic resource. A site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

Floodplain. A plain along a river, formed from sediment deposited by floods.

Floodway. Areas along a drainage where floodwater is likely to be deepest and fastest.

Geotextile. Highly durable fabrics that have a high resistance to punctures, breakage, and ultraviolet radiation, and provide good filtering. The product is used to help in the prevention of soil loss by allowing water to pass through the fabric while retaining the soil.

Ground- level ozone. A high accumulation of ozone gas or smog found in the lower atmosphere (9 miles or less high) that can be harmful to people, animals, crops, and other materials. Ozone pollution is mainly a daytime problem during summer months because sunlight plays a primary role in its formation. Nitrogen oxides and hydrocarbon compounds must be present

and react with sunlight to produce ozone. Sources include cars, trucks, power plants, and factories.

Habitat. A specific set of physical conditions in a geographic area that surrounds a single species, a group of species, or a large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

Inlet and outlet protection. Either a concrete splash pad or wire enclosed riprap in conjunction with a cutoff wall to prevent erosion and scour at the inlets and outlets of the culverts and paved fords.

Maintenance. Maintenance is defined by the Memorandum Opinion and Order District Court (U.S. District Court, 2000) as follows:

“that the County has a valid existing right to an R.S. § 2477 right- of- way along the Capitol Reef segment of the Boulder- to- Bullfrog Road; and . . . that Garfield County, its officers, agents, employees, or contractors, may engage in work maintaining the existing roadway so as to preserve the status quo through repair of the wear or damage to existing road surfaces, shoulders, cut and fill slopes; repair, clearing, or replacement in kind of culverts and other structures; maintaining the existing shape and width of the road, grading it as needed to preserve a passable surface in both lanes or similar routine maintenance work, without prior authorization from the National Park Service.”

Mile point. A measurement originating from a single starting point and ending at a second point. For this document, mile points are measured from where the Burr Trail crosses the eastern boundary of Capitol Reef National Park.

Mitigating measures. Constraints, requirements, or conditions imposed to reduce the significance of or eliminate an anticipated impact to environmental, socioeconomic, or other resource value from a proposed action or land use.

Monocline. A step- like bend or fold in otherwise horizontal or gently dipping beds.

National Register of Historic Places (NRHP). The comprehensive list of districts, sites, buildings, structures, and objects of national, regional, state, and local significance in American history, architecture, archeology, engineering, and culture kept by NPS under authority of the National Historic Preservation Act of 1966.

Natural soundscapes. The total ambient acoustic environment associated with a given environment (sonic environment) in an area such as a national park or the total ambient sound level for the park. In a national park setting, this soundscape is usually composed of both ambient sounds and a variety of human- made sounds. This sonic environment is an important resource of many parks; there can also be important relationships between how this environment is perceived and understood by individuals and society.

Nonattainment. When monitored air quality pollutant concentrations exceed the standard a certain number of times over a three- year period, even if at just one monitoring point, the area is designated as a non- attainment area.

Passability. A road surface and/or turning radius wide enough to accommodate two- way vehicle traffic.

Point sources. A source of air pollution that stays in one place is considered a "stationary" or point source. Large stationary sources are usually industrial operations that emit large quantities of air pollutants, such as chemical plants, oil refineries, and pulp and paper mills.

Recontour. To modify or change the natural surface elevation or outline of a landform using accepted construction practices such as grading.

Reconstruction. The act of constructing again; to rebuild or to make over.

Rock embankment. A structural component made of rock used to stabilize and provide support, in addition to the secondary benefit of minimizing erosion (e.g., the roadway would be set atop the rock embankment at the side canyon drainage in Burr Canyon).

Scoping. Planning process that solicits people's opinions on the value of a park, issues facing a park, and the future of a park.

Sensitive species. Those plant and animal species for which population viability is a concern.

Slope protection. Typically, a revet mattress of some sort (wire enclosed riprap) that would be used along the stream channel to prevent erosion.

State Historic Preservation Officer (SHPO). An official within each state appointed by the governor to administer the state historic preservation program and carry out certain responsibilities relating to federal undertakings within the state.

Storm Event Design. An engineering practice typically involving the use of a hydrological model to design the size and type of drainage structure needed to convey drainage for a specifically sized storm event. The intent is to reduce the peak discharge from storm events, or the frequency and magnitude of out- of- bank flooding to protect property adjacent to the stream from frequent flooding.

2- year storm event. There is a one in two chance that a storm of this design magnitude will occur each year.

10- year storm event. There is a one in 10 chance that a storm of this design magnitude will occur each year.

25- year storm event. There is a one in 25 chance that a storm of this design magnitude will occur each year.

50- year storm event. There is a one in 50 chance that a storm of this design magnitude will occur each year.

Subwatersheds. A section of a watershed which is the area drained by (or contributing water to) a stream, lake, or other body of water.

Threatened and endangered species. Any species of fish, wildlife, or plant that is listed as threatened or endangered by the U.S. Fish and Wildlife Service.

Traditional cultural property (TCP). A property associated with cultural practices or beliefs of a living community that are rooted in that community's history or are important in maintaining its cultural identity. Traditional cultural properties are ethnographic resources eligible for listing in the National Register of Historic Places.

U.S.C. *United States Code*. Contains the general and permanent laws of the United States.

Visitor use. Visitor use of a resource for inspiration, stimulation, solitude, relaxation, education, pleasure, or satisfaction.

Wetlands. Lands including swamps, marshes, bogs, and similar areas, such as wet meadows, river overflows, mud flats, and natural ponds.

Wilderness area. An area officially designated as wilderness by Congress. Wilderness areas will be managed to preserve wilderness characteristics and shall be devoted to "the public purposes of recreation, scenic, scientific, educational, conservation, and historical use."

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APPENDIX A

**SETTLEMENT AGREEMENT AND
MEMORANDUM OF AGREEMENT**

SETTLEMENT AGREEMENT

FILED
CLERK, U.S. DISTRICT COURT

30 MAY 01 PM 1:47

DISTRICT OF UTAH

Department of the Interior,

DEPUTY CLERK

This Settlement Agreement ("Agreement") is entered into by and between the United States of America ("United States"), on behalf of the United States Department of the Interior, and the National Park Service, Garfield County, Utah (the "County"), the State of Utah (the "State"), the National Parks Conservation Association ("NPCA") (collectively, the "Parties").

WHEREAS, the Parties have been engaged in litigation concerning a one-mile portion of the Burr Trail within Capitol Reef National Park (the "Park"), in Civil Action No. 2:96-CV-450J, United States District Court, District of Utah, Central Division (the "Burr Trail Litigation");

WHEREAS, on October 24, 2000, the Court issued its Memorandum Opinion and Order ("District Court's Order") which sets forth the relationship between the United States' authority and the County's right-of-way, pursuant to § 2477 of the Revised Statutes of the United States, 43 U.S.C. § 932 (repealed 1976), and the characteristics of these governments' correlative rights concerning Burr Trail through the Park;

WHEREAS, the County and the State would like to make certain improvements to the Burr Trail through the Park from the Post to the east boundary of the Park (the "One Mile Segment");

WHEREAS, the Parties desire to confirm a mutually agreeable procedure, in conformance with the District Court's Order, the National Environmental Policy Act, as well as other legal requirements, for addressing improvements which the County and the State desire to make to the One Mile Segment;

WHEREAS, the County asserts that the First and Fifth Causes of Action set forth in its Counterclaim, dated January 3, 1997 ("County's Counterclaim"), are the only causes of action which were not resolved by the District Court's Order and which the County continues to pursue; and

WHEREAS, the Parties desire to resolve the County's Counterclaim amicably and without further litigation.

NOW, THEREFORE, in consideration of the mutual covenants, conditions and agreements set forth herein, the Parties hereby agree as follows:

1. Memorandum of Agreement Concerning Process for Addressing County and State's Desired Improvements to the One Mile Segment. Concurrently with the execution of this Agreement, the Park Service, the County, the State and NPCA shall execute the Memorandum of Agreement, attached hereto as Attachment 1 ("MOA"), which formalizes a cooperative process for addressing currently proposed improvements the County and the State would like to make to the One Mile Segment, including identification of the proposed improvements, conceptual design, preliminary design and environmental compliance, final design, construction and supervision. Under the terms of the MOA, within 30 days of the Park Service's completion of the conceptual design plan, the County and the State will pay the Park Service the sum of \$25,000 for use in completing preliminary design, including the collection and analysis of the additional data necessary to carry out environmental compliance, as well as for revegetation of the hillside on the eastern entrance of the Park.

2. Dismissal of County's Counterclaim. Concurrently with the execution of this Agreement, the Parties shall execute the Stipulation of Dismissal, attached hereto as Attachment 2 ("Stipulation"), which provides for dismissal of the County's Counterclaim pursuant to Rule 41(a)(1) & (c) of the Federal Rules of Civil Procedure. Upon receipt of fully executed originals of this Agreement, the MOA and the Stipulation, the County shall file the Stipulation with the Court.

3. Satisfaction of Damages and Costs. In consideration of the County's performance of the covenants contained in paragraph 1 (execution of MOA and payment of \$25,000) and paragraph 2 of this Agreement (execution and filing of Stipulation of Dismissal), the United States agrees that the County has satisfied the Order of the Court to pay damages, i.e., the amount, not to exceed \$6,840, of the actual cost of revegetation of the hillside at the eastern entrance of the Park, and agrees to forgo filing a bill of costs in this action.

4. Finality of District Court's Order. The Parties agree that, other than as provided by paragraph 3, nothing in this Agreement affects the relief granted by the District Court's Order. The Parties agree that, the District Court's Order having resolved the claims of the United States and the National Parks and Conservation Association, the State having agreed to dismissal of its Counterclaim during the December 19, 2000 status and scheduling conference, the filing of the Stipulation dismissing the County's Counterclaim is intended by the Parties to resolve all pending claims in this litigation and to make the District Court's Order a final appealable order.

5. No Third Party Rights. This Agreement shall not be construed as creating any right or benefit, substantive or procedural, enforceable at law or in equity by any person or entity not a party to this Agreement against the United States, the County or the State, their agencies, officers or any other person.

6. Reservations. Nothing in this Agreement or in the documents implementing the Agreement, i.e., the MOA and the Stipulation, shall be construed or offered in evidence in any proceeding as an admission or concession of wrongdoing or liability in connection with the County's Counterclaim. This Agreement is executed solely for the purpose of compromising ✓ and settling the County's pending Counterclaim and to confirm a mutually agreeable procedure for addressing improvements which the County and the State desire to make to the One Mile ✓ Segment, and nothing in this Agreement shall be construed as precedent. Nothing in this Agreement shall be construed to deprive a federal official of authority to revise, amend or promulgate regulations. Nothing in this Agreement shall be construed to commit a federal official to expend funds not appropriated by Congress.

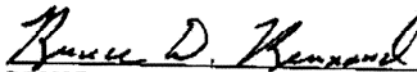
7. Mutual Covenants of Authority. The Parties represent and acknowledge that each of the undersigned is authorized to execute this Agreement and the Stipulation on behalf of the party they represent, and that the indicated signatories of the MOA are authorized to execute the MOA on behalf of the Park Service, the County, the State and NPCA, respectively.

8. Severability. The provisions of this Agreement shall be interpreted to be severable and, if any term or portion of this Agreement shall be determined to be unlawful or otherwise unenforceable, the remainder of the Agreement shall remain in full force and effect.

9. Effective Date. This Agreement shall become effective upon execution by all of the Parties.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the dates set forth below.

UNITED STATES OF AMERICA (including its
agencies the United States Department of the
Interior and the National Park Service)



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Dated May 30, 2001

GARFIELD COUNTY, UTAH

RONALD W. THOMPSON
Thompson & Associates
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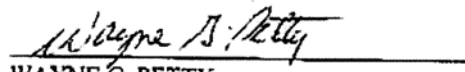
Dated _____

STATE OF UTAH


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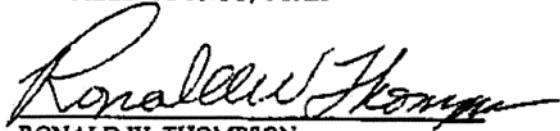
Dated 5/30/01

NATIONAL PARKS CONSERVATION
ASSOCIATION


WAYNE G. PETTY
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(801) 521-0250

Dated 30 May 2001

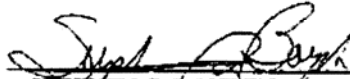
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ASSOCIATION

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Dated _____

MEMORANDUM OF AGREEMENT

FILED
CLERK, U.S. DISTRICT COURT
30 MAY 01 PM 1:47
DISTRICT OF UTAH
BY: DEPUTY CLERK

This Memorandum of Agreement ("MOA") is entered into by and between the National Park Service (the "Park Service"), Garfield County, Utah (the "County") and the State of Utah (the "State") and National Parks Conservation Association ("NPCA") (collectively, the "Parties") in order to confirm a mutually agreeable procedure, in conformance with the Memorandum Opinion and Order of the United States District Court for the District of Utah in Civil Action No. 2:96-CV-450J ("District Court's Order"), the National Environmental Policy Act, as well as other legal requirements, for addressing improvements which the County and the State desire to make to the Burr Trail through Capitol Reef National Park (the "Park") from the Post to the east boundary of the Park (the "One Mile Segment").

THE UNDERSIGNED PARTIES MUTUALLY AGREE THAT:

1. Proposed Roadway Improvements. The County and the State have identified certain roadway improvements which they would like to make on the One Mile Segment, as described in Attachment 1, attached hereto and incorporated herein. The Parties agree to address conceptual design, preliminary design and environmental compliance, final design, construction and supervision concerning the proposed improvements as described below.

2. Completion of Conceptual Design by Park Service. Park Service and Federal Highway Administration design personnel will complete a conceptual design plan for the proposed improvements and options concerning those improvements which the Parties have identified. The conceptual design will generally conform to the design guidelines described in the February, 1998 Report of Elizabeth Koreman and Thomas Puto entitled "Engineering &

Landscape Architectural Assessment of the Burr Trail from the Post to the East Boundary," modified, as necessary, by guidance from the 1984 National Park Service road standards.

Subject to availability of appropriated funds, the Park Service will bear the costs of preparing the conceptual design plan and will complete the conceptual design plan within 90 days of execution of this MOA.

3. NEPA Compliance. Upon completion of the conceptual design of the roadway improvement options, the Park Service will carry out necessary environmental analysis in a timely fashion consistent with the District Court's Order. The County and the State shall be Cooperating Agencies in the National Environmental Policy Act ("NEPA"). NPCA shall be provided written notice of the scoping process. The Park Service will be responsible for completing the preliminary design. The Park Service will collect and analyze the necessary data with cooperation and financial assistance from the County and the State. The County and State shall pay the Park Service the sum of \$25,000, within 30 days of completion of the conceptual design plan, to be used to cover some of the costs of preliminary design, as well as the costs of revegetation of the hillside on the eastern entrance of the Park (pursuant to 16 U.S.C. § 3a; 19 U.S.C. § 19jj; 31 U.S.C. § 6505). The Park Service will provide the opportunity for the County, the State and NPCA to review and comment on the preliminary design prior to its completion. Upon completion of the preliminary design and identification of the areas of impact of the various alternatives being considered, the Park Service will analyze the environmental impacts of the alternatives and complete the NEPA process.

4. Implementation of NEPA Approved Activities. Approval of the NEPA decision document will constitute written agreement, pursuant to 36 C.F.R. § 5.7, for the County and the State to proceed with improvements authorized by the decision document consistent with the terms and conditions specified by the decision document. The County and State will prepare construction drawings for improvements authorized in the decision document which conform to the preliminary design as authorized by the decision document. The Utah Department of Transportation and the Park Service may assist in the preparation of these construction drawings. Improvements must be designed and implemented in accordance with principles outlined in National Park Service road standards and exemplified by current procedures and processes in place between the Park Service and the Federal Highway Administration concerning construction and improvement of highways. These procedures and processes include rigorous design, control of work using accepted standards for specifications and construction drawings, as well as standard procedures for monitoring and accepting work in progress. The County and State will provide the Park Service the opportunity to review and comment on draft construction drawings and to ensure that the drawings conform to the decision document and the preliminary design and are in sufficient detail to direct construction of the improvements. NPCA shall also be afforded the opportunity to review and comment on draft construction drawings. NPCA shall provide any comments it may have concerning the draft construction drawings to the other parties within 15 days of receipt of such draft drawings. Within 30 days of receipt of construction drawings, the Park Service will notify the County and State whether the drawings are approved. If the Park Service does not approve the drawings, it shall specifically identify necessary modifications or

additional detail required. The County and State will bear the costs of preparing the construction drawings. Upon approval of construction drawings by the Park Service, the County and State may proceed with construction of the improvements as addressed below.

5. Construction Monitoring and Inspection. The County and State will give the Park Service 30 days notice prior to commencing any construction and thereafter sufficient notice throughout the construction project to ensure that the Park Service has the opportunity to have its inspector present. The Park Service will notify the County and State of the personnel assigned to monitor and inspect construction to ensure that construction is carried out in conformance with the plans and specifications. If construction work is performed by contract, the County and the State shall be responsible for the cost of contract administration. In that event, the Park Service will work through a County or State official with contract authority in carrying out its monitoring and inspection of construction work. All costs of construction shall be borne by the County and State, provided, however, that this provision does not prevent the County and State from using State or Federal grant funds to pay for completion of construction drawings or actual costs of the project.

6. Savings Provision. Nothing in this MOA is intended to repeal, amend or otherwise modify any law or regulation of the United States or the State, whether now in force or hereafter enacted or provided; and the mention of specific restrictions, conditions, and stipulations herein shall not be construed as in any way impairing the general powers of supervision, regulation, and control of the United States or the State.


7. No Third Party Rights: This MOA shall not be construed as creating any right or benefit, substantive or procedural, enforceable at law or in equity by any person or entity not a party to this MOA against the Park Service, the County or the State, their officers, employees or any other person.

8. Enforcement. Any party may enforce this MOA by such administrative and/or judicial means or remedies as may be available.

9. Reservations. Nothing in this MOA shall be construed or offered in evidence in any proceeding as an admission or concession of wrongdoing or liability in connection with the County's Counterclaim. This MOA is executed solely for the purpose of compromising and settling the County's pending Counterclaim and to confirm a mutually agreeable procedure for addressing currently proposed improvements which the County and the State desire to make to the One Mile Segment, and nothing in this MOA shall be construed as precedent. Nothing in this MOA shall be construed to deprive a federal official of authority to revise, amend or promulgate regulations. Nothing in this MOA shall be construed to commit a federal official to expend funds not appropriated by Congress.

NATIONAL PARK SERVICE

Dated 5/25/01


KAREN P. WADE
Director, Intermountain Region
National Park Service

GARFIELD COUNTY, UTAH

Dated May 29, 2001

D. Malloy Bodds
D. MALLOY BODDS
Chairman
Garfield County Board of County Commissioners

STATE OF UTAH

Dated May 30, 2001

Gary B. Doxey
MICHAEL O. LEAVITT
Governor
State of Utah
By Gary B. Doxey, General Counsel

NATIONAL PARKS CONSERVATION
ASSOCIATION

Dated _____

GARFIELD COUNTY, UTAH

Dated _____

D. MALLOY DODDS
Chairman
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STATE OF UTAH

Dated _____

MICHAEL O. LEAVITT
Governor
State of Utah
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NATIONAL PARKS CONSERVATION
ASSOCIATION

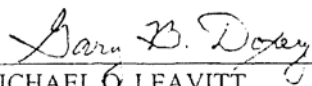
Dated 5/29/01 _____



THOMAS C. KIERNAN
President

STATE OF UTAH

Dated May 30 2001



MICHAEL G. LEAVITT
Governor
State of Utah
By Gary B. Doxey, General Counsel

Proposed Improvements to One Mile Segment of Burr Trail

1. Gravel surfacing -- gravel surfacing of travelway from Mile 0.0 to Mile 0.45, and from Mile 0.85 to Mile 0.9 (approximately 300 feet back from Mile 0.9)

Six inch untreated base course

2. Drainage facilities -- New drainage facilities for four crossings of Sandy Creek and two minor wash crossings between Mile 0.0 and Mile 0.6, and improvement of drainage at existing 24 inch culvert at Mile 0.75

Sandy Creek crossings:

Galvanized steel culverts sized for 10 year event
or

Hardened low water crossings constructed of concrete or asphalt and sized for 10 year event

New culverts for two minor wash crossings:

Galvanized steel culverts sized for 10 year event

Improvement of existing 24 inch culvert at Mile 0.75:

Extending length and possibly installing larger diameter galvanized steel culvert

3. Widening of roadway at overhanging rock -- Widening of roadway width to 20 feet at overhanging rock at Mile 0.6

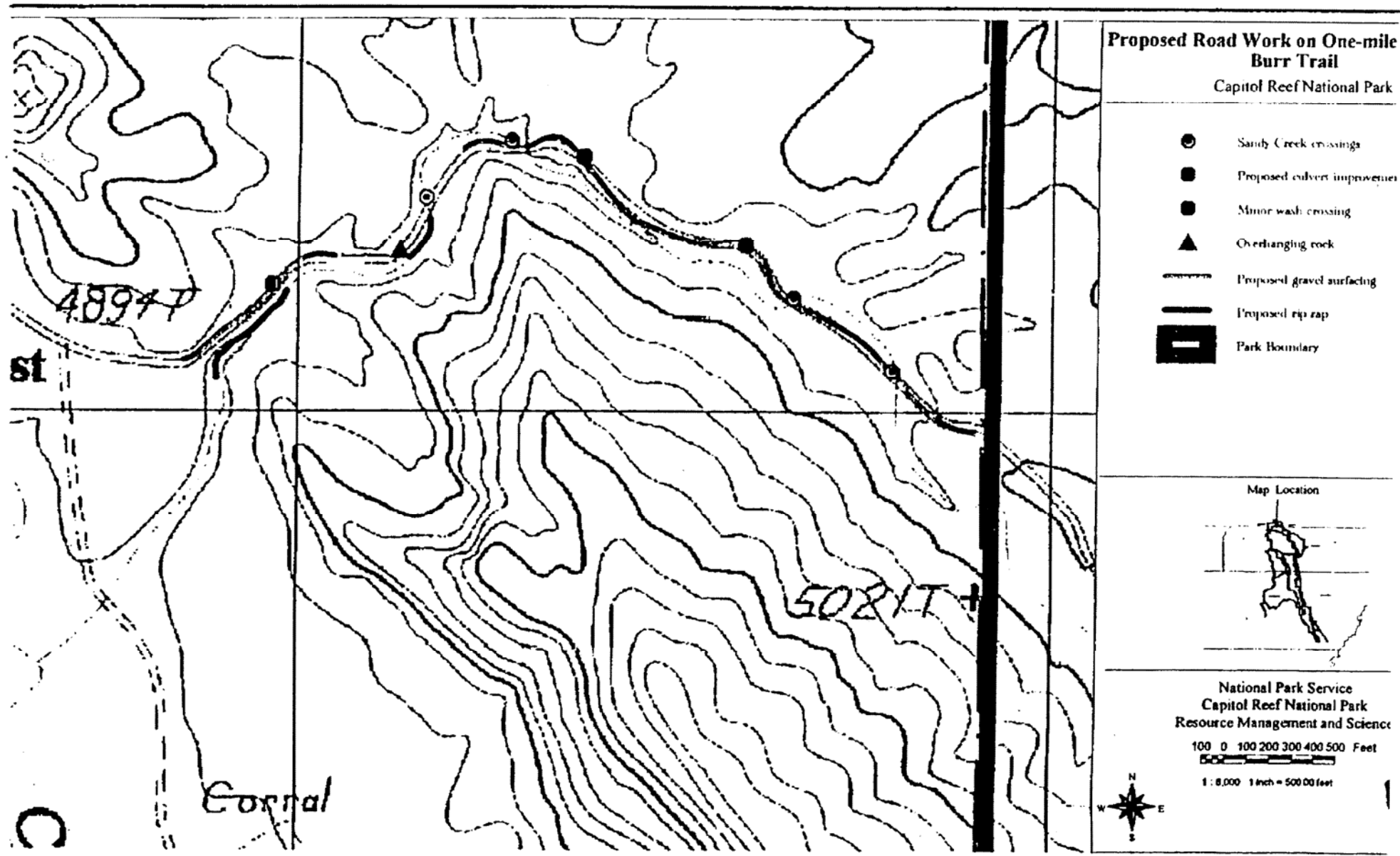
Cutting into rock to accommodate greater roadway width
or

Construction of concrete or rock retaining wall adjacent to Sandy Creek to accommodate greater width

4. Rip-rap -- Addition of rip-rap to bank of Sandy Creek at locations where creek cuts into existing fill slope of road between Mile 0.6 to Mile 0.9

Placing rip rap up to 6 feet up bank

Use of native rock in streambed or previously removed from roadway/rock hauled in from other areas



APPENDIX B

CONCEPTUAL DESIGN PLAN

CONCEPTUAL DESIGN PLAN
Burr Trail Road Improvements

The portion of the Burr Trail Road described below extends from the park's east boundary to The Post (approximately 1 mile). This Conceptual Design Plan relates to roadway improvement proposals made by Garfield County along this portion of the Burr Trail Road. Improvements include gravel surfacing on portions of the road, the installation or improvement of drainage facilities at certain wash crossings, widening of the roadway at an overhanging rock and the installation of riprap along a section of the bank of Sandy Creek adjacent to the road. This Conceptual Design will serve as the basis for undertaking the analysis required by the National Environmental Policy Act (NEPA). Conceptual designs discussed herein will generally conform to the design guidelines described in the February, 1998 Report of Elizabeth Koreman and Thomas Puto entitled "Engineering & Landscape Architectural Assessment of the Burr Trail from the Post to the East Boundary," modified, as necessary, by guidance from the 1984 National Park Service road standards.

Road stabilization is proposed from approximately M.P. 0.0 - 0.45, and from M.P. 0.85 - 0.90. The current bentonite surface is not adequate for all weather travel. Alternatives for the road stabilization could include: A) excavate a portion of the bentonite (blue clay) areas, install fabric barrier and cover with gravel base; B) apply a road stabilizer; C) apply gravel base without a fabric barrier and continue to replace gravel base as needed.

Drainage improvements are proposed at four major Sandy Creek crossing locations and at least two to three minor Sandy Creek tributary wash crossings. While all of the washes are typically dry, all are subject to flooding and associated erosion during flash flood events. Travel across these drainages may be impossible during the flood event itself, and travel may remain difficult for several hours after the flood while the native surface dries. Depending on the severity of any particular flood event, the crossing may remain rough for an extended period until the roadway can be regraded.

Alternatives for the drainage improvements include, A) low water crossings constructed of either concrete or asphalt; B) installation of galvanized steel culverts, or; C) installation of concrete box culverts. Non-reflective surfacing could be used to minimize the visual impact of the galvanized steel culverts. The impacts of each alternative will need analysis at each drainage crossing. The selected alternative may differ from one drainage crossing to the next.

A low spot in the road has developed at approximately M.P. 0.43 due to the current slope of the road surface and subsequent drainage channelization. The bank at the outlet on the south side of the road is being eroded. Alternatives for correction of this problem include regrading the road, installing a check dam at the outlet and rock riprap the outlet slope channel.

An overhanging rock extends above the road surface at M.P. 0.6, causing larger vehicles to move toward the opposing lane when travelling in a westerly direction. The existing roadway is narrow at this location (approximately 14 feet wide) and being on a curve with reduced sight distance compounds the problem. The stream channel is immediately adjacent to the toe of the fill slope adjacent to the overhanging rock. Presently, two vehicles traveling in opposite directions cannot safely pass immediately adjacent to the overhanging rock. Alternatives for road widening in this area include A) cutting into the rock to accommodate greater roadway width, or B) constructing a retaining wall along the present stream edge and shifting the roadway toward the stream on fill placed behind the wall. (This alternative was described in detail in the aforementioned Koreman-Puto Report.)

The section of roadway at approximately M.P. 0.75 - 0.85 is located on a tangent of the stream channel near the fill slope edge. Flash flood events cause erosion at the toe of the fill slope that may eventually undermine the road surface. Alternatives for bank stabilization include A) use rock within the adjacent area or rock gathered from more distant sources as riprap, placed at a sufficient height up to 6 feet along the base of the fill slope, or B) construct retaining walls along the base of the fill slope.

Additional alternatives for each of the improvement proposals may be developed during the scoping that is conducted in conjunction with the NEPA compliance process. Similarly, mitigation measures that might reduce the impacts of any of the alternatives studied will be considered during the compliance process.

APPENDIX C

SCOPING BROCHURE



Capitol Reef National Park

Burr Trail Road Modifications

Capitol Reef National Park

Environmental Impact Statement



Capitol Reef National Park

National Park Service
U.S. Department of the Interior



BURR TRAIL ROAD MODIFICATIONS

Environmental Impact Statement

Superintendent's letter

Dear Participant:

The National Park Service, the State of Utah, and Garfield County are reviewing proposed modifications to portions of the Burr Trail (Boulder-to-Bullfrog Road) within Capitol Reef National Park. Capitol Reef National Park is preparing an environmental impact statement (EIS) to evaluate potential impacts to the natural and human environment resulting from actions that would modify segments of the Burr Trail in the park.

An important element of the EIS process is public participation. Therefore, your input on issues and concerns about the project is needed. This brochure describes the road modification project and provides an opportunity for you to comment.

As the Superintendent of Capitol Reef National Park, I invite you to participate in the completion of the Burr Trail Road Modifications EIS.

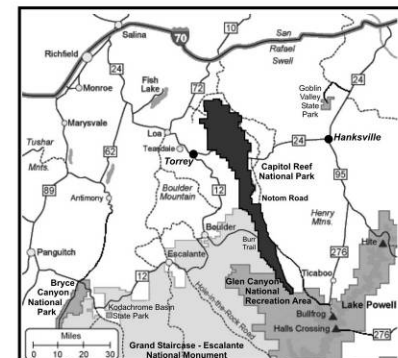
Sincerely,
Albert J. Hendricks
Superintendent



PARK LOCATION

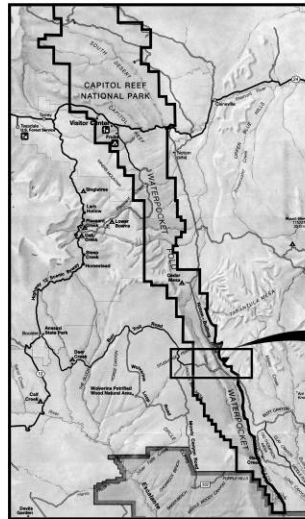
Capitol Reef National Park is in south central Utah. Park Headquarters is in Fruita, approximately 37 miles west of Hanksville and 11 miles east of Torrey, Utah. The area is known for its sedimentary formations, cliffs, monoliths, and an abundance of canyons. The park is known for significant geologic features such as:

- Waterpocket Fold, the largest exposed monocline in North America.
- Colorful cliffs, sometimes known as the “Sleeping Rainbow.”
- Cliff-top washes that erupt into spectacular waterfalls following intense summer thunderstorms.
- Cathedral Valley and narrow canyons providing evidence of geologic forces at work.
- Striking scenic views and the opportunity for quiet and solitude on the undeveloped landscape of the Colorado Plateau.

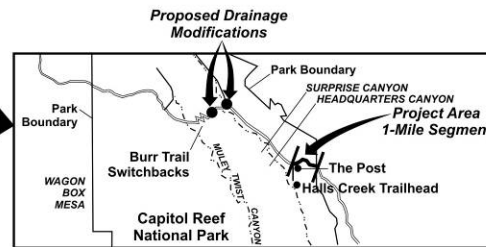


Park Location

PROJECT AREA



The project area includes a one-mile segment of the Burr Trail extending from the eastern boundary of the park to The Post, a drainage at the Burr Trail/Hall's Creek Crossing, and a drainage crossing the road near the base of the switchbacks in Burr Canyon.



Burr Trail Project Area

PROJECT BACKGROUND

The Boulder-to-Bullfrog Road (Burr Trail) is a 66-mile backcountry road that passes through lands administered by two federal agencies, the National Park Service and the Bureau of Land Management. About 8.4 miles of this road pass through the southern portion of Capitol Reef National Park. Under Revised Statute 2477, Garfield County, Utah owns a right-of-way along the road. Since the 1970s and early 1980s, the National Park Service has evaluated various proposals to pave, construct an all-weather road, and other types of alternatives designed to modify the segment of the Burr Trail within the park. The most recent environmental assessment, prepared in 1993 by the National Park Service and Bureau of Land Management, evaluated the impacts of road modifications within the limits of National Park Service and Bureau of Land Management lands.

Garfield County, Utah has proposed road modifications to the Burr Trail within Capitol Reef National Park. Under the provisions of the National Environmental Policy Act (NEPA) of 1969, (as amended), the National Park Service is preparing an environmental impact statement (EIS) to evaluate the effects of that proposal.

The EIS will evaluate potential impacts to the natural and human environment resulting from the proposed road modifications. This effort will identify and evaluate alternatives for proposed road modifications that may include road realignment, resurfacing, and stabilization or drainage modifications along a 1-mile segment of the road.

Two additional separate drainage modifications outside this 1-mile segment of the Burr Trail will address drainage concerns at the Burr Trail/Hall's Creek crossing and a drainage crossing the road near the base of the switchbacks in Burr Canyon. Installation of a National Park Service proposed cattle guard at the park boundary would also be considered.

PURPOSE AND NEED

The proposed action would modify a one-mile segment of the Burr Trail in Capitol Reef National Park and address drainage concerns at the Burr Trail/Hall's Creek crossing and at a drainage crossing the road near the base of the switchbacks in Burr Canyon. The one-mile segment of the Burr Trail that would be modified extends from the eastern park boundary to The Post. National Park Service management direction within Capitol Reef National Park is currently set by the Final Environmental Impact Statement/General Management Plan/Development Concept Plan (GMP) that was approved in March 2001. Based upon this management direction, Capitol Reef National Park has the following objectives in connection with the proposed action:

- Provide for safe travel on an all-weather, maintained, variable-width, unpaved road of gravel and native surfacing, acknowledging that the road may be occasionally and briefly impassible depending on localized weather conditions,
- Retain the winding nature and adventuresome character of the Burr Trail through Capitol Reef National Park, and
- Protect the natural and cultural resources of the park.

Garfield County has identified safety, stabilization, and improved drainage as the purpose of their proposal. Because alternatives may be considered in one compliance process that alter the direction established in an earlier document, an alternative may be selected in the Record of Decision (ROD) resulting from this process that differs from these stated objectives, effectively amending any earlier ROD(s) that set

ALTERNATIVES

Alternatives to be considered will include no-action and alternatives that will be developed from a selection of potential treatments to be applied at each location where modification work is proposed. Additional alternative treatments may be considered from proposals developed during the scoping process. The proposed action may include selections from each alternative regarding realignment, resurfacing, stabilization, and drainage modification. Installation of a National Park Service proposed cattle guard at the park boundary will also be considered.

The road modifications would keep the driving experience much as it is today. The conceptual design elements associated with the modifications would include:

- Stabilization of the road surface using gravel base material at locations where the current bentonite surface makes the road inadequate for all weather travel.
- Installation or improvement of drainage facilities at wash crossings (potential alternative solutions to drainage concerns include low water crossings, properly-sized steel culverts, or concrete box culverts).
- Widening the road at milepost 0.6 or altering the size of the overhanging rock at that point to accommodate two-way vehicle traffic.
- Installation of riprap along the northern bank of Sandy Creek, adjacent to the road, from approximately milepost 0.75 to 0.85.

WHAT COMES NEXT

Once the information received from scoping is reviewed, a draft environmental impact statement (EIS) will be prepared. Its availability will be announced with news releases and a *Federal Register* notice. After a 60-day public review period, the final EIS will be announced in the same way. Public meetings are scheduled during the 60-day draft EIS review period. After a 30-day no action period, a record of decision (ROD) will describe the National Park Service decision.

RESOURCE ISSUES/TOPICS

Internal scoping identified the following issue/topics:

- Alterations of geologic features, land forms, and terrain
- Biological soil crusts
- Soils
- Vegetation
- Wildlife
- Threatened and endangered species
- Surface water
- Historical, archeological, and ethnographic resources
- Visitor use, safety, and experience
- Wilderness values
- Air quality
- Natural soundscapes
- Park operations